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Computer Science With Application Software

THIRD EDITION

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Preface

Keyboard: *Computer Science with Application Software* (Third Edition); a series of eight books for Classes 1 to 8; is a concerted effort to impart knowledge about computers using an interesting and interactive approach. Computer science is a fascinating and wide-ranging subject with limitless opportunities for creativity and application. Today computers influence every facet of our lives. In the highly competitive world we live in, a basic working knowledge of computers is essential for success. There is, therefore, a great desire to introduce computer education to children at an early age. There should also be enough room for them to explore and create on their own.

This series introduces the subject in language that is simple and direct. Technical vocabulary is introduced where necessary and all such terms are defined at the end of each chapter. Comic strips, icons, engaging characters, and illustrations make the learning process an enjoyable experience.

The content is based on extensive feedback from teachers, and on the latest trends in computer education. Particular care has been taken to update facts and figures, and to include information about the latest devices in the market.

The focus of Books 1 to 5 is on learning the basics of computer science; on understanding MS Office 2013 and using KTurtle, as a programming language.

Books 6 to 8 move beyond elementary concepts and introduce Publisher 2013 (Flash Version CS3), HTML 5, Dreamweaver (Version CS3), Photoshop (CS3), Microsoft Small Basic, and Visual Basic (Version Microsoft Visual Basic 2013 Express). This edition also gives them the potential opportunity for hands-on experience of sound and video editing through the programmes, Audacity and Lightworks.

With a strong emphasis on developing 21st century computer skills: critical thinking, communication, collaboration, and creativity—this edition of *Keyboard: Computer Science with Application Software* will prove to be invaluable for students and teachers.

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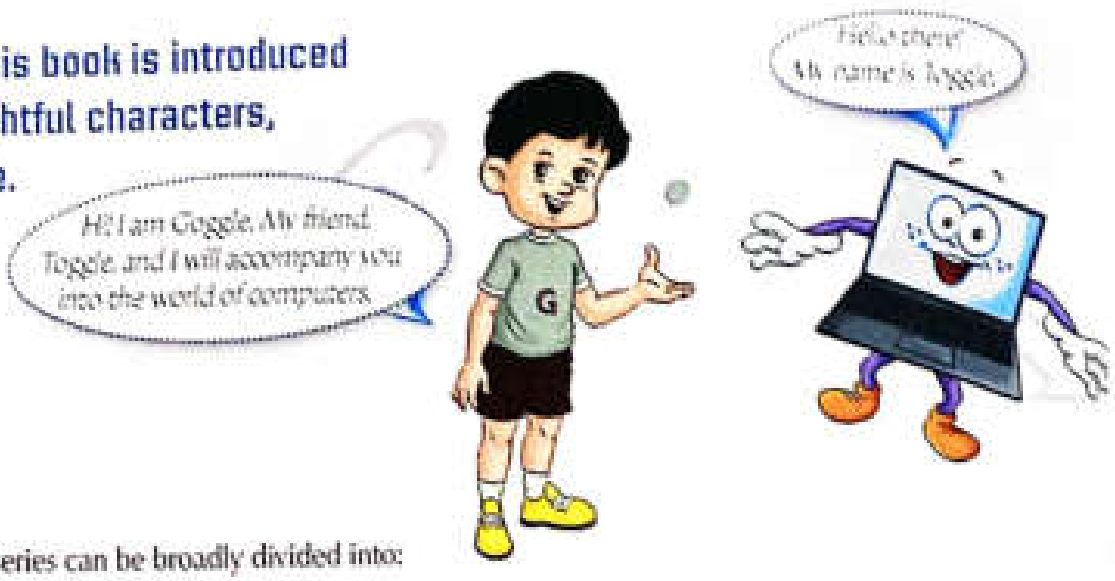
Key Features

Each chapter in this book is introduced through two delightful characters, Goggle and Toggle.



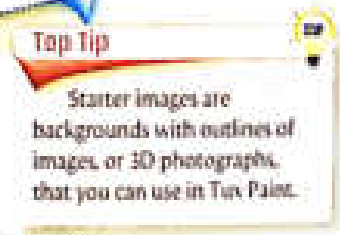
The key features in this series can be broadly divided into:

- LEARNING TOOLS
- ASSESSMENT TOOLS
- FOR TEACHERS the course includes teacher's notes within the Student's Books, comprehensive Teaching Guides, and an exciting new **downloadable digital resources.**

Learning Tools

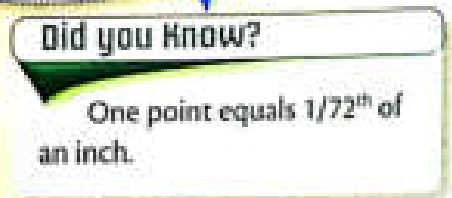
Fast Forward *provides keyboard shortcuts for menu commands, to help users save time while performing routine operations.*

Top Tip *gives students useful tips on the options available for different operations.*



Practice Time, *included after every major topic, provides situational exercises along with their solutions to reinforce learning.*

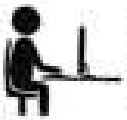
Did You Know? *provides interesting information on the topic being covered.*



Assessment Tools

Exercises
contain both objective and descriptive questions, and test learners on all aspects of conceptual theory covered in a chapter.

Group Project
encourages students to collaborate and exchange ideas on common project.

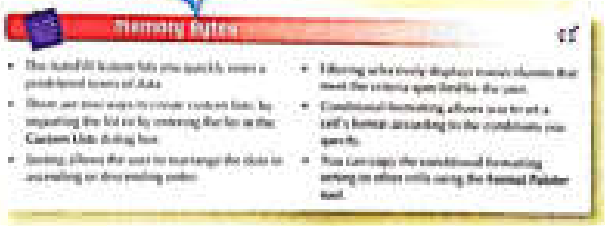


In the Lab
challenges students to apply the concepts learned to real-life situations.

Worksheets
unit-based and conforming to the continuous assessment recommendations of various boards.

Computer Manners *presents computer etiquette in a child-friendly manner using cartoon strips.*

Memory Bytes *summarises each chapter for a quick recapitulation of all the topics in that chapter.*



FOR TEACHERS

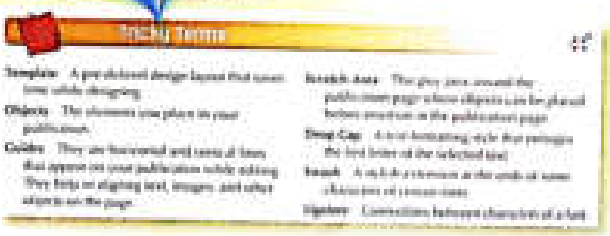
- **The downloadable teaching resource** is an exciting new digital teaching aid that offers reinforcement and assessment materials.
- The **Test Generator** is an innovative, easy-to-use assessment tool. It has been designed to aid teachers in creating a variety of test papers from an extensive pool of questions for effective evaluation.

The course is also supported by:

(a) **Teacher's Notes** within the Student's Books that provide important information and suggestions on creative approaches to a chapter or a topic.

(b) **Teaching Guides** that include lesson plans, the complete answer key to the Student's Books, worksheets, and test papers.

Tricky Terms *at the end of each chapter provides a list of important terms along with their definitions for easy recall.*



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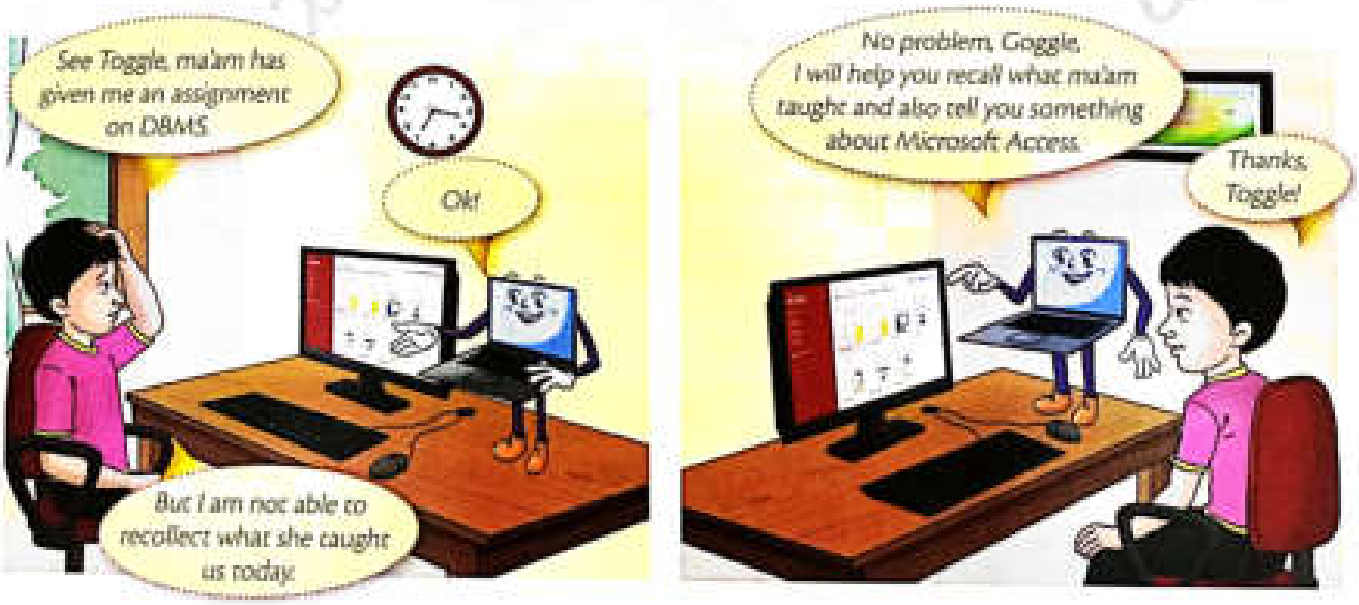
Contents

Chapter 1

Introduction to Access 2013



A Database Management System (DBMS) arranges all your data in an orderly manner so that you can retrieve information easily whenever you need it. It is like keeping files in a drawer of a cupboard. In this chapter, you will learn about databases and Access 2013, a popular database management application.

In this Chapter

- What is a Database?
- Database Management System
- Introducing Access 2013
- Creating a Database
- Setting Data Types
- Opening an Existing Database
- Modifying Table Design
- Totaling, Sorting, Filtering and Searching Data

WHAT IS A DATABASE?

Every organization has to maintain data pertaining to its business, employees, and other relevant information. For example, a school maintains data on their students' personal details, their academic and co-curricular achievements, and on the details of their teachers and administrative staff.

This data needs to be available to a user easily and promptly. This data needs to be updated regularly and thus, it is preferable to organise the data into a database.

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A database is simply an organised collection of data. Databases arrange information in such a way that any specific piece of information can be easily accessed.

Elements of a Database

There are four different types of databases:

1. Hierarchical 2. Network 3. Relational 4. Object-oriented

Of these, the **relational database** model is the most popular. A relational database stores data in the form of **tables**. A table organises data into rows called **records** and columns called **fields**. Records and fields together make a table. Each **record** defines information about one entity and gives complete details about it. Each **field** defines information of a certain type for all records. Tables, fields, and records form the **elements** of a relational **database**.

For example, see Table 1.1 called EmployeeDetails showing fields and records.

Table 1.1 EmployeeDetails table with fields and records

	Fields			
	EmpNo	**EmpName**	**EmpTele**	**EmpEmail**
Records	E101	Raza Amir	9899####78	Raza_amir@gmail.com
	E102	Beenish Javid	99##23####	Beenish_Javid@yahoo.com

It has two records that contain information about two entities, Raza Amir and Beenish Javid. It has four fields that contain information of the same type for these two entities. For example, the field EmpEmail contains the email address of each entity.

The other two elements that we are going to learn about in this chapter are **keys** and **data types**.

DATABASE MANAGEMENT SYSTEM

Database management involves creating, modifying, deleting, and adding data in a database. The software that performs these functions is called a **Database Management System** (DBMS). Access, MySQL, and Oracle are some popular DBMS software.

Functions of a DBMS

When a lot of data is stored in various files, there is a possibility of **data redundancy**, **data inconsistency**, **incorrect data**, etc. A DBMS provides an easy solution to all these problems as it allows centralised control over data. A DBMS provides the following benefits:

Reduces data redundancy **Data redundancy** means **duplication of data**. For example, a school may have two separate files to maintain student records, one with students' addresses

and the other with their phone numbers. A DBMS integrates these two files into a single database file. Now, the data is stored at a single place in the database, hence, data duplication is reduced or virtually eliminated.

Controls data inconsistency Suppose student addresses are stored in two files, 'Bus Information' and 'Fees Information'. A student informs the bus in-charge about a change in address. So, the new address will be reflected in the 'Bus Information' file but the same change may not be made in the 'Fees Information' file. Hence, the two files would have two different addresses for the same student. This will not happen in a properly maintained database. Ideally, there will be no redundancy and any change in one file will be automatically updated everywhere else.

Facilitates sharing of data Different users can use the same database to extract data based on their individual needs.

Enforces standards A DBMS makes it possible to apply certain standards in data representation. These standards could be an organization's own standards or national/international standards.

Ensures data security In a DBMS, the database administrator has complete control over the database and ensures that the data is accessible only to authorised people. Different categories of users can be given different permissions. Some may have the authority to only view the data, while others may have the authority to modify data too.

Maintains integrity A DBMS supports database integrity. Suppose a database contains information about the marks scored by the students in an examination. If the maximum marks are 100, you can have rules to make sure that the database accepts numbers only in the range of 0 to 100.

Did you Know?

The standards may be defined for names and formats of data elements, display formats, report format, etc. Standards in a centralised database environment are applied more easily than in an environment where each group has control over its own files.

INTRODUCING ACCESS 2013

Microsoft Access is one of the popular DBMS applications. Its latest version is **Access 2013**. It is a relational database, where data is stored in the form of tables. A relational database uses multiple tables to organise data and creates relationships between these tables to retrieve data. Each specific piece of information in a table is called a **value**. A value is located at the intersection of a column and a row. The total number of values in a table is the number of rows multiplied by the number of columns.

Records in a table are arranged according to a common reference value known as the **primary key** or the **key field**.

A **primary key,** is one (or more) column(s) whose values uniquely identify every row in a table. The value in the primary field is different for every record and thus helps to identify records

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uniquely. For example, in a table containing information about students of Class VIII, the column RollNo behaves as the primary key as every student has a unique roll number.

Elements of Access 2013

Access 2013 includes a new user interface (Fig. 1.1) as compared to the previous version. The elements are:

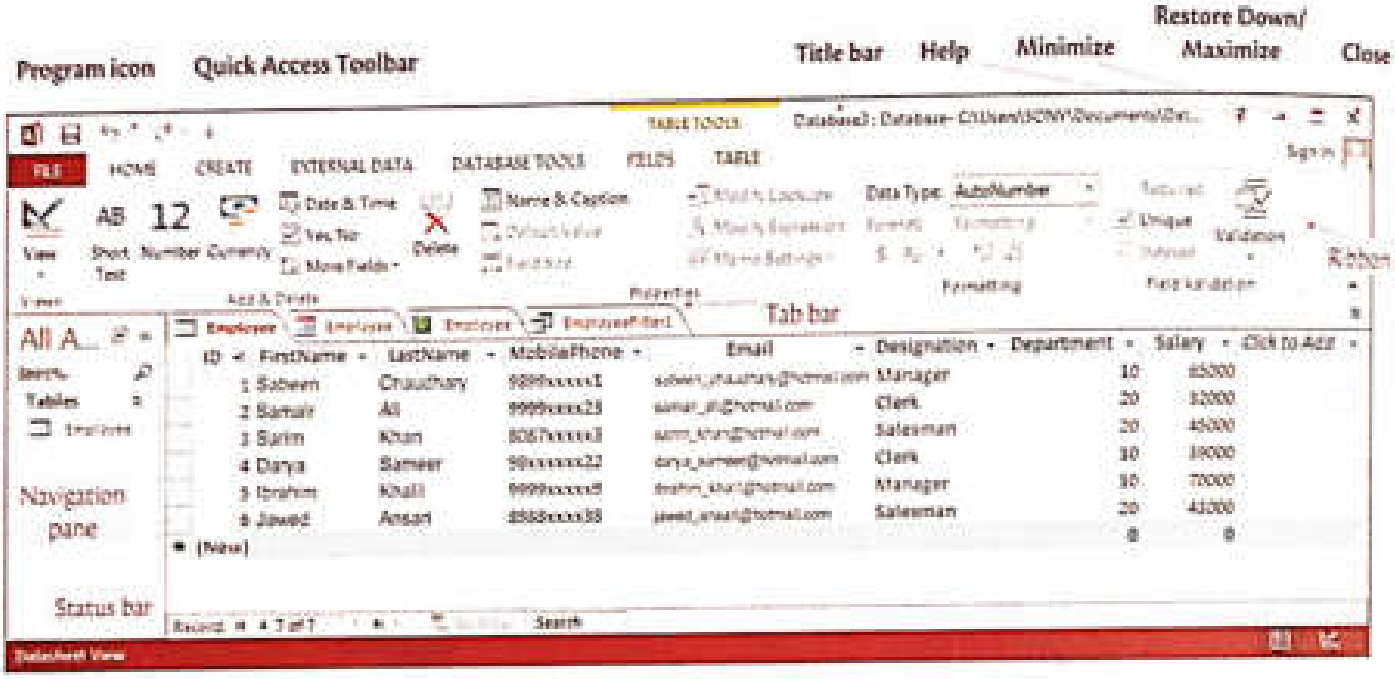

Fig. 1.1 **Access 2013** Interface

Title bar It appears at the top of the window and displays the name of the active database and by default, displays the path to the folder where it is stored. It also provides tools for managing the program and the program window.

At the left end of the title bar is the **Program icon**. When you click this icon, a list of commands with the option to **Restore**, **Move**, **Size**, **Minimise**, **Maximise**, and **Close** is displayed (Fig. 1.2).

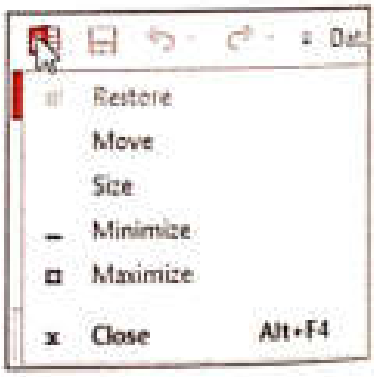

Fig. 1.2 **Program icon** menu options

To the right of the Access **Program icon** is the **Quick Access Toolbar**. By default, the **Quick Access Toolbar** displays the **Save**, **Undo** and **Redo** buttons. You can customise it to display more commands of your choice (Fig. 1.3).

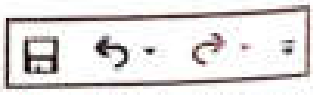

Fig. 1.3 **Quick Access Toolbar**

At the right end of the title bar, there are four buttons:

The **Help** button opens the Access help window where you can search for any information on Access 2013.

Minimise, **Restore/Maximise**, and **Close** buttons are on the right side of the bar (Fig. 1.4).

Fig. 1.4 Control buttons

Ribbon This is the area below the Title bar. The top of the ribbon has a set of tabs. Clicking the tab displays its associated set of commands. Commands are organised into groups. The main tabs are **FILE**, **HOME**, **CREATE**, **EXTERNAL DATA**, and **DATABASE TOOLS**.

FILE tab It has commands that help manage Access and Access databases. Click the **FILE** tab located at the extreme left of the ribbon to open the **FILE** menu and the **Backstage** view.

Commands available in the **FILE** menu are **Info**, **New**, **Open**, **Save**, **Save As**, **Print**, **Close**, **Account** and **Options**. You can go back to the database and the ribbon by clicking the **back arrow** (Fig. 1.5).

Fig. 1.5 **FILE** menu

Navigation Pane This is the area on the left of the window and it displays your database objects. When you open a database or create a new one, the names of the database objects appear in the **Navigation pane**.

Tabbed document Database objects appear as tabbed documents. The tabs can be seen on the tab bar.

Status bar This bar is present at the bottom of the window. It displays information about the current database and includes buttons to change views.

Database Objects

An **object** in a **database** could be any of the following:

Table It stores the data in a database.

Form It lets you enter and display data in a customized format.

Query It retrieves data from one or more tables based on a selection criteria

Report It displays data in an easy-to-read format for printing.

Macro It automates tasks that are performed often.

Module Contains programming statements written in VBA programming language.

We will learn about **tables**, **forms**, **queries**, and **reports** in this class.

Starting Access 2013

To start Access 2013, select **Start** ▸ **All Programs** (Fig. 1.6) ▸ **Microsoft Office 2013** (Fig. 1.7) ▸ **Access 2013** (Fig. 1.8).

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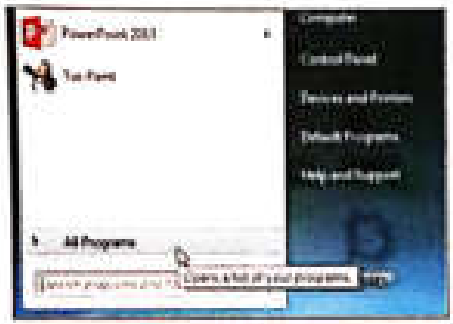

Fig. 1.6 Select **All Programs**

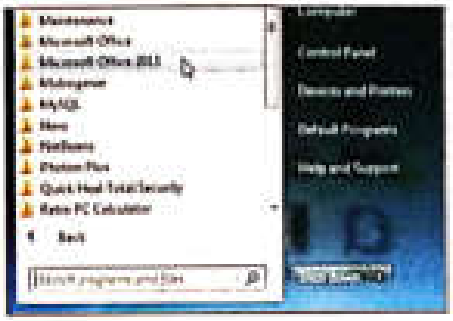

Fig. 1.7 Select **Microsoft Office 2013**

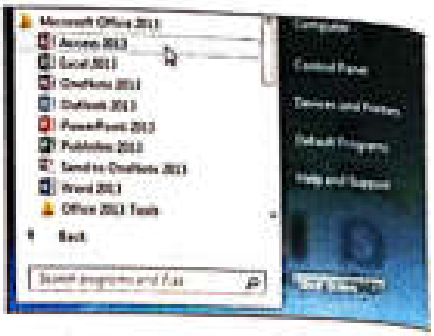

Fig. 1.8 Select **Access 2013**

This will display the start screen of Access 2013 (Fig. 1.9).

CREATING A DATABASE

To create a new database, you can choose an Access template that has various built-in tables, queries, forms, and reports that are ready to use. You can also search online for more templates.

Or

You may create a database from scratch by clicking **Blank desktop database**.

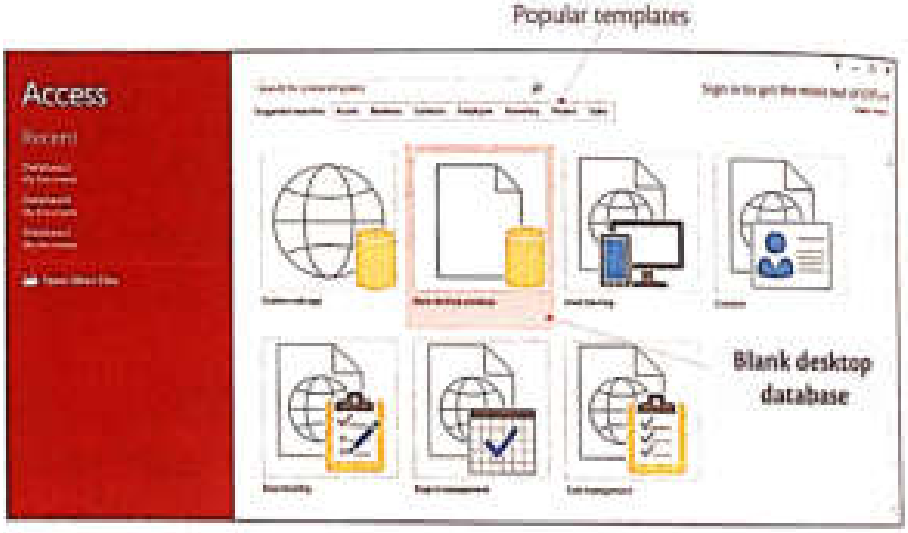

Fig. 1.9 Start screen of **Access 2013**

Creating a Database Using a Template

In order to create a database using pre-defined templates, follow the steps given below:

1. In the Access 2013 start screen, click on, say, **Contacts** in the **Suggested searches** row to display a list of available templates (Fig. 1.10).
2. Select, say, the **Desktop personal contact** template (Fig. 1.11). It displays a description of the template and asks you to enter the name of the database under **File Name**.

   You can either use the default location that Access shows below the **File Name** box, or click the folder icon to select another location.

Fig. 1.10 Gallery of **Contacts** templates

Fig. 1.11 **Desktop personal contact manager** screen

3. Click **Create**.

   Access creates the database and displays the table in **Datasheet** view (Fig. 1.12).

   The Navigation pane displays all the objects.

Top Tip

If Access displays a security warning message in the message bar and you trust the source of the template, click **Enable Content.**

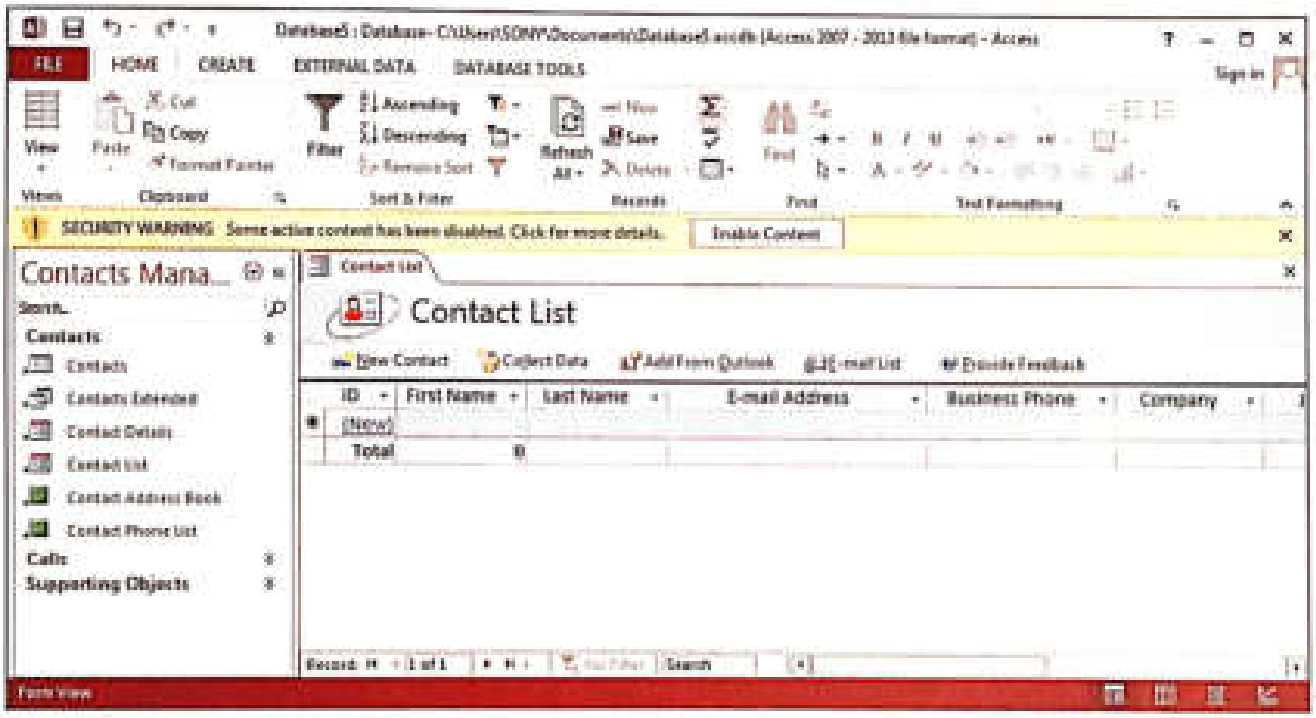

Fig. 1.12 The database file created

Create a Database from Scratch

If none of the existing templates fits your needs, you might start with a blank desktop database. The steps to create a blank database are:

1. Click **Blank desktop database** (Fig. 1.9).
2. Type a name for your database in the **File Name** box (Fig. 1.14). The default name is **Database*n*.accdb** (where n is a numeral in sequence, i.e., 1, 2, 3..... so on).

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3. You can either use the default location that Access shows below the **File Name** box or click the **folder** icon to select another location (Fig. 1.13). Click **Create**.

   You will see a blank table — Table1 — in **Datasheet View** where you can add data (Fig. 1.14).

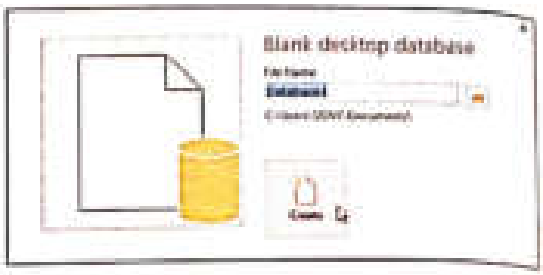

Fig. 1.13 Blank desktop database

   By default, the first field in each new table is an ID field. This is the **primary key**, an entry that will uniquely identify each record in the table. No two records in this table can have the same value for the primary key field. You can also rename it. Let us enter the first record.

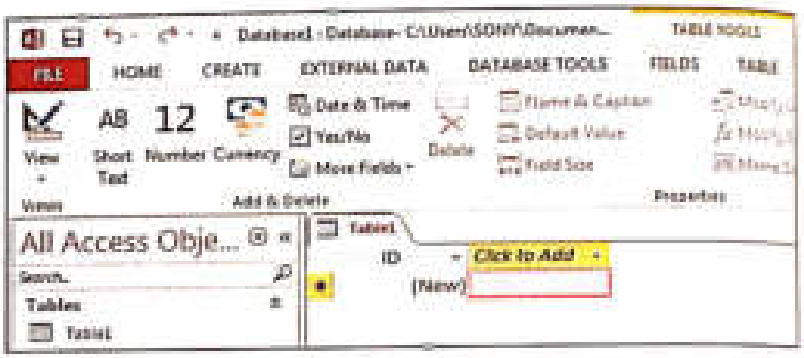

Fig. 1.14 Blank table — Table1 — in **Datasheet** view

4. Select the empty cell below **Click to Add** in the table. Enter **Sonia Khan** and then press the **Tab** key to move to the next field (Fig. 1.15).

   Notice that the icon in the record selector has changed to a pencil to indicate that this record has not been saved yet. The value 1 appears in the **ID** field, the name of the second column has changed to **Field1** and **Click to Add** label has moved to the third column.

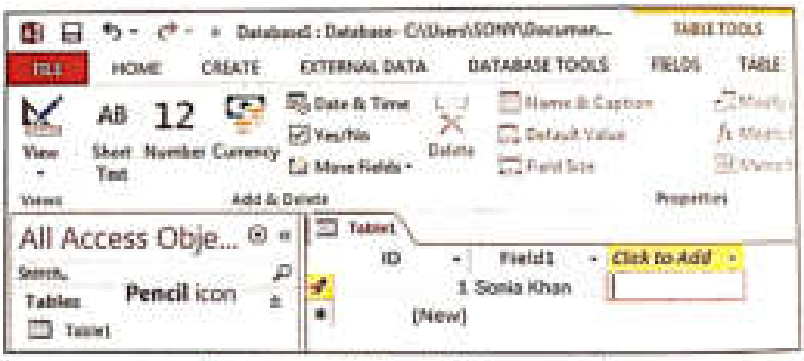

Fig. 1.15 Adding fields to a table

5. Click the pencil icon in the record selector to save the record before you move on.
6. Click the cell below **Click to Add**, and then enter the information shown in the new cell (Fig. 1.16). Press **Tab** after each entry.

   Notice that two tabs appear on the ribbon — **FIELDS** and **TABLE** — under **TABLE TOOLS**.

Top Tip

If you do not save the first record, Access increments the ID value every time you add a new field to the record. For example, if you add seven fields, Access assigns the value 7 to the ID field of the first record. To avoid this problem, you simply click the **Pencil** icon in the record selector after you enter your first value in the first record. This saves the record with the value 1 assigned to the ID field, and subsequent records will be numbered sequentially.

Fig. 1.16 Entering values for the first record

7. Now, rename the field names to some meaningful names. For example, double-click the ID field name and rename it EmpID.
8. Repeat step 7 for the other fields and rename them as shown in Figure 1.17.
9. At any time you can save the table by clicking the **Save** button on the **Quick Access Toolbar**.

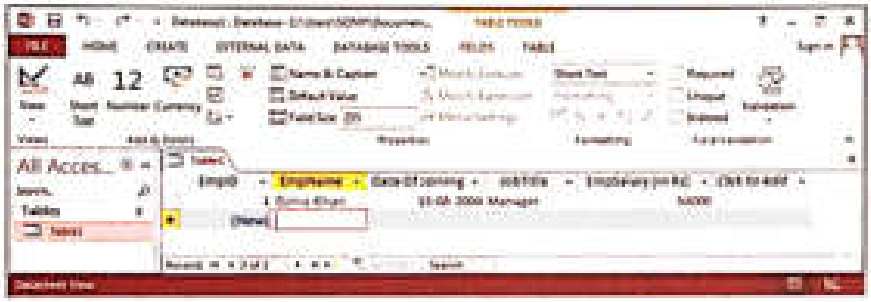

Fig. 1.17 Renamed field names

10. Under **Table Name** enter a name, say, Employees and then click **OK** (Fig. 1.18) to close the table and add it to the **Tables** group in the **Navigation pane** (Fig. 1.19).

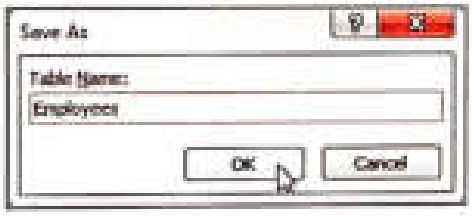

Fig. 1.18 **Save As** dialog box

Fig. 1.19 Employees table added to the Navigation pane

Top Tip

You can rename or delete a table by right-clicking it in the **Navigation pane** and then selecting the required option.

Naming a Field

Rules for naming a field are as follows:

- A field name can be 1 to 64 characters long.
- A field name can include letters, numbers, and some special characters. The underscore (_) sign is allowed and is often used.
- A field name cannot have a period (.), an exclamation mark (!), brackets ([ ]) or the grave accent (`).
- A field name cannot start with a blank space.
- A field name can be in upper, lower, or mixed case.

Did you Know?

You can change the field name at any time even if the table contains data.

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SETTING DATA TYPES

Setting a **data type** for a field helps to control what you can enter in a field. Table 1.2 lists the data types available in Access 2013.

Table 1.2 Data types in Access 2013

Data Type	Description
Short Text	It is used to store text, combinations of text and numbers (like addresses), and numbers that will not be used in calculations (like phone numbers and postal codes). It can store up to 255 characters.
Long Text	It is used to store long text like notes and descriptions. It can store up to 65,535 characters.
Number	It is used for numeric data that will be used in calculations.
Date/Time	It stores date and time values. You can display the dates and times in various formats.
Currency	You can specify various currencies and display them in different formats.
AutoNumber	It stores an integer that increments automatically as you add records. If the table does not have a primary key, then AutoNumber uniquely identifies the records. If you delete a record, its AutoNumber value is not reused, and remaining records are not updated. The ID field in a new table is automatically assigned the **AutoNumber** datatype.
Yes/No	This can have only one of two values, True or False. You can adjust the format setting to display as Yes/No or True/False.
OLE Object	This stores graphics or objects such as a Microsoft Excel worksheet or Microsoft Word document.
Hyperlink	This is a clickable path to a folder on your hard disk, a network location, or a website.
Attachment	This is used to attach a file to a record in the same way you attach a file to an email message.
Calculated	It is used to store the results of a calculation based on other fields in the same table.

When you create a field by entering data in the **Datasheet View**, Access examines the data to determine the appropriate data type for the field. But, if you want to change the data type, do the following:

1. Click the field header whose data type you want to change.
2. In the **Formatting** group of the **FIELDS** tab, click the drop-down menu arrow of the **Data Type** option. Select the required data type from the drop-down list that appears (Fig. 1.20).

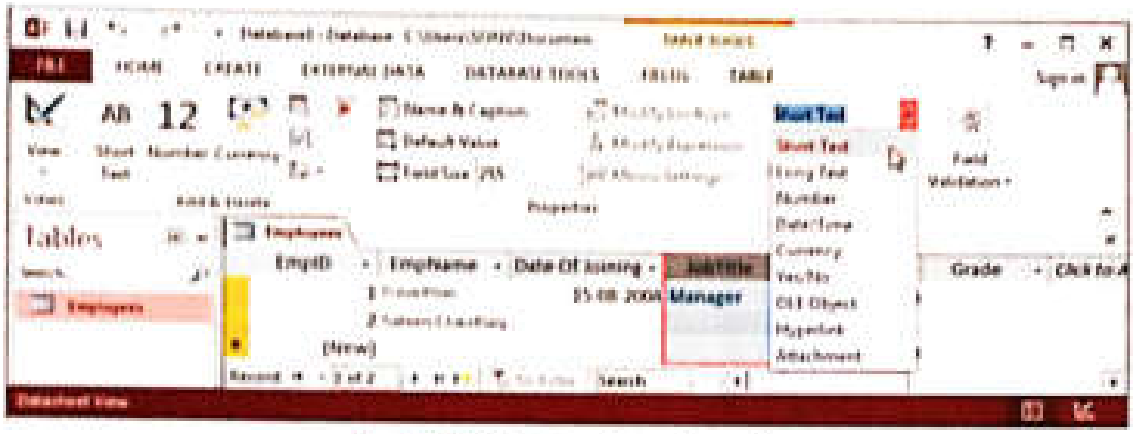

Fig. 1.20 **Data Type** drop-down list

Another method is to select a data type and then add data to the field. Click the drop-down menu arrow of the **Click to Add** field and select a data type (Fig. 1.21). Now, add data to this field.

Fig. 1.21 **Click to Add** drop-down menu

OPENING AN EXISTING DATABASE

You can open an existing database in Access 2013 by following the steps given below:

1. Select **FILE ▸ Open**.
2. Select **Computer** in the center pane and then click on **Browse** in the **Open** page that appears. You can open a file by selecting either **Recent**, **OneDrive**, or **Computer** (Fig. 1.22).

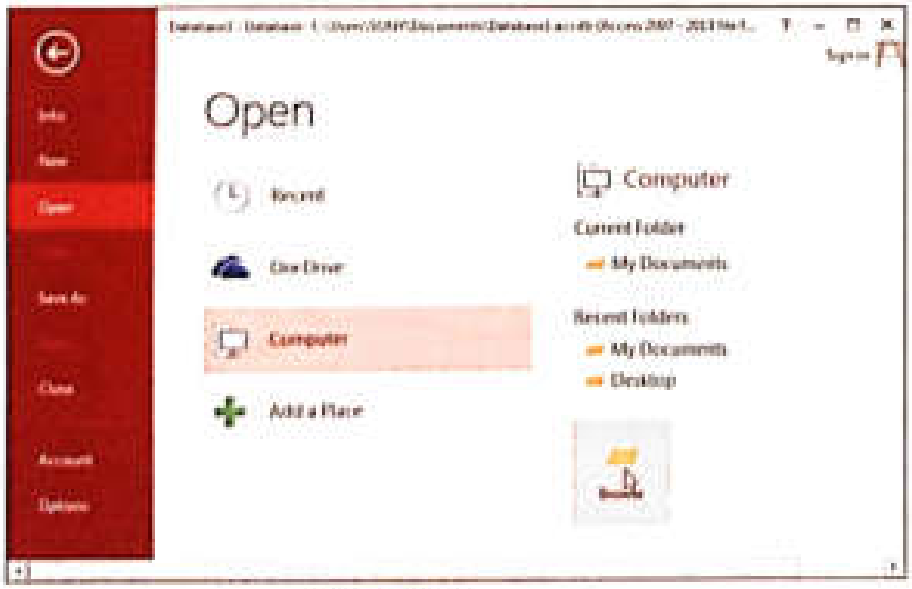

Fig. 1.22 **Open** screen

3. Choose the drive and folder that contains the database in the **Open** dialog box that appears.

   Select the required database and then click on the **Open** button.

MODIFYING TABLE DESIGN

Sometimes you may need to change the table design after creating a table. In **Datasheet View** you can add, delete, rename, move, and change the data type of a field (Fig. 1.23).

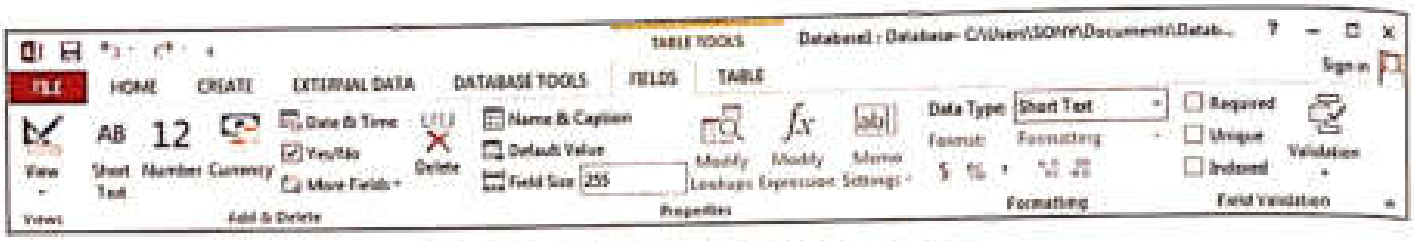

Fig. 1.23 **FIELDS** tab under **TABLE TOOLS**

Add or Delete a Field

1. Click the column header to the right of which you want to add a field with the required data type.

2. Click the required data type button in the **Add & Delete** group on the **FIELDS** tab. A new field named Field1 is inserted. If you want to delete a field, click the field to select it and then click **Delete** in the **Add & Delete** group. Click **Yes** in the message box that appears, to permanently delete the field(s).

Move a Field

1. Click the column header that you want to move.

Fig. 1.24 Drag to move field

2. Drag it to the left or right. Notice the thick line that appears on dragging. Release the mouse button (Fig. 1.24).

Hide/Unhide Fields or Columns

1. Click the column header. If you want to select more than one column, press the SHIFT key.

2. Click the **HOME** tab. In the **Records** group, click the **More** button and then click **Hide Fields** (Fig. 1.25). Now you cannot see the hidden fields in **Datasheet View**.

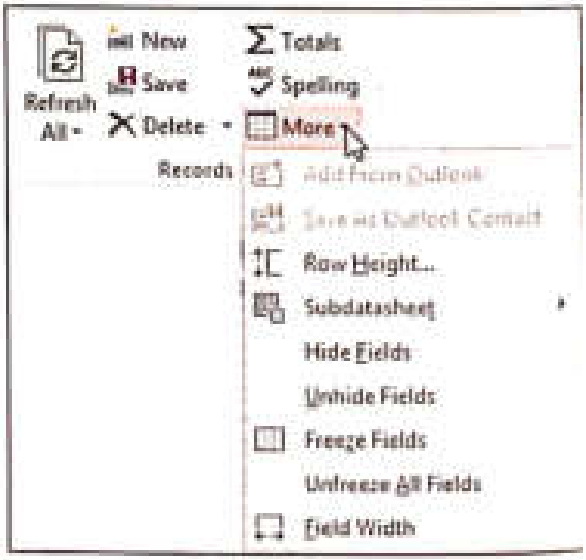

Fig. 1.25 **Records** group on the **HOME** tab

3. In the **Records** group, click the **More** button and click **Unhide Fields** to open the **Unhide Columns** dialog box (Fig. 1.26). You can select and clear check boxes to control which fields should be visible.

Fig. 1.26 **Unhide Columns** dialog box

To Freeze/Unfreeze Fields

If you have a number of fields in a table, you will not be able to see the entire set of fields until you scroll to the right. You can freeze the required fields you wish to see.

1. To freeze the fields, click the column header.
2. Click the **HOME** tab. In the **Records** group, click the **More** button and then click **Freeze Fields** (Fig. 1.25). Now you can see all the freeze fields while scrolling on the right.
3. To restore the fields to their previous state, click **More** in the **Records** group and then click **Unfreeze All Fields.**

Top Tip

The commands to hide, unhide, freeze and unfreeze columns are also available from the context menu that opens when you right-click a field name.

To Change a Field's Format

1. Click the column header.
2. On the **FIELDS** tab click the arrow next to the **Format** text box in the **Formatting** group.
3. Select the required format. For example, in Figure 1.27 the format for the date on which the employee joined is being changed.

Did you Know?

The format list may be unavailable for some fields (for example, text) depending on the data type of the field.

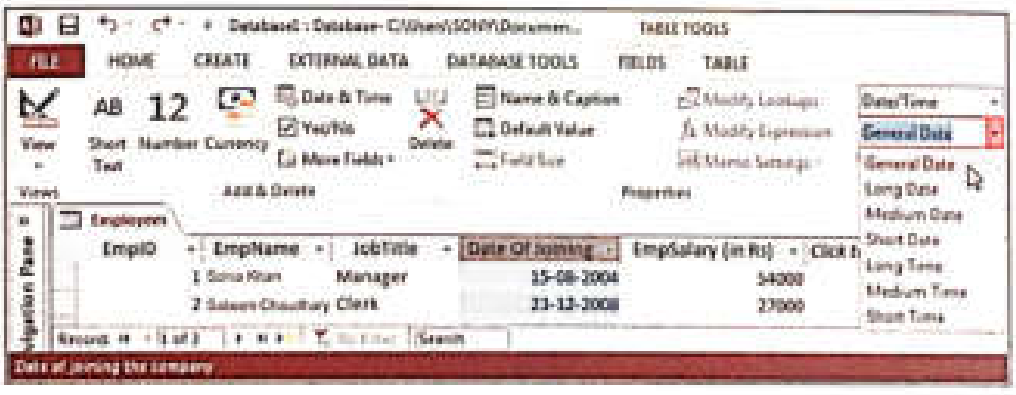

Fig. 1.27 Setting the format for the **DateOfJoining** field

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PRACTICE TIME

Raza has to create a table called **StudentAdmission** as shown alongside and then he has to do the following:

StudentAdmission

StudentID	StudentName	StudentCourse	StudentFee
501	Aisha Alam	MBA	65000
502	Duaa Ali	MCA	58000
503	Jiten Imran	BTech.	85000
504	Ayaan Essa	BTech.	83000
505	Pervez Ansari	MCA	58000

1. Rename the field **StudentFee** to **Fee Amount**.
2. Move the **StudentName** field to the right of the **StudentCourse** field.
3. Hide the field **StudentName** and then unhide it.
4. Delete the field **Fee Amount** as it is no longer needed.

Could you help him with the steps he needs to follow?

SOLUTION

1. Open a blank database and create the table with the contents as shown in the figure above.
2. To rename the field, **StudentFee**:
   a. Double-click the **Field** header and type in the new name — **Fee Amount**.
3. To move the field, **StudentName**, to the right of the **StudentCourse** field:
   a. Click the column header **StudentName**.
   b. Drag it to the right after the **StudentCourse** field. Release the mouse button.
4. To hide the field, **StudentName**:
   a. Click the column header.
   b. Select the **HOME** tab. In the **Records** group, click the **More** button and then click **Hide Fields**. Now you cannot see the field in **Datasheet View**.
5. To unhide the field, **StudentName**:
   a. Select the **HOME** tab. In the **Records** group, click the **More** button and then click **Unhide Columns**.
   b. This opens the **Unhide Columns** dialog box. Deselect the check box to make the field visible.
6. To delete the field, **Fee Amount**:
   a. Click the column header.
   b. Click **Delete** in the **Add & Delete** group on the **FIELDS** tab.
   c. A message box with the message **'Do you want to permanently delete the selected field(s) and all the data in the field(s)?'** will appear.
   d. Click **Yes** to permanently delete the field.

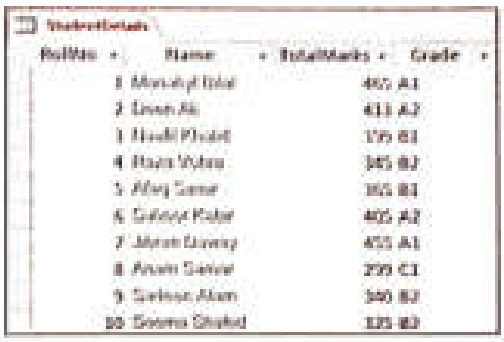
TOTALING, SORTING, FILTERING, AND SEARCHING DATA

You have learnt how to **sum**, **sort**, and **filter** data in Excel. You can do the same in Access too.

Calculations in Datasheet View

Access 2013 has a feature called **Totals** that makes it easier to perform mathematical calculations with data. This feature lets you find out the sum, count, average, etc., for your data.

1. Let us create a table called StudentDetails in **Datasheet View** as shown in Figure 1.28.



RollNo	Name	TotalMarks	Grade
1	Manahyl Bilal	465	A1
2	Deen Ali	413	A2
3	Naufil Khalid	399	B1
4	Raza Vohra	345	B2
5	Afaq Samar	365	B1
6	Sabaor Kabir	405	A2
7	Jibran Daway	455	A1
8	Anam Samar	299	C1
9	Sadsan Alam	340	B2
10	Seema Shahid	325	B2

Fig. 1.28 Table in **Datasheet View**

Fig. 1.29 **Records** group

2. Now click **Totals** in the **Records** group on the **HOME** tab (Fig. 1.29).
3. This shows the **Total** row at the bottom of the datasheet. In the **Total** row, click the field to be summarized, in this case, TotalMarks. Then select a function from the list. Let us select **Average** (Fig. 1.30).
4. You will get the average of values in the TotalMarks column (Fig. 1.31).

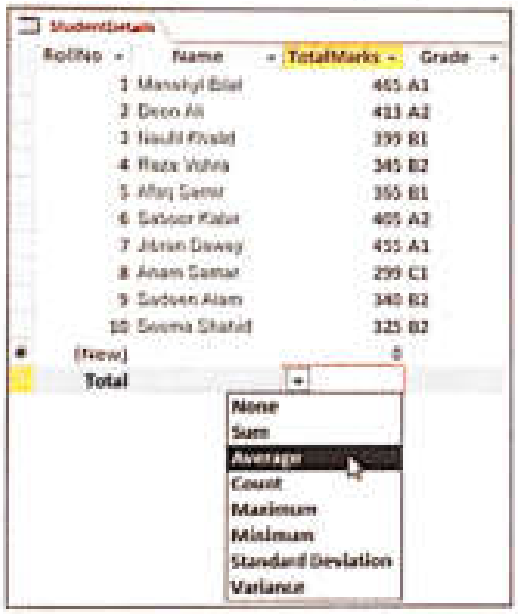
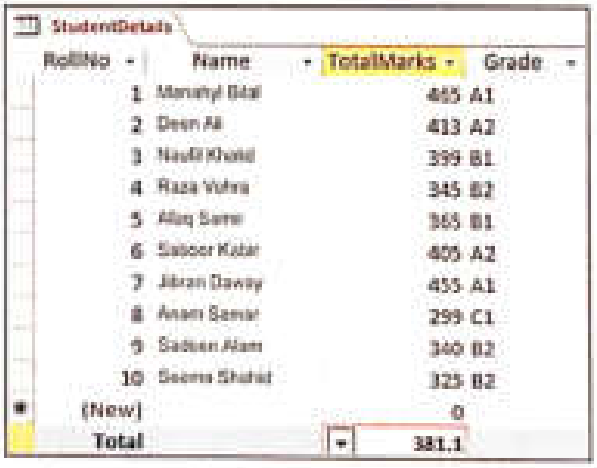


Fig. 1.30 **Totals** functions



RollNo	Name	TotalMarks	Grade
1	Manahyl Bilal	465	A1
2	Deen Ali	413	A2
3	Naufil Khalid	399	B1
4	Raza Vohra	345	B2
5	Afaq Samar	365	B1
6	Sabaor Kabir	405	A2
7	Jibran Daway	455	A1
8	Anam Samar	299	C1
9	Sadsan Alam	340	B2
10	Seema Shahid	325	B2
(New)		0	
Total		381.1	

Fig. 1.31 Table showing the average value

Sorting Data

You can sort the information stored in a table based on the values in one or more fields in either ascending or descending order.

1. In the **Tables** group, double-click **StudentDetails** to open the table in **Datasheet View**.
2. Click the drop-down menu arrow of the **TotalMarks** field to display a menu of sorting and filtering options (Fig. 1.32).

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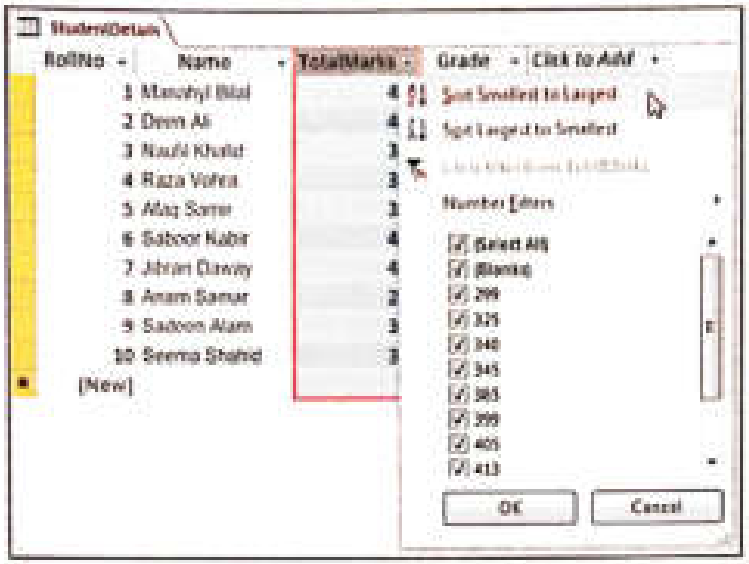

Fig. 1.32 Sorting and filtering options

3. Click **Sort Smallest to Largest** to rearrange the records in ascending order of **TotalMarks** (Fig. 1.33).

Fig. 1.33 Data sorted in ascending orde

4. The upward pointing arrow to the right of the **TotalMarks** field indicates that the table is sorted in the ascending order on this field.
5. Click **Sort Largest to Smallest** to rearrange the records in descending order of TotalMarks. The downward pointing arrow to the right of the TotalMarks field indicates that the table is now sorted in the descending order on this field (Fig. 1.34).
6. If you wish to undo the sorting, on the **HOME** tab, in the **Sort & Filter** group, click the **Remove Sort** button (Fig. 1.35).

Fig. 1.34 Data sorted in descending order

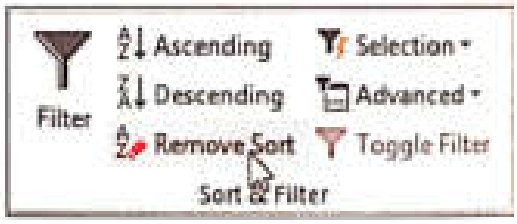

Fig. 1.35 **Sort & Filter** group

Filtering Data

If you wish to filter data do as follows:

1. In the column you want to filter, click the arrow to the right of the **Grade** column header and clear the **Select All** check box (Fig. 1.36).
2. Now select the grade that you want to see in your datasheet. You can select as many as you need. Here, A1 and A2 are selected. Access 2013 will display the rows with the corresponding values you have selected and will hide the rest (Fig. 1.37).

Note: You are not deleting any data, just hiding it.

Top Tip

Another option to sort data is: On the **HOME** tab, in the **Sort & Filter** group, click **Ascending** or **Descending** button to arrange the records in ascending or descending order, respectively.

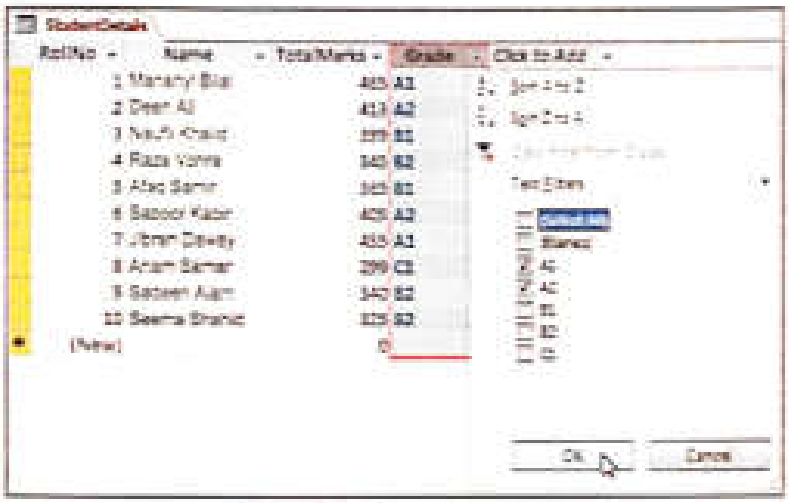

Fig. 1.36 **Select All** option

Fig. 1.37 Filtered data

3. After you click **OK**, an icon appears to indicate that the column has filtered data.

   If you point at the icon, Access 2013 will display the filter criteria (Fig. 1.38).

Top Tip

You can also select the column header and click the **Filter** button in the **Sort & Filter** group on the **HOME** tab to apply a filter.

Fig. 1.38 Display filter criteria

4. To remove the filter, click the **Toggle Filter** button in the **Sort & Filter** group on the **HOME** tab (Fig. 1.39). The datasheet will go back to the original state.

Fig. 1.39 **Toggle Filter** option

Advanced Filtering

You have seen how to do simple filtering in Access 2013.

Follow these steps for advanced filtering:

1. Click the arrow to the right of the TotalMarks column header. You can also select the column header and click the **Filter** button in the **Sort & Filter** group on the **HOME** tab. From the menu that appears, click **Number Filters**, and click **Between...** in the submenu (Fig. 1.40).

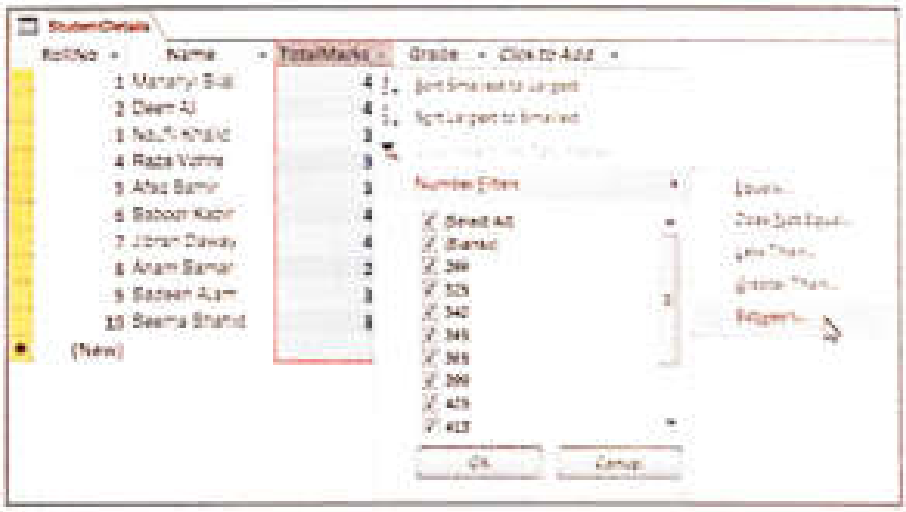

Fig. 1.40 **Number Filters** submenu

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2. The **Between Numbers** dialog box appears. Type 350 in the **Smallest** text box and 450 in the **Largest** text box and click **OK** (Fig. 1.41).

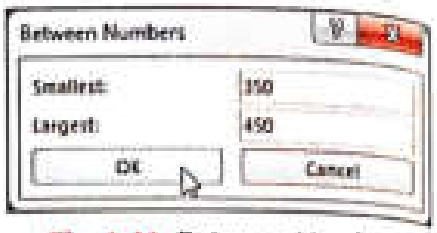

Fig. 1.41 **Between Numbers** dialog box

3. You will now see only records of those students having total marks in the range of 350 to 450 (Fig. 1.42).
4. To remove the filter, click **Toggle Filter** in the **Sort & Filter** group on the **HOME** tab. If you click the **Toggle Filter** button again, the current filter will be reapplied.

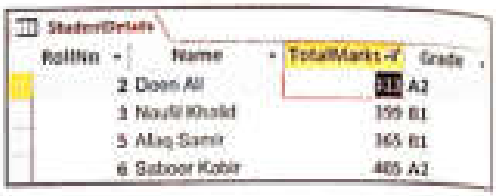

Fig. 1.42 Filtered records

Searching for Data

To search for data quickly, use the **Search** box at the bottom of the Access screen.

1. Enter part or all of a word, phrase, date, or number in the **Search** box and press the ENTER key. Let us, for example, enter **Raza** in the **Search** box.
2. Access 2013 highlights the corresponding characters in the first record that matches your search (Fig. 1.43).
3. To find the next matching record, press the ENTER key again. Access finds all records that match your search data, anywhere in your datasheet.

Fig. 1.43 Search record is highlighted

PRACTICE TIME

Create a table named Employees, using the data given alongside and do the following:

1. Find the total of Salary.
2. Sort the table in the ascending order of EmpName.
3. Sort the table in the descending order of Salary.

EmpNo	EmpName	DeptNo	Salary (₹)
E101	Asiya Iqbal	10	65000
E102	Alvina Hussain	20	45000
E103	Amber Shariq	20	54000
E104	Palwasha Aman	30	56000
E105	Faiza Arif	10	45000
E106	Manal Shamsi	30	49000

4. Filter all the records of Department Number (DeptNo) 20.
5. Filter all the records where salary is greater than 50000.
6. Search for the record of Palwasha.

EmpNo	EmpName	DeptNo	Salary (₹)
E107	Asif Iqbal	20	41000
E108	Laiza Alam	10	53000

SOLUTION

1. Create the table **Employees** in **Datasheet View**.
2. To find the total salary of all the employees:
   a. Click **Totals** in the **Records** group on the **HOME** tab. This will show the **Total** row at the bottom of the datasheet.
   b. In the **Total** row, select the **Salary** field and then select the **Sum** function. You will get the sum of all the values in the column.
3. To sort by **EmpName** in ascending order:
   a. Click the arrow to the right of the **EmpName** column header.
   b. Click **Sort A to Z** in the drop-down menu to sort the data in ascending order.
4. To sort by **Salary** in descending order:
   a. Click the arrow to the right of the **Salary** column header.
   b. Click **Sort Largest to Smallest** in the drop-down menu to sort the data in descending order.
5. To filter all the records of **DeptNo 20**:
   a. Click the arrow to the right of the **DeptNo** column header.
   b. Deselect **Select All**. Select the check box of data **20** and click **OK**.
   c. You will see all records of DeptNo 20.
   d. To remove the filter, click **Toggle Filter** in the **Sort & Filter** group on the **HOME** tab.
6. To filter all the records where **Salary** is greater than 50000:
   a. Click the arrow to the right of the **Salary** column header, click **Number Filters**, and click **Greater Than** in the submenu.
   b. The **Custom Filter** dialog box appears. Type 50000 and click **OK**. You will now see only those records where salary is greater than 50000.
   c. To remove the filter, click **Toggle Filter** in the **Sort & Filter** group on the **HOME** tab.
7. To search for the record of Palwasha:
   a. Type **Palwasha** in the **Search** box at the bottom of the Access screen and press the ENTER key. Access highlights the first record that matches the search keyword, **Palwasha**.

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Tricky Terms

Database an organised collection of information or data

Database management system a set of programs that allow storage, modification, and retrieval of information from a database

Record information about an entity stored in a row

Field a column in a table that contains some information about the record

Primary key one or more fields that uniquely identifies or identify every record in a table

Datasheet View the view that is used to enter data in a table

Memory Bytes

- Microsoft Access is a DBMS application that can store and manage a large volume of data. Its latest version is 2013.
- The database objects in Access 2013 are tables, forms, queries, reports, macros, and modules.
- You can create databases using a template or from scratch.
- A data type specification for a field controls what you can enter in that field.
- The **Datasheet View** is primarily for entering data in a table. You can also insert, delete, rename, move, hide, and freeze columns; change the data type of a column; search, filter, and sort data.
- You can also sum, sort, or filter data in Access 2013.

EXERCISES

Objective Type Questions

1. Choose the correct option.

a. It lets you enter and display data in a customized format.
i. Table ii. Form iii. Query iv. Report

b. By default, the first field in a new table is
i. No ii. ID iii. SNo iv. all of these

c. A data type that can have only one of two values, True or False.
i. AutoNumber ii. Number iii. Yes/No iv. Currency

d. Which of the following is an invalid field name?
i. Student'sName ii. Student.Name iii. Student_Name iv. Student Name

e. A primary key
   i. Cannot be repeated
   ii. Uniquely identifies a record
   iii. Can be of the AutoNumber data type
   iv. all of these

f. This data type allows alphanumeric characters and special symbols more than 255.
   i. Short Text
   ii. Long Text
   iii. Number
   iv. AutoNumber

Descriptive Type Questions

Answer the following.

a. What is a DBMS? What are its advantages?
b. What are the six database objects?
c. What are the two ways of creating a database?
d. What are the rules for naming a field?
e. List the various data types available in Access 2013.
f. What is the difference between hiding and freezing a field?
g. List the steps to show the **Total** row in an Access 2013 table.
h. Ali's teacher wants to organise all the personal data (name, age, etc.) and academic data (extracurricular interests, achievements, etc.) of the students in his class. Ali suggests he uses a DBMS (Database Management System) for this purpose. Analyse the advantages and disadvantages of using a DBMS for this task.
i. You have been asked to create a database for the school's cricket team using Access 2013. You realise that you can either use a template or develop it yourself. Compare both ways of creating the database and state your preference.
j. Your task is to create a database to track the progress of 5 different teams that all played in a recent Football World Cup. Create a database using MS Access for any five teams of your choice. You must include the following fields in your table:
   - matches played
   - winning team
   - losing team
   - goals for
   - goals against

Application-Based Questions

a. Consider the table alongside:
   i. Can **ItemNo** be taken as a primary key? If no, why not?
   ii. What is the data type of the field, ItemNo?

b. Consider the table on the right:
   i. What could be the primary key field in this table?

ItemNo	Name	Quantity	PurchaseDate
101	Sharpener	100	13-03-2014
102	Eraser	120	13-03-2014
103	Pen	120	18-04-2014
104	Pencil	200	21-05-2014
105	Clips	300	21-05-2014

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ii. Suggest suitable data types for the fields of this table.

EmpID	EmpName	JobTitle	Date Of Joining	EmpSalary	Grade
1	Sana Khan	Manager	8/15/2004	54000	
2	Saleem Chaudhary	Clerk	12/23/2008	27000	A
(New)				15000	B
					C

c. A large database file of customers is maintained by Myro Bank Ltd. Suggest a suitable method of searching for the record of a particular account number.

d. The options in the **Number Filters** menu are listed below.

Equal **Does Not Equal** **Less Than** **Greater Than** **Between**

Which option will you select to do the following?

i. To display all records with salaries in the range of 50000 to 60000. .....

ii. To display all records with a salary below 50000. .....

iii. To display all records with a salary above 50000. .....

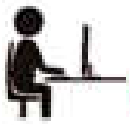
iv. To display all records with a salary other than 50000. .....

v. To display all records with a salary that is exactly 50000. .....

e. Jibran has created a table for recording the details of all the salesmen in his team. He has applied sorting on the SalesmanName field and the TotalSalesAmount field.

i. Which sorting has he applied to the SalesmanName field if the up-arrow appears in the column header?

ii. Which sorting has he applied to the TotalSalesAmount field if the down-arrow appears in the column header?



IN THE LAB

1. The class teacher of VIII has asked Hassan, the monitor, to create a table having details of 10 students of the class. Hassan has created a table with the following fields:
AdmissionNo, **Name**, **FName**, **LName**, **TeleNo**, **DOB**, **BusAvailed** (Y/N), **BusNo**.
Can you help Hassan assign data types to the fields, and enter 10 records to complete this task?

2. The sports academy of Grand Logic institute maintains the details of all those students who have joined the academy on part-time or full-time basis. The fields in the table are **ID**, **Name**, **GameJoined**, **Category** (Part-time/Full-time), **AmountPaidMonthly**.
Can you create a table structure based on these fields and enter 10 records?

3. A leading car showroom in the city maintains the details of all the cars in the showroom in an Access table.
The fields in the table are: **ID**, **Model**, **Manufacturer**, **Price**, and **Quantity**.
Dayan, an employee of this showroom,

ID	Model	Manufacturer	Price	Quantity
1	Alto	Suzuki	Rs 3,00,000.00	
2	S64	Suzuki	Rs 5,85,000.00	
3	Jazz	Honda	Rs 4,56,000.00	
4	Civic	Honda	Rs 9,34,000.00	
5	S-Class	Mercedes	Rs 17,45,000.00	
6	C-Class	Mercedes	Rs 13,55,000.00	
7	A6	Audi	Rs 67,32,000.00	
8	A4	Audi	Rs 35,76,000.00	
9	Mehran	Suzuki	Rs 10,54,000.00	
10	G-class	Mercedes	Rs 11,54,000.00	

has created the table shown on the right. Can you create a similar table and enter 10 records and sort them in the descending order of their price? Decide your own data types.

4. Alsan University declares the annual results online with the following fields:
   SNo, **Name**, **FName**, **LName**, **TotalMarks**, **CGPA**, **Grade**. Can you decide the data types for the above fields and set the following properties:
   - CGPA should be less than or equal to 10. Otherwise, a message should be displayed saying 'It should be less than or equal to 10'.
   - TotalMarks should be in the range of 1 to 600.
   - Now enter 10 records and check if you have created the right table structure.

5. Kompson Store maintains the details of all its products in a database for inventory purposes. Create a table as shown on the right and perform the following tasks:
   - Sort the table in the ascending order of Price.
   - Sort the table in the descending order of Quantity. Remove sorting.
   - Filter all the records in the range 100 to 200. Remove filter.
   - Search for the record of Toothpaste.

Inventory

ID	Product	Price	Quantity
1	Soap	₹ 25.00	246
2	Detergent	₹ 86.00	222
3	Toothpaste	₹ 56.00	89
4	Oil	₹ 125.00	34
5	Shampoo	₹ 135.00	233
6	Cream	₹ 87.00	76
7	Broom	₹ 30.00	32
8	Mop	₹ 34.00	156
9	Slippers	₹ 115.00	34
10	Comb	₹ 20.00	44

GROUP PROJECT

Working together, find out more about the four different types of databases: hierarchical, network, relational, and object-oriented.

- How do they operate?
- Are there similarities between them?
- What are the differences between them?
- Which style appears to be the easiest to use? Why?

To illustrate your findings you are going to create a group presentation. You will need to give examples from each of the different types to demonstrate your analysis.

TEACHER'S NOTES

- Discuss the advantages of databases with the students. Use real-life examples.
- Explain the importance of having a primary key in a table.
- Explain the differences between Excel and Access.
- The concepts of applying a validation rule and specifying validation text in Datasheet View may be taken up informally in class, as the students would require knowledge of these concepts for the solution of Q.4 of In the Lab.

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Chapter 2

Access 2013: Design View, Queries, Forms and Reports

A table in MS Access can be created in two ways — using the **Datasheet View** or the **Design View**. In the previous chapter, we have learnt about the **Datasheet View** and how to work with tables in this view. Let us now learn how to create a table in the **Design View**. The **Design View** gives us more control in setting the properties for tables, forms, etc. Although, you can create a table in the **Design View**, data can be added only in the **Datasheet View**. We will learn more about the **Design View** in this chapter.

In this Chapter

- Create Table in Design View
- Queries
- Forms
- Reports

In a database with thousands of records, finding information is difficult. Access provides features like **forms**, **queries**, and **reports** to make this job easier.

Forms can provide an easy-to-use method for entering and editing data for those who are not familiar with Access.

Queries allow you to select data from a table or tables as per your requirement. They allow you to change and re-arrange data, and then use it as a source for **forms** and **reports**.

Reports give us data in a printer-friendly format. We will discuss these features of Access as we proceed further in this chapter.

CREATE TABLE IN DESIGN VIEW

Open Database1 that was created in the previous chapter.

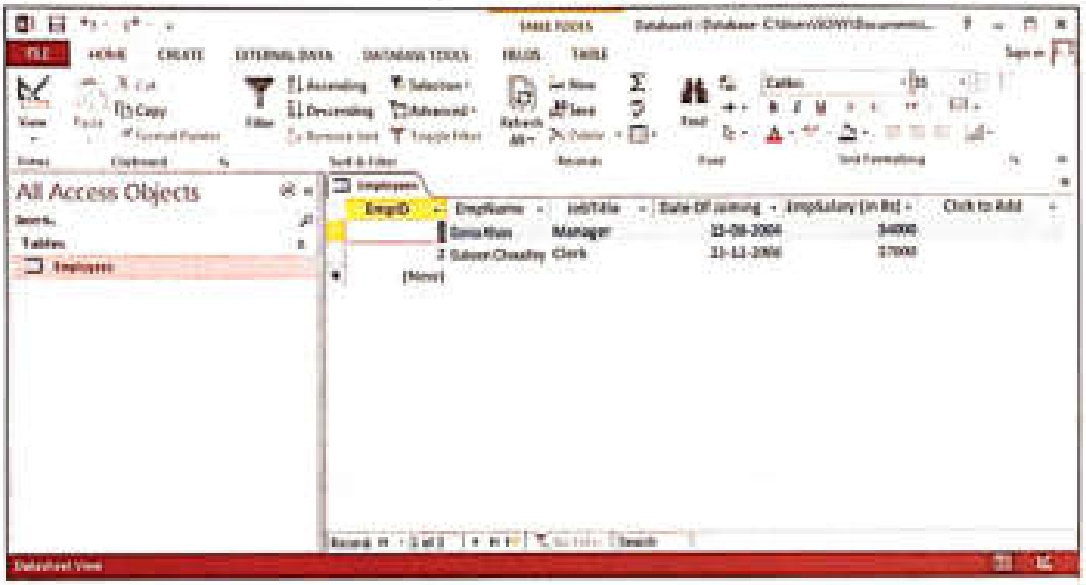

Fig. 2.1 Database1

To add more tables to the above database, click the **CREATE** tab. In the **Tables** group, there are two ways to create a table:

- Click the **Table** button to open a table in **Datasheet View**. In the previous chapter, we had learnt how to create a table in **Datasheet View**.

Or

- Click the **Table Design** button (Fig. 2.2) to open the **Design View**.

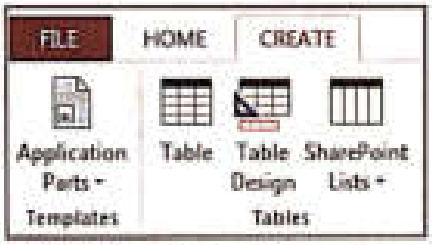

Fig. 2.2 **Tables** group on the **CREATE** tab

This option is the one we will focus on here. The **Table Design** screen consists of two parts (Fig. 2.3):

(a) **Field Definition Grid** It allows us to specify field names and data types for the table. We can also give an optional description for each field.

(b) **Field Properties Pane** It allows us to enter more details for each field, like **field size**, etc.

The top half of the **Table design** page consists of the following:

1. **Field Selector**: Click on any field selector to select a field. You can then insert a row above the selected field, delete a row, or drag a row up or down to reposition the field in the table. The field selector box also identifies the primary key field of the table by displaying the **Primary Key** icon (a small picture of a key with a right-pointing arrow).

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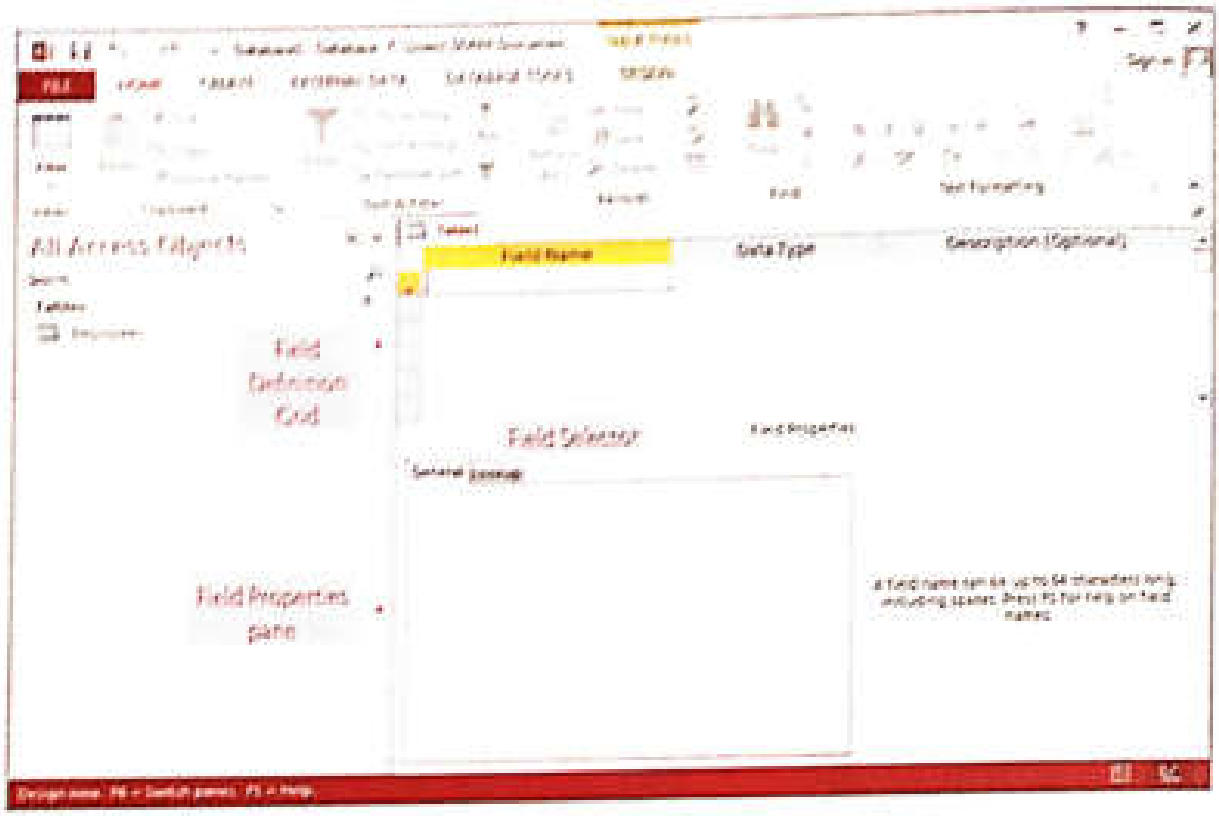

Fig. 2.3 Design View

2. **Field Name:** Here you list the field names for the table you want to create.
3. **Data Type:** Here you specify the type of data that the field can contain. When you add a new field in **Design View**, it is by default assigned the **Short Text** data type. You can change a field's type by clicking on the arrow next to the entries in the **Data Type** column. Select a new data type from the list that appears.
4. **Description:** It contains an optional description of the field.

Let us now create a table having the fields — EmpID, EmpName, EmpSal, and EmpDeptNo.

1. In the **Field Definition Grid**, under **Field Name**, type EmpID as the first field name. In the **Data Type** cell next to it, select an appropriate data type from the drop-down list that appears on clicking the drop-down menu arrow (Fig. 2.4).

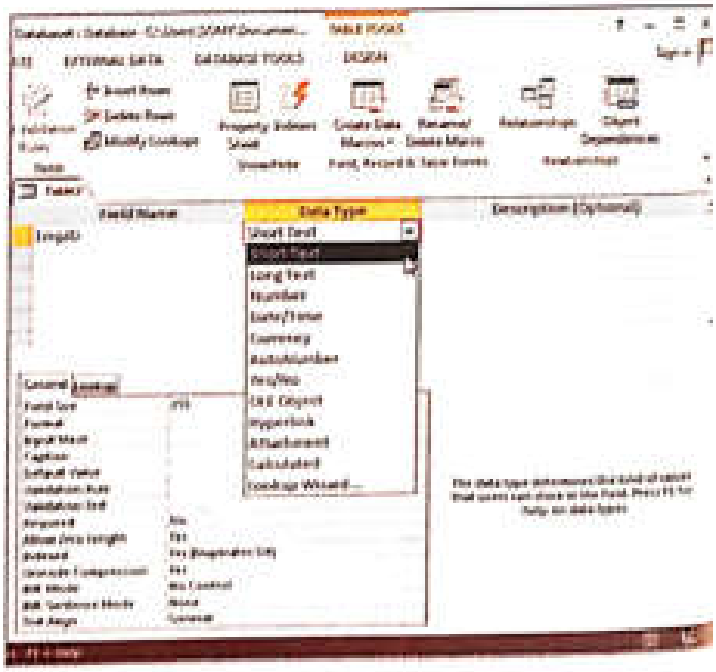

Fig. 2.4 Entering field names and data types in **Design View**

2. Move to the next column and type a small description about the field. You may also leave it blank.

3. Add three more fields: EmpName, EmpSal, and EmpDeptNo with data types **Short Text**, **Number** and **Number** respectively (Fig. 2.5).

Fig. 2.5 Field information in **Design View**

4. To set EmpID as the primary key, click the field selector and then click the **DESIGN** tab if not already selected. In the **Tools** group, click the **Primary Key** button. The field will now become the primary key (Fig. 2.6).

Fig. 2.6 EmpID set as **Primary key**

5. Now click the **FILE** tab and select **Save**. The **Save As** dialog box appears. Enter **Table Name** as EmpInformation and click **OK** (Fig. 2.7).

Fig. 2.7 **Save As** dialog box

6. To add data in a table, you must switch from **Design View** to **Datasheet View**. Click the **View** drop-down menu arrow in the **Views** group on the **DESIGN** tab (Fig. 2.8). Select **Datasheet View**.

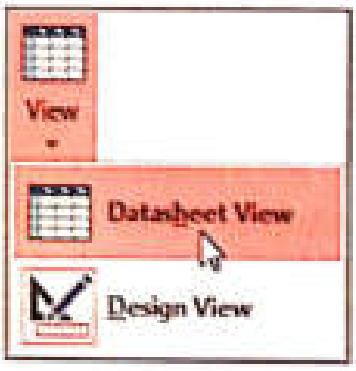

Fig. 2.8 Select **Datasheet View**

Setting the Primary Key

The **Primary Key field** contains unique data for each record. Every table needs a primary key to identify records uniquely. Access sorts table data by the primary key field. Access does not add an ID field automatically to new tables in the **Design View**.

There are two ways of setting the primary key in an Access 2013 table. The first method is as follows:

1. Select the field to be set as primary key.

Top Tip

To select a primary key with multiple fields, hold down the **CTRL** key and click the **Field Selector** for each field.

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2. Click **Primary Key** in the **Tools** group on the **DESIGN** tab.

Alternatively,

1. Right-click the field selector of the column that will be the primary key.
2. Select **Primary Key** from the context menu (Fig. 2.9).

After you set the primary key, a key icon will appear in the grey selector area to the left of the field's name.

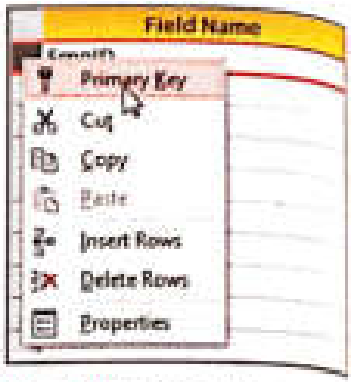


Fig. 2.9 **Primary key** option in the context menu

Top Tip

When you save a table without creating a primary key, you allow Access to automatically create a primary key field named **ID** of **AutoNumber** data type.

Top Tip

Access does not allow you to delete a primary key field once set. However, if you still wish to delete it, first remove the primary key icon, and then delete the field.

Removing the Primary Key

To remove the primary key, click **Primary Key** in the **Tools** group or in the context menu. The small key in the row selector will disappear. The **Primary Key** button works as a toggle to turn key fields ON or OFF.

To add a Lookup Field

A **Lookup Field** is a field with a list of values from which a user can choose the desired value. Rather than typing individual values, the values appear in a drop-down list. Let us add a new field called 'Grade' in the Employees table, whose data type will be set to **Lookup field**.

1. If you are adding the field in the **Datasheet View**, first click the field header and select **Lookup & Relationship** from the drop-down list that appears. Or

   In the **Add & Delete** group on the **FIELDS** tab, click **More Fields** button. A drop-down menu appears. In the **Basic Types** section, click **Lookup & Relationship**.

   In the **Design View**, click the drop-down menu arrow in the **Data Type** cell next to the new-field 'Grade', and select **Lookup Wizard...** in the menu that opens.

   Any of these actions will open the **Lookup Wizard** screen 1 of 3 (Fig. 2.10).

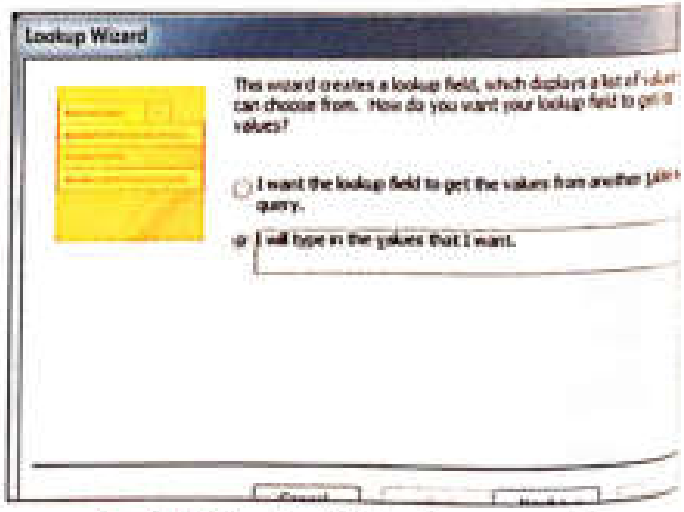


Fig. 2.10 **Lookup Wizard** screen 1 of 3

2. Click **I will type in the values that I want** and then click **Next**.
3. The Lookup Wizard screen 2 of 3 appears. Leave the **Number of columns** set to 1 and click in the first cell in the **Col1** column. Enter the data and press Tab (not Enter) after each one to move to the next row. Click **Next** (Fig. 2.11).
4. The Lookup Wizard screen 3 of 3 appears (Fig. 2.12). You can assign a name to the new field. Click **Finish**.

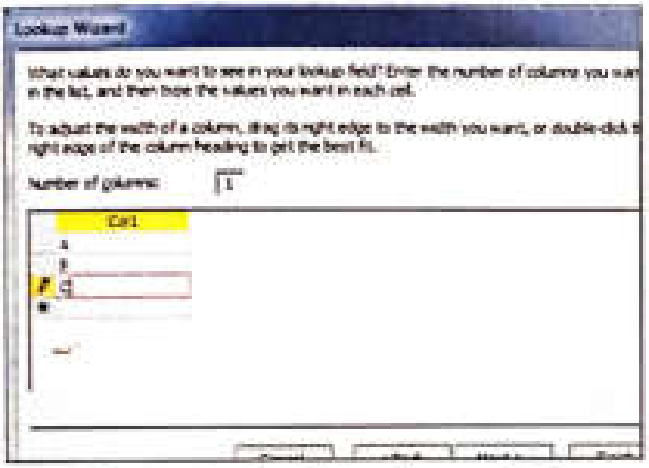


Fig. 2.11 **Lookup Wizard** screen 2 of 3

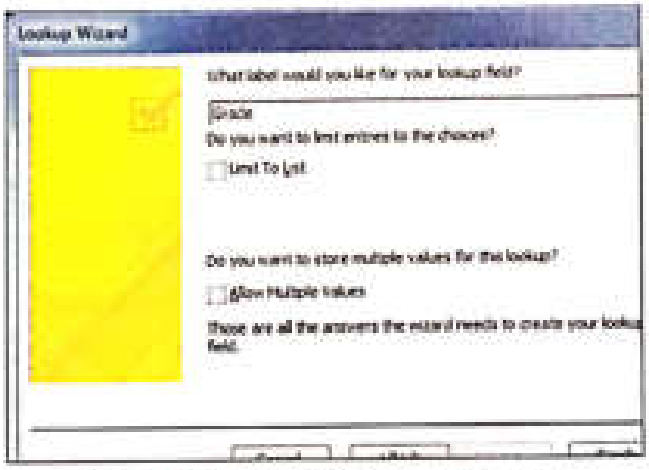


Fig. 2.12 **Lookup Wizard** screen 3 of 3

5. The column 'Grade' appears next to the **EmpSalary** field in the **Datasheet View**. To enter data, just click in the first cell, a drop-down menu arrow appears. On clicking the arrow, you will get the list of values you had entered earlier. Click the value you want in the field (Fig. 2.13).

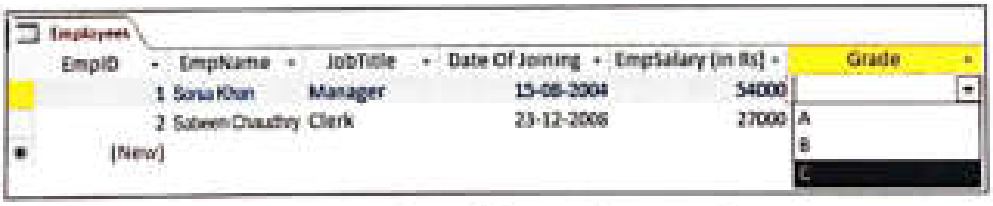


Fig. 2.13 Lookup field in Employees table

Field Properties Pane

In the **Design View**, the **Field Properties** pane appears in the lower half of the screen. You can use it to control data entered in a field and the appearance of data on screen. It allows you to specify certain field characteristics and properties, for example, **size**, **format**, **validation rules**, etc.

- **Field Size** This is the maximum size for data stored in the Text or Number fields.

  For **Text** data, the field size determines the maximum number of characters. The **Short Text** data type has a maximum of 255 characters.

  For **Number** data, field size determines the range and how many bytes can be used for storage.

- **Format** This specifies how data will be displayed.

  Number and Currency Formats You can choose from seven pre-defined formats, i.e., General Number, Currency, Euro, Fixed, Standard, Percent, and Scientific. You can also create custom formats.

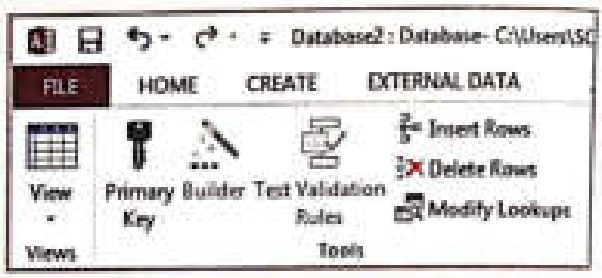
  Date and Time Formats You can select from the pre-defined formats: General Date, Long Date, Medium Date, Short Date, Long Time, Medium Time, and Short Time.

  Logical Formats The default display is **Yes/No**. Other pre-defined formats for logical data are **True/False** and **On/Off**.

- **Input Mask** This facilitates data entry and controls what the user enters in the field. For example, the input mask for a phone number could be (.....)..... ~ .....
- **Caption** This is an alternative name for the field to make the field name more explanatory. It can contain up to 2048 characters.
- **Default Value** This value is automatically filled in the field when you add a new record to the table.

Top Tip

To insert a row in **Design** view, select the field selector above which you want to insert a row and click **Insert Rows**. To delete a row, select the field selector you want to delete and click **Delete Rows**.



- **Validation Rule** A **validation rule** limits the value that the field will accept.

  For example, if the validation rule for a field is **<= 100**, it means that the field must contain a value less than or equal to 100. If you enter a value greater than 100, you will get an error message.

- **Validation Text** This is the error message that appears when the value entered in a field violates the validation rule.

Top Tip

You can also enter a validation rule in the **Datasheet View** by clicking the **Validation** button in the **Field Validation** group on the **FIELDS** tab under **TABLE TOOLS**.

- **Required** Enter **Yes** if the field should always receive a value during data entry. The default value of it is **No**, which means that the field can be left blank.
- **Allow Zero Length** This property is used for **Text** and **Memo** data types. If **Required** is **Yes** and **Allow Zero Length** is **No**, data must be entered in the field during data entry. If both properties are set to **Yes**, the field can be left empty.

PRACTICE TIME

Alsan Public School maintains the academic details of its students in an Access table. The fields in the table are given below:

Field Name	Data Type	Properties
StuID	Short Text	**Primary Key, Field Size** – 4
Test1	Number	**Required** – Yes **Validation Rule** – >=1 and <= 100 **Validation Text** – Enter marks in the range 1 to 100
Test2	Number	**Required** – Yes **Validation Rule** – >=1 and <= 100 **Validation Text** – Enter marks in the range 1 to 100
Average	Calculated	**Expression** – ([Test1] + [Test2])/2 **Result Type** – Single
Grade	Lookup Field	grades – A1, A2, B1, B2, C1, C2, E
Type	Yes/No	There are two types – Classroom program, distance program. The check box is selected for Classroom program. **Default Value** – Yes

1. Create the above table and save it as AcademicDetails.
2. Switch to the **Datasheet View** and enter 10 records.

SOLUTION

1. Create a new database. The new database will open with one table, Table1, in **Datasheet View**. Now click the **View** drop-down menu arrow and select **Design View**. Save the table as AcademicDetails.
2. Now in the **Design View**, for all the fields, type the **Field Name**, select the **Data Type**, and enter the **Description**.
3. To set **StuID** as the primary key, click its **Field Selecter**, and in the **Tools** group on the **Design** tab, click **Primary Key**. Then, click in the **Field Size** text box in the **Field Properties** pane, and change the size from 255 to 4.
4. Select the **Field Selector** of **Test1** and do the following:
   a. Select **Yes** as the value of **Required**. Now, this field cannot be left blank when you enter data.
   b. Click the **Validation Rule** text box and type **>=1 and <= 100**.

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c. Click the **Validation Text** text box and type **Enter marks in the range 1 to 100**.

5. Select the **Field Selector** of **Test2** and follow the same procedure as for field, **Test1**.
6. Select the **Field Selector** of **Average** and do the following:
   a. In the **Expression** text box, type **([Test1] + [Test2])/2**
   b. In the **Result Type**, select **Single**. Now you will get the output in decimal numbers.
7. For the field, **Grade**, select the data type as **Lookup Wizard...** and do the following:
   a. In the first screen, click **"I will type in the values that I want"** and click **Next**.
   b. In the second screen, click in the blank row below **Col1**, type the grades and then press TAB or the down arrow key. After entering all the values, click **Next.**
8. In the third screen, click on **Finish**. Now, select the **Field Selector** of **Type**. Set the **Default Value** as **Yes**.
9. To save the table, click the **FILE** tab and select **Save**. The **Save As** dialog box appears. Type the file name as AcademicDetails and click **OK**.
10. Click [x] to close the table.
11. Now, click the **View** button in the **Views** group on the **DESIGN** tab. Select **Datasheet View**. This opens the table in the **Datasheet View** allowing you to enter records. Enter 10 records. Five records are shown in the figure alongside.

AcademicDetails

StuID	Test1	Test2	Average	Grade	Type
S101	34	56	45	C2	☑
S102	47	66	56.5	C1	☐
S103	65	49	57	C1	☑
S104	89	91	90	A2	☑
S105	79	55	67	A2	☑

Notice that you can enter marks in the **Test1** and **Test2** fields only in the range of 1 to 100. If you try to enter any value beyond this, the message you have specified earlier will appear. The Average is calculated automatically. The Grade field is a lookup field, so values are entered by choosing from a drop-down list. The **Default value** of Type is Yes, i.e., the check box is checked.

QUERIES

An **Access query** is a method of getting answers to questions about data. The query can involve a single table or multiple tables to answer a question about data. Here, we will be working with a simple query based on a single table. Some examples are:

- The list of students who got grade A1 in all five subjects.
- The list of employees who get salaries above Rs. 50000 a month.

Access saves each query as a new query in the database. A saved query can be run again at any time in the future.

The **CREATE** tab has the commands for creating queries (Fig. 2.14).

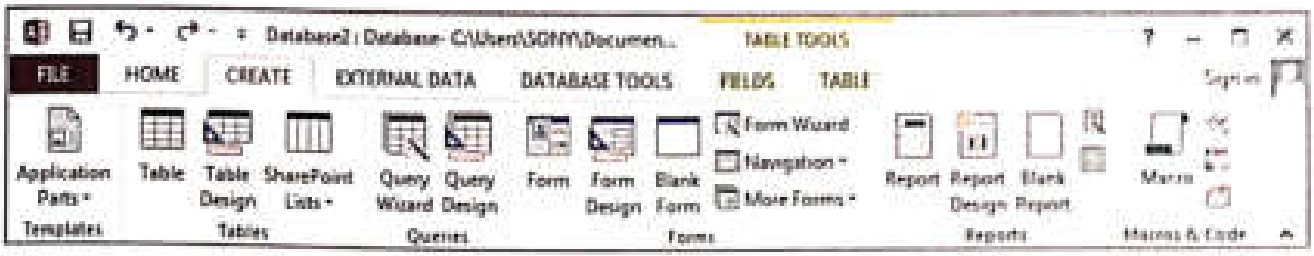

Fig. 2.14 **CREATE** tab options

There are two methods of creating a query: through **Query Design** and through the **Query Wizard**. We will use the table EmpInformation (Fig. 2.15).

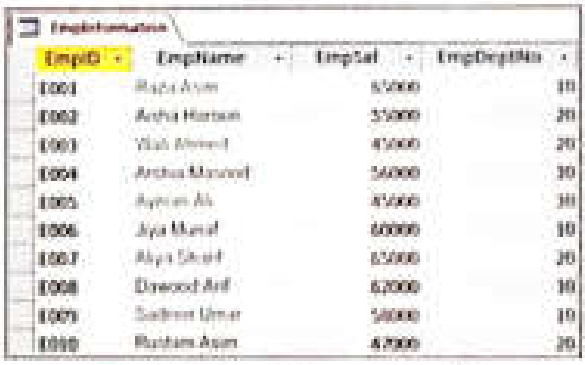

Fig. 2.15 EmpInformation table

Using Query Wizard

If you want to create a query using the **Query Wizard,** follow the steps given below:

1. Click **Query Wizard** in the **Queries** group on the **CREATE** tab (Fig. 2.14).
2. The **New Query** dialog box appears (Fig. 2.16). Select **Simple Query Wizard** and click on **OK**.

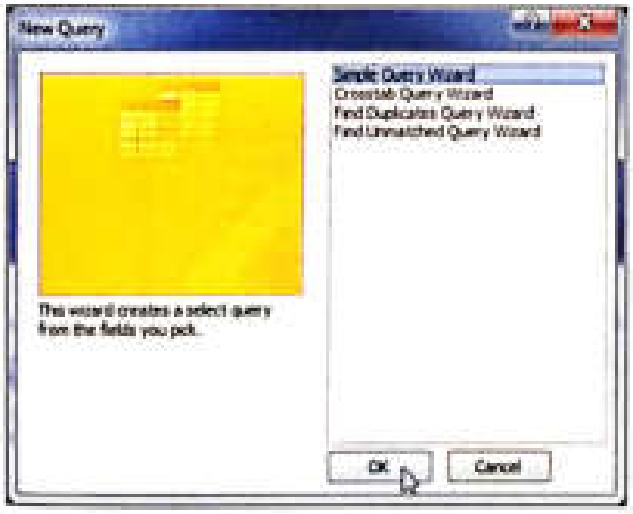

Fig. 2.16 **New Query** dialog box

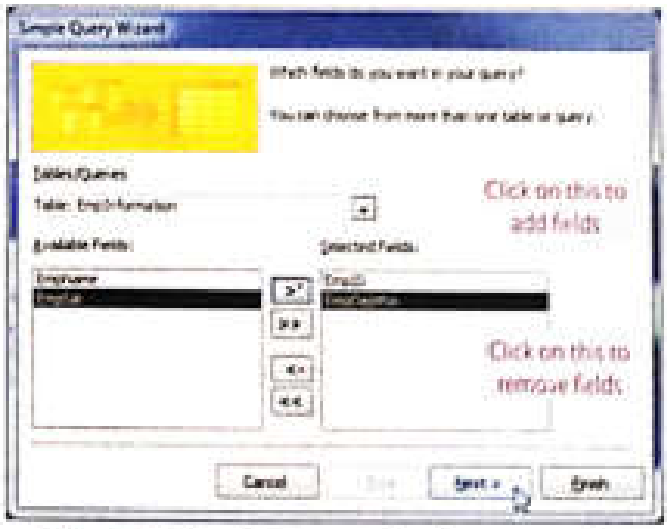

Fig. 2.17 **Simple Query Wizard** screen 1 of 3

3. **Simple Query Wizard** screen 1 of 3 appears (Fig. 2.17). In the **Tables/Queries** box, select the table that contains your data and then add the fields that you want to see in the query results. Make use of the arrows as shown in Figure 2.17 to **add** or **remove** fields.

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- To add a field, select it in the **Available Fields** list and then click [>], or just double-click it.
- Remove fields by selecting them in the **Selected Fields** list and clicking [<].

Click on **Next** after selecting the fields.

Top Tip

You can move all the fields in **Available Fields** to **Selected Fields** at once by clicking [>>] and move all fields from **Selected Fields** to **Available Fields** by clicking [<<].

4. **Simple Query Wizard** screen 2 of 3 appears (Fig. 2.18). Select **Detail** or **Summary** and click on **Next**.
5. **Simple Query Wizard** screen 3 of 3 appears (Fig. 2.19). Type a query name in the text box, select **Open the query to view information**, and click on **Finish**.

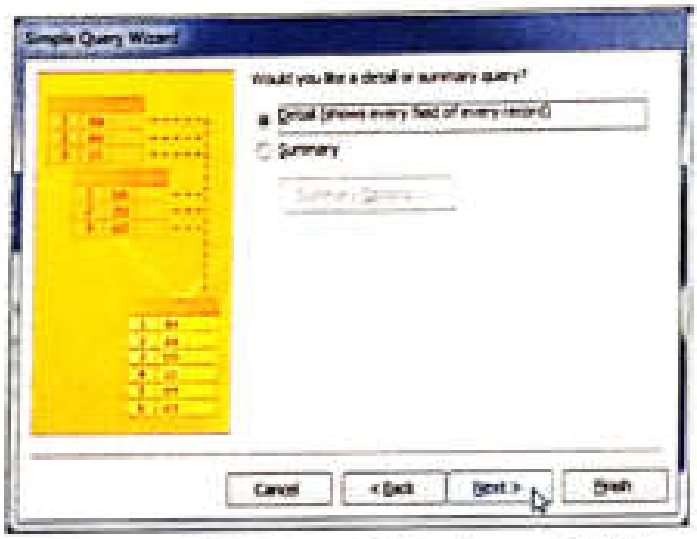

Fig. 2.18 **Simple Query Wizard** screen 2 of 3

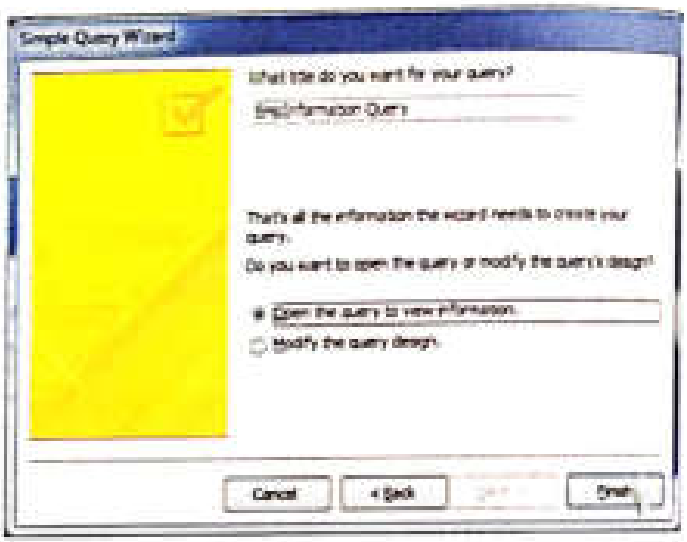

Fig. 2.19 **Simple Query Wizard** screen 3 of 3

EmpInformation Query

EmpID	EmpDeptNo
[redacted]	10
E002	20
E003	20
E004	30
E005	30
E006	10
E007	20
E008	30
E009	10
E010	20

Fig. 2.20 Output of EmpInformation Query

6. The query result will appear in **Datasheet View** (Fig. 2.20).

Using Query Design

Follow these steps to create a query in **Query Design**:

1. Click **Query Design** in the **Queries** group on the **CREATE** tab.
2. The **Show Table** dialog box appears where you will choose tables (Fig. 2.21).

   Click the table you will use and then click on **Add**, or just double-click the table.

   You can repeat this step to add several related tables.
3. Click on **Close** when you finish adding the tables.

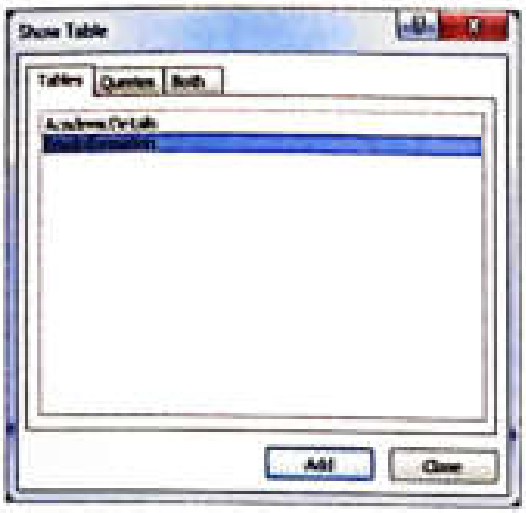

Fig. 2.21 **Show Table** dialog box

4. The **Query Design** screen appears (Fig. 2.22).

   Here you will select the fields to be included in the query by using one of the following ways:

   - Double-click the field. It will be placed in the first vacant column of the grid.

     Or

   - Click the field and drag it to the required column in the grid.

     Or

   - Type the field name directly in the required column in the grid.

     Double-click the asterisk (*) to include all the columns of the table.

     Figure 2.23 shows the grid with the selected fields.

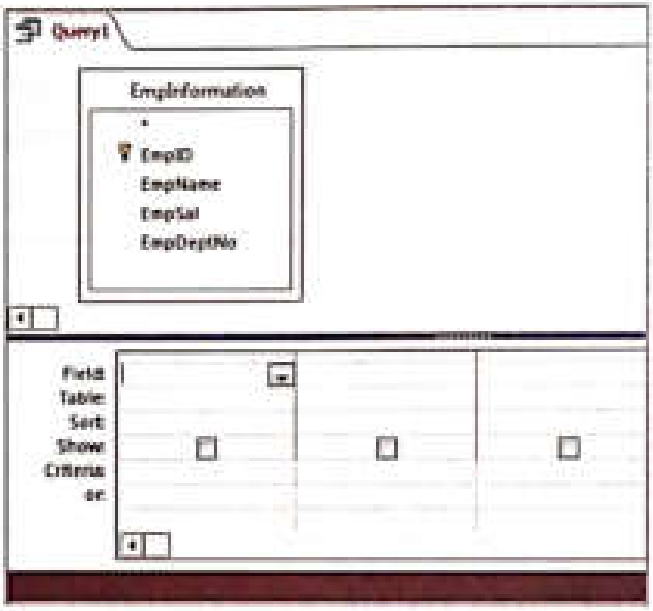

Fig. 2.22 **Query Design** screen

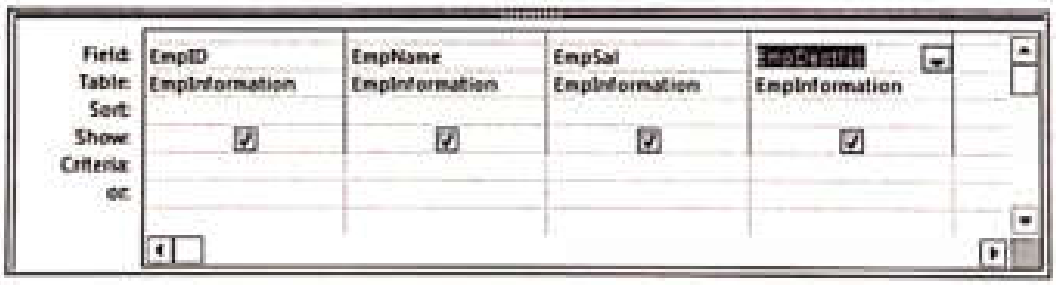

Fig. 2.23 Fields in the **Query Design Grid**

5. You can arrange the fields in the order you want them in the query results. To change the order, select the entire column and drag it to the new position (Fig. 2.24).

Fig. 2.24 Rearrange a field in the **Query Design Grid**

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6. To hide one or more columns, clear the **Show** checkbox for those columns. Figure 2.25 shows the check box cleared for the EmpName field.

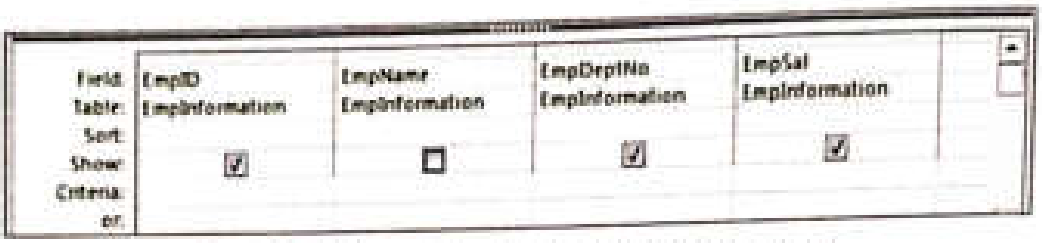

Fig. 2.25 Hide a column in the **Query Design Grid**

7. Choose the field to sort by and choose **Ascending** or **Descending** from the corresponding **Sort** box (Fig. 2.26). For example, here we have chosen **EmpDeptNo** as the sort field and **Ascending** as the sorting option.

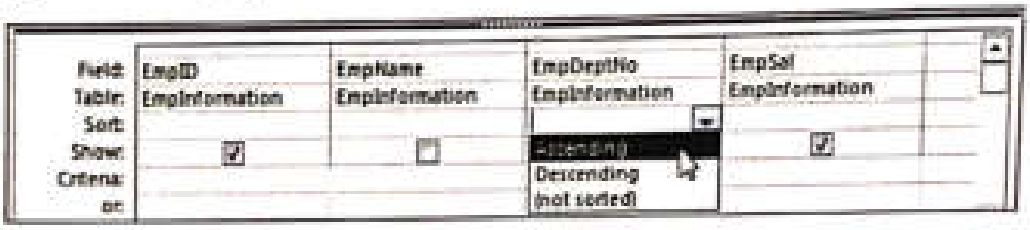

Fig. 2.26 **Sort** in the **Query Design Grid**

8. In the **Criteria** of **EmpSal** field, type **>=50000** so that only the records of employees having a salary equal to or greater than 50000 are displayed (Fig. 2.27).

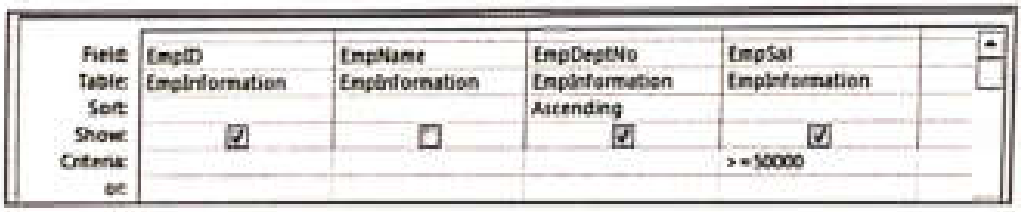

Fig. 2.27 Criterion for EmpSal specified in the **Query Design Grid**

Running a Query

To run a query:

Click **Run** in the **Results** group on the **DESIGN** tab (Fig. 2.28). The output for the query will be displayed as shown in Figure 2.29.

To close the query, click [x] in the **Query Design** screen.

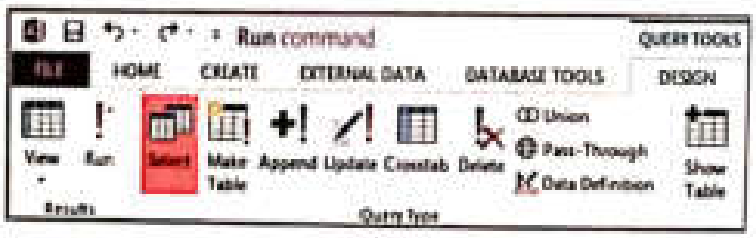

Fig. 2.28 **Run** option in the **Results** group

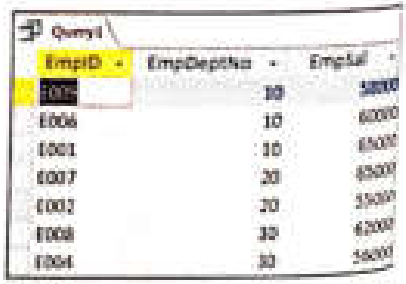

Fig. 2.29 Output of a query

Saving a Query

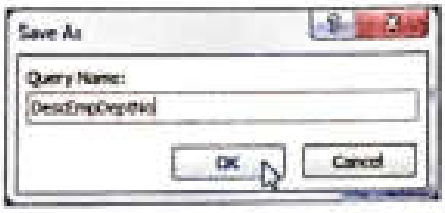

Fig. 2.30 **Save As** dialog box

You can save a query in one of the following ways:

- Click the **FILE** tab and select **Save** in the menu that opens.

Or

- Click the **Save** button on the **Quick Access Toolbar**.

When you save a query for the first time, a **Save As** dialog box appears. Type the **Query Name** and click on **OK** (Fig. 2.30).

FORMS

Forms provide an easy way to enter, edit, delete and view data in a table. There are 3 ways to create a form in Access as given below:

- Using the **Form** command
- Using **Split Form**
- Using the **Form Wizard**

We will use the EmpInformation table created earlier in this chapter for learning how to create forms.

Using the Form Command

One of the ways in which you can create a form is by using the **Form** command:

1. Click the table, EmpInformation, in the **Navigation pane**.
2. Click **Form** in the **Forms** group on the **CREATE** tab. This method creates a simple form that uses all the fields in the table. It displays the form in **Layout View** (Fig. 2.31)

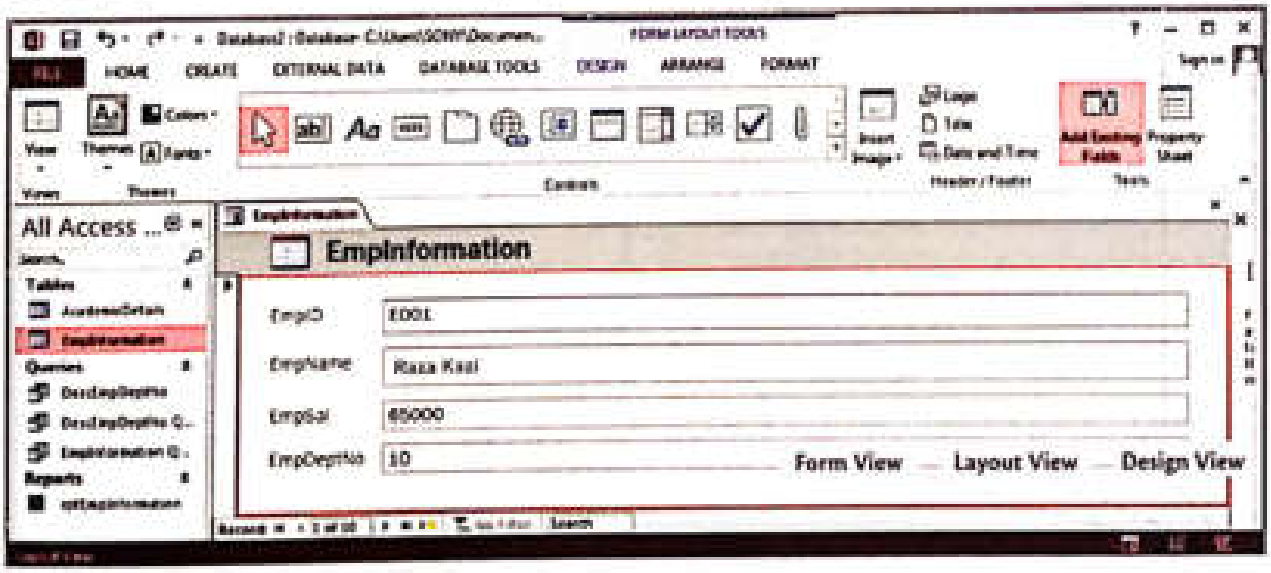

Fig. 2.31 Form design using the **Form** command

The **DESIGN, ARRANGE,** and **FORMAT** tabs now appear on the ribbon under **FORM LAYOUT TOOLS**.

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3. Select the text box and resize it.
4. On the **DESIGN** tab, do the following:
   a. Click on **Logo** in the **Header/Footer** group. The **Insert Picture** dialog box appears (Fig. 2.32). Select a picture and click **OK**.
   b. Click on **Title** in the **Header/Footer** group. Type 'Employee Information' as the title for the form (Fig. 2.33).

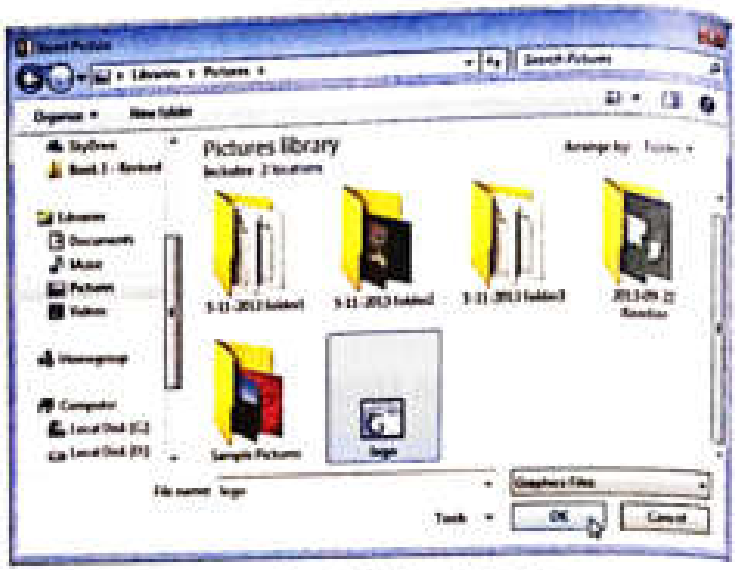

Fig. 2.32 **Insert Picture** dialog box

Fig 2.33 New title of the form

   c. Click on **Date and Time** in the **Header/Footer** group. A **Date and Time** dialog box appears, select a format and click **OK** (Fig. 2.34).
   d. Click the **Themes** button in the **Themes** group and select a required theme.
5. Select the **FORMAT** tab and do the following:
   a. Select the label and using the **Font Color** button in the **Font** group, change the text colour to blue.
   b. Click anywhere inside the blank area of the form.
   c. Click the **Shape Fill** button in the **Control Formatting** group. Select a colour from the colour palette. The colour of the form would change as shown in Figure 2.35.

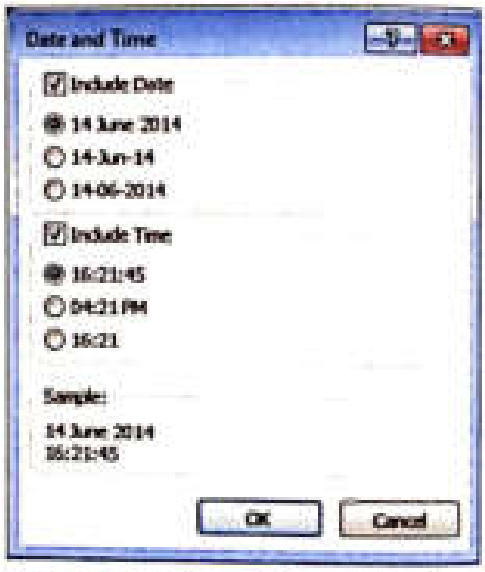

Fig. 2.34 **Date and Time** dialog box

6. Click the **FILE** tab. Select the **Save** option in the menu to open the **Save As** dialog box (Fig. 2.36). Type the form name and click **OK**.

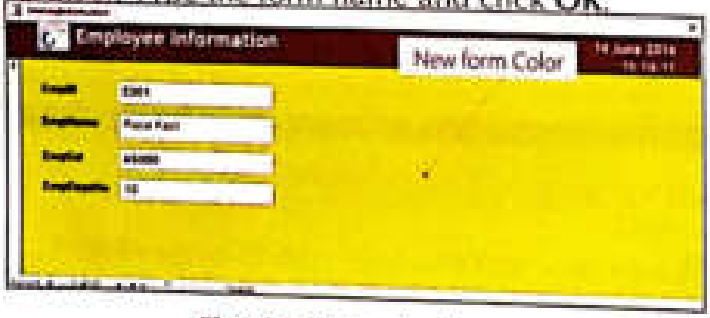

Fig. 2.35 Formatted form

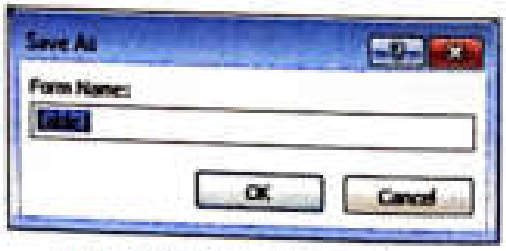

Fig. 2.36 **Save As** dialog box

Using Split Form

You can also create a form using the **Split Form** option:

1. Click the **CREATE** tab.
2. Click the **More Forms** button in the **Forms** group. Access creates the form in the upper-half of the window and displays the table in **Datasheet View** in the bottom half (Fig. 2.37).

   The two views are separated by a bar that can be used to resize the height of the two views.

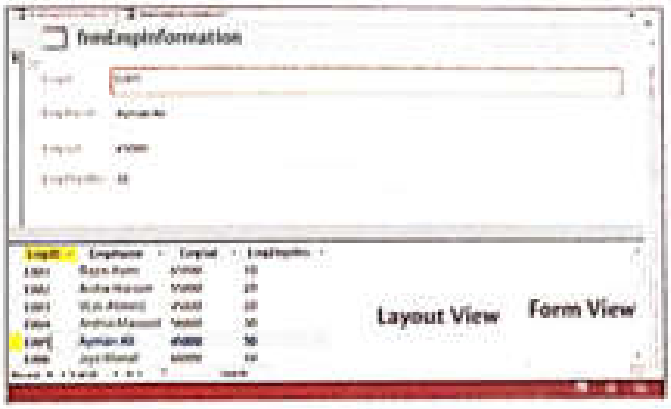

Fig. 2.37 Form created using the **Split Form** option

3. Click the **Form View** button at the bottom-right end of the **Status bar** to enter or change data. You can use either the upper or the lower half. Both parts of the window activate the same field and the same record at the same time.
4. Click the **Layout View** to format the form.

Using the Form Wizard

Follow these steps to use the **Form Wizard**:

1. Click **Form Wizard** in the **Forms** group on the **CREATE** tab.
2. **Form Wizard** screen 1 of 3 appears (Fig. 2.38). Select the table from the **Tables/Queries** drop-down menu and select the fields you want in the form. Click on **Next**.
3. **Form Wizard** screen 2 of 3 appears (Fig. 2.39). Select a form layout. The default selection is **Columnar**, which you can change if required. Click on **Next**.

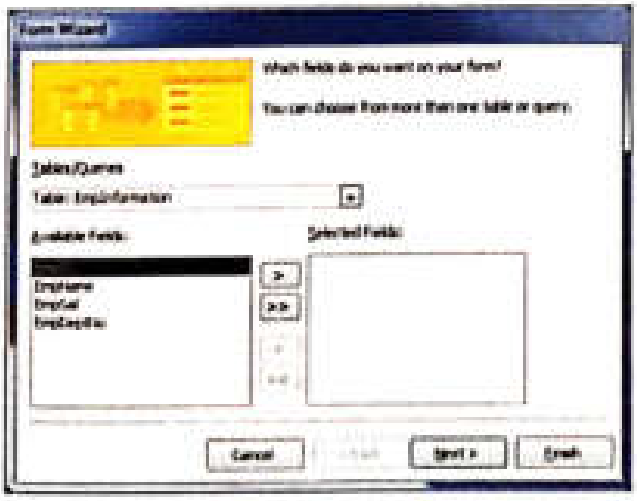

Fig. 2.38 **Form Wizard** screen 1 of 3

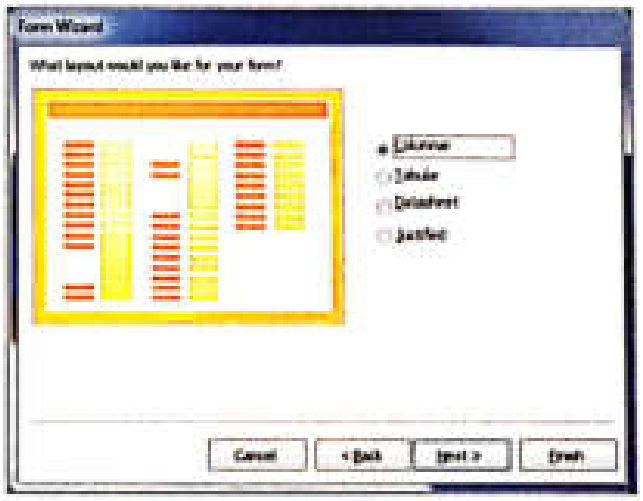

Fig. 2.39 **Form Wizard** screen 2 of 3

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4. **Form Wizard** screen 3 of 3 appears (Fig. 2.40). Give a name to the form. Select the option to **Open the form to view or enter information**. Click **Finish** to create the form.

The formatted form will appear on the screen. You can now add more records to your form or view already existing records (Fig. 2.41)

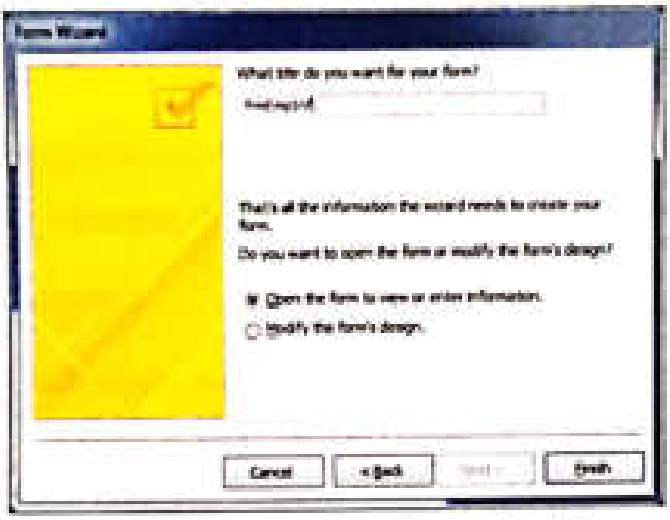

Fig. 2.40 **Form Wizard** screen 3 of 3

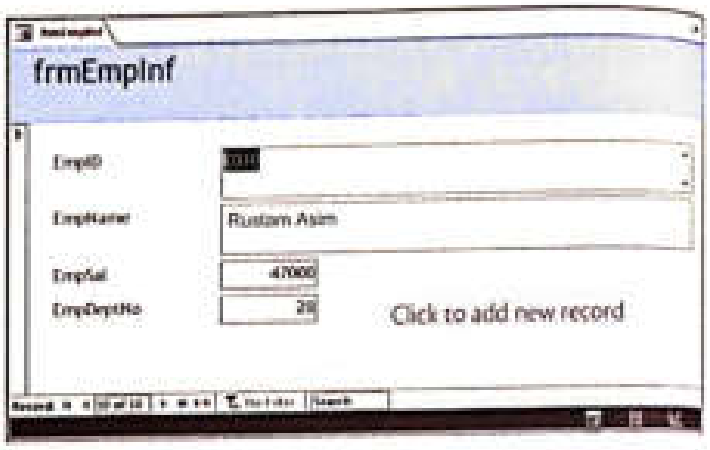

Fig 2.41 Formatted form with fields

REPORTS

Reports are an effective way to present your data in printed format. You can control the size and appearance of everything on a report. Thus, you can display the information the way you want to see it.

Microsoft Access provides many ways to create a report. Two are discussed here:

- Using the **Report** command
- Using the **Report Wizard**

Using the Report Command

To use the **Report** command do as follows:

1. Open the database. Select the base table or query in the **Navigation pane**.
2. Click on **Report** in the **Reports** group on the **CREATE** tab to display the report on the screen (Fig. 2.42).
3. Click the **Layout View** button to format the report. For example, here the heading has been changed to Employee Details.
4. Click the **Print Preview** button to see how the report will look when printed on paper.

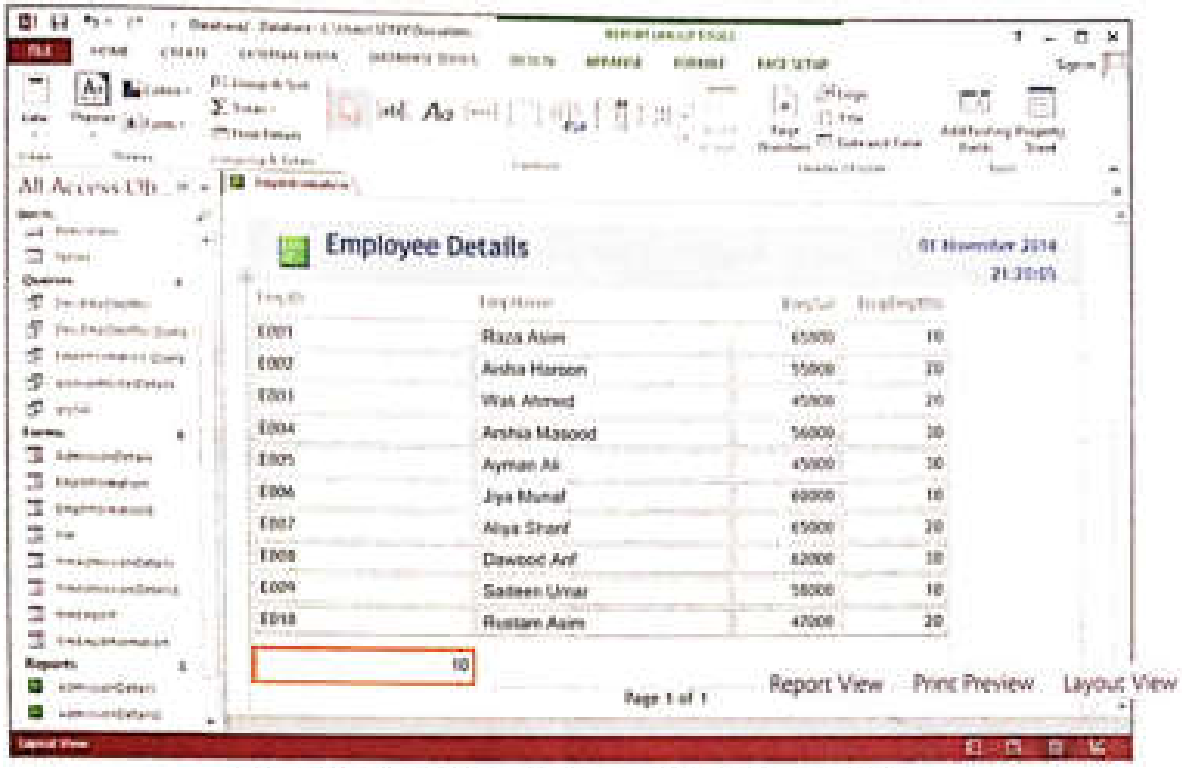

Fig. 2.42 A report created using the **Report** command

Using the Report Wizard

Follow these steps to use the **Report Wizard:**

1. Click **Report Wizard** in the **Reports** group on the **CREATE** tab.
2. **Report Wizard** screen 1 of 5 appears (Fig. 2.43). Choose the table or query, add the fields that you want to see in the report results, and click **Next**.
3. **Report Wizard** screen 2 of 5 appears (Fig. 2.44). Select the **grouping level** within the report and click **Next**. Here the grouping level is by **EmpDeptNo**.

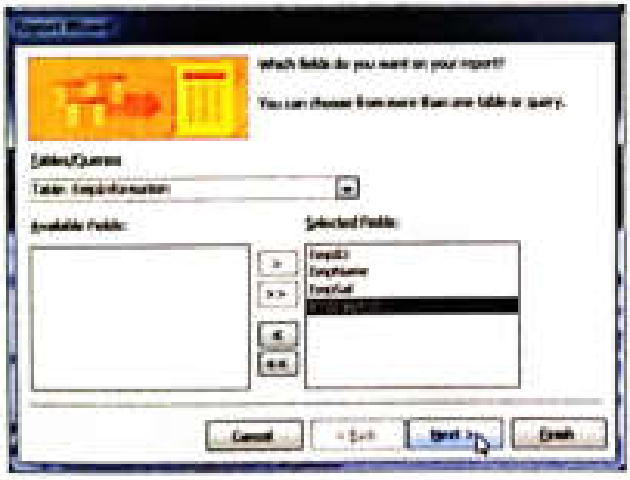

Fig. 2.43 **Report Wizard** screen 1 of 5

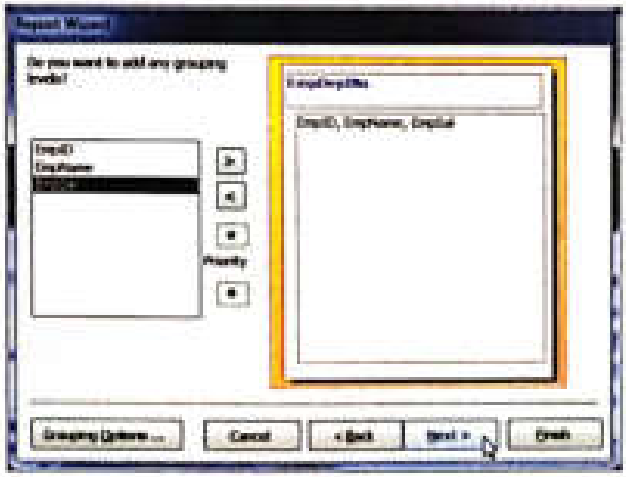

Fig. 2.44 **Report Wizard** screen 2 of 5

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4. **Report Wizard** screen 3 of 5 appears (Fig. 2.45). In this screen you can set the sort order and the summary options. You can sort data by upto four fields.

   Here it is being sorted only by one field, EmpSal. By default, sorting is in **Ascending** order. Click the **Ascending** button to change it to **Descending**.

5. Clicking **Next** will take you to **Report Wizard** screen 4 of 5 (Fig. 2.46). Select the type of **Layout** within the report.

   In the **Orientation** section, select either **Portrait** or **Landscape**. Click **Next**.

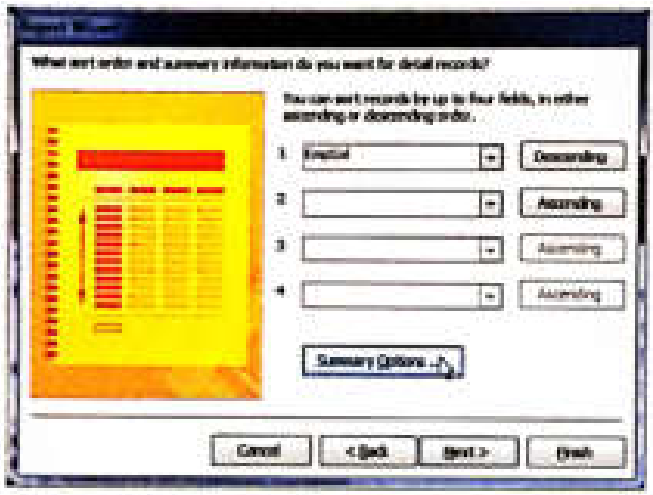

Fig. 2.45 **Report Wizard** screen 3 of 5

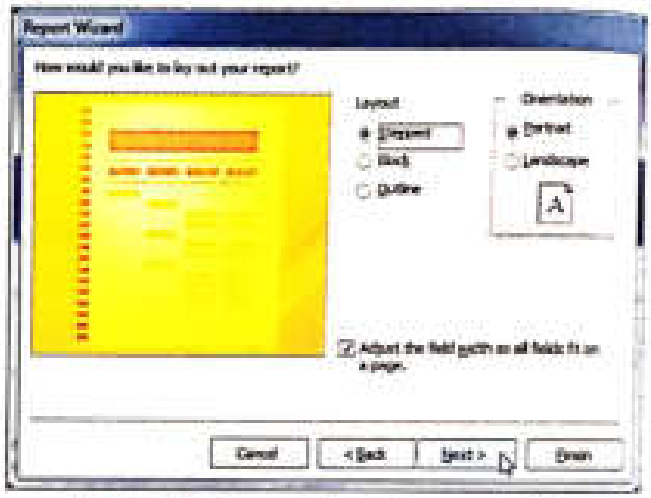

Fig. 2.46 **Report Wizard** screen 4 of 5

6. **Report Wizard** screen 5 of 5 opens (Fig. 2.47). Type a title for the report, which will also be the name assigned to the report. Select **Preview the report** and click on **Finish**.

   The report will appear on the screen (Fig. 2.48).

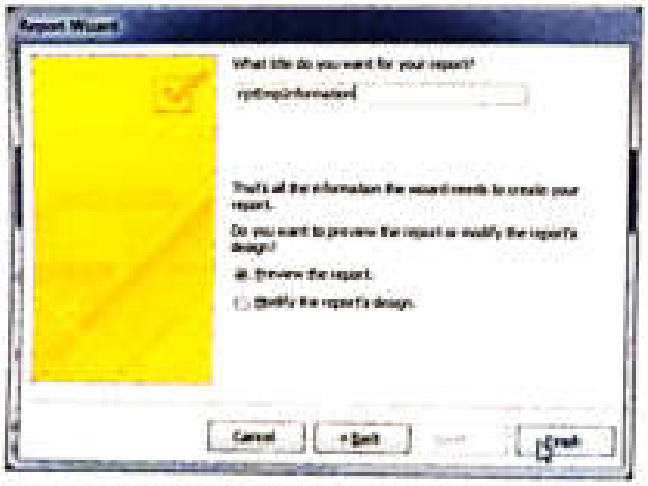

Fig. 2.47 **Report Wizard** screen 5 of 5

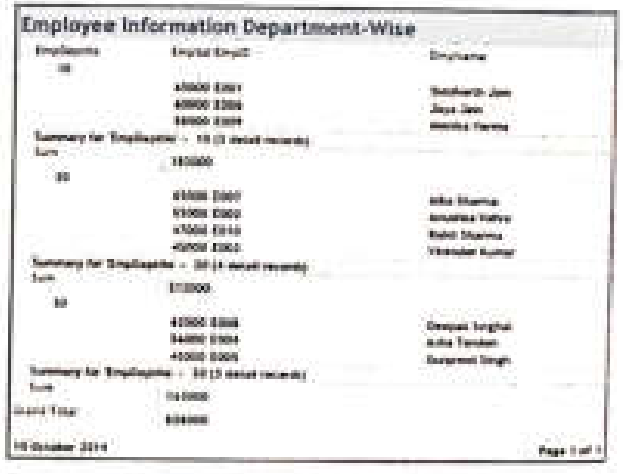

Fig. 2.48 A report created using the **Report Wizard**

Printing a Report

1. Click the **Print Preview** button at the bottom-right side of the status bar. The ribbon changes as shown in Figure 2.49.

Fig. 2.49 **PRINT PREVIEW** tab options

2. Select the desired options and click **Print**. This will open the **Print** dialog box (Fig. 2.50).

Or

Click FILE and select the **Print** option in the **FILE** menu. The **Print** dialog box appears (Fig. 2.50).

Select the required options and click **OK**.

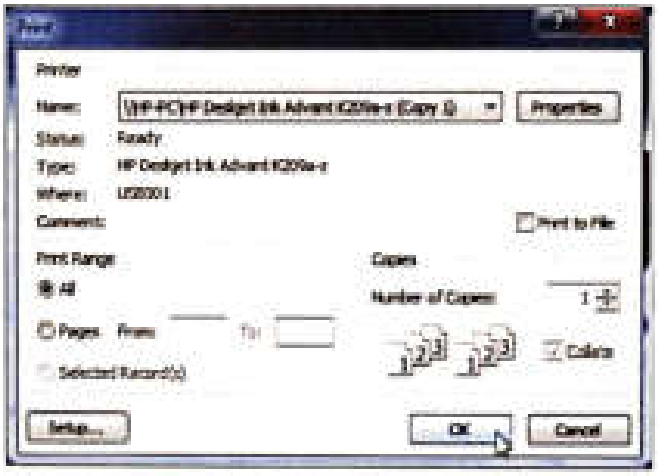

Fig. 2.50 **Print** dialog box

PRACTICE TIME

The Computer Science teacher has asked the students of Class VIII to create a table named **TeacherDetails** with the fields given below:

Field Name	Data Type	Description
Teacher ID	Short Text	Teacher ID as Primary key
Teacher Name	Short Text	Name of the teacher
Date of Birth	Date/Time	Date of Birth
Gender	Lookup Field	Gender as M (Male) or F (Female)
Department	Lookup Field	Departments: Kindergarten, Primary, Secondary, Senior Secondary, Principal, Office
Date of Joining	Date/Time	Date of joining the school
Salary	Number	Monthly salary

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Then they have to do the following:

- Enter 10 records.
- Create a form for data entry and format it as per their choice along with a logo.
- Create a query to display **Teacher ID**, **Teacher Name**, **Department**, and **Date of Joining** in descending order.
- Create a report for the query created in the previous step. The report is to be grouped by department.

SOLUTION

1. Create a new database. The new database will open with one table, Table1, in **Datasheet View**. Now click the **View** drop-down menu arrow and select **Design View**.
2. Access will prompt you to save the table. Enter the **Table Name** as **Teacher Details** and click **OK**.
3. This will open the table in **Design View**. Type in the **field names**, select the required **data types** and enter the **descriptions**. Select the **Teacher ID** field and click the **Primary Key** button in the **Tools** group on the **Design** tab, to make it the primary key field.
4. Click the drop-down menu arrow of the **View** button in the **Views** group on the **DESIGN** tab, and switch back to the **Datasheet View**.
5. Enter 10 records. Use the **TAB** key to move from one column to the next.
6. Click **Form** in the **Forms** group on the **CREATE** tab to create a form. The form will appear on the screen in **Layout View**.
   a. Click the **DESIGN** tab.
   b. Click **Logo** in the **Header/Footer** group. The **Insert Picture** dialog box appears. Select a suitable logo and click **OK**.
   c. Click **Title** in the **Header/Footer** group and type a new title.
   d. Click **Date and Time** in the **Header/Footer** group. Select a suitable format and click **OK**.
   e. Click **Themes** in the **Themes** group and select a theme of your choice.
   f. Click **Fonts** in the **Themes** group and select a font you prefer.
   g. Now, select the **FORMAT** tab.
   h. Click **Shape Fill** in the **Control Formatting** group. Select a desired Colour from the Colour pallete that appears.
   i. Click **Save** on the **Quick Access Toolbar**. The **Save As** dialog box appears. Type **frmTeacherDetails** and click **OK**.
7. Now, to create a query, click **Query Design** in the **Queries** group on the **CREATE** tab. The **Show Table** dialog box appears. Select the Teacher Details table. Click on **Add** and then click on **Close**.
8. Drag the Teacher ID, Teacher Name, Department and Date of Joining fields from the table to the **Query Design Grid**.
   a. Select the **Ascending** option in the **Sort** menu of the Date of Joining field.
   b. Click **Run** in the **Results** group on the **DESIGN** tab to run the query.

c. Save the query as qry Teacher Details.

9. Now, select the query qry Teacher Details in the **Navigation pane**. Click on **Report** in the **Reports** group on the **CREATE** tab. The report will appear on the screen.
   a. Save the report as rpt Teacher Details.
   b. If you wish to print the report, click **FILE** and select **Print** in the menu that opens.
   c. Select **Print Preview** in the centre pane if you want to see how the report will look on paper or click **Print**.
   d. In the **Print** dialog box that appears, select the required options, and click **OK**.

Computer Manners

After you have finished working on the computer, you should save your files and log out, shut down, and switch off the monitor before leaving the room. This will help you make a useful contribution to saving electricity, in the same manner you do by switching off fans and lights before leaving the room.

Tricky Terms

Datasheet View the view in which you can enter and modify the data in a table

Design View the view in which you can modify the structure of a table

Row/Field Selector the grey box at the left end of each row in the field definition area when a table's structure is displayed in Design View

Field Name the name assigned to a field that appears as a column heading in the first row of a database table

Data Type a property that restricts entries in a field to a specific type of data

Primary Key a field or a combination of fields that uniquely identifies a record

Query a method of getting answers to questions about data

Form a way for viewing, entering, editing, and deleting data in a table.

Report data presented in an easy-to-read, printable format.

Grouping Level the level by which records are grouped in a report. When you group on a field, the report adds a group header and footer around each group of records that have the same value in that field.

Memory Bytes

- The **Design View** window is made up of two parts: the **Field Definition Grid** and the **Field Properties** area.
- The **Field Definition Grid** consists of the **Field Selector**, and the **Field Name**, **Data Type**, and **Description** columns.
- You can select multiple fields by pressing the CTRL key and clicking the **Field Selector**.
- A primary key field should have unique values. Access displays an error message if you attempt to enter a value that is already present.
- In the **Field Properties** area, you can specify **Field Size**, **Format**, **Input Masks**, **Field Caption**, **Default Value**, **Validation Rule**, **Validation Text**, **Required**, and **Allow Zero Length**.
- A **Lookup field** is used to restrict the data entered in a field to a list of values from an existing table or a list of values that you created.
- When a field has a validation rule, Access checks the entered data to make sure it conforms to the rule. If the data violates the rule, an error message is displayed. The entry is accepted only when valid data is entered.
- The **CREATE** tab has options to create Queries, Forms, and Reports.

EXERCISES

Objective Type Questions

1. Choose the correct option.

a. In Access, the **Short Text** data type may contain a maximum of
i. 255 characters ii. 256 characters iii. 65535 characters iv. 1024 characters

b. Which property is set to **Yes** so that data in a field is mandatory?
i. Caption ii. Required iii. Default Value iv. Allow Zero Length

c. Which of the following is not a view for displaying a report?
i. Print Preview ii. Design View iii. Layout View iv. Datasheet View

d. Which data type could be used for the field, **Remark** or **Comment**?
i. Short Text ii. Long Text iii. AutoNumber iv. Number

e. The validation check required to have a value within the range 1 to 500 in the **RollNo** field would be
i. >=1 OR <= 500 ii. >=1 AND <= 500 iii. >1 AND <= 500 iv. >=1 AND < 500

Descriptive Type Questions

Answer the following.

a. Describe the four parts of the **Field Definition Grid.**
b. What are the different ways of setting a field as a primary key?
c. Why is a form preferred over the **Datasheet** View for entering data?
d. How will you switch from **Datasheet** View to **Design** View and vice versa?
e. What do you understand by the AutoNumber field in Access? Can you change the data type of any field to AutoNumber?
f. Give a validation rule such that a user can enter only the values 1, 2, or 3?
g. Compare the two methods of creating a table in MS Access (Datasheet View and Design View). Which one would you prefer to use to record the advantages and disadvantages of using the Internet?
h. Access 2013 allows you to define field properties such as size, format, input mask, and validation rule. Analyse the importance of each field property for a database with hundreds of entries.
i. Using the information you collated for Question 3 of Chapter 1, create a form to enter the information about the teams that played in the World Cup. You may use any of the three methods (see page 43 of your Keyboard 8 book if you get stuck) to design the form. Make sure to list the steps you will take to create the form and give reasons for your choices

Application-Based Questions

a. Consider the table given on right and answer the following:

AdmnNo	Name	Class	DateofAdmission	Nationality
A1243	Muneeb Khawar	XII	05-12-2013	Pakistani
A1156	Seema Gul	XI	05-17-2013	Pakistani
A1233	Deena Rahim	XII	08-25-2013	Pakistani

   i. How many records and fields are there in the table?
   ii. Which field can be a suitable primary key?
   iii. What will be a suitable data type for each field?
   iv. Which property would you set so that the field 'Nationality' automatically has the value 'Pakistani'?

b. Mr. Shanza Jamil looks after the transport department of Alsan Public School. He has decided to maintain a database of all students going by the school bus.
   i. Suggest any six fields which you think must be present in this table.
   ii. Suggest suitable data types for the fields identified by you.
   iii. Which field can be set as the primary key?

c. The Sports Academy of Karachi wants to maintain the details of all its members in a table named Sports Academy. Can you work out which property of the following fields should they set in the **Field Properties** pane for the given field descriptions?

Field Name	Description
Member ID	It should be of 5 characters.
Name	It should be of maximum 30 characters
Mobile	It should not be left blank and it should display as (_ _) _ _ _ - _ _ _ _
Sports Joined	It can be any one in the list – Cricket, Hockey, Lawn Tennis, Basket Ball, Hand Ball
Charges	It should be in the range 1500 to 3000; otherwise it displays a message 'Not in the range'.
Category	1 for School Student or 2 for General

d. In a student table having the fields **RollNo**, **Name**, **Address**, **Phone**, and **Salary**, the **Salary** field is the odd one out (It is an important field of an employee table but irrelevant in the case of a student table)

Similarly, identify the column which should not be present in the tables—**Book Details** and **Member Details**—that belong to a library database used to record information on the library's members and the books it has.

i. Table: **Book Details**

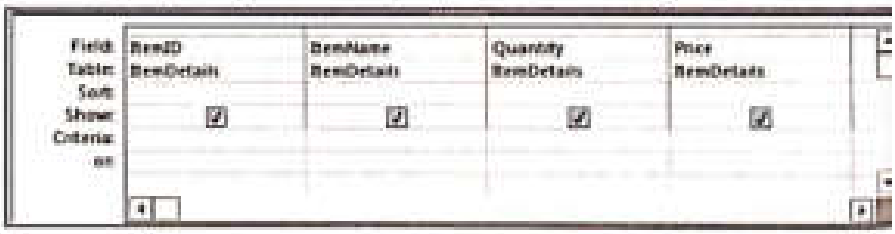
ISBN	Title	Author	Publisher	Author Address	No of Copies	Price

ii. Table: **Member Details**

ID	Name	Mobile	Address	Income	Quantity

e. Consider the following **Query Design Grid**:
What changes would you make in the **Query Design Grid** to perform the following tasks:

i. To display only Item ID, Quantity, and Price.
ii. To display only those records with Price less than 100.
iii. To display only those records having Quantity greater than 5.
iv. To display records in descending order of Price.



IN THE LAB

1. Amya Hospital maintains the details of all its patients in a table named Patient Details that consists of the following fields:

Field Name	Data Type	Caption	Field Size	Properties
ID	AutoNumber	Patient ID		
FirstName	Short Text	First Name	15	
LastName	Short Text	Last Name	15	
Phone	Number	Mobile Phone		Input Mask (_ _ _) _ _ _-_ _ _ _
EmergencyName	Short Text	Emergency Name	15	
EmergencyPhone	Number	Emergency Phone		Input Mask (_ _ _) _ _ _-_ _ _ _

Ruby has recently joined the hospital and has been asked by her manager to do the following tasks:

a. Create a form, and format it as per her choice.

b. Enter records of any 10 patients in the hospital.

Can you help Ruby in this task?

2. Krimpson hotel maintains the details of all the rooms in the hotel in a table named Room Details that consists of the fields shown in the table alongside. Rahman, an employee of this hotel, has been asked by his manager to do the following tasks:

Field Name	Data Type	Caption	Data can be
RoomNumber	Number	Room Number	
RoomType	Lookup Field	Room Type	General, Suit, Haveli
BedType	Lookup Field	Bed Type	Single, Double
Rate	Number		
RoomStatus	Lookup Field	Room Status	Available, Not Available

a. Create a form and save it as frmRoomDetails. Enter 10 records of existing customers.

b. Create a query to display all the rooms with 'Available' as the status and save the result as qryAvailableStatus.

Help Rahman with this task.

3. Alsan Pvt. Ltd. maintains the details of temporary employees of the company in a table named TempEmpDetails that consists of the fields shown in the table on the right.

Field Name	Data Type	Properties
Employee ID	Short Text	Primary Key
Emp Name	Short Text	
Date Hired	Date / Time	
Salary	Number	It should be in the range 5000 to 10000; otherwise a message appears.
Overtime	Yes / No	Default Value — Yes
Comments	Long Text	

Hassan, an employee of Alsan, has been assigned to perform the following tasks:

a. Enter 10 records in **Datasheet View**.

b. Create a report in ascending order of salary and save it as rptAscendingSalary.

Can you help Hassan with this task?

4. The class teacher of VIII has asked Gazni to create a table. Student Details, with the fields as listed in the table on the right.

Field Name	Data Type	Properties
RollNo	Number	
Stu Name	Short Text	
Grade	Lookup Field	It can be A, B, C, D, or E

He now has to do the following:

a. Enter 10 records in **Datasheet View**.

b. Create a query to display records of students only with A grade and save it as qryGrade.

c. Create a query to display records in ascending order of Stu Name and save it as qryAscending Name.

d. Create a report grouped by the Grade field and save it as rpt Grade.

Help Gazni with the steps to carry out the tasks assigned.

5. The Science teacher has asked Mariam to create a table ScienceMarks, consisting of the fields mentioned in the table alongside, and then do the following tasks:

a. Enter 10 records in **Datasheet View**.

b. Create and print a report to display Total in descending order and save it as rptDescendingTotal.

Field Name	Data Type	Properties
RollNo	Number	Primary Key
Stu Name	Short Text	
Assignment Marks	Number	Marks out of 50
Assignment 20%	Calculated	It calculates 20% of the assignment marks
Test Marks	Number	Marks out of 100
Test 80%	Calculated	It calculates 80% of the test marks
Total	Calculated	Sum of Assignment20% and Test80%.

Mariam is not sure of the steps to complete this task. Can you help her remember them?

GROUP PROJECT

Sporting data is great for creating and using databases. Have you considered why this is the case? Carry out some research about the last cricket world cup (men's or women's) and find out the final results of all the teams.

Working as a group, create your own database using this information. Determine the fields required to enter the data, such as how to enter and access the data and how to generate reports.

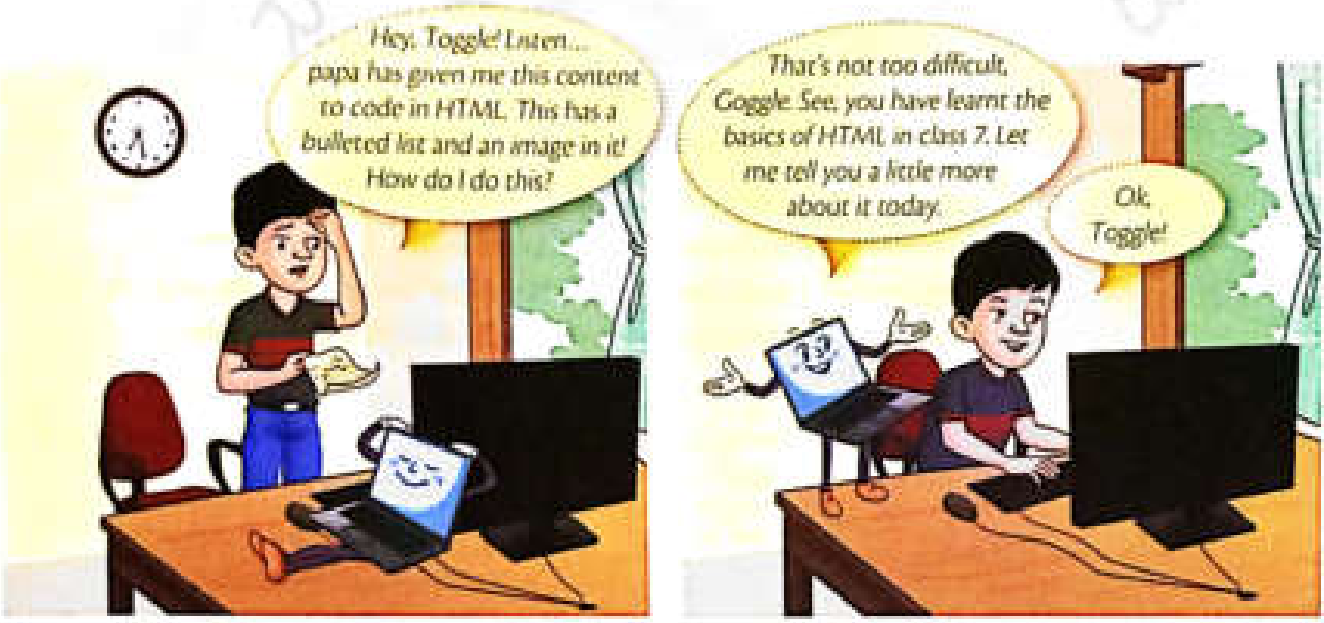
Have you completed the task in a different way to other groups in your class? Share your ideas and compare your findings. Learn from one another and make any changes to your own database.

TEACHER'S NOTES

- Explain the uses of a primary key in a table by taking real-life examples.
- Demonstrate how to set the properties in the **Field Properties** pane, and the results obtained by selecting different options.
- Spend some time discussing the working of the validation rule and validation text, and their importance.
- Discuss with the students the usefulness of the Query, Form, and Report features in Access.

Chapter 3

Lists and Images in HTML 5



In Class 7, you have learnt how to create an HTML document in a text editor such as **Notepad** and view it in a **web browser**.

You had also learnt about some basic HTML tags and attributes using Cascading Style Sheets.

In this chapter, you will learn how to create different types of lists and how to insert images in an HTML document.

In this Chapter

- Creating Lists
- Nesting Lists
- Inserting Images

Let us first recall the properties of the HTML elements as discussed in class 7 (Table 3.1).

Table 3.1 HTML Properties

Text Properties	Description	Values	Examples
Colour	Specifies the foreground colour of the text	colour name, hexadecimal colour value, RGB colour values	Color: red Color: #243535 Color: rgb (45,65,150)

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text-align	Specifies the horizontal alignment of text in a block of text	left, right, center, justify	text-align: right
line-height	Specifies the distance between two lines	**normal** (default), **number** (a number that will be multiplied with the current font size to set the line height), **length** (a fixed line height in px, pt, cm), or **percentage value** (a line height in percentage of current value)	line-height: normal line-height: 8px
text-decoration	Specifies the decorations that are added to the text – underlining, line through, etc.	**none** (default – defines normal text), **underline** (defines a line below the text), **overline** (defines a line above the text), or **line-through** (defines a line through the text)	text-decoration: overline text-decoration: underline
text-shadow	Specifies a shadow effect for the text	None, colour name, or colour value	text-shadow: 2px 2px green
text-transform	Controls the capitalisation of text	**none** (default – the text appears as it is), **capitalize** (the first character of each word in uppercase), **uppercase** (all characters are in uppercase), or **lowercase** (all characters are in lowercase)	text-transform: uppercase

Font Properties	Description	Values	Example
font	Specifies all the font properties in one declaration	'font-style font-variant font-size font-family'	font: bold 18px arial
font-family	Specifies a list of font names	Font name	font-family: arial
font-size	Specifies the size of a font	xx-small, x-small, small, medium (default), large, x-large, xx-large, larger, smaller, value or percentage	font-size: large font-size: 17px font-size: 14pt
font-style	Specifies the style of the font	normal, italic, oblique	font-style: italic font-style: oblique

Margin Properties	Description	Values	Example
margin	Sets all the margin properties in one declaration	margin-bottom; margin-left; margin-right; margin-top	margin: 10px 5px 5px 10px
margin-bottom	Sets the fixed bottom margin of an element in px, pt, cm, etc.	Length Default value is 0px	margin-bottom: 1cm
margin-left	Sets the left margin of an element in px, pt, cm, etc.	Length Default value is 0px	margin-left: 2cm
margin-right	Sets the right-margin of an element in px, pt, cm, etc.	length Default value is 0px	margin-right: 10px
margin-top	Sets the top margin of an element in px, pt, cm, etc.	length Default value is 0px	margin-top: 3cm

Border Properties	Description	Values	Examples
border	Sets all the border properties in one declaration	border-width, border-style, border-colour	border: solid 3px green
border-width	Specifies the width of the border	thin, medium (default) thick, length (you can define the thickness of the border)	border-width: thick border-width: 5px
border-style	Specifies the style of the border	none (no border), dotted, dashed, solid, double, groove, ridge, inset, or outset	border-style: dashed border-style: inset
border-Colour	Specifies the colour of the border	colour name, or colour value	border-color: maroon

Background Properties	Description	Value(s)	Examples
background-Colour	Specifies the background Colour	colour name/colour value/ transparent	background-color: yellow

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background-image	Specifies the background image	URL of the image	background-image: url('sky.jpg')
background-position	Specifies the initial position of the background image	Left top/left centre/left bottom/right top/right centre/right bottom/centre top/centre centre/centre bottom x-position, y-position X%, Y%	background-position: centre
background-attachment	Specifies whether the background image is fixed or scrolls when the user scrolls the rest of the page	Scroll, fixed	background-attachment: fixed
background-repeat	Specifies whether the background image is repeated or not	repeat repeat-x repeat-y no-repeat	background-repeat: repeat-x

CREATING LISTS

HTML supports several types of list elements that we can include within the `<body>` tag of the document. These elements may be nested, i.e., one set of elements can be embedded within another.

List Item Tag

We use the list item tag `<li>` to define each item of a list. Once we define the list items with the `<li>` tag, the list appears in the web browsers in bulleted form (by default).

Let us type the HTML code given in Figure 3.1 to see how the `<li>` tag works. See the output of the code in Figure 3.2.

The different types of lists that we can create in an HTML document are:

- Unordered lists
- Ordered lists
- Description lists

Did you Know?

An unordered list uses bullets (symbols) as the list-item marker. An ordered list uses numbers or letters of the alphabet as the list-item markers.

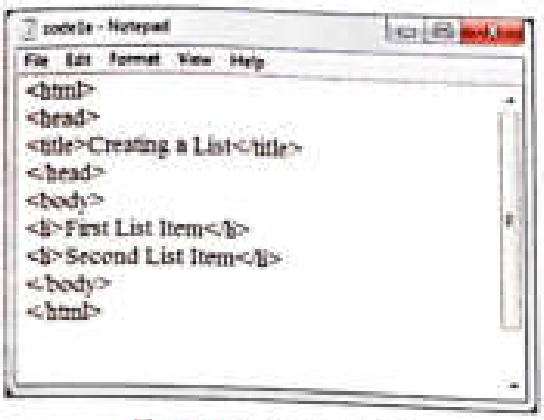

Fig. 3.1 Creating a list

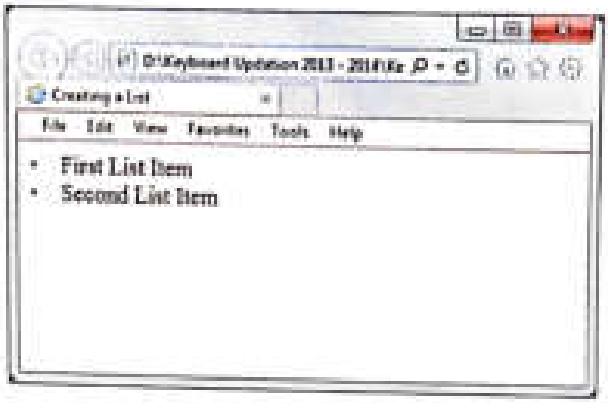

Fig. 3.2 An unordered (or bulleted) list

Working with List Properties

Using the list properties, you can specify the style and position of the list-item marker. Various list properties that are common to both ordered and unordered lists are given in Table 3.2:

Table 3.2 List properties

Property	Description	Value(s)	Examples
list-style	This is used to set all list properties in one declaration	list-style-position; list-style-image; list-style-type	list-style: square inside
list-style-position	Specifies the position of the list-item marker	inside outside	list-style-position: inside

Note: Another property called the `list-style-type` property is used to specify the type of list-item marker and has different values for ordered and unordered lists. We will discuss this property under `<ul>` and `<ol>` tags.

Unordered List Tag

An unordered list is used for items in which the ordering of items is not important. An unordered list is also called a bulleted list.

The list is defined using the `<ul>` and `</ul>` tags. Each item in the list is defined using the `<li>` tag.

The bullet style can be added to the list items by using the **list-style-type** property as given in Table 3.3.

Here, a circle specifies a hollow bullet; a disc specifies a solid round bullet; and a square specifies a square bullet.

The **list properties** for an unordered list are given in Table 3.3:

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Table 3.3 List properties for an unordered list

Property	Description	Value(s)	Examples
list-style-image	Specifies the image that will be used as the list-item marker	none (default), or path of the image to be used as the list-item marker	list-style-image: url ('abc.gif')
list-style-type	Specifies the bullet style that will be used as the list-item marker	none, disc (default), circle, or square	list-style-type: square

The HTML code given in Figure 3.3 will explain how to create an unordered list. Figure 3.4 shows the output.

code1 - Notepad

File Edit Format View Help

```
<!DOCTYPE html>
<html>
<head>
<title>Creating Unordered List</title>
<style type="text/css">
ul {list-style-type: square}
</style>
</head>
<body>
<h2>List of Subjects in Science</h2>
<ul>
<li>Physics</li>
<li>Chemistry</li>
<li>Biology</li>
</ul>
</body>
</html>
```

Fig. 3.3 Creating an unordered list

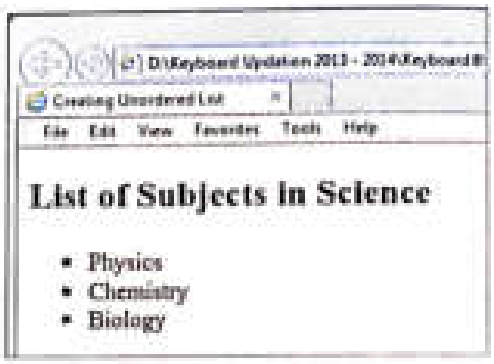


Fig. 3.4 Unordered list with square bullets

Setting an Image as List-Item Marker

You can use an image to mark the list items in an unordered list. The address of the image is specified using the **list-style-image** property.

Consider the following HTML code in Figure 3.5 to learn how to set an image as a list item marker. The output is shown in Figure 3.6.

code2 - Notepad

File Edit Format View Help

```
<!DOCTYPE html>
<html>
<head>
<title>Creating Unordered List</title>
<style type="text/css">
ul {list-style-image: url('smiley.gif')}
</style>
</head>
<body>
<h2>List of Subjects in Science</h2>
<ul>
<li>Physics</li>
<li>Chemistry</li>
<li>Biology</li>
</ul>
</body>
</html>
```

Fig. 3.5 Setting an image as a list-item marker

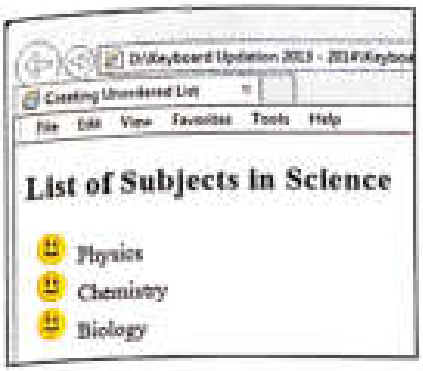


Fig. 3.6 Image set as a list-item marker

Ordered List Tag

An ordered list defines a list of items in which the order of items matters. An **ordered list** is also called a numbered list. The list items are enclosed within `<ol>` and `</ol>` tags.

Ordering of the list items is given by a numbering scheme, using Arabic numbers, letters, or Roman numerals.

The list property used for an ordered list is given in the following table (Table 3.4):

Table 3.4 List property for an ordered list

Property	Description	Value(s)	Example
list-style-type	Specifies the type of list-item marker	decimal (default), lower-roman, upper-roman, lower-alpha, or upper-alpha	list-style-type: lower-alpha

The HTML code given in Figure 3.7 will explain how to create an ordered list. Figure 3.8 shows the output in the web browser.

```
<!DOCTYPE html>
<html>
<head>
<title>Creating Ordered List</title>
<style type="text/css">
ol {list-style-type: upper-alpha}
</style>
</head>
<body>
<h2>List of organ systems in the human body</h2>
<ol>
<li>Digestive System</li>
<li>Respiratory System</li>
<li>Circulatory System</li>
<li>Nervous System</li>
<li>Excretory System</li>
<li>Skeletal System</li>
<li>Nervous System</li>
<li>Muscular System</li>
<li>Reproductive System</li>
<li>Endocrine System</li>
</ol>
</body>
</html>
```

Fig. 3.7 Creating an ordered list

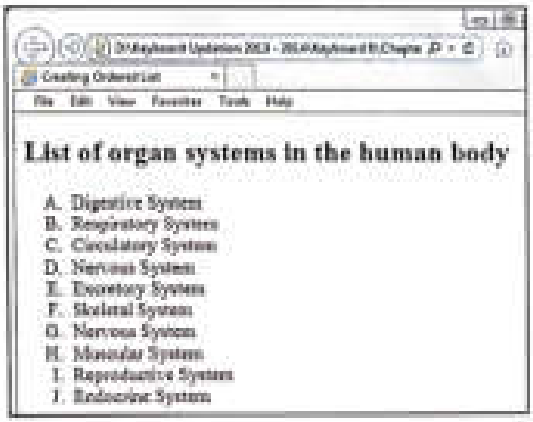
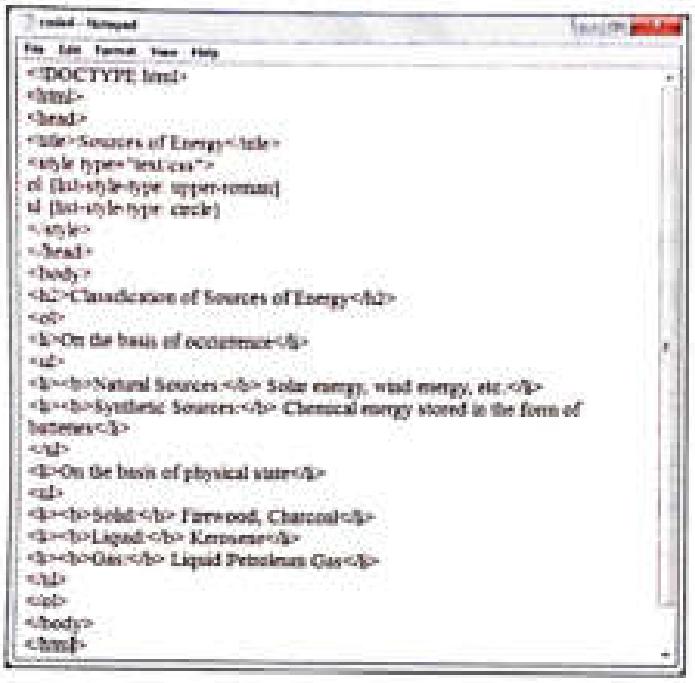


Fig. 3.8 Ordered list

NESTING LISTS

Apart from creating ordered and unordered lists, HTML also allows **nesting of lists**. You can nest any list inside any other list. For example, an ordered list can be nested within an unordered list, or an ordered list can be nested within another ordered list.

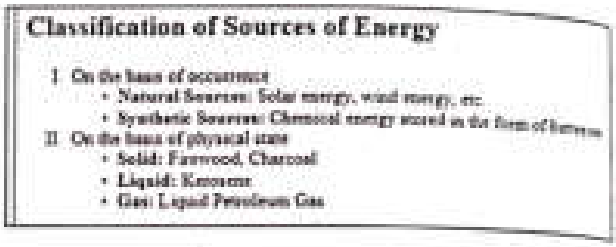


```
<!DOCTYPE html>
<html>
<head>
<title>Sources of Energy</title>
<style type="text/css">
ol {list-style-type: upper-roman}
ul {list-style-type: circle}
</style>
</head>
<body>
<h2>Classification of Sources of Energy</h2>
<ol>
<li>On the basis of occurrence</li>
<ul>
<li><b>Natural Sources:</b> Solar energy, wind energy, etc.</li>
<li><b>Synthetic Sources:</b> Chemical energy stored in the form of
batteries</li>
</ul>
<li>On the basis of physical state</li>
<ul>
<li><b>Solid:</b> Firewood, Charcoal</li>
<li><b>Liquid:</b> Kerosene</li>
<li><b>Gas:</b> Liquid Petroleum Gas</li>
</ul>
</ol>
</body>
</html>
```

Fig. 3.9 Creating a nested list

The HTML code in Figure 3.9 on the left shows how nesting of lists works.

The output of this code is shown in Figure 3.10.



Classification of Sources of Energy

I. On the basis of occurrence
- Natural Sources: Solar energy, wind energy, etc.
- Synthetic Sources: Chemical energy stored in the form of batteries

II. On the basis of physical state
- Solid: Firewood, Charcoal
- Liquid: Kerosene
- Gas: Liquid Petroleum Gas

Fig. 3.10 Nested lists

PRACTICE TIME

Create a simple web page using HTML to give some tips to ensure healthy and proper functioning of the human eye. Set the following properties:

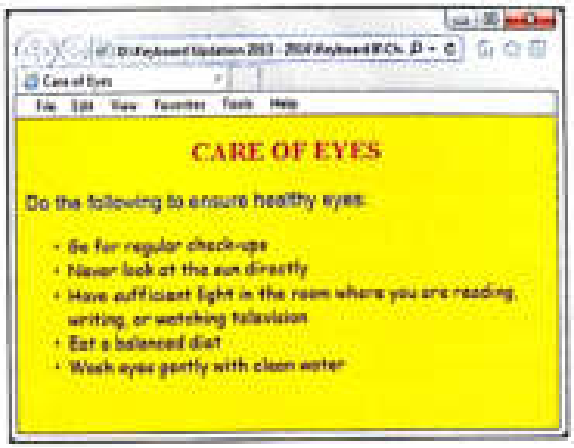
- Background colour should be yellow.
- Paragraph text should be in blue. Font size should be large and font should be Arial.
- Heading level 2 should be centre-aligned, in red, and in upper case.
- Unordered list in maroon, medium font size, in Comic Sans MS font. The list-item marker should be a disc.

SOLUTION

1. Type the HTML code in Notepad as given alongside.
2. Select **File ▸ Save As**.
3. In the **Save As** dialog box, choose the location where you wish to save the document.
4. Enter the file name with the extension .htm (eyes.htm) or .html (eyes.html), and click **Save**.

```
<!DOCTYPE html>
<html>
<head>
<title>Care of Eyes</title>
<style type="text/css">
body {background-color:yellow}
h2 {text-align: center; color: red; text-transform: uppercase}
p {color:blue; font-family: arial, font-size:large}
ul {list-style-type: disc; font-family: "Comic Sans MS"; font-size:medium;
color: maroon}
</style>
</head>
<body>
<h2>Care of Eyes</h2>
<p>Do the following to ensure healthy eyes:</p>
<ul>
<li>Go for regular check-ups</li>
<li>Never look at the sun directly</li>
<li>Have sufficient light in the room where you are reading, writing, or
watching television</li>
<li>Eat a balanced diet</li>
<li>Wash eyes gently with clean water</li>
</ul>
</body>
</html>
```

5. To view the file in a web browser:
   a. Open Internet Explorer.
   b. Select **File ▸ Open**.
   c. Click on **Browse** in the **Open** dialog box that appears.
   d. Select the file eyes.html and click **Open**.
   e. When the **Open** dialog box reappears, click **OK** to open the page. The web page appears in the browser as shown in the figure on the right.



Description List Tag

The description list tag is used to build a list of definitions.

The tags used for creating a description list are:

<dl> Description list
<dt> Definition list term
<dd> Definition list description

Top Tip

In HTML 4.01 the <dl> tag defined a **definition** list, while in HTML 5.0 the <dl> tag defines a **description** list.

```
<!DOCTYPE html>
<html>
<head>
<title>Creating Description List</title>
<style type="text/css">
dt { color:blue; font-size: large}
dd {color:green; font-size:medium}
h2 {text-transform: uppercase}
</style>
</head>
<body>
<h2>Definitions</h2>
<dl>
<dt>Renewable Resources</dt>
<dd>A renewable source of energy is one which can be used again and again</dd>
<dt>Non-renewable Resources</dt>
<dd>Energy sources once used cannot be recreated in a short period of time</dd>
</dl>
</body>
</html>
```

Fig. 3.11 Creating a description list

The HTML code given in Figure 3.11 will make the working of description list tags clear.

The output of the code is shown in Figure 3.12.

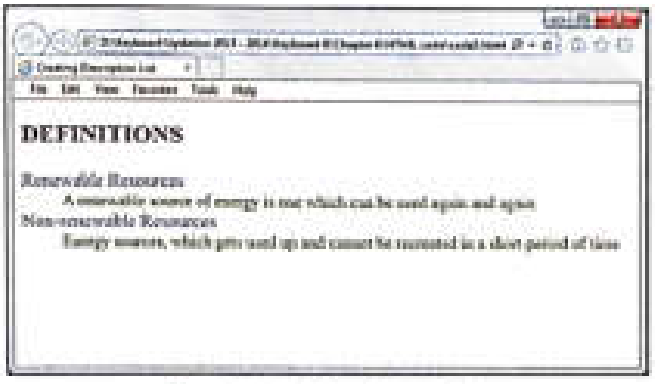


Fig. 3.12 A description list

INSERTING IMAGES

We can use various types of fonts and lists in an HTML document as per our requirement. Similarly, we can add graphics or images to make the document look more attractive. You have already learnt how to insert images as a background using the **background-image** property. Here we will learn how to insert an image to support the text. web browsers support a number of graphic formats like **jpeg**, **gif**, **tiff**, etc. Given below are some of the most widely used formats:

- Graphics Interchange Format (GIF) is the best format for displaying images designed with a graphics program. This format uses a maximum of 256 Colours and a combination of these to create more Colours. The GIF format is not suitable for photographic images or images with gradient Colours because GIF format has limited Colours.
- Joint Photographic Expert Group (JPEG) is the best format for photographs, as it contains 1 million Colours.
- Portable Network Graphics (PNG) This format is best for images with transparencies or low Colour counts.

Image Tag

The `<img>` tag specifies an image to be displayed in an HTML document. The `<img>` tag has the following attributes (Table 3.5):

Top Tip

The `<img>` element does not have a closing tag. Thus, it is an empty element. The list elements are all container elements as they have an opening as well as a closing tag.

Table 3.5 Attributes of the `<img>` tag

Attribute	Description	Value(s)	Example
src	Specifies the URL of an image	URL	`<img src="a1.jpg">`
alt	Specifies an alternate text for an image	text	`<img src="a1.jpg" alt= "Image not available">`
height	Specifies the height of an image	Value in pixels	`<img src="a1.jpg" height="100">`
width	Specifies the width of an image	Value in pixels	`<img src="a1.jpg" height="100" width="80">`

You have already learnt how to set the margin, alignment, and border properties in the previous class. The same can also be used for an `<img>` tag. You can also specify the height and width of an image using CSS.

Did you Know?

In HTML 4.01, the height and width could be defined in pixels or in percentage. In HTML 5, the value can be specified only in pixels.

The following HTML code in Figure 3.13 will help you understand the `<img>` tag. The output is shown in Figure 3.14.

```
<!DOCTYPE html>
<html>
<head>
<title>Inserting Images</title>
<style type="text/css">
image { border: 2px solid red; width: 150px; height: 70px}
h2 {text-transform: uppercase}
</style>
</head>
<body>
<h2>Inserting an Image</h2>
<img src= "flower.jpg">
<img src= "flowers.jpg" alt= "Image is not available">
</body>
</html>
```

Fig. 3.13 Code for inserting images

Fig. 3.14 Image in a web page

Tricky Terms

Unordered list a list in which the order of items is not fixed

Ordered list a list in which the order of items is fixed

Description list a list of items where each item has a block of text acting as definition

GIF Graphics Interchange Format

JPEG Joint Photographic Expert Group

PNG Portable Network Graphics

Memory Bytes

- List items are defined by the `<li>` tag.
- The items of an unordered list are enclosed by `<ul>` and `</ul>` tags.
- The items of an ordered list are enclosed by `<ol>` and `</ol>` tags.
- The tags used for creating a description list are `<dl>`, `<dt>`, and `<dd>`.
- HTML allows nesting of lists. Any kind of list can be nested inside any other.
- Graphics can be inserted in a document using the `<img>` tag.
- The most widely used graphic formats are GIF, JPEG, and PNG.

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EXERCISES

Objective Type Questions

1. Choose the correct option.

a. An ..... list is used for items in which the ordering is not specific.
   i. Ordered ii. Unordered iii. Definition iv. none of these

b. Which of the following values can be specified for the **list-style-type** property?
   i. disc ii. circle iii. square iv. all of these

c. Which of the following property is used to specify an image as the list-item marker?
   i. list-style-image ii. image iii. style-image iv. none of these

d. In an ordered list, the ordering is given by a numbering scheme using
   i. arabic numbers ii. letters iii. roman numerals iv. Any one of these

e. The ..... tag specifies an image to be displayed in an HTML document.
   i. `<img>` ii. `<image>` iii. `<imagehtml>` iv. none of these

f. The attribute of the `<img>` tag that specifies the URL of an image.
   i. src ii. source iii. imagesource iv. none of these

g. ..... is the default value of the **font-size** property.
   i. small ii. medium iii. large iv. none of these

h. Each item in the list is specified using the ..... tag.
   i. `<li>` ii. `<listitem>` iii. `<item>` iv. `<list>`

Descriptive Type Questions

Answer the following.

a. Differentiate between an ordered and an unordered list.
b. Mention the values that can be assigned to the **list-style-type** property of an ordered list.
c. Name the tags used for creating ordered and unordered lists.
d. What is the purpose of the `<dd>` tag?
e. What are the tags required to create a description list?
f. Which tag is used for inserting an image to be displayed in an HTML document? Mention any two attributes of this tag.
g. What are the various ordering styles that can be given to the items of an ordered list?
h. What do GIF and PNG stand for?
i. Your teacher has asked you to write a program in HTML which lists some difficult scientific words and their definitions. Identify three of the HTML methods used to create lists. Which method would you prefer to use and why?

j. Analyse the importance of inserting images in HTML codes.

k. a) Using your knowledge of HTML, write a code for a webpage to show:
   - the winners of the last 4 football world cups
   - the years when they were played
   - the picture of the winning team's star player

   b) To improve the presentation of your web page, include relevant headings and think carefully about its format.

Application-Based Questions

a. Iram wants to insert an image in a web page.
   i. Which tag will he use to insert an image?
   ii. Name any two attributes of this tag and their use.
   iii. Name the attributes of this tag used to specify the URL of an image. Explain with an example.

b. Afrah has to create a web page giving definitions related to physics.
   i. Mention the tags needed to create this list.
   ii. Give the full form of these tags.
   iii. Name any two properties used with these tags.

c. Tania has to create a list of items in which the order of items matters.
   i. What is the name given to this type of list?
   ii. Which tag will she use to create this list?
   iii. Name the list type property that specifies the type of list-item marker. What values can be assigned to this property?

d. Identify the error(s) and write the correct code:

```
<head>
<title>Creating Ordered List
   <style type="text/ ">
   ol {list-style: upper }
</head>
</style>
```

IN THE LAB

1. Danish has been asked by his teacher to create a web page giving a list of books to be read by a student of class 8. Help him write the HTML code for creating this web page.

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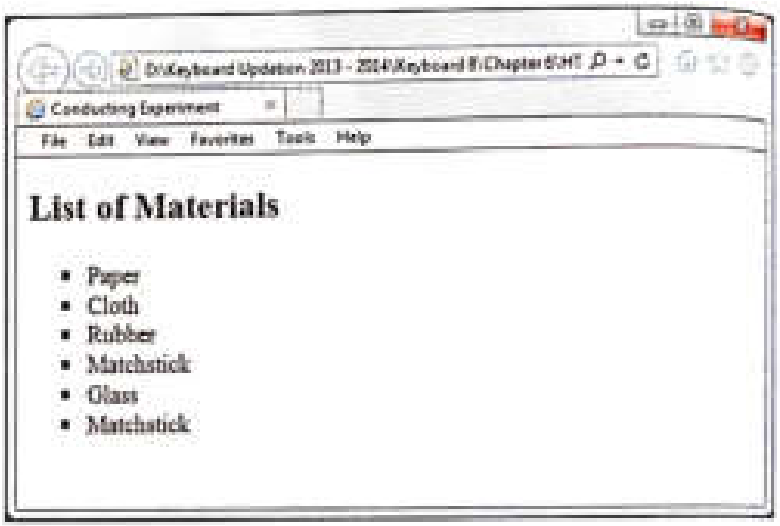
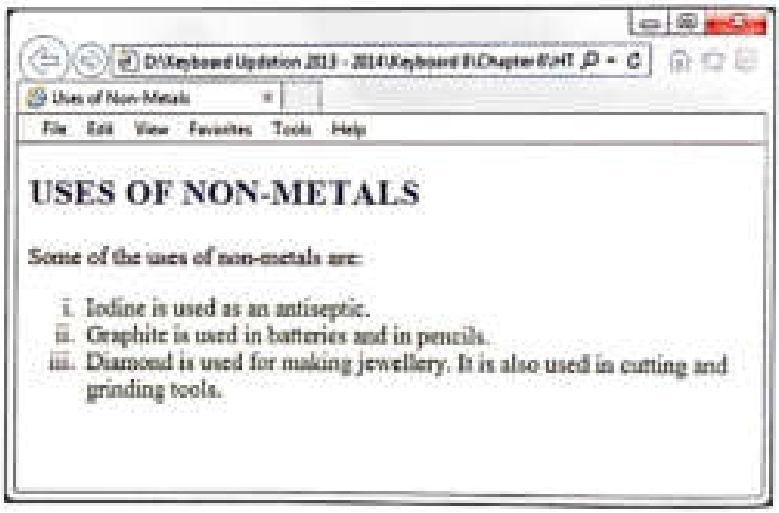
2. Siham's mother is planning to start hobby classes during the summer vacations. She has asked Siham to create a web page giving a list of courses that will be offered in these classes. Help Siham create an appropriate web page. Also, set a proper background and text colour. Insert suitable pictures wherever possible.

3. Jibran's teacher is going to conduct an experiment to show whether a substance is combustible or non-combustible. The teacher has asked Jibran to make a list of all the substances that they will test. He has created the web page shown on the right. Can you write the HTML code for this page? Replace the repetition in the list with a substance of your choice.



4. Danish was asked by his Science teacher to create a web page that lists the uses of non-metals. He has designed the page shown on the right. Write the HTML code for this web page giving some more uses of non-metals.



GROUP PROJECT

You are going to talk about the development of coding for web pages over the past 10 years. Work together to find out the information required and present your findings to the rest of the class.

Hint: Showing a timeline of events might be a good way to show this progression

TEACHER'S NOTES

- It would be useful to demonstrate how to insert an image as a background of a web page.
- Explain to the students the relevance of having an image file and the HTML document in the same folder.

Chapter 4

Tables, Links, and Frames in HTML 5

In the previous chapter, you learnt how to create lists and insert graphics in an HTML document. Other important elements that you can add to your HTML document are **tables**, **hyperlinks**, and **frames**.

In this Chapter

- Creating Tables
- Linking
- Inserting Audio and Video
- Creating Frames

You know that a website consists of many web pages. These web pages are linked to each other using hyperlinks. A **hyperlink** is usually an underlined word, phrase, image, or icon that leads the readers to a new web address when the user clicks on it. Hyperlinks can be used to jump from one location to another within the same page, from one web page to another, or to another website.

CREATING TABLES

A table arranges data in rows and columns. Tables in web pages make the data easier to read and interpret. Professional quality websites always use tables, where the cells contain text.

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graphics, and links. Tables are a powerful tool for laying out the contents of a web page. By using tables, the designer can place text and graphics anywhere on the page.

Basic Table Tags

Table 4.1 shows the basic tags that are used to create a table in an HTML document.

Table 4.1 Basic table tags

Tag	Tag name	Description
`<table>.....</table>`	Table tag	This is the main tag used to define a table in HTML.
`<tr>.....</tr>`	Table row tag	The table row tag defines a horizontal row of cells.
`<td>.....</td>`	Table data tag	The table data specifies an individual block or cell in a table row.
`<th>.....</th>`	Table Header cell	The table header indicates that the cell is a header for a column or row.
`<caption>.....</caption>`	Table caption/ heading tag	Table caption/heading defines a caption for the title of the table.

Let us now move on to the various table properties associated with the `<table>` tag (Table 4.2):

Table 4.2 Table properties

Property	Description	Value	Example
caption-side	Specifies the placement of a table caption	top (default) bottom	caption-side: bottom
border-spacing	Specifies the distance between the borders of adjacent cells	value1, value1 value2 (in px, cm, etc.) If one value is specified, then it specifies both the horizontal and vertical spacing. If two values are specified, then the first value specifies the horizontal spacing and the second value specifies vertical spacing	border-spacing: 10px border-spacing: 12px 20px
border-collapse	Specifies whether or not table borders should be collapsed	separate (default), collapse	border-collapse: collapse

empty-cells	Specifies whether or not to display borders and background for empty cells in a table	show (default), hide	empty-cells: hide
width	Specifies the width of a table	Value as percentage or pixels	width: 100% width: 25px
height	Specifies the height of a table	Value as percentage or pixels	height: 25% height: 100px

Consider the code in Figure 4.1 to understand how to create a table and assign table properties:

The output is shown in Figure 4.2

Notice that in the above table, the border is missing. To get the table border, you will have to use the border properties (**border-width**, **border-style** and **border-color**).

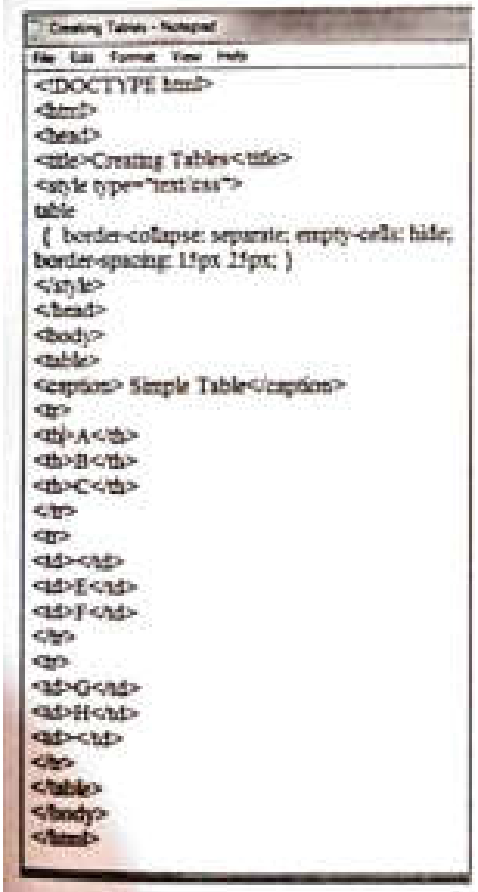

Fig. 4.1 Creating a table

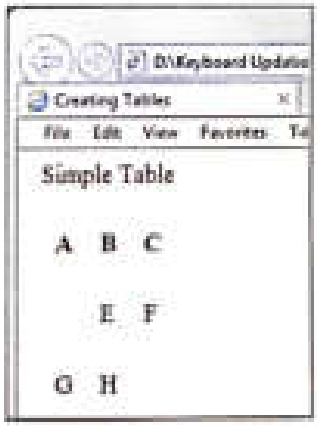

Fig. 4.2 Table without a border

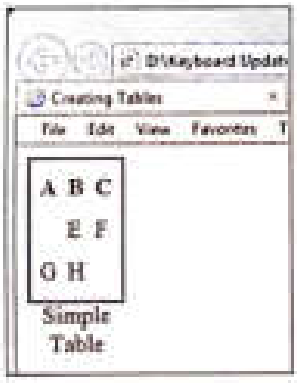

Fig. 4.3 Table with a border

Now, let us make a change in the HTML code above and add the following code:

```
table
   {
   border: 2px solid blue;
   empty-cells: hide;
   border-spacing: 5px 8px;
   caption-side: bottom
   }
```

Notice that in the above example, a border is applied to the table only. You can apply the border properties to the `<td>`, `<tr>`, and `<th>` tags also. Other properties that can be applied to the `<td>` tag are given in the following table (Table 4.3):

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Table 4.3 <td> tag properties

Property	Description	Value
text-align	Sets the horizontal alignment of text in a table	left, right, or center
vertical-align	Sets the vertical alignment of text in a table	top, bottom, or middle
padding	Specifies the space between the border and content in a table	Value in pixels

Consider the HTML code given in Figure 4.4.

In this example, a border for the table has been specified with the border property. A background colour and the text colour for the table heading row has been specified with the **background-color** and **Color** properties, respectively. The data in the table cells is center-aligned. The space between the border and the content is 20 px.

Now, run through the HTML code given below. Here, the border properties have been applied to the table's border as well as to the contents of the table. The output is shown in Figure 4.5(b).

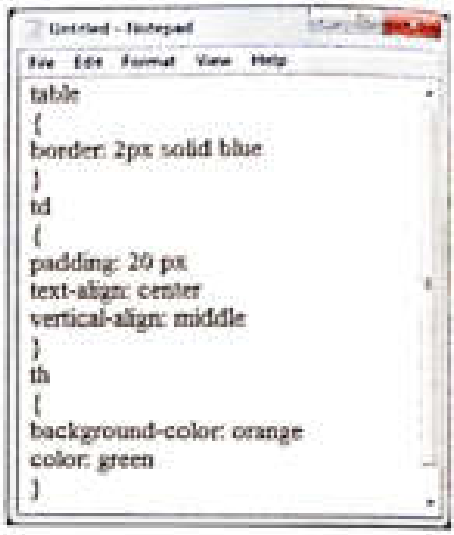


Fig. 4.4 Specifying border properties

Fig. 4.5(a) Code with border properties for the table and its contents

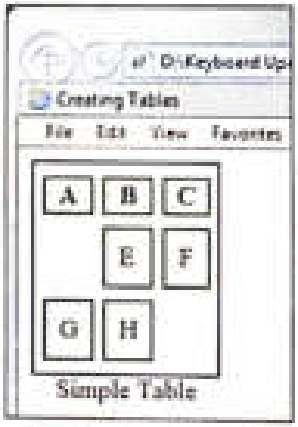


Fig. 4.5(b) Applying border properties to the table contents

Inserting images in a table cell

You can also insert an image in a table cell using the <img> tag.

Consider the following HTML code and view the output in a web browser [Figs. 4.6(a) and 4.6(b)]:

Table 4.3 <td> tag properties

Property	Description	Value
text-align	Sets the horizontal alignment of text in a table	left, right, or center
vertical-align	Sets the vertical alignment of text in a table	top, bottom, or middle
padding	Specifies the space between the border and content in a table	Value in pixels

Consider the HTML code given in Figure 4.4.

In this example, a border for the table has been specified with the border property. A background colour and the text colour for the table heading row has been specified with the **background-color** and **Color** properties, respectively. The data in the table cells is center-aligned. The space between the border and the content is 20 px.

Now, run through the HTML code given below. Here, the border properties have been applied to the table's border as well as to the contents of the table. The output is shown in Figure 4.5(b).

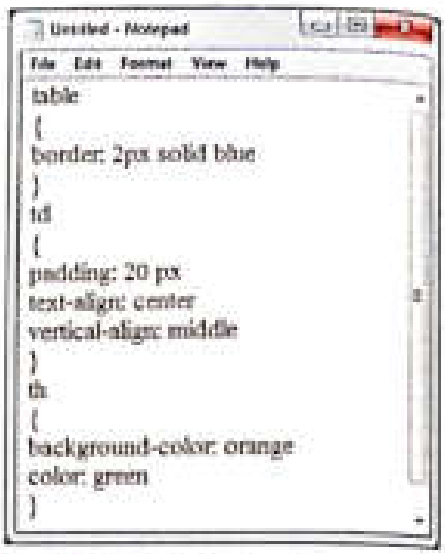


Fig. 4.4 Specifying border properties

Fig. 4.5(a) Code with border properties for the table and its contents

Fig. 4.5(b) Applying border properties to the table contents

Inserting images in a table cell

You can also insert an image in a table cell using the `<img>` tag.

Consider the following HTML code and view the output in a web browser [Figs. 4.6(a) and 4.6(b)]:

```
<!DOCTYPE html>
<html>
<head><title>Creating Tables</title>
<style type="text/css">
table
{ border: 4px solid blue;
 empty-cells: hide;
border-spacing: 5px 8px;
caption-side: top}
th, td, tr {border: 2px solid green}
td {padding: 8px}
</style>
</head>
<body>
<table>
<caption><h2>Fruits</h2></caption>
<tr>
<td><img src="apple.jpg"> <h1>Apple</h1></td>
<td><img src="pineapple.jpg"> <h1>Pineapple</h1></td>
<td><img src="banana.jpg"> <h1>Banana</h1></td>
</tr>
<tr>
<td><img src="cherry.jpg"> <h1>Cherries</h1></td>
<td><img src="papaya.jpg"> <h1>Papaya</h1></td>
<td><img src="watermelon.jpg"> <h1>Watermelon</h1></td>
</tr>
</table>
</body></html>
```

Fig. 4.6(a) Code for inserting images in a table

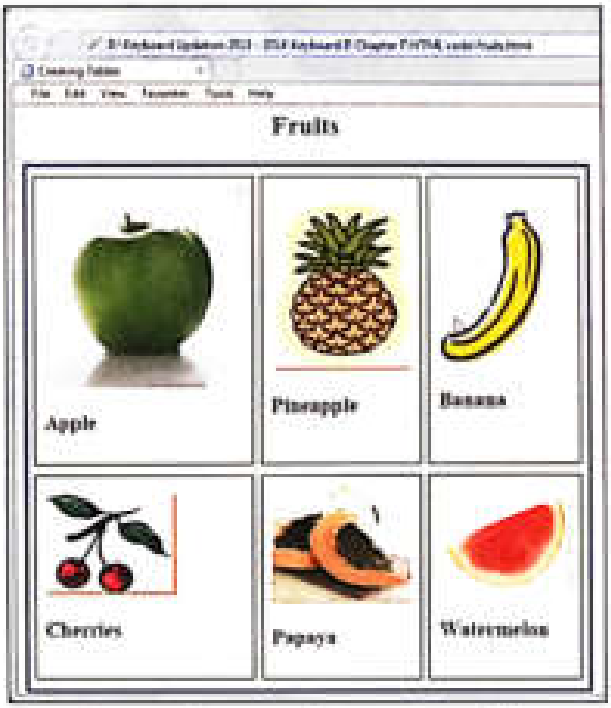
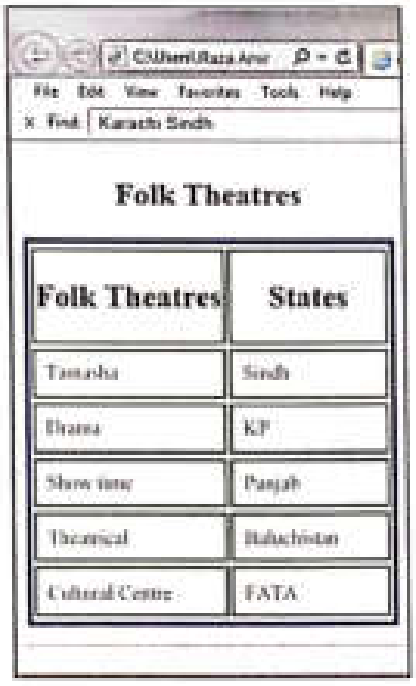


Fig. 4.6(b) Inserted images in a table

PRACTICE TIME

Create an HTML document to show a table giving names of the regional folk theatres and their respective states. Rashid has created the web page given alongside.

Can you recreate the HTML code he would have written for this web page?



SOLUTION

Look at the output carefully to identify the formatting that has been used on the web page.

You can see in the output that there is a **title** on the web page followed by a **table**.

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The table has **two** columns and **six** rows.

The first row is a **header row**. Also, the table has a **blue border**, while the individual cells have a **green border** around them.

The code will be written as shown alongside.

```
<!DOCTYPE html>
<html>
<head><title>Creating Tables</title>
<style type="text/css">
table
 { border: 4px solid blue;  empty-cells: hide; border-spacing: 2px 4px;
caption-side: top}
th, td, tr {border: 2px solid green}
td {padding: 8px}
</style></head><body>
<table><caption><h2>Folk Theatres</h2></caption>
<tr>
<th> <h2>Folk Theatres</h2></th><th> <h2>States</h2></th>
</tr>
<tr>
<td>Tamasha</td><td>Sindh</td>
</tr>
<tr>
<td>Drama</td><td>KP</td>
</tr>
<tr>
<td>Slow time</td><td>Punjab</td>
</tr>
<tr>
<td>Theatrical</td><td>Baluchistan</td>
</tr>
<tr>
<td>Cultural Centre</td><td>FATA</td>
</tr>
</table></body></html>
```

LINKING

Hyperlinks, or simply links, are the most important part of the World Wide Web. Links tie web pages together in a website or across different websites. Without links, the World Wide Web would not be a web at all.

There are three different kinds of links:

- **Internal** A link to a point on the current page
- **Local** A link to another page on the same website
- **Global** A link to a page on a different website

Let us discuss in detail how to link one web page to another on the same website.

Anchor Tag

The HTML tag we use to create a link is the **anchor** tag <a>. This tag is a container element, as it has an ON tag <a> and an OFF tag . The HREF (Hypertext Reference) attribute of the anchor tag specifies the destination page or the file where the link will take you.

For example, if the words 'Next Page' are to be added as a link to an HTML file, the code will be

```
<a href="filename.html"> Next Page </a>
```

- To link to a page on the World Wide Web, HREF must have the complete address.

```
<a href="http://www.hotmail.com"> HOTMAIL </a>
```

- To link to a page in the same directory as the current page, HREF needs to have only the page name.

```
<a href="results.html"> Sports Facilities </a>
```

- To send an email, 'mailto:' is required before the address.

```
<a href="mailto:abc_p@hotmail.com"> Author </a>
```

Defining Colours for Links

You can specify the Colour of the link depending on the action performed. In HTML 5 it is specified using CSS.

For example,

```
<style type="text/css">
a:link {Colour: red}
a:visited {Colour: green}
a:hover {Colour: orange}
a:active {Colour: blue}
</style>
```

The HTML code above specifies four colours.

- **link (standard link)** The colour of a link the visitor has not been to yet.
- **visited (visited link)** The colour of a link to a page the visitor has visited.
- **active (active link)** The colour of a link when it is clicked.
- **hover** The colour of a link when the mouse pointer is over it.

Note: a:hover must come after a:link and a:visited, and a:active must come after a:hover

You can also use text-decoration and other text properties to change the appearance of the hyperlinked text. Consider the following example:

```
<style type="text/css">
a:link {Colour: green; text-decoration: none}
a.vlink {Colour: violet; font-family: Georgia}
a.alink {Colour: blue; font-weight: bold}
</style>
```

In the above code not only the colours but also the font and its weight have been specified.

The following example will help you understand how to create and add links.

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Suppose you have two web pages, quiz.html and answers.html. The quiz.html page consists of a list of questions. Clicking on 'Click to see answers' will take you to answers.html, which has answers to the questions. It also has a link back to quiz.html.

```
<!DOCTYPE html>
<html>
<head>
<title>Creating Links</title>
<style type="text/css">
        a:link {color: red}
        a:visited {color: green}
        a:hover {color: orange}
        a:active {color: blue}
        h2 {color: maroon; text-transform: uppercase;
text-align:center}
        p {color: green; font-size: x-large}
</style>
</head>
<body>
<h2>Quiz</h2>
<p>1. Which river is known as the Yellow River?</p>
<p>2. Which is the largest province of Pakistan?
</p>
<p>3. Who was the first Chief Justice of Pakistan?
</p>
<a href="answers.html">Click to see answers</a>
</body>
</html>
```

Fig. 4.7(a) Code for quiz.html

The HTML codes shown in Figures 4.7(a) and 4.8(a) format the contents of quiz.html and answers.html respectively. The output is shown in Figures 4.7(b) & 4.8(b), respectively.

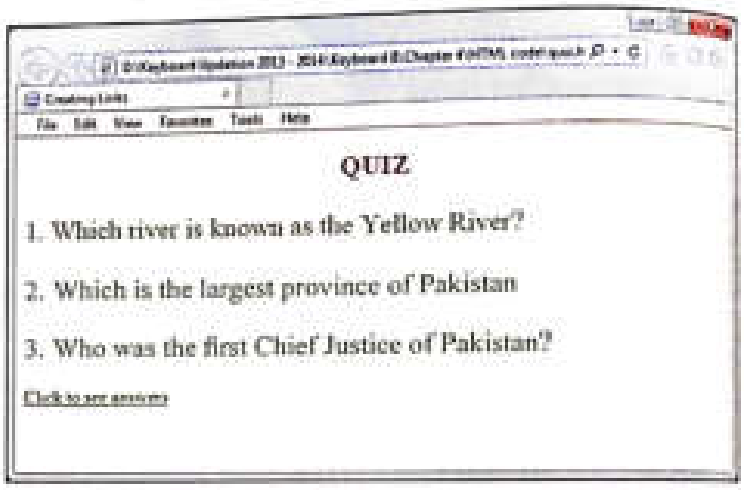

Fig. 4.7(b) web page view of quiz.html

```
<!DOCTYPE html>
<html>
<head>
<title>Creating Links</title>
<style type="text/css">
a:link {color: red}
a:visited {color: green}
a:hover {color: orange}
a:active {color: blue}
h2 {color: maroon; text-transform: uppercase; text-align:center}
p {color: green; font-size: x-large}
</style>
</head>
<body>
<h2>Answers</h2>
<p>1. Hwang Ho</p>
<p>2. Balochistan</p>
<p>3. Sir Abdul Rashid</p>
<a href="quiz.html">Click to go back to the quiz</a>
</body>
</html>
```

Fig. 4.8(a) Code for answers.html

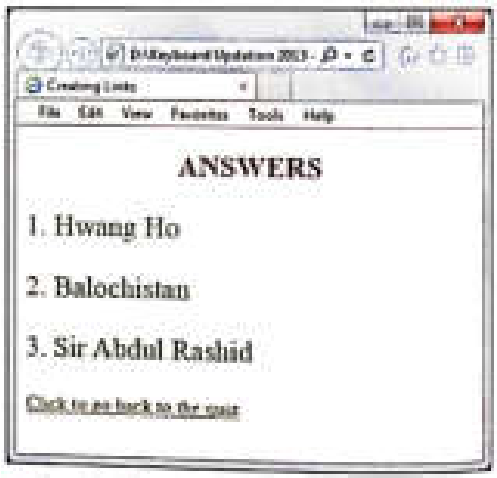

Fig. 4.8(b) Output of answers.html

Image Links

We often want to use an image as a link, so that if someone clicks on the image, it opens another web page. For this, we use the `<img>` tag within `<a>... </a>` tag.

```
<a href="flowers.html"> <img src="flowers.gif"> </a>
```

INSERTING AUDIO AND VIDEO

You can also insert multimedia objects, e.g., audio and video files, in a web page using HTML 5.

Audio tag

HTML 5 defines a new tag named the audio tag (`<audio>`) that specifies a standard way to insert an audio file in a web page.

The attributes of this tag are given in the following table (Table 4.4):

Table 4.4 Attributes of the `<audio>` tag

Attribute	Description	Value
autoplay	Plays the audio file automatically when the web page is loaded	autoplay
controls	Displays the controls on the web page	controls
src	Specifies the URL of the audio file	URL
loop	Indicates replaying the audio file once it has finished	loop

Consider the following HTML document to insert an audio file in an HTML document using the `<audio>` tag. The output is shown in Figure 4.9.

```
<!DOCTYPE html>
<html>
<head>
<title>Inserting an Audio File</title>
</head>
<body>
<h2>Have fun!</h2>
<audio controls="controls" src="kalimba.mp3">
</body>
</html>
```

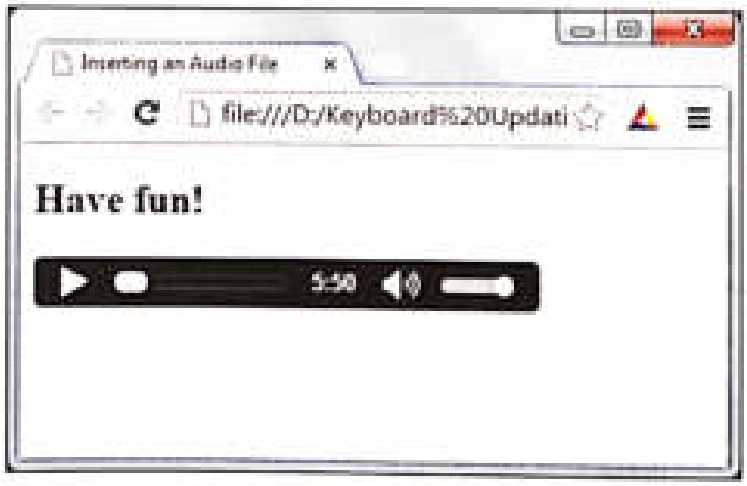

Fig. 4.9 An audio file in a web page

Note: The `<audio>` tag would not work in some web browser versions that do not fully support HTML 5 and/or the file formats. Currently the file formats supported are **WAV**, **MP3**, and **Ogg**. An Ogg file format has the extension .oga for audio files.

Video tag

The video tag (`<video>`) is used to insert a video file in an HTML document. The attributes of this tag are shown in the table on the next page (Table 4.5).

Table 4.5 Attributes of the <video> tag

Attribute	Description	Value
src	Specifies the URL of the video file to be played	URL
height	Specifies the height of the video player displayed on the web page	Value in pixels
width	Specifies the width of the video player displayed on the web page	Value in pixels
autoplay	Plays the video file automatically on loading a web page	Autoplay
controls	Displays the controls on a web page, such as the Play button	Controls

Consider the following HTML code to insert a video file in an HTML document. The output is shown in Figure 4.10.

```
<!DOCTYPE html>
<html>
<head>
<title>Inserting a Video
File</title>
</head>
<body>
<h2>Let's watch a video.</h2>
<video controls="controls"
autoplay="autoplay"
src="movie1.mp4">
</body>
</html>
```

Fig. 4.10 A video file in a web page

Note: The <video> tag is compatible only with some browser versions. The file formats supported are **MP4**, **WebM**, **Ogg**. A video file in Ogg file format has the extension .ogv.

Embed tag

You can also add an audio or a video file in an HTML document using the <embed> tag. The attributes of this tag are shown in Table 4.6.

Table 4.6 Attributes of the <embed> tag

Attribute	Description	Value
src	Specifies the URL of the video file to be played	URL
height	Specifies the height of the video player displayed on the web page	Value in pixels
width	Specifies the width of the video player displayed on the web page	Value in pixels

For example, to insert an audio file using the <embed> tag, the HTML code is written as:

```
<!DOCTYPE html>
<html>
<head>
<title>Embedding an Audio File</title>
</head>
<body>
<h2>Let's listen to some music!</h2>
<embed src="kalimba.mp3">
</body>
</html>
```

Consider the HTML code given below to insert a video file.

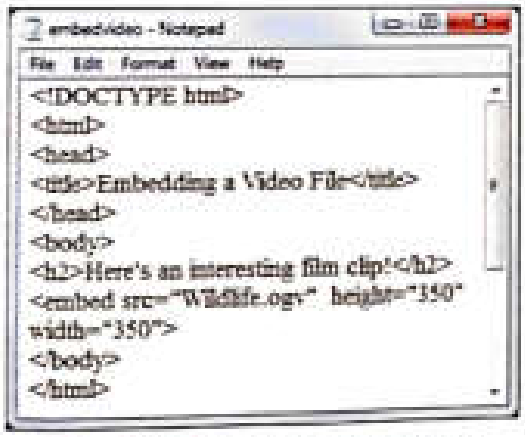

Fig. 4.11(a) Code for embedding a video

Fig. 4.11(b) A video file inserted using the <embed> tag

Note: Some browsers may not support the <embed> tag.

CREATING FRAMES

Frames allow us to open more than one web page simultaneously in a browser window. Frames divide the screen into rectangular areas, each of which contains an HTML document.

Did you Know?

In previous versions of HTML, the <frameset> tag defined how to divide the window into frames. Each frameset defined a set of rows and columns. The <frame> tag defined what HTML document to put in each frame.

<iframe> tag

The <iframe> tag is now used to define an inline frame that enables you to display a web page within a web page.

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The attributes of the <iframe> tag are given in the following table (Table 4.7):

Table 4.7 Attributes of the <iframe> tag

Attribute	Description	Value
src	URL of the web page to be displayed in the frame	URL
width	Specifies the width of the inline frame	Value in pixels
height	Specifies the height of the inline frame	Value in pixels
seamless	Shows an inline frame as part of the containing element	Empty, seamless

Consider the following HTML code which creates an inline frame in a web page. The output is shown in Figure 4.12.

```
<!DOCTYPE html>
<html>
<head>
   <title>Creating Frames</title>
</head>
<body>
<h1> Creating Inline Frames</h1>
<iframe src="fr1.html" height="200"
width="200"></iframe>
<iframe src="fr2.html" height="200"
width="200"></iframe><br>
We have created two frames.
</body>
</html>
```

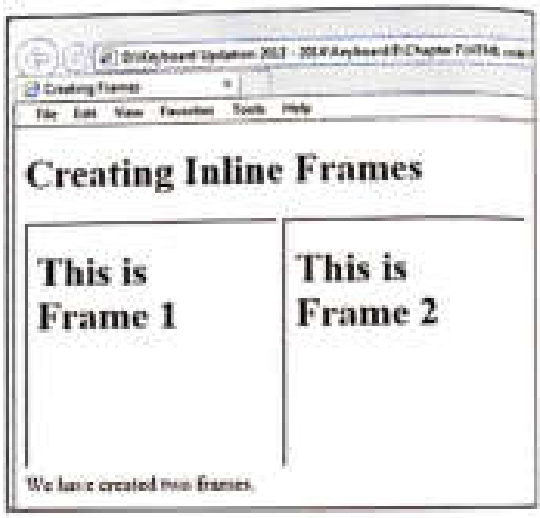


Fig. 4.12 Inline frames in a web page

To add some style to the frame using CSS, let us make the following changes in the HTML code and view the page in a web browser (Fig. 4.13).

```
<!DOCTYPE html>
<html>
<head>
<title>Creating Frames</title>
<style type="text/css">
iframe {margin-left: 80px; border:
2px dotted red}
</style>
</head>
<body>
<h1> Creating Inline Frames</h1>
<iframe src="fr1.html"
height="200" width="200"></iframe>
```

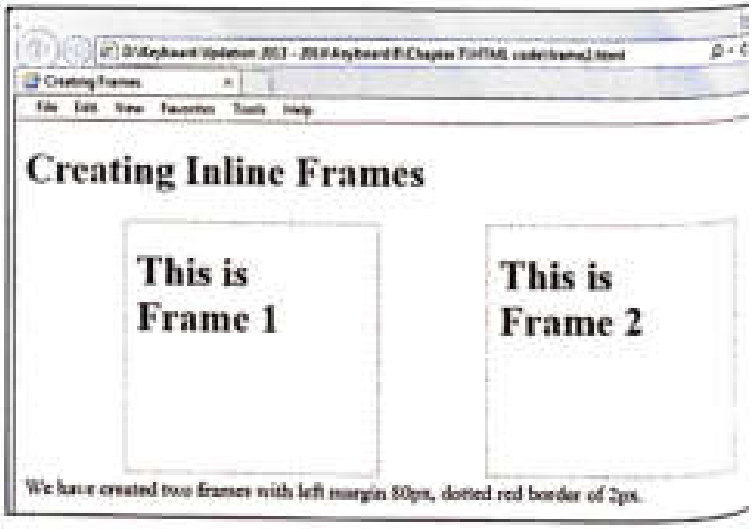


Fig. 4.13 Inline frames

```
<iframe src="fr2.html" height="200" width="200"></iframe><br>
We have created two frames with left margin 80px, dotted red border of 2px.
</body>
</html>
```

Consider the following HTML code to demonstrate the seamless property:

```
<!DOCTYPE html>
<html>
<head>
<title>Creating Frames</title>
</head>
<body>
<h1> Creating Inline Frames</h1>
<iframe src="fr1.html"></iframe>
<iframe seamless="seamless" src="fr2.
html"></iframe><br>
</body>
</html>
```

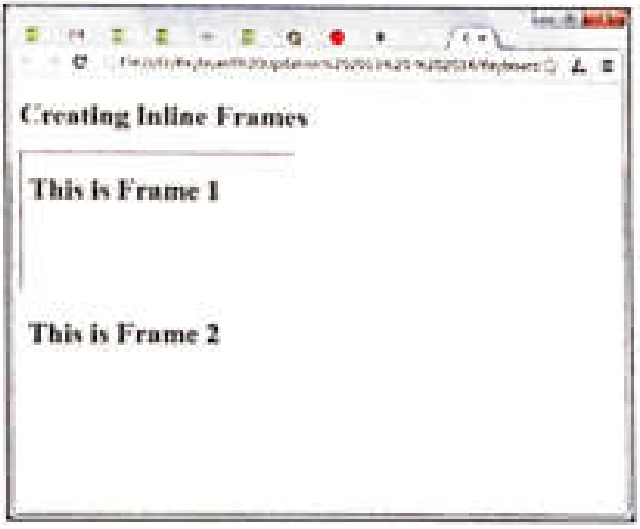


Fig. 4.14 Seamless inline frame (frame 2)

The view in the web browser is shown in Figure 4.14.

Tricky Terms

Table a grid of rows and columns

Cell a shape formed by the intersection of a table row and column

Padding the space between the cell contents and the cell border

Cell spacing the space between cells of a table

Memory Bytes

- HTML tables use the `<table>`, `<tr>`, `<td>`, `<th>`, and `<caption>` tags.
- Tables are defined with the `<table>` tag.
- To add rows to a table, use the `<tr>...</tr>` tag.
- To add columns to a table, use the `<td>...</td>` tag.
- To add headings to a table, use the `<th>...</th>` tag.
- To add a title to a table, use the `<caption>...</caption>` tag.
- To make a text or an image into a hyperlink, use the `<a>` tag.
- The Colour of the text links is specified with the LINK, VLINK, and ALINK properties
- In HTML 5 you can insert an audio file using the `<audio>` tag and a video file using the `<video>` tag.

- Some browsers may not support the <audio> and the <video> tags.
- Frames allow us to open more than one web page simultaneously in a browser window.
- The <iframe> tag is used to define an inline frame that enables you to display another HTML document within the same window.

EXERCISES

Objective Type Questions

1. Write T for the true statement and F for the false one. Correct the false statement(s)

a. An image cannot be set as a hyperlink.

b. A caption can be placed only at the top of a table.

c. The padding property specifies the space between the cells.

d. An internal link is a link to a point on the current page.

e. The <a> tag is an empty element.

2. Choose the correct option.

a. Which of the following can be embedded in a web page?
i. Audio ii. Video iii. both i. and ii. iv. none of these

b. The attribute of the <audio> tag that displays controls on the web page.
i. controls ii. autoplay iii. loop iv. none of these

c. Which of the following can be added to an HTML document?
i. Tables ii. Hyperlinks iii. Lists iv. all of these

d. Which of the following properties can be assigned to the text-align property?
i. left ii. right iii. center iv. Any of these

e. You can use the ..... tag to insert an image in a web page.
i. <image> ii. <img> iii. <image src> iv. none of these

f. Which of the following specifies the colour of a link when it is clicked?
i. active ii. visited iii. hover iv. none of these

g. The ..... attribute of the <a> tag specifies the URL of the page where the link should take you.
i. href ii. src iii. herf iv. none of these

h. The value of the border-spacing property can be specified in
i. Pixels ii. Centimetre iii. Either i. or ii. iv. none of these

Descriptive Type Questions

Answer the following.

a. What is the purpose of the **src** and **control** attributes of the `<audio>` tag?
b. What is the difference between the `<td>` and `<tr>` tags?
c. What is the use of the vertical-align property? What values can be assigned to this property?
d. Describe the different kinds of links that can be created on a web page.
e. Name the tag used to create a link. Name one attribute used with this tag.
i. Open the home page of your favourite website. Analyse the page carefully, and state why you think that the page has been designed using tables.
g. HTML allows you to assign different colours to hyperlinks depending on the action taken by the user on that particular hyperlink. Evaluate its usefulness for programmers.
h. Write a programme in which you create two frames on a webpage. One of the frames should have an audio of your favourite song embedded in it, while the other should have a link to its video. Give your webpage an interesting heading and background colour.

Application-Based Questions

a. Observe the HTML code on the right and answer the questions that follow:
   i. What type of border will the table have?
   ii. What is the position of the caption? What is the default position of a caption?
   iii. What change will you make in the above code, if you want to have a space of 7px between the cell border and the cell's contents?

```
<style type="text/css">
table
 { border: 4px dashed red;
   empty-cells: hide;
   border-spacing: 3px 5px;
   caption-side: bottom
}
th, td, tr {border: 3px
solid blue}
td {padding: 4px}
</style>
```

b. Write the HTML code that will change the colour of a hyperlink to maroon when it is clicked; green when the visitor has visited the link, and orange when the mouse pointer is over the link.

c. Identify the error(s) in the code on the right, and then write the correct code on the left in the space provided.

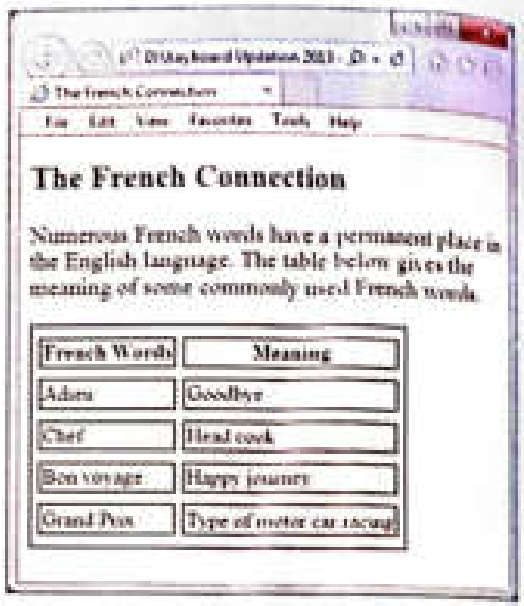
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

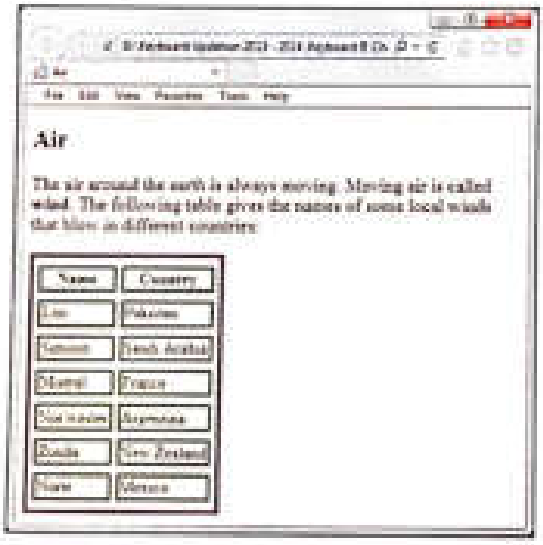
```
td
{
cell-padding: 20px
text-alignment: center
vertical-alignment: middle
}
th
{
back-Colour: orange
text-Colour: green
}
```

d. Dania has created a web page for her school giving details about various activities in her school. The school had recently organised a cultural evening for the students. She wants to add a video of that cultural evening on her web page. Which HTML statement should she add to the HTML code for this purpose?

IN THE LAB

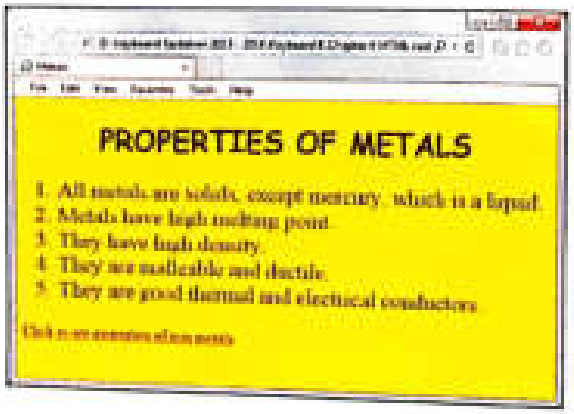
1. Fatima's English teacher has told the class that there are many French words that are commonly used in the English language. Fatima has decided to create a web page giving information about these words. She has created the page given on the right. Can you write the HTML code for this web page?

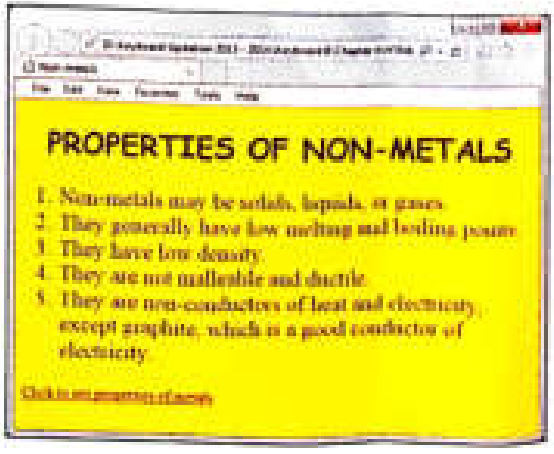




2. The Science teacher of Class VIII had taken up the chapter on 'winds' yesterday. She also told the class about the names of some local winds that blow in different countries. Farhan now wants to create a web page and give these details in the form of a table. He has created the web page given on the left. Write the HTML code for the page.

3. Create two web pages, one on 'Properties of Metals' and the other on 'Properties of Non-Metals'. Create a link between the two web pages. Set the background colour as yellow, font for the heading as Comic Sans MS, and the font for the text as Times New Roman. Preferably, also include suitable pictures of metals and non-metals.





4. Create a website with two linked web pages on the topic 'Greenhouse Effect and Global Warming'. The first web page should give information on the greenhouse effect and the second should give information on global warming. Sample web pages are shown below. Create similar web pages and also include relevant pictures.

GROUP PROJECT

Your challenge is to create a campaign website for a topic of your choice. It could be an environmental, a political, a global, or a local issue. You will need to keep your campaign website clear and simple to be effective but try to use as many of the skills learned in this chapter, as possible.

TEACHER'S NOTES

- Explain to the students the importance and usefulness of tables in web pages, and the usefulness of links.
- A demonstration of how to add audio and video files to a web page, and how to create frames that would be useful.

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Chapter 5

Audacity

Audacity is a popular free software meant for **editing** and **recording** sound. The software can be used for recording and playing back music or sounds, removing or adding tracks, multitrack mixing, noise removal, and changing the speed of a narration, or a piece of background music to sync it with video or to make it run for a certain duration.

In this Chapter

- Starting Audacity
- Creating a New Project
- Importing and Playing Audio Files
- Copying or Moving Portions of Audio

STARTING AUDACITY

Download Audacity from the Audacity website. Once you have downloaded Audacity, start the software by clicking **Start ▸ All Programs ▸ Audacity**

Or

Double-click the shortcut icon on the desktop.

The following screen appears (Fig. 5.1).

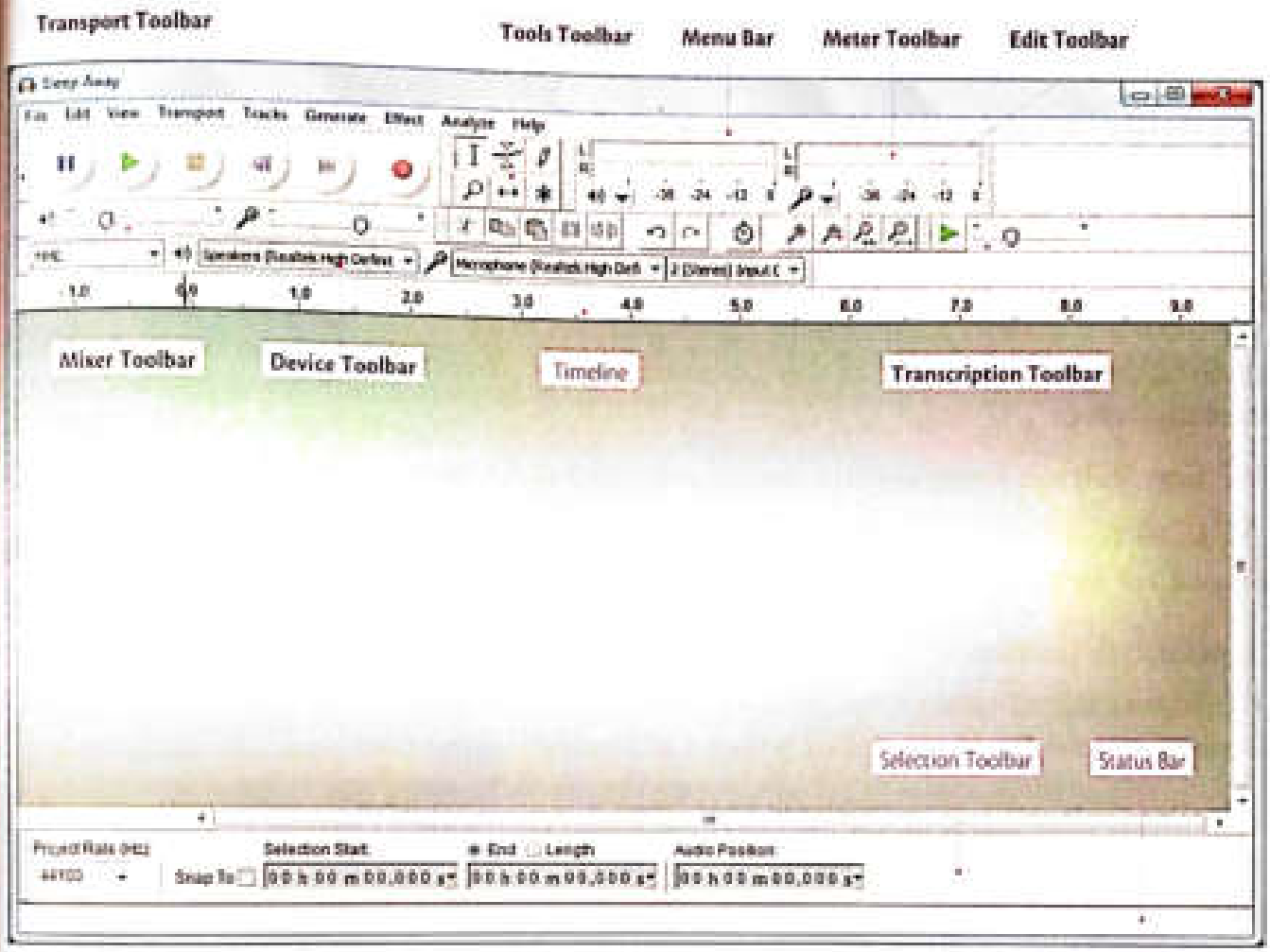

Fig. 5.1 **Audacity** window

Components of the Audacity Window

The components of the Audacity window are shown in Figure 5.1. Let us briefly discuss the various toolbars of this window.

Transport Toolbar

The **Transport Toolbar** has buttons for controlling playback and recording, and for moving to the start or end of a project.

Mixer Toolbar

This toolbar helps you **control the volume levels** for **playback** (left slider) and **record** (right slider) for the audio

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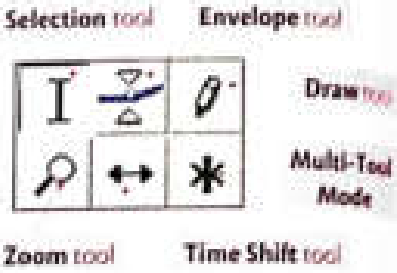
devices selected in the **Device Toolbar**. The **microphone icon** indicates the **record** volume or the **input** volume, while the **speaker icon** indicates the **playback** or **output** volume.

Tools Toolbar

This **toolbar** has various **tools** for selection, volume adjustment, zooming etc.

The **Selection** tool is used to select sections of the audio file to edit or play. The **Envelope** tool helps you make smooth volume changes.



The **Draw** tool is meant for smoothing out irregularities in the audio wave. With the **Zoom** tool you can zoom into any part of the audio wave.

The **Time Shift** tool helps you sync audio by dragging audio tracks or clips along the Timeline.

The **Multi-Tool** mode allows you to use all the **five tools together**. However, at any given point only one of the tools is active.

Transcription Toolbar

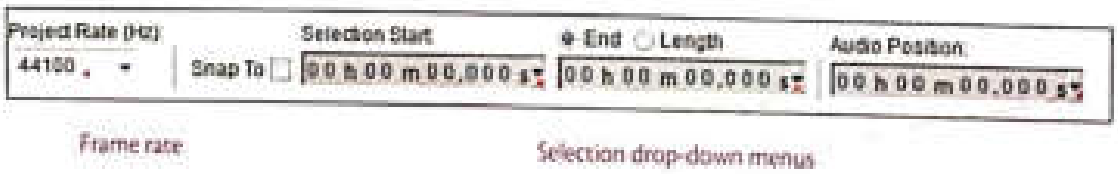
The **Transcription Toolbar** helps to change the speed of playback. Depending upon the speed desired, a track can be played slow or fast.

Selection Toolbar

The **Selection Toolbar** helps in setting up precise timing and in selection of portions of your audio tracks. It also helps in setting the **correct frame rates** for video soundtracks and CD audio.

Top Tip

Computers store video data in units called **frames** while audio data are stored in units called **samples**. The rate at which the computer changes frames while playing them one after the other is called the **frame rate**, while the rate at which it changes samples is called the **sample rate**. It is measured in number of samples played each second.

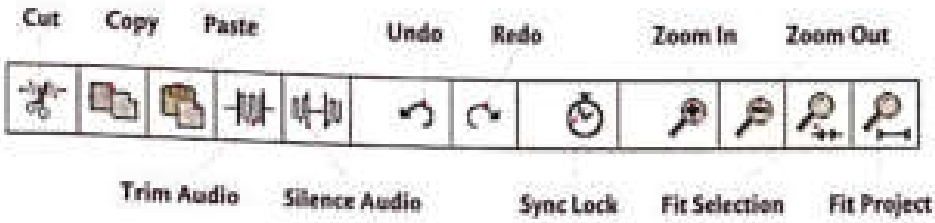


Meter Toolbar

The **playback** and **record meters** on the **Meter toolbar** display the sound levels of an audio track. These meters provide a visual way to determine the overall sound levels of your audio track.

Edit Toolbar

The **Edit Toolbar** gives you quick access to commonly used functions for editing your audio tracks such as, **cut**, **copy**, **paste**, **trim audio**, etc.



Sync Lock is a feature that ensures that a change in length in one of the tracks of a group also takes place in other tracks of that group, thus keeping all the tracks in a group in sync.

Device Toolbar

The **Device Toolbar** is used to select the **audio host**, the **input device**, the **output device** and the number of **input channels** to be used for recording and playback.

The **audio host** name is the 'language' or the interface in which Audacity communicates with your recording and playback devices. Input channels are either **one** (mono) or **two** (stereo).

CREATING A NEW PROJECT

A project in Audacity is a file where you create, import, or edit your audio files. A project can have a **single track** or **multiple tracks**. A project contains the audio files and other information like volume level, track names, etc. To start a new project in Audacity, select **File ▸ New**.

To set the preferences for properties like **sample rate**, **sample format**, for the project:

1. Select **Edit ▸ Preferences**.
2. The **Preferences** dialog box appears. Click the **Quality** category (Fig. 5.2).

   Sample format is the number of bits forming a sample.

   The larger the number, more is the information stored in each sample; hence, better will be the quality of sound.

   Notice that the **Default Sample Rate** is 44100Hz and the **Default Sample Format** is 32-bit float.

   Both these affect the quality of the audio file.
3. Click **OK** to close the **Preferences** dialog box.

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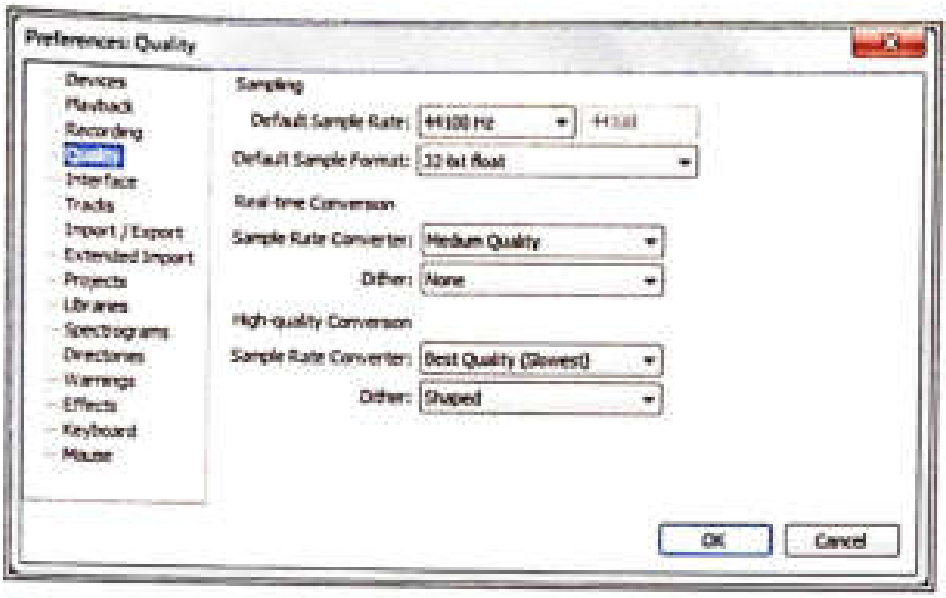

Fig. 5.2 **Preferences: Quality** settings

Top Tip

The higher the value of the **Default Sample Rate**, the larger will be the size of the file. The higher the value of the **Default Sample Format**, the wider will be the range of volume that you can have within each sample of the recording.

IMPORTING AND PLAYING AUDIO FILES

WAV, AIFF, and MP3 are some of the common audio file formats that can be opened in Audacity.

1. To open an existing file, click **File ▸ Open** or **File ▸ Import ▸ Audio**. The **Select one or more audio files...** dialog box appears (Fig. 5.3). Select the desired file and click **Open**.

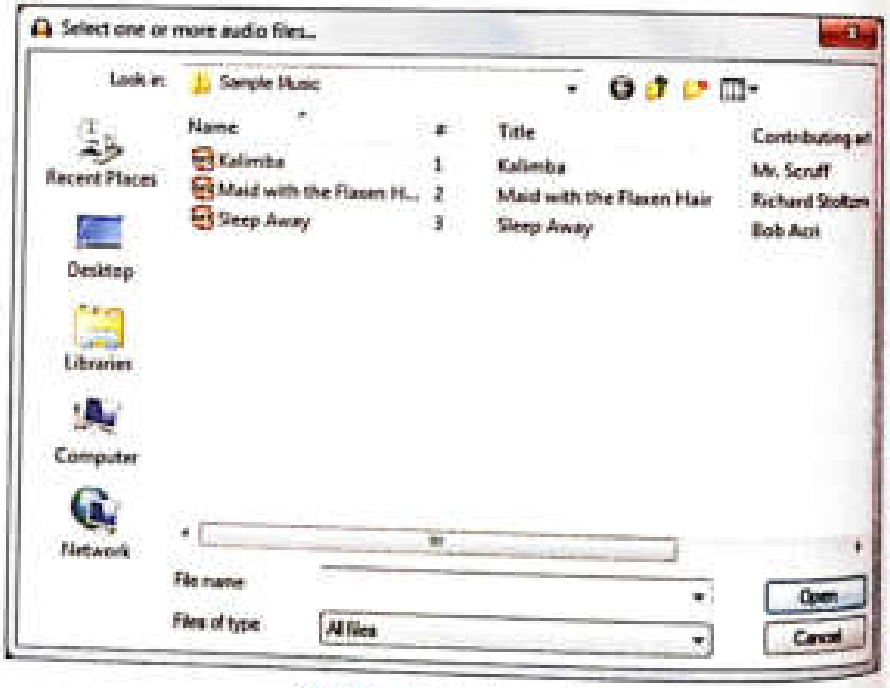

Fig. 5.3 Selecting a file

Fast Forward

You can drag and drop a file into the **Audacity** window to open it.

2. On opening the file, the screen shows a **stereo waveform** for the file opened. The **right channel** is displayed in the bottom half of the track and the **left channel** is displayed in the top half (Fig. 5.4).

   The **loudness** of the audio is directly proportional to the **waveform size**. This means that the audio is louder where the waveform reaches closer to the top and bottom of the track.

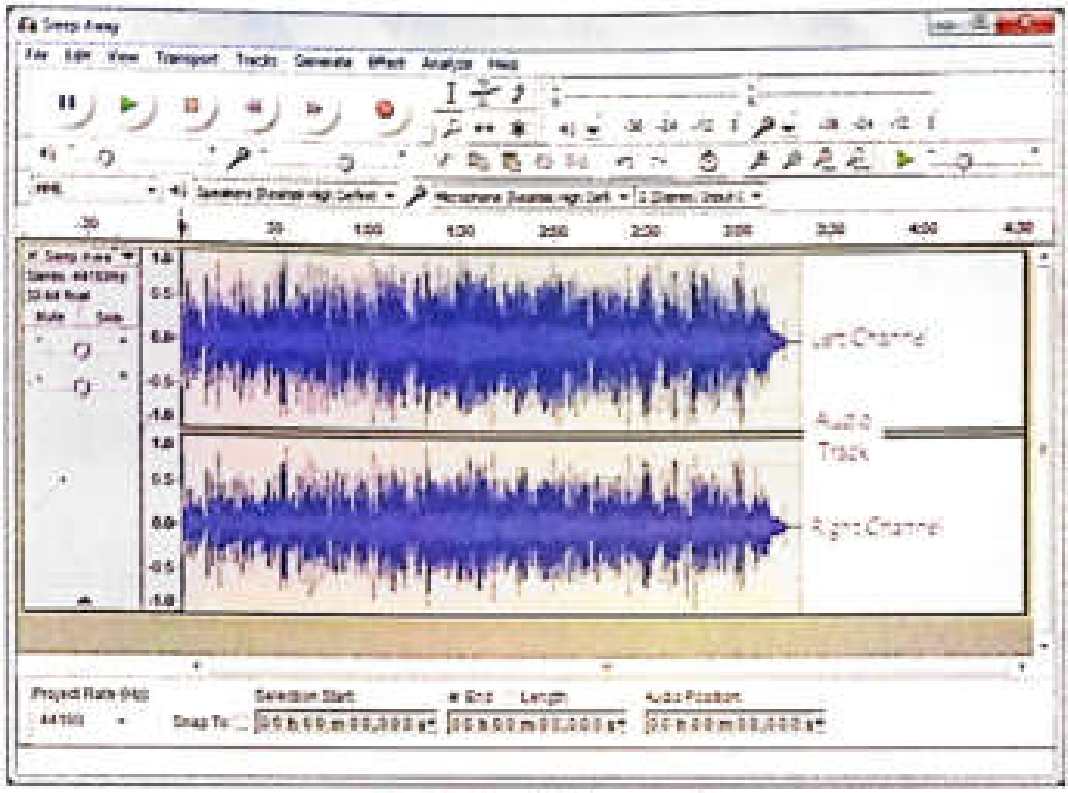

Fig. 5.4 Audio file opened

The duration of the audio can be measured in minutes and seconds using the ruler (the Timeline) above the waveform.

3. To listen to the imported audio, click the **Play** button on the **Transport Toolbar**. To stop the playback, click the **Stop** button.

Fast Forward

Play/Stop **Spacebar**

Did you Know?

A mono file is recorded through a single mic, so there is only a single channel; thus making the waves identical in the left and right channels. This gives the impression of sound coming from one direction only which gives it a dull feel.

In a stereo file, there are two mics, and thus two channels, namely, the left and the right channel with differing waves. This creates the impression of sound coming from more than one direction, giving a richer feel to the music or sound.

How to Make a Recording

The steps to make a recording are:

1. Select **Speakers** as the output device and **Microphone** as the input device in the **Device** toolbar (Fig. 5.5).
2. Also select the **Input Channel** as **Mono**.

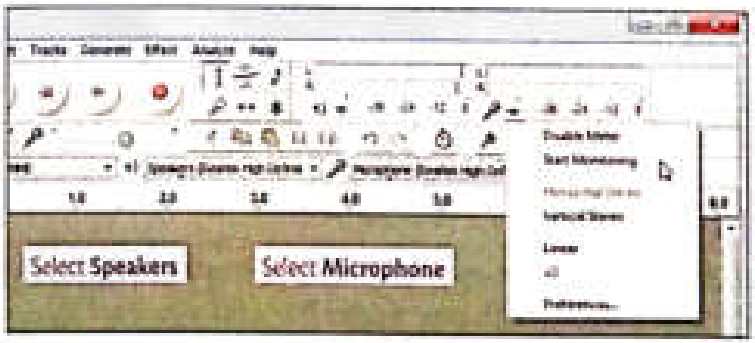

Fig. 5.5 **Start Monitoring** option

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3. Click on the downward arrow next to the microphone symbol in the **Meter Toolbar**. Then click on **Start Monitoring** (Fig. 5.5) so that you can hear your recording.
4. Adjust the recording volume using the **Input Volume** slider in the **Mixer Toolbar** (Fig. 5.6).
5. Click the **Record** button in the **Transport Toolbar** (Fig. 5.7). Start recording the narration.

   Notice the wave forms appearing when you are recording. There should be no **clippings** in the recording. **Clipping** occurs when the top or the bottom of a waveform gets shaved off. This results in sudden harshness at those points during playback.
6. After recording, click the **Stop** button.

Fig. 5.6 Adjusting **Input Volume**

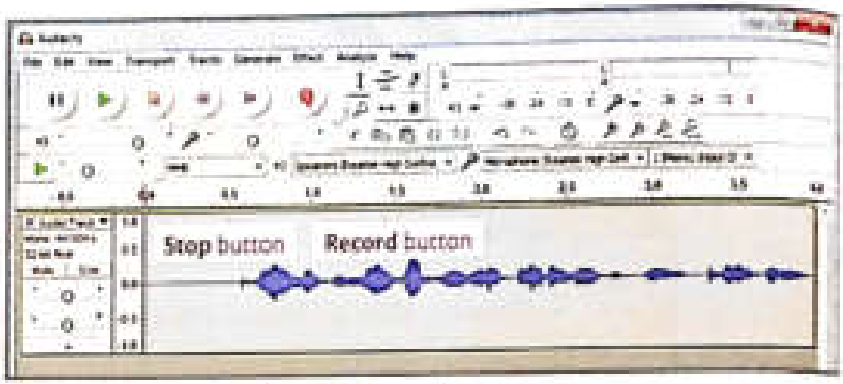
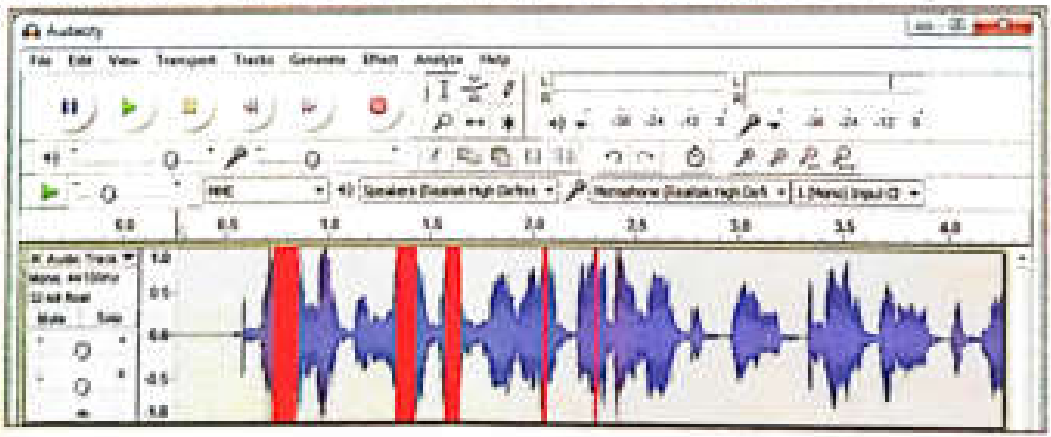


Fig. 5.7 Recorded sound

Top Tip

In Audacity, to know where clipping might have occurred in a recording, click **View ▶ Show Clipping**. Audacity will show you red bands in the waveform to indicate clippings. If you have parts of the waveform cut or clipped, it indicates that the recording level was high.



Multiple Tracks in a Project

You can **record** or **import multiple tracks** in a **single project** in Audacity. This helps you combine more than one audio file and you can also adjust the volume of each track individually.

The steps are:

1. Open the project where you have already recorded a track.
2. To record a second track, click the **Record** button again. Notice that a **new track** will be automatically created and recording will start from the beginning (Fig. 5.8).

   You can **hear the previous recording** as you are recording the second track.

   This type of recording is useful if your **first track** is an **instrument** and the **second track** has **vocal recording**.

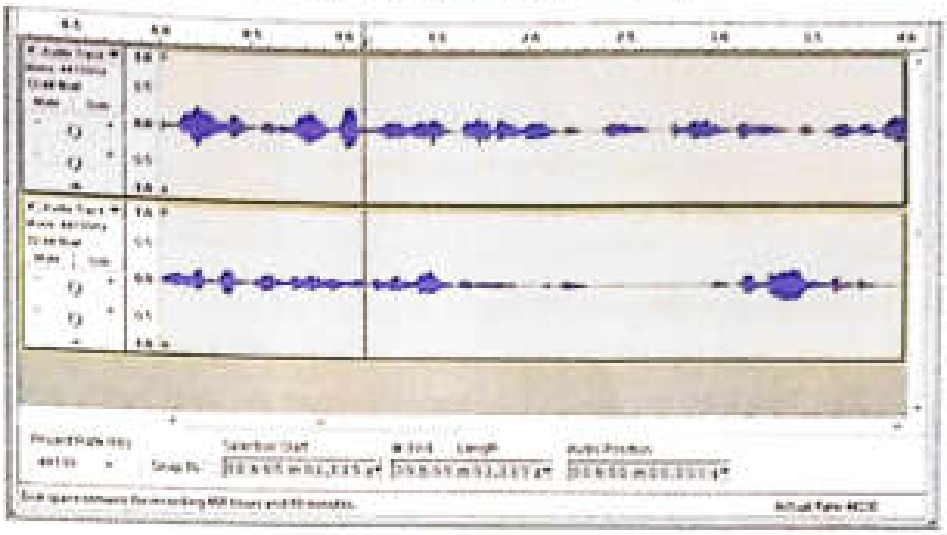


Fig. 5.8 Recording a second track

3. If you want to continue recording to the same track, hold down the **Shift** key and click **Record**. You will notice that the recording is done on the same track. Click **Stop** and the recording will stop.
4. If you want to make a recording on a new track but start at the position where the first recording ended, then Click the **Skip to the End** button on the **Transport Toolbar**.

   This will move the playhead to the end of the clip.

   a. Click the **Record** button.

   b. A new track will be automatically created and the recording will start from the position where the playhead was (Fig. 5.9).

   Click the **Fit Project** button to both the tracks (Fig. 5.10).

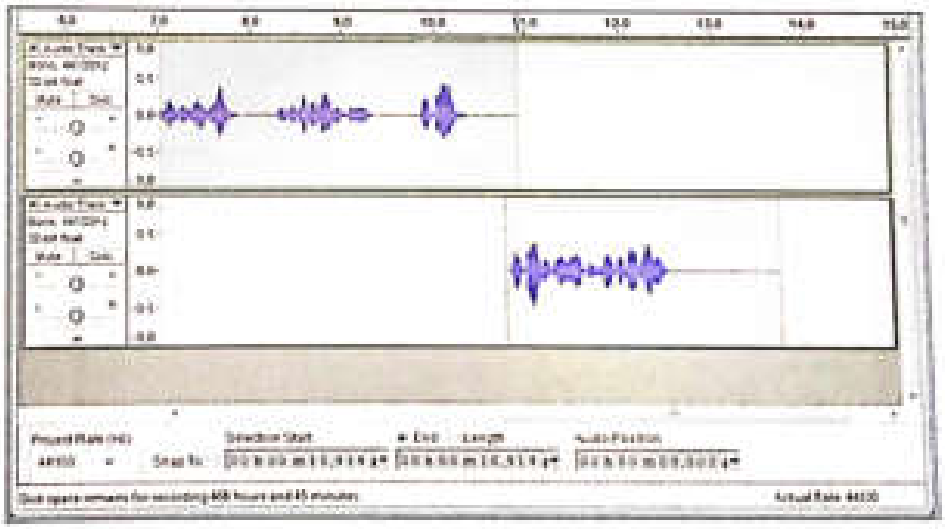


Fig. 5.9 Recording in two tracks

OXFORD

Fig. 5.10 **Fit Project** tool

5. If you want to create a pause between two recordings, then use the **Time Shift** tool. Click and drag the track to the right (Fig. 5.11).

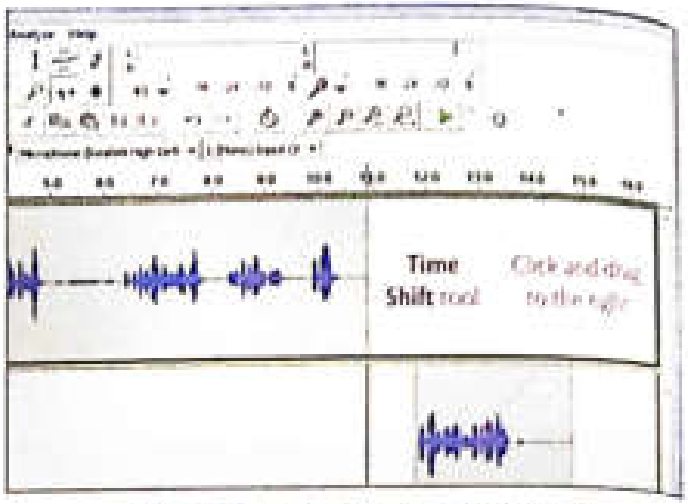


Fig. 5.11 Using the **Time Shift** tool

6. To change the name of the track:
   a. Click the drop-down menu arrow of the **Audio Track** option and select **Name...** (Fig. 5.12).
   b. The **Track Name** dialog box appears. Type the track name and click **OK** (Fig. 5.13).

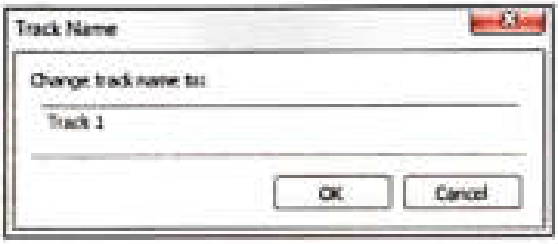


Fig. 5.13 **Track Name** dialog box

Fig. 5.12 **Audio Track** menu

Mixing Narration with Background Music

1. To import a background music file:
   a. Select **File ▸ Import ▸ Audio.**

   The **Select one or more audio files...** dialog box appears (Fig. 5.14).

   Select the file 'Maid with the Flaxen Hair' and click **Open.**

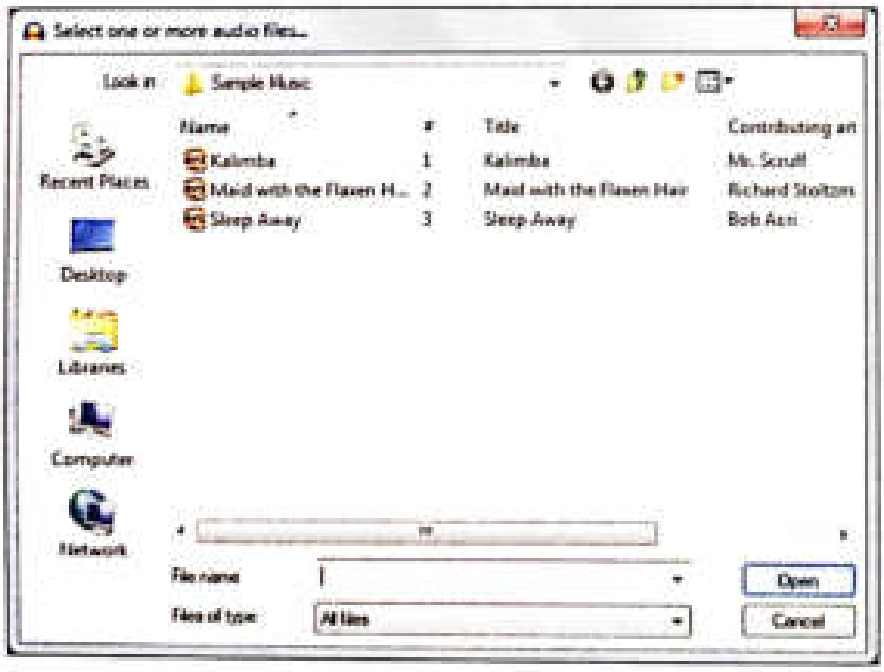


Fig. 5.14 Selecting an audio file for the background

b. The music file is added as a background (Fig. 5.15). Notice that the stereo file we have imported has two waveforms.

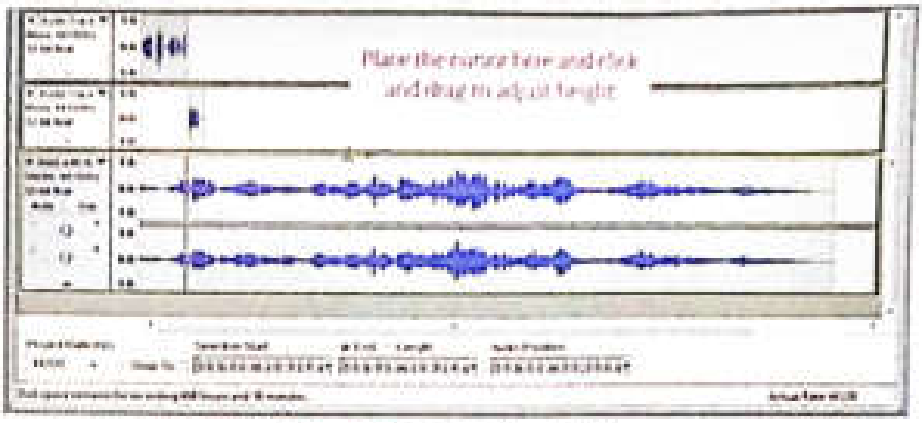


Fig. 5.15 Music file added

To view more tracks on the same window, you can adjust the height of the tracks.

For this, place the cursor between the tracks and then click and drag the cursor to adjust the height of the tracks (Fig. 5.15).

Selecting a Range in Audio Files

Sometimes you may hear unwanted sounds, or you might want to use only a portion of the audio in your project and discard the rest. For this you have to first select the portion of the audio you want to edit.

To make a selection you need to use the **Selection** tool and follow the steps below:

1. Use the **Zoom In** button in the **Edit** toolbar to get a closer look at the waveform.
2. Click the **Selection** tool.
3. Click on the point from where you want to start the selection (Fig. 5.17).

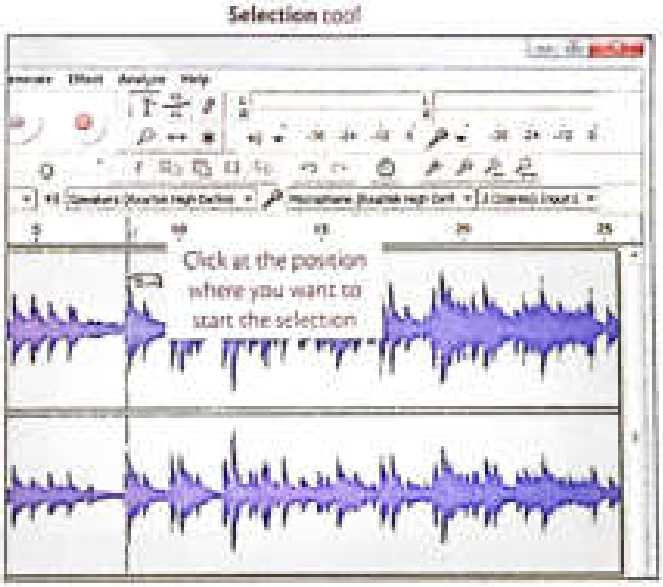


Fig. 5.17 Starting Selection

Top Tip

You can take a look at the **Selection** toolbar at the bottom of the Audacity window to understand exactly where your selection starts and stops in terms of hours, minutes and seconds. If you choose the **End Selection** option, it shows the time where selection ends. If you select the **Length Selection** option, it shows the actual length of the selection.

4. While holding down the **SHIFT** key, click to the right where you want the piece to end (Fig. 5.18).

Or

Place the cursor over the edge of the selection until you get the pointing finger.

Then click and drag left or right to make the selection.

You can listen to the selection by pressing **SPACE**. Press **SPACE** again when you want to stop playback.

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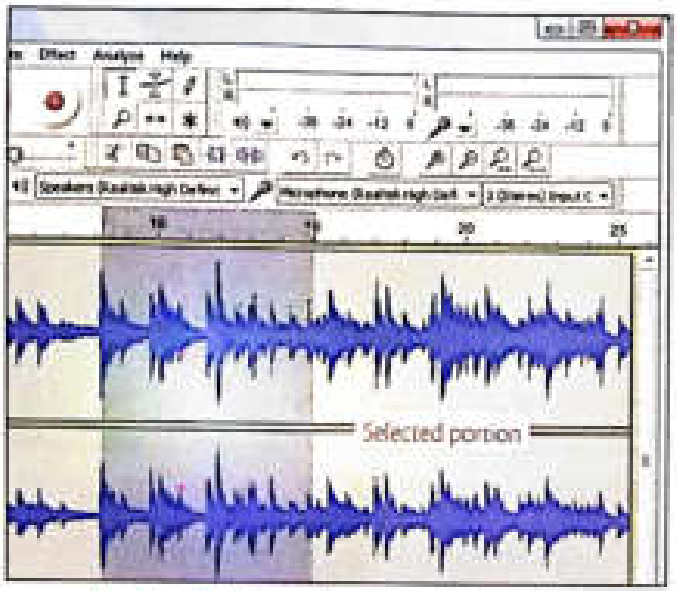

Fig. 5.18 Selected portion of the audio

Deleting Portions of Audio

1. To delete everything except the selected audio, click **Edit ▸ Remove Audio or Labels ▸ Trim Audio** (Fig. 5.19).

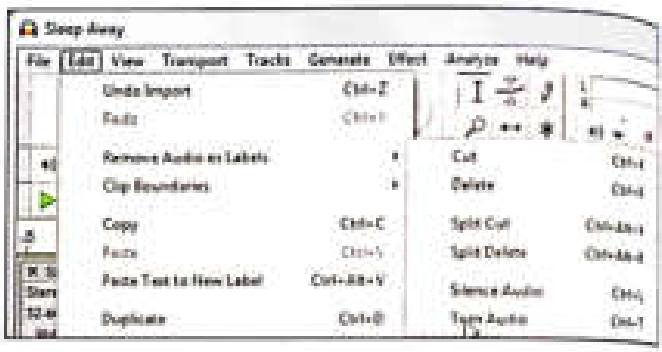

Fig. 5.19 **Trim Audio** option

2. As you can see, except for the selected portion, the rest of the audio file gets deleted (Fig. 5.20).

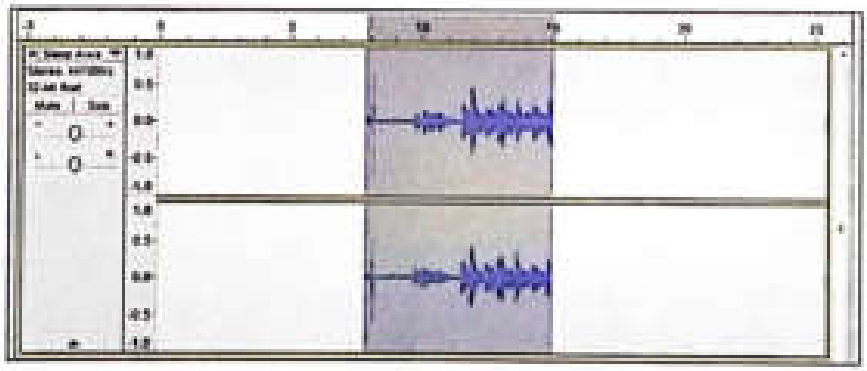

Fig. 5.20 Trimmed audio file

COPYING OR MOVING PORTIONS OF AUDIO

Copy and Paste

To copy the selected portion of an audio file:

a. Select the portion to be copied.

b. Select the **Copy** option from the **Edit** menu.

c. To create a copy on the same track:

   i. Click at the position on the track where you want to insert the audio.

   ii. Select the **Paste** option from the **Edit** menu.

d. To create a copy on a new track, press **Ctrl + D** (Fig. 5.21).

Fast Forward

Copy	Ctrl + C
Cut	Ctrl + X
Paste	Ctrl + V
Create a copy on new track	Ctrl + D

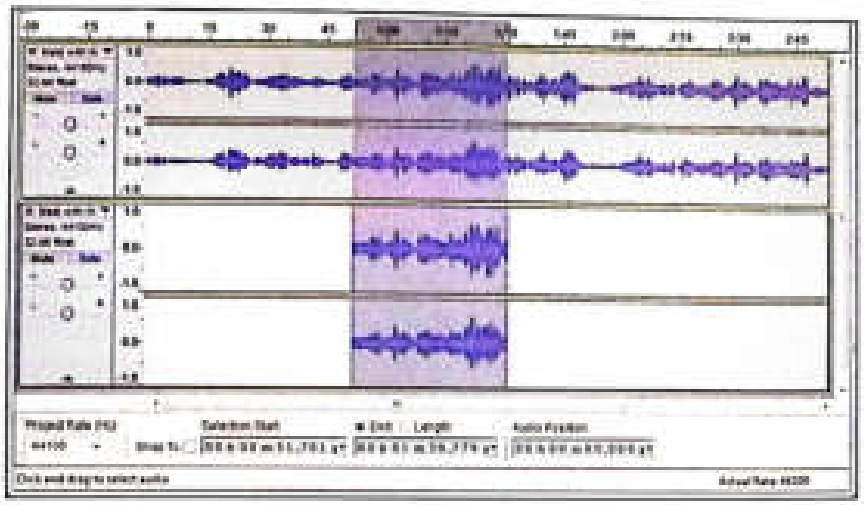

Fig. 5.21 Duplicated selection on a new track

Cut and Paste

To move the selected audio:

a. Select **Edit ▸ Remove Audio ▸ Cut**. This removes the selected audio and the rest of the waveform jumps to the left to occupy the space where the cut portion was.

b. You can now paste the cut portion of the audio on the same track or in a different project by using the **Paste** command.

Adding Effects

To add, say, the **Fade In** effect to the selected audio, choose **Effect ▸ Fade In** (Fig. 5.22).

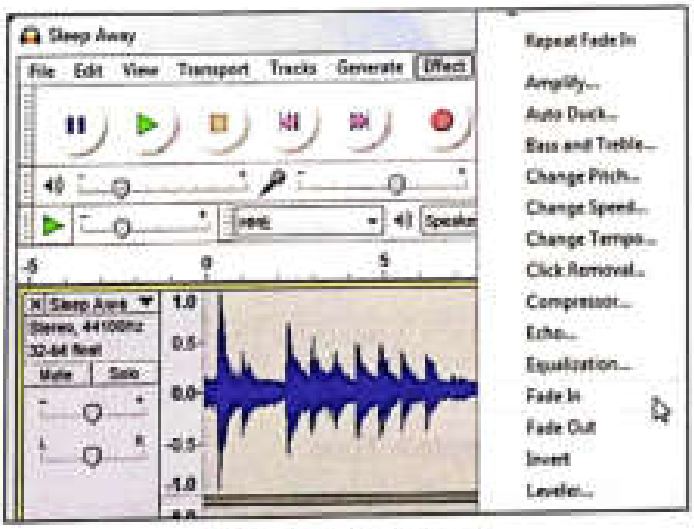

Fig. 5.22 **Effect** menu

There are many other effects that can be applied. Also the same effect can be applied multiple times.

The menu also has an option to remove unwanted background noise. Noise removal has two steps. First, you will have to select a portion which is all noise. You select this part and drag it out. Then, choose **Effect ▸ Noise Removal** and click **Get Noise Profile**, to make **Audacity** understand what is noise (Fig. 5.23). Now:

1. To remove noise from a specific portion, select that portion of the track. To remove noise from the entire track, click anywhere on the track so that there is no specific selection.
2. Again, select **Effect ▸ Noise Removal**. The **Noise Removal** dialog box reappears. Specify the values for **Noise Reduction**, etc., select **Remove** and click **OK**.

OXFORD

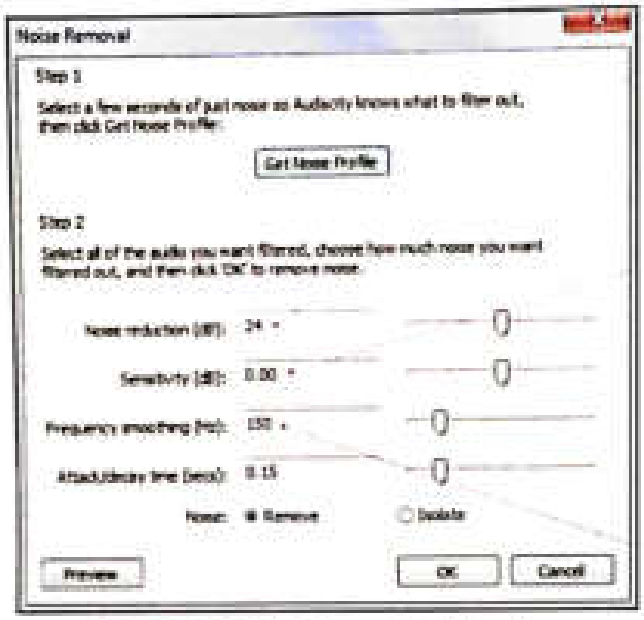

Fig. 5.23 **Noise Removal** dialog box

Lower the value, more the noise removed

The **Sensitivity** value helps to control how much audio will be considered as noise. Entering a higher value will treat more of the audio as noise. If recording is not very noisy, do not change the default value.

Frequency smoothing value is used to blend frequencies together.

Silencing unwanted words and sounds

Sometimes you may want to remove unsuitable sound and/or words from an audio file. The steps are:

1. Select the part of the audio file you want to silence.
2. Select **Generate ▸ Silence**. The **Silence Generator** dialog box appears (Fig. 5.24).

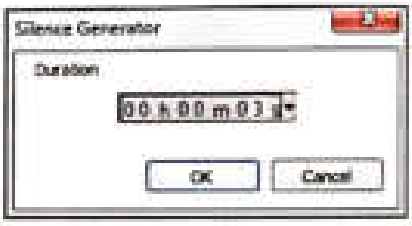

Fig. 5.24 **Silence Generator** dialog box

The exact duration of the sound is shown in the dialog box. Click **OK**.

3. Notice the change in the waveform in the selected range (Fig. 5.25).

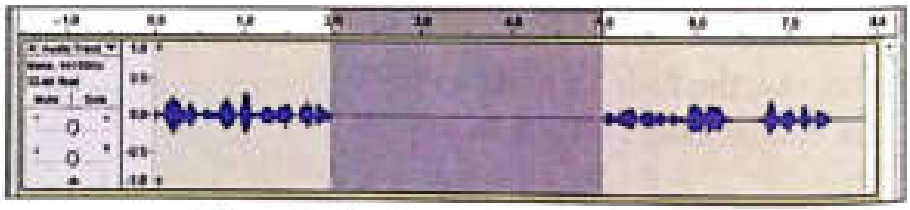

Fig. 5.25 Flat line indicating no sound

You can also insert a beep for the objectionable word in the audio file. The steps are:

1. Select the required part of the audio file.
2. Select **Generate ▸ Tone**.
3. The **Tone Generator** dialog box appears (Fig. 5.26).
4. Specify the values for **Waveform**, **Frequency**, and **Amplitude** and click **OK**.
5. Play the audio file. You will hear a beep in that portion.

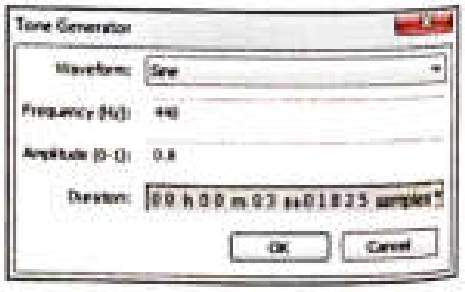

Fig. 5.26 **Tone Generator** dialog box

Saving Projects

The steps to save a project are:

1. Select **File ▸ Save Project As ...** (Fig. 5.27).

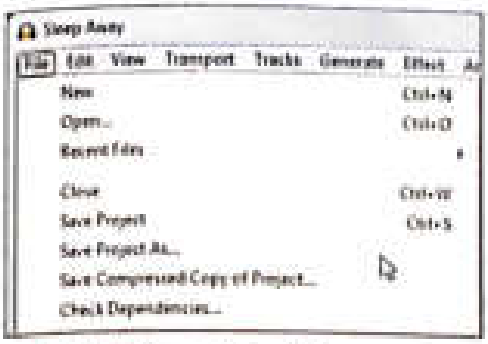

Fig. 5.27 **Save Project As ...** option of **File** menu

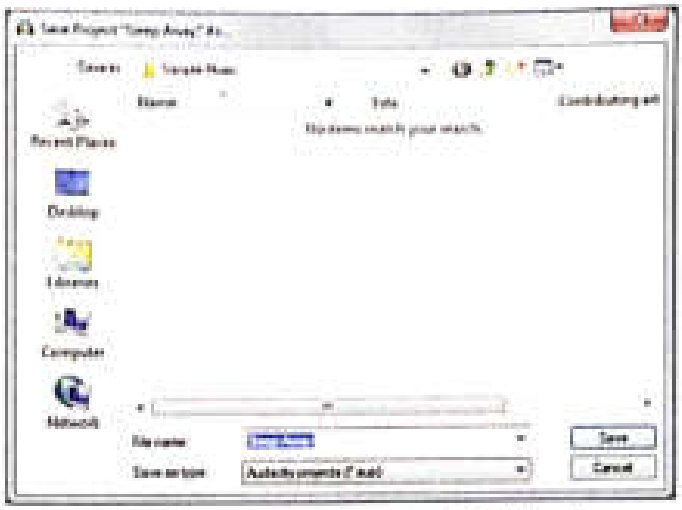

Fig. 5.28 **Save Project ..... As** dialog box

2. This will open the **Save Project ..... As** dialog box (Fig. 5.28).
3. Enter the desired file name and click **Save**. Audacity project files are saved in **.aup** format.

Exporting Audio Files

An **Audacity** project can be opened in **Audacity** only. If you want to open the edited file in other programs like Windows Media Player, you need to export it.

To export the file, follow the steps below:

1. Select **File ▶ Export**.
2. In the **Export File** dialog box that appears, enter the desired file name and select a format in the **Save as type:** menu (Fig. 5.29).
3. Click on **Save**.

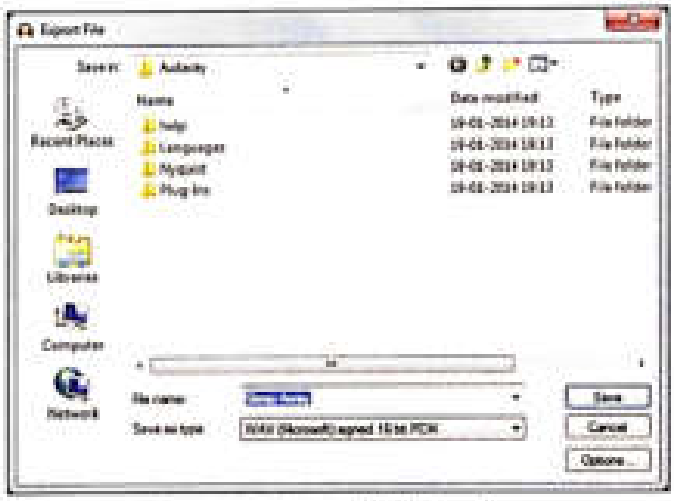

Fig. 5.29 **Export File** dialog box

PRACTICE TIME

The Music teacher of Class VIII has assigned Asjad to mix any two songs of his choice in a sound editing software and explain the process to the entire class. He wants to use Audacity. Can you help him with the process?

SOLUTION

1. Start **Audacity**.
2. To open an audio file, select **File ▶ Open**. The **Open** dialog box appears.

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3. Select the file, say, 'Sleep Away' and click **Open** (Fig. 5a).
4. To open another audio file, again select **File ▶ Open**. In the dialog box select the file, say, 'Maid with the Flaxen Hair'.

   Notice that the file opens in a new window (Fig. 5b). To copy a portion of the song 'Sleep Away':

   a. Use the **Zoom In** button in the **Edit** toolbar to get a closer look at the waveform.
   b. Click the **Selection** tool.
   c. Click on the point from where you want to start the selection.
   d. While holding down the **SHIFT** key, click to the right where you want the piece to end.

      Or

      Place the cursor over the edge of the selection until you get the pointing finger. Then click and drag left or right to make the selection (Fig. 5c).

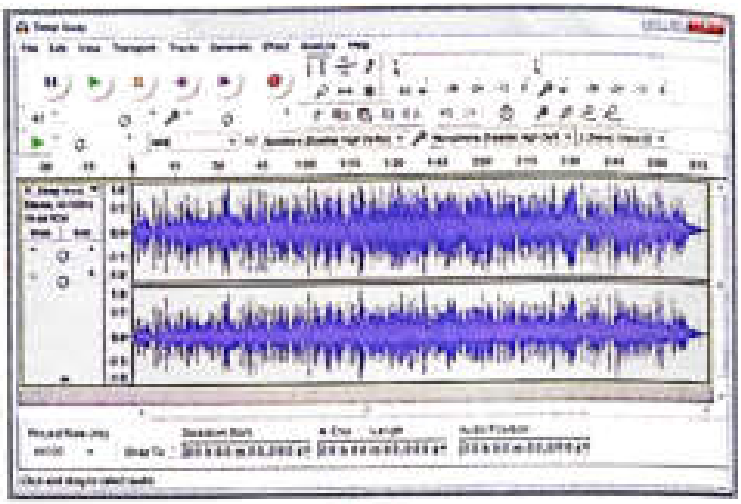


Fig. 5a

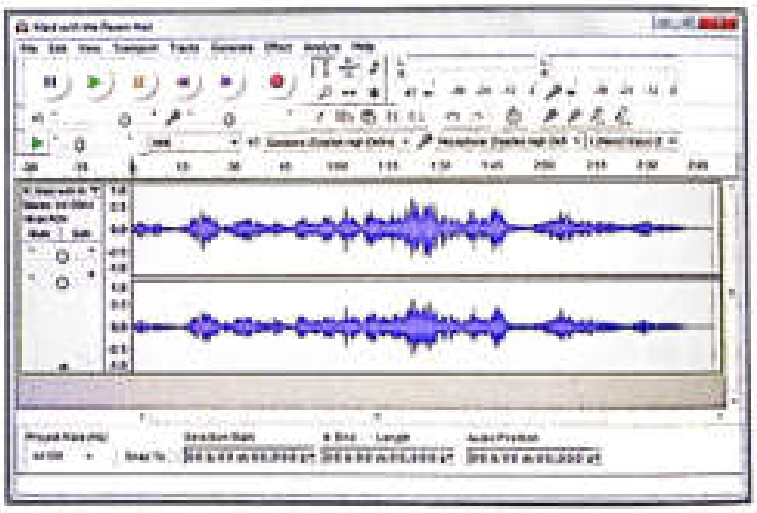


Fig. 5b

5. To paste the copied portion of the song 'Sleep Away' at a certain point in the song 'Maid with the Flaxen Hair':

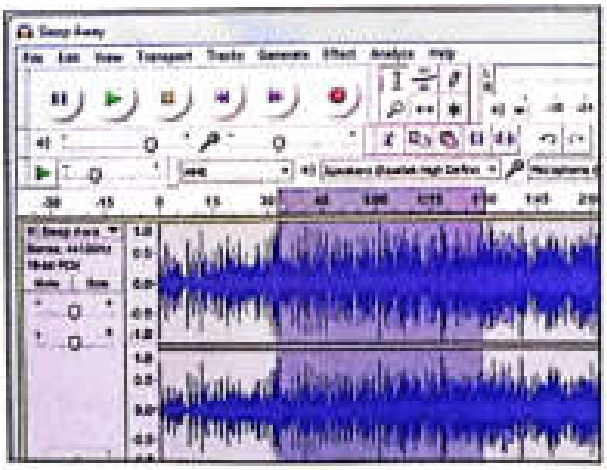


Fig. 5c

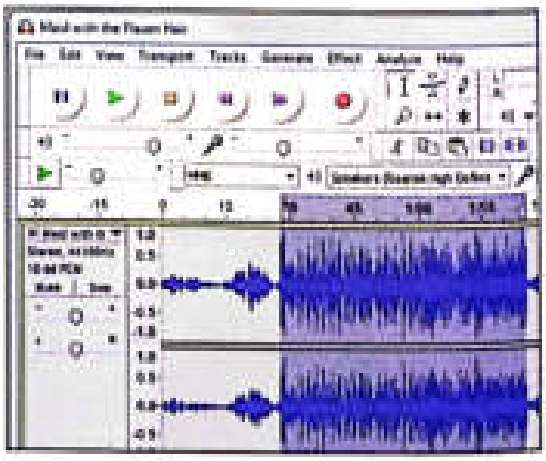


Fig. 5d

a. Select the window in which the file 'Maid with the Flaxen Hair' is open.
b. Click at the position on the track where you want to insert the audio.
c. Select the **Paste** option from the **Edit** menu (Fig. 5d).

6. Let us now apply **Fade In** and **Fade Out** effects to the copied portion. The steps are:
   a. With the copied portion still selected, select **Effect ▶ Fade In**
   b. Again, select **Effect ▶ Fade Out** (Fig. 5e).
7. To save the project:
   a. Select **File ▶ Save Project As ...**. The **Save Project ... As** dialog box appears. Enter the desired file name. Click **Save**. The **Audacity** project files are saved in **.aup** format.

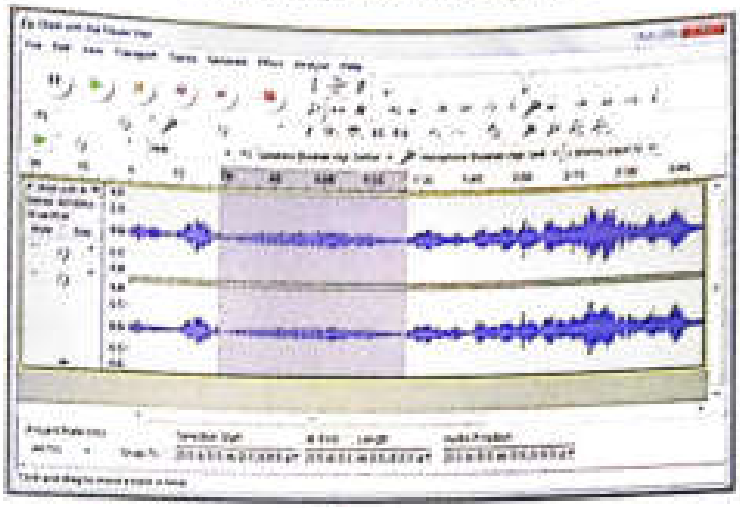


Fig. 5e

Tricky Terms

Sample a unit of audio data

Sample rate the rate at which a computer plays samples per second

Clipping it is a sort of distortion that causes a harsh sound at the distortion points during playback of your recording

Memory Bytes

- Audacity is a popular editing software used for editing and recording digital audio.
- To start Audacity, select **Start ▶ All Programs ▶ Audacity**.
- **Transport Toolbar** has controls for playback, recording, and skip to start or end of project.
- A project in **Audacity** can have a single track or multiple tracks.
- To start a new project in **Audacity**, select **File ▶ New**.
- To set the preferences for the project, select **Edit ▶ Preferences**.
- WAV, AIF, and MP3 file formats and many other common audio file formats can be opened in **Audacity**.

- You can drag and drop the file into the **Audacity** window to open it.
- The loudness of audio is directly proportional to the waveform size.
- The duration of the audio can be measured in minutes and seconds using the ruler above the waveform.
- To listen to the imported audio, click the **Play** button of the **Transport Toolbar**. To stop the playback, click the **Stop** button.
- In a mono file, there is only single channel and identical audio can be heard in both the left and right side.
- In a stereo file, there are two channels — left and right channels.
- You can record or import multiple tracks in a single project in **Audacity**.
- You can use the **Zoom In** button in the **Edit Toolbar** to get a closer look at the waveform.
- You can listen to the selection by pressing **SPACE**. Press **SPACE** again when you want to stop playback.
- You can remove or reduce unwanted background noise from an audio file in **Audacity**.
- An **Audacity** project can be opened in **Audacity** only.
- If you want to open the edited file in other programs like Windows Media Player, you need to export it.
- To export a file, select **File ▶ Export**.

Objective Type Questions

1. Choose the correct option.

a. Which of the following audio file formats can be opened in **Audacity**?

i. WAV ii. AIF iii. MP3 iv. all of these

b. You can listen to the selected audio by pressing the ..... key.

i. Spacebar ii. Backspace iii. Tab iv. none of these

c. To create a copy of the selected audio on a new track, press

i. Shift + D ii. Ctrl + D iii. Alt + D iv. none of these

d. The **Noise Removal** option is available in the ..... menu.

i. Effect ii. File iii. View iv. none of these

e. To select the entire track, press

i. Ctrl + A ii. Shift + A iii. Alt + A iv. none of these

f. The **Audacity** project files are saved in the ..... format.

i. .audo ii. .aup iii. .auda iv. none of these

g. Which of the following options are available in the **File** menu?

i. Import ii. Trim Audio iii. Cut iv. none of these

h. The keyboard shortcut for the **Paste** option is

i. Ctrl + C ii. Ctrl + V iii. Ctrl + X iv. none of these

Descriptive Type Questions

Answer the following.

a. How can you create a copy of the selected audio on the same track?

b. List the steps to export an audio file so that it can be opened in a program like Windows Media Player.

c. What are the default values for the Default Sample Rate and the Default Sample Format?

d. List the different audio file formats that can be opened in **Audacity**.

e. How can the duration of an audio be measured?

f. Mention two ways in which you can play an audio.

g. Can you change the name of a track? How?

h. How can you import a music file as a background?

i. Asad has downloaded Audacity on to his computer to listen to music. Unfortunately, he is unaware of the file formats that are supported by this software programme. List the different formats that can be played on Audacity and give their properties. Do you think it is important for there to be restrictions on how this software can be used? Why is it important for 'free, open source' software to be available to use? Do you think it is actually free?

j. Saleem is working on a documentary about different kinds of birds and their sounds. How will the following options in Audacity help with this fascinating and informative documentary? What other properties could be used? Why?

- mixing narration with background music
- having multiple tracks in one project
- adding effects such as 'Fade in' and the silence generator

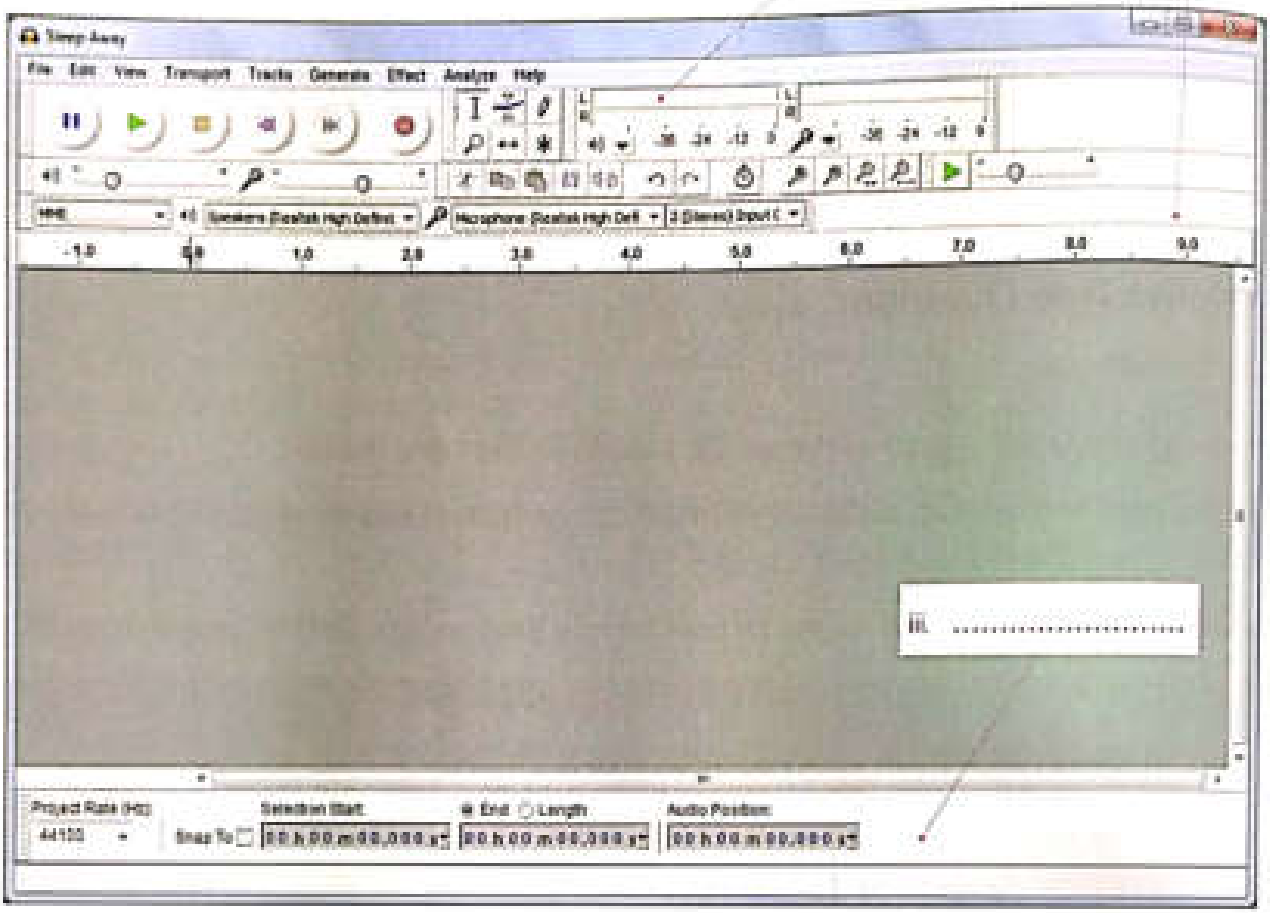
Create a recording of the national anthem in Audacity using both musical and vocal tracks. Make sure that you filter out any unwanted noise in your recording.

Application-Based Questions

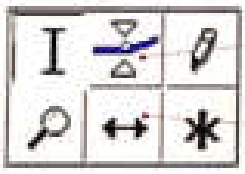
a. Name the toolbars marked in the **Audacity** window below.

i. .....

ii. .....



b. Observe the following toolbar and answer the questions:

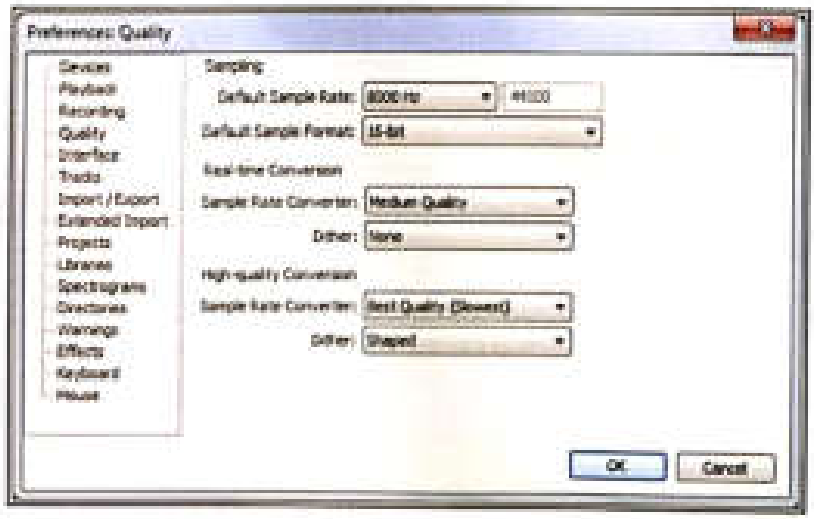


i. _____

ii. _____

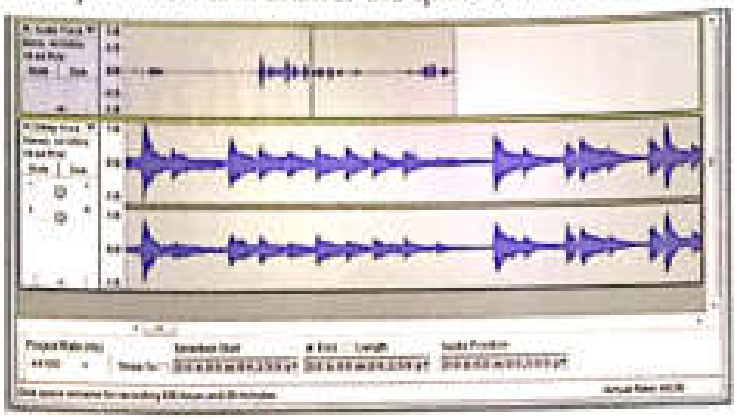
i. Name the toolbar shown in the figure.
ii. Identify the tools marked (i.) and (ii.) in the figure.

c. Observe the following dialog box and answer the given questions:



i. Name the menu and the option to get this dialog box.
ii. What is the default value of the Default Sample Rate?
iii. What is the default value of the Default Sample Format?

d. Observe the following audio tracks in the **Audacity** window and answer the questions below.



i. Which of the two tracks is a mono file and which is a stereo file?

ii. What is the difference between a mono and a stereo audio file?

IN THE LAB

1. Emad loves singing. He has decided to record his song in **Audacity**. He already has an audio file with the instrumental for that song. Help him import this audio file and then record the song in his own voice. List in your notebook the steps needed to complete the task.
2. Yeshal and her friends have to give a presentation in their English class. Before the actual presentation, they have decided to rehearse and record the presentation in **Audacity**. Help them with the steps to complete this task.
3. Kamran has to make a presentation. He wants to insert a portion of a song as background music. How can he get the required portion extracted from the full song?
4. Ishaq doesn't know the difference between a mono file and a stereo file. Import two different audio files—one mono and one stereo—to show the difference. Take a screenshot of the windows and paste them in your notebook with appropriate captions.

GROUP PROJECT

You now have some experience of using Audacity, but there are other different open source digital audio editors available on the Internet such as ocenaudio, hya-wave, wavepad, twisted wave, and wavosaur. What are the dangers of using open-source programmes?

Explore these different audio editors and create a list of requirements you expect to find in each programme and then compare your findings. Do they all have the same basic features and functions? What makes one programme more effective than another? List and compare their respective features, and then give a recommendation on the best audio editor.

Present your findings in the most appropriate way to your class. This may be creating a PowerPoint using hyperlinks or you might create a few linked web pages. Learn from your fellow students; they may present their findings in a very different way to yours.

TEACHER'S NOTES

- Explain to the students the possible uses of the Audacity software.
- Demonstrate how to download this software from the site http://audacity.sourceforge.net/

OXFORD

Chapter 6

Lightworks

You may have shot videos of your birthday party or of your summer holiday trip. Have you had a chance to make them more interesting by adding, say, background music, a commentary, or some other interesting elements or effects to it? You have learnt in chapter 5 how to edit sound (or audio) files. In this chapter we will learn how to edit both video and sound files.

In this Chapter

- Starting Lightworks
- Project View
- Basic Editing
- Trimming on the Timeline
- Transition Effects
- Working with Audio
- Exporting Files

There are a number of interesting software options for **video editing**. Out of these **Lightworks** is a very popular one. It has both a free version and a professional one. Please download the free version to get familiar with the editing interface. Lightworks has a minimum set of tools so that students focus more on learning the art of editing videos. Some of the famous movies that have been edited using Lightworks are **Braveheart**, **Mission Impossible**, **Bruce Almighty**, **The Wolf of Wall Street**, etc.

STARTING LIGHTWORKS

Once you have downloaded **Lightworks**, follow the steps given below to open the software:

Fig. 6.1 **Lightworks** loading screen

1. Double-click the **Lightworks** icon on the desktop. You will see the **Lightworks** loading screen as shown in Figure 6.1.

The **Lightworks** application opens displaying the **Projects Browser** window (Fig. 6.2).

Fig. 6.2 **Projects Browser** window

Create New Project

To create a new project, do the following:

1. Click the **Name** text box and type a name for your project.
2. Select the frame rate from the **Frame rate** drop-down list.

Click the **Create** button. After clicking this button, Lightworks switches from the **Projects Browser** window to the **Project View** screen (Fig. 6.3)

Fig. 6.3 **Project View**

Did you Know?

A **movie** is actually made up of an enormous number of still images, but gives us an illusion of motion by showing these images in rapid sequence. The number of images that are run or photographed per second is referred to as the **frame rate** of the movie and is measured in **frames per second** (fps). It shows both the speed of recording as well as playback.

If you do not know the frame rate, select **Auto**. Lightworks will determine the frame rate for you.

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PROJECT VIEW

Project View gives you all the options required for editing or making a video.

On the top left corner, you will see the **menu bar** (Fig. 6.4).

Fig. 6.4 Menu bar of **Project View**

a. Click the name of the project in the top left corner to see the current project details.

b. You are now in a **room** for the project. A project may have one or more **rooms**. By default a new room has a numbered name, for example, Room #1. You can change the name by clicking the room name, typing the name you want, and then pressing **Enter** to save the name.

   A **room** is where you play and edit your files. You can create several rooms for a project, say, one for the editor, one for the director, etc. Each room may have some or all of the project components which are placed in **windows**.

   While creating a film you may be working with many windows. You can set up all the windows in one room and assign an appropriate room name. This arrangement makes it easy to switch between windows while editing a video. Here we will work in only one room.

c. If you wish to return to the **Projects Browser**, click the **Exit Project** button at the top left of the screen.

At the top right corner, we see two buttons  (Fig. 6.3). The black one is the **Shrink** button which minimizes the Lightworks application to the task bar, and the red one is the **Close** button, which ends the Lightworks session.

The **toolbar** provides quick access to several tools you would use during your recording and editing process (Fig. 6.5). It is displayed by default in the **Project View**.

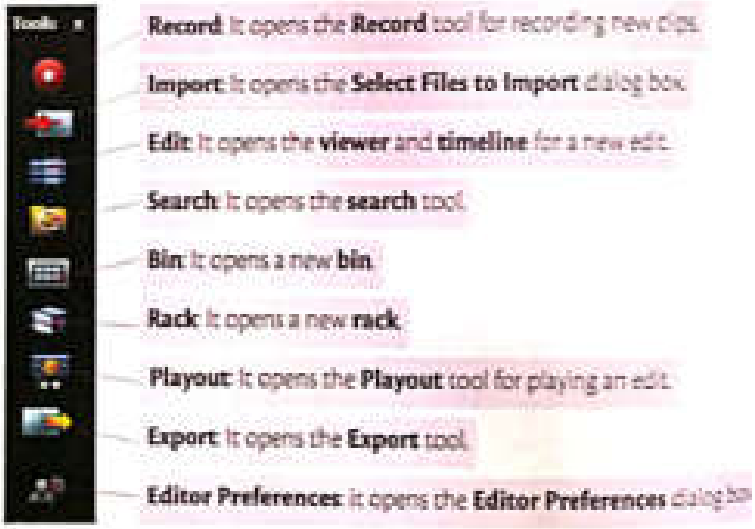


Fig. 6.5 The **Toolbar**

Importing Media Files

1. To import a file or a group of files into your project, click the **Import** icon  on the toolbar. The **Select Files to Import** dialog box appears (Fig. 6.6).

Top Tip

Video files with the extension AVI, MOV, MXF, MPG, and MPEG can be imported into Lightworks.

Fig. 6.6 Select the files to import to project

Top Tip

If the frame rate of the file being imported into the project is not compatible with the project, it is highlighted in red to denote that you cannot import it into the project.

You can also import files in batches. Right-click the **Import** icon and select **Batch Import....** The **Batch Import** dialog box opens. Click **Add Files.** The **Select files to import** dialog box appears. Choose your files, click **Start**, and click **Import.**

2. Click on **Places** at the top-left corner of the dialog box. From the menu that opens, navigate to the directory containing the files you wish to import.
3. Select the files you wish to import into your project in the **Select files to import** dialog box that opens. The **Name, Format, Rate, Size**, and **Date** of each clip is displayed here (Fig. 6.6). Make sure that the frame rate of the file is compatible with the project frame rate.
4. Click **Import**. A panel reporting the progress of the import process is displayed (Fig. 6.7).

Fig. 6.7 **Import** panel

When the import finishes, a **bin** named **Imports** opens, containing all the files you have imported (Fig. 6.8).

A **bin** is a place where you put your audio and video clips that you want to use in making your movie. It helps in organizing your work.

Fig. 6.8 **Imports** bin

Did you Know?

By default, Lightworks shows all of your bin contents as thumbnails. You can change this to a list view by clicking on the **Bin View** icon at the top-right corner of your bin and selecting **list.**

Organizing Your Project

Bins are the containers in which you organise and work with your material. You can place many bins together in a **rack**.

Thus, a **rack** may consist of many related **bins**, and each **bin** in a rack would have **files** of one type.

Bins

To create a new bin, click the **Bin** icon on the toolbar (Fig. 6.5).

This opens the bin. Let us continue with the default name of the bin, i.e., **Bin1**. Drag the tiles in the **Imports** dialog box to Bin1 (Fig. 6.9). Similarly you can create a second bin which can contain the audio files (Fig. 6.10).

Fig. 6.9 Drag tiles from **Imports**

Fig. 6.10 **Bin2** with the music files

Top Tip

There are many other ways of creating a new bin. You can click **Search** and enter a criteria to create a bin of files fulfilling that criteria. You can click a file and then select 'Make Bin of clip reference' or you can click the **Cogs** icon on an existing bin and select 'Make a Bin'.

Rack

A **rack** can be taken as a filing cabinet that you use to store your bins. A rack has the following properties:

- It can contain up to 15 bins.
- It can be closed to save space on the screen.

To create a new rack:

1. Click on the **Rack** icon on the **Toolbar** (Fig. 6.5).
2. A new rack opens. To rename the rack, left-click on the title bar and type the new rack name.

Did you Know?

You can click the **cogs** icon on a bin or a rack and select the **Permanence** as **Permanent** to make a permanent bin or rack. The option for a bin is shown here. The default option is **Transient**.

If you delete a transient bin or rack, it simply disappears. However, when you delete a permanent bin or rack in a project, a message box opens asking you to confirm whether you actually want to delete it.

Bins Inside a Rack

To place a bin inside a rack, do the following:

1. If the bin is still open, click on the **Shrink** button to close it (Fig. 6.11).
2. Left-click on the closed bin and drag it onto the rack (Figs. 6.12 and 6.13).

Fig. 6.11 Close Bin1 and Bin2

Fig. 6.12 Bin1 placed

Fig. 6.13 Bin2 placed

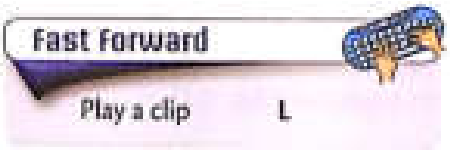
3. To change the order in which bins are displayed in the rack, left-click and hold the title bar of the bin and drag it to the required position.
4. To open a bin, click on the **Enlarge** button on the bin's **title bar**.
5. To close the bin and return it to the rack, click the **Shrink** button as discussed in step 1.

Playback

The clips you have imported would appear as tiles in the bin, in this case, in Bin1 (Fig. 6.14).

Fig. 6.14 The imported clips in Bin1

1. Click anywhere in the picture area of a tile to select it. The border of that particular tile will change to bright blue.
2. Now, either use the **Play** button on the console, or press the **spacebar**, for play / pause.



Playing in a Viewer

To open a tile in a viewer, do any of the following:

1. If you hover your mouse over the tile or clip, a toolbar will appear on the right. Click the **Viewer** icon in the toolbar [Fig. 6.15(a)].
2. This will also reveal the **scrub bar** [Fig. 6.15(a)]. Click the red marker and hold and drag the marker to move backward or forward through the clip [Fig. 6.15(b)].

Fig. 6.15(a) **Viewer** icon and the **Scrub bar**

Fig. 6.15(b) Red marker position moved

Or

3. Double-clicking a tile will also open the selected clip in the viewer (Fig. 6.16).

   The name of the clip appears at the top-left corner of the viewer.

4. If you wish to jump to a new point, **left-right click** the mouse button (very quickly press first the left mouse button and then the right mouse button) at the position you want to jump to.

5. You can also lock the viewer on the screen. Click the **Pin** button at the top right corner (Fig. 6.16). Clicking the **Pin** button again will unlock the viewer.

6. To display a full size video, press the F12 key. The viewer displays the clip full screen.

Fig. 6.16 Clip in the viewer

Top Tip

To resize the viewer, click on any edge of the viewer and drag it. The size of the viewer is displayed at the top left corner while you drag it.

Marking a Selection

For many editing operations, you need to select a length of the source clip. You can do this by marking the **In** point and the **Out** point on the clip. This process is called **mark and park** in **Lightworks**.

First let us understand what the various buttons on the console (Fig. 6.17) help us do. Refer Table 6.1 for an explanation. Now let us select a portion of the clip using the **mark and park** procedure.

Fig. 6.17 Console buttons and selecting part of a clip

To mark and park do the following:

1. Position the frame marker where you want the clip to begin.
2. Press the 'In' mark button on the console. A blue marker comes up below the current frame red marker.
3. Now move the current frame red marker to where you want the clip to end.
4. The portion between the blue marker and the current red frame marker is now selected and appears in white as in Fig. 6.17 given above.

Table 6.1 Console buttons and their actions

Button	Action	Keyboard shortcut
1	Jump backward	a
2	One frame back	, or back arrow key
3	Play/Pause	Spacebar
4	One frame forward	. or forward arrow key
5	Jump forward	s
6	Add an 'in' mark to the current position	i
7	Clear all marks	p
8	Add an 'out' mark to the current position	o
9	Replace into the target edit	b
10	Insert into the target edit	v

BASIC EDITING

Basic editing involves four common functions—**Replace**, **Insert**, **Delete**, and **Remove**.

The **Replace** and **Insert** functions are used to include pictures and sound into the file being edited.

The **Delete** and **Remove** functions are used to get pictures and sound out of the file being edited. Let us first learn how to replace a portion of a clip.

Replace in Edit

1. Click the **Edit** icon on the Toolbar.
2. An empty **edit viewer** and **Timeline** open on the screen. You can assign a new name to the edit. The **edit viewer** has a red border as can be seen in Figure 6.18.
3. Select a file by double-clicking its tile in Bin1.
4. The clip loads into the source viewer. Notice that it has a blue border. Pin the edit viewer, source viewer and timeline (Fig. 6.19). The pin icon when clicked will pin or lock the position of that window. You cannot move the window after pinning it. However, you can still resize the window.

Fig. 6.18 Empty **edit viewer** and **Timeline**

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Fig. 6.19 Load clip in the **source viewer**

5. Using the mark and park procedure, mark the **In** and **Out** points in the clip and click on **Replace**. The marked section goes into the timeline (Fig. 6.20).

Fig. 6.20 Marked section in the **Timeline**

6. Double-click another tile. Now the source viewer contains the second clip. Again mark the **In** and **Out** points in the clip using the **mark and park** procedure and click **Replace**.

   The second clip joins the first clip in the edit (Fig. 6.21).

Fig. 6.21 The second clip joins the first clip

7. Similarly, you can add a third clip (Fig. 6.22). (You can add any number of clips). Notice that in the timeline each clip has a different colour which is very helpful while editing a sequence.

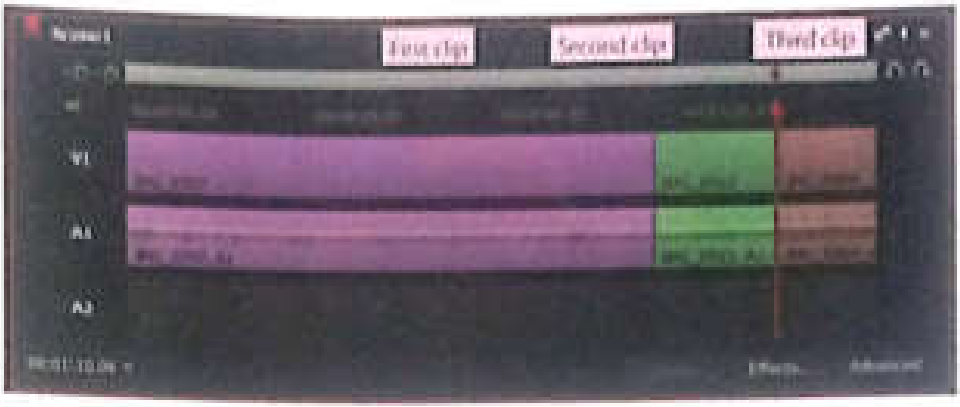

Fig. 6.22 Three clips in the **Timeline**

Before we move further, let us review the function buttons (Fig. 6.23).

Fig. 6.23 Function buttons on the console

Replace in target edit | **Insert** in target edit | **Remove** marked section | **Delete** marked section

Insert in Edit

The **Insert** command helps you add a new clip within a clip.

1. Bring the pointer in the **Timeline** to where you want to insert the new clip.
2. Open the clip in the source viewer and mark the portion you want using the **mark and park** procedure.
3. Click **Insert**. The new material is inserted before the mark (Fig. 6.24).

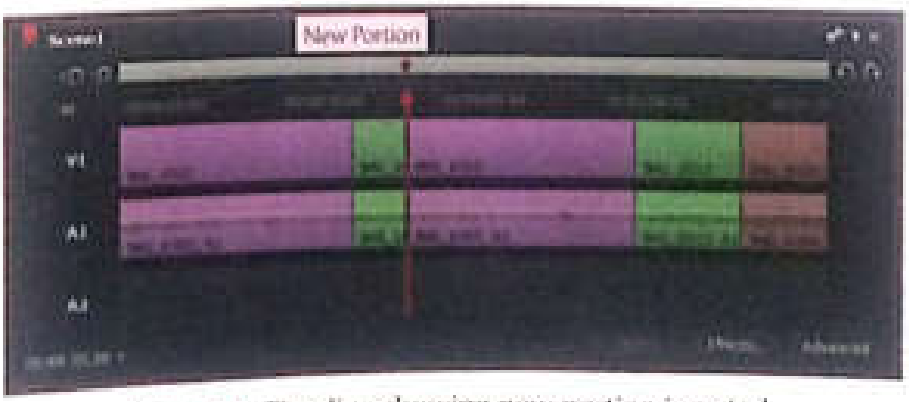

Fig. 6.24 Timeline showing new portion inserted

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Delete in Edit

Mark the start and end point in the **Timeline** you wish to delete and click **Delete** (Fig. 6.25).

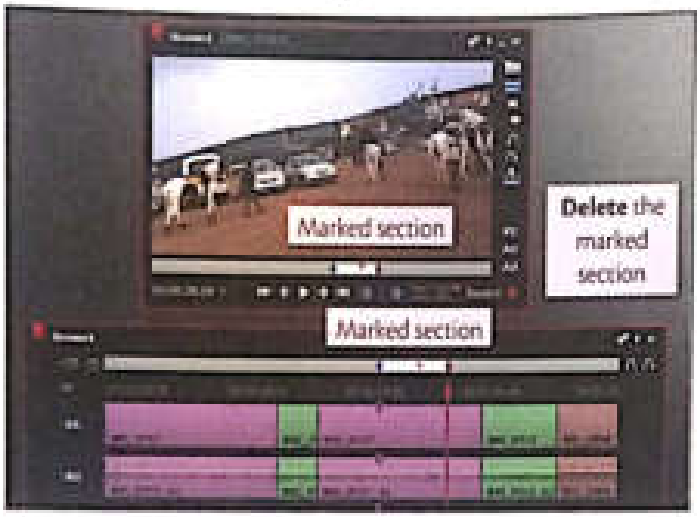

Fig. 6.25 Mark the clip to be deleted

The selected clip is deleted (Fig. 6.26).

Fig. 6.26 Marked section deleted

Remove in Edit

There are two options in **Lightworks** to take out a portion of a clip: **Remove** and **Delete**. The difference is that **Delete** takes out both the audio and the video portions of the clip, while **Remove** takes out either the audio or the video portion of the clip depending on your selection.

1. Deselect the video if you want to remove sound.

   Or

   Deselect the audio if you want to remove the video.

   Here, the audio part has been deselected.

2. Click **Remove** (Fig. 6.27). You will see that a part of the video has been taken out.

Fig. 6.27 Selected video portion removed

TRIMMING ON THE TIMELINE

The **Timeline** provides a simple view of a clip or edit. To **trim** is to make adjustments to the timing of cuts.

You do this by **opening** or **unjoining** the cuts so that when you play the edit, you can move the position of the cut. When you are done, you rejoin the cuts.

There are three different ways in which you can trim a clip:

1. To trim the incoming and outgoing clips at the same time, left-click a cut in the middle.
   a. The viewer changes to the **Trim viewer**, displaying both sides of the cut (Fig. 6.28). The clips curl on both sides of the cut.

b. Playing **forward** lengthens the outgoing side and shortens the incoming side.

c. Playing **backward** shortens the outgoing side and lengthens the incoming side.

Fig. 6.28 Click a cut in the Timeline

2. To trim an **outgoing clip**, click close to the left of a cut (Fig. 6.29).

   a. The cut is unjoined on the **outgoing side**.

   b. You can now shorten or lengthen the portion with the curl. Playing forward lengthens the outgoing side.

   c. Playing backward shortens the outgoing side. The clip on the other side of the cut does not change.

Fig. 6.29 Trim an outgoing clip

3. To trim an **incoming clip**, click close to the right of a cut.

   a. The cut is unjoined on the **incoming side**. It adds a small cut just after the cut (Fig. 6.30).

   b. You can now shorten or lengthen the portion with the curl.

Fig. 6.30 Trim an incoming clip

As is the case above, playing forward shortens the incoming side, while playing backward lengthens the incoming side. The clip on the other side of the cut does not change.

Slip a Shot

To **slip a shot** means to increase or decrease the duration of the first clip, without changing the duration of the middle clip. This changes the duration of the edit.

To slip a shot, do the following:

1. Place the mouse pointer to the left of the cut and then click the left mouse button and the 'Y' key. This unjoins the head and tail of the shot (Fig. 6.31).
2. Playing forward slips the middle clip so it begins and ends later.

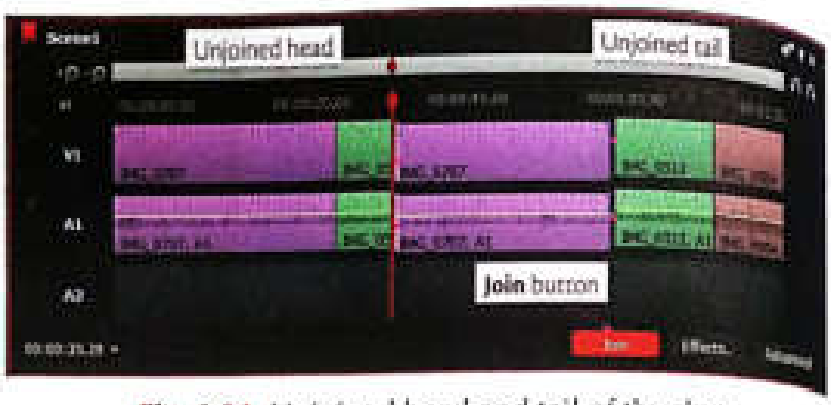

Fig. 6.31 Unjoined head and tail of the shot

3. Playing backward slips the middle clip so it begins and ends earlier.

Neither of the actions changes the middle clip's duration but the total duration of the sequence changes.

Slide a Shot

To **slide a shot** means to increase or decrease the first clip at its tail and to shorten or lengthen the third clip at its head.

1. To slide a shot, place the mouse pointer to the left of the cut and then click the left mouse button and the 'T' key. This unjoins the tail of the previous shot and the head of the next shot (Fig. 6.32).

Fig. 6.32 Unjoined tail of previous shot and head of next shot

2. Playing forward slides the middle clip so that it starts later in the sequence. The first clip is extended at its tail and the third clip is shortened at its head.
3. Playing backward slides the middle clip so that it starts earlier in the sequence. The first clip is shortened at its tail and the third clip is extended at its head.

The total duration of the sequence does not change.

After you finish trimming, click **Join** to close all trims.

TRANSITION EFFECTS

A **transition** effect is a special effect that can be added to a clip. To add an effect, do the following:

1. Click the place where you want to add the effect (Fig. 6.33).
2. Click the **Effects** button.
3. The **Add Effects** dialog box opens (Fig. 6.34).

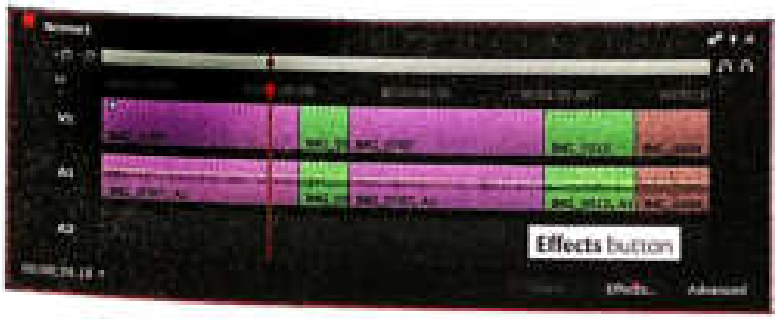

Fig. 6.33 Click the place to add a special effect

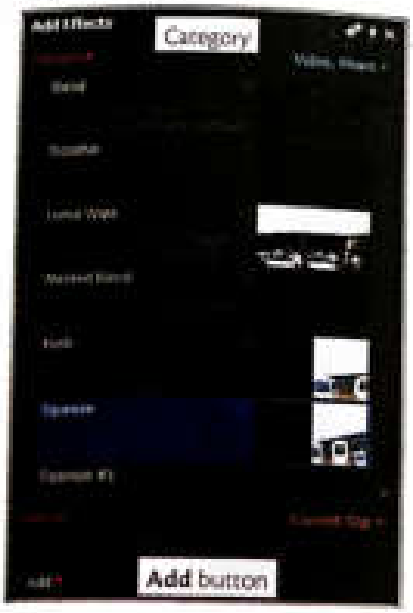

Fig. 6.34 **Add Effects** dialog box

4. Select the **Category**.
5. Select **Apply to** as **Current Clip**.
6. Click **Add**.
7. Another screen appears (Fig. 6.35). Select the **Type** and click the **Close** button.
8. The **Add Effects** dialog box appears again. Now, click the **Close** button.

Fig. 6.35 **Type** selection screen

WORKING WITH AUDIO

While working with audio you can display the audio waveforms, Manially boost or lower the sound levels, and also add soundtracks at specific positions.

Audio Waveforms

To display the audio waveforms, do the following:

1. Click the **Cogs** icon on the **Timeline**.
2. From the menu that opens, click on **Show audio waveforms** (Fig. 6.36).

Fig. 6.36 **Cogs** menu

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3. Audio waveforms are displayed in the audio tracks (Fig. 6.37).
4. To see the waveforms more clearly, resize the timeline (right-click the bottom edge and drag it down).
5. To Manially boost or lower the audio level of a clip, do one of the following:
   a. Mark the portion in the clip and type the dB level you want for that portion (Fig. 6.38) (it can be positive or negative). If the fields are not visible, click the **Advanced** button.

      Or

   b. Right-click the audio track and mark it. Position the mouse over the audio track and drag the mouse to raise or lower the level (Fig. 6.39).

Fig. 6.37 Audio waveforms in the audio track

Fig. 6.38 Specify dB level

Fig. 6.39 Raise or lower the level by dragging the mouse

Note: The audio levels set apply only to the individual clips within the edit.

Add a Sound Track

1. Click the **Cogs** icon and select **Add Tracks** in the menu (Fig. 6.36). The **Add Tracks** dialog box appears. Change **Type** to **Audio**. Click **Add** (Fig. 6.40).
2. Double-click the sound file to add to source viewer.
3. Mark the sound viewer.

Fig. 6.40 Add Tracks dialog box

4. Deselect the other tracks and select the **A2** track.
5. **Mark and park** the edit view where the sound track is to be added (Fig. 6.41).

Fig. 6.41 Added sound track in A2

EXPORTING FILES

Once you have finished your edits you can export the file to a desired location. To export a file do the following:

1. Drag the **Export** icon on the toolbar onto the **edit**, **clip**, **tile** or **bin**.

   Or

   Right-click on the edit, clip, tile or bin and from the menu that opens, select **Export**.
2. The **Export** window opens (Fig. 6.42).
3. Select the destination drive for the exported media.
4. Type the name of the exported file.
5. Click **Start**.
6. A Status window opens, displaying the progress of your export (Fig. 6.43).
7. After completion, a report displays in a **Tasks Log** window (Fig. 6.44).

Fig. 6.42 **Export** dialog box

Fig. 6.43 Status window

Fig. 6.44 **Tasks Log** window

Exit Lightworks

To exit **Lightworks, or your project**, do the following:

- To leave the application, click the **Close** button.
- To return to the **Projects Browser**, click the **Exit Project** icon.

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PRACTICE TIME

Sajjad celebrated his birthday recently. His cousin has recorded some video clips of the birthday celebrations. Two clips are shown here.

Now Sajjad wants to join all these video clips, include animation, and also add a sound track to it. Can you help him in this task?

SOLUTION

1. Double-click the **Lightworks** icon on the desktop.
2. In the **Projects Browser** window, type the name of the project. Select the **Frame rate** as **Auto** and click **Create**. This opens the **Project View** window with **Select Files to Import** dialog box.
3. Click on **Places** in the **Select Files to Import** dialog box. From the menu that opens, navigate to the directory containing the files you wish to import. Select the file(s) and click **Import**.
4. To store the clips in a bin, click the **Bin** icon. Drag the files in the **Imports** dialog box to the **bin**. You can rename the bin. To make it permanent, click the **Cogs** icon and select **Permanence** as **Permanent**.
5. Click the **Edit** icon on the toolbar. An **edit viewer** and **Timeline** open.
6. Double-click a tile in the bin to load it onto the **source viewer**. The clip has a blue border. You may pin the **source viewer, edit viewer,** and **Timeline**.
7. Mark the **source viewer** using the **mark and park** procedure and click the **Replace** button.
8. Double-click another tile in the bin to load it onto the **source viewer.** Mark the **source viewer** using the **mark and park** procedure and click the **Replace** button.
9. Similarly, add other clips.
10. To add a transition effect, click on the **Timeline** where you want to add the transition effect.
    a. Click the **Effects** button. The **Add Effects** dialog box appears.
    b. Select the **Category** and **Apply to** as **Current Clip**. Click **Add**.
    c. Another screen appears. Select the **Type** and click **Close**. Also click the **Close** button of the **Add Effects** dialog box.
11. To add a sound track, do the following:
    a. Click the **Cogs** icon on the **Timeline** and select **Add Tracks**. The **Add Tracks** dialog box appears.
    b. Change **Type** to Audio and click **Add**.
    c. Double-click the sound file in the bin to add to the **source viewer**.
    d. Mark the **source viewer**.

e. Deselect all the tracks and select the A2 track where the sound track will be added.

f. **Mark and park** the **Edit View** where the sound track is to be added.

g. If at some places, you want to change the volume of the audio track, right-click on it.

h. Keep the right-mouse button pressed, and drag it up or down.

12. To export the file, do the following:

a. Drag the **Export** icon on the **Toolbar** to the **edit viewer**. The **Export** dialog box appears.

b. Select the destination drive. Type the name of the exported file and click **Start**.

13. To exit **Lightworks**, click the **Close** button.

Tricky Terms

Clip a continuous recording of picture or sound

Room a window where you play and edit your files

Bin a sort of box where you put your audio and video clips that you want to use or edit in making your movie

Rack a container or a type of filing cabinet for all the bins making up your project

Timeline a bar that gives a simple view of a clip or edit, allows you to mark positions on your clip, and provides you information on the duration of your clip

Trim to make adjustments to the timing of your cuts

Slip a Shot to increase or decrease the duration of the first clip, without changing the duration of the middle clip

Slide a Shot to increase or decrease the first clip at its tail and to shorten or lengthen the third clip at its head

Transition effect It is a special effect that can be added to a clip.

Memory Bytes

- Lightworks is one of the popular software used for video editing.
- The **Toolbar** in **Project View** provides access to several tools you use during your recording and editing process.
- There are two ways to import files—**Import in Project View** and **Batch Import.**
- **Bins** and **racks** are additional tools you can use to organise and work with your material.
- You can play a clip in a tile or in a viewer.
- The **mark and park** procedure is used to mark the portion of the clip you want to edit.
- Basic editing involves four functions—**Replace**, **Insert**, **Delete** and **Remove.**
- You can unjoin the cuts in three places—in the middle, on the incoming side, or on the outgoing side.
- You can add transition effects to a clip.

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- There are two ways to Manially boost or lower the audio level of a clip—type the dB level in the relevant fields, or use the mouse to drag the sound level in order to raise or lower it.
- You can add a sound track to a clip.
- You can export the file you have edited to the desired location using the **Export** tool.

Objective Type Questions

1. Write T for the true statement and F for the false one. Correct the false statement(s).

a. The **Edit Viewer** has a blue border. ☐
b. To see the wave forms more clearly, resize the timeline by right-clicking the bottom edge and dragging it down. ☐
c. To resize the viewer, click on any edge and drag it. ☐
d. The selected portion of the clip appears in red. ☐
e. The **Replace** and **Insert** functions are used to get pictures and sound out of the edit. ☐

2. Choose the correct option.

a. Which one is not true about a rack?
i. It can contain up to 15 items. ii. It can be closed to save space on the screen.
iii. You can drag the closed bin to the rack. iv. all of these

b. The basic editing functions are
i. Replace, Insert ii. Delete, Remove iii. Combine, Split iv. both i. and ii.

c. Clicking the **Edit** icon on the **Toolbar** will open the
i. **Edit viewer** ii. **Timeline** iii. **Source viewer** iv. both i. and ii.

d. If you double-click a tile, it will open the
i. Clip in the **source viewer** ii. Clip in the **edit viewer**
iii. Clip in the **Timeline** iv. all of these

e. Which one is true about **Remove** in edit?
i. Deselect the video if you want to remove the audio.
ii. Deselect the audio if you want to remove the video.
iii. Select both the audio and the video if you want to remove both.
iv. All of the above

Descriptive Type Questions

Answer the following.

a. What are the two ways of importing files?
b. Name all the extension of a video file which you can use in **Lightworks**.
c. How will you create a new bin, add a video and an audio clip, and make it permanent?
d. Explain the mark and park procedure of marking a clip.
e. How will you export the edited file to your desktop?
f. Ahmed is having trouble organising his video and audio clips in Lightworks. Share your analysis of using rooms, racks, and bins to organise a project.
g. Evaluate the usefulness of 'slip a shot', and 'slide a shot' functions in making videos.
h. Create a video about the hobbies of different family members and friends. To do this, first shoot small clips about each individual, making sure they are happy for you to film them. Then use Lightworks to edit and create a single video from the short clips. You can add a soundtrack to your video if you like.

Application-Based Questions

a. Answer the following based on the figure given alongside on the right:

   i. How will you create a new rack?
   ii. Is Bin1 shown in the figure an open or a closed bin?
   iii. How will you add Bin1 to a rack?
   iv. How will you make the rack permanent?

b. Answer the following based on the figure given on the right:

   i. How many clips have been joined for editing?
   ii. Is there any sound track added to the clip? If yes, what is the name of the sound track?
   iii. What will you do to increase the size of the sound track A2 so that the sound waves are visible?

c. Answer the following based on the figure given alongside:

   i. What does the white band in between the grey bands at the bottom of the source viewer mean?
   ii. Name the procedure used for marking the clip.
   iii. Label the **Replace** and **Insert** buttons on the source viewer.

d. Answer the following based on the figure given on the left:

   i. How will you mark the initial point (In point) in the edit viewer?

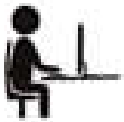
   ii. Label the **Delete** and **Remove** buttons in the edit viewer.

e. Answer the following based on the figure given below.

   i. If the fields to the right of the Timeline are not visible, what will you do?

   ii. How will you change the dB level of sound (i) Manially and (ii) by using a mouse?

   iii. Which button will you click to add a transition effect to the current clip?



IN THE LAB

1. The Computer Club-Incharge has assigned Sameen to take video clips of different sections of the school like the labs, the swimming pool, the gym, the music section, the art rooms, the badminton court, the lawn tennis court, the skating hall, etc. She then needs to use a video-editing software and join all the clips to make a movie.

   Can you make a similar movie of the facilities in your school? Also write the steps to complete the task described above.

2. The Computer Science teacher has given Rizwan the task to add background music to the movie file created in 1. above. Take the movie file you have created and add music to it. Also record the steps you have followed to do the same.

3. The science teacher has asked the monitor of class VIII to add effects to the movie they have shot while on a visit to a nature conservation park, for submission in a competition.

   Similarly, visit a nature conservation park or a zoo in your area, shoot a movie, and add special effects to it.

4. The Social Science teacher has assigned Sheema to make a movie on the topic 'How to Conserve Water'. Sheema has shot movie clips depicting water harvesting systems, water conservation methods, dams, etc.

   Collect or film similar clips on one of your trips, and like Sheema make a movie by including all the clips.

5. Alsan Public school had recently organised an Art competition. The head boy of the school was given the task to record individual video clips of all the activities in the competition and make a movie. He had to submit this movie file in a CD. Similarly, capture the activities during one of your events in school, make a movie, and submit it in a CD to your class teacher.

GROUP PROJECT

Having learned all the different commands and tools in Audacity and Lightworks, you could easily create a comprehensive glossary of all their important terms. How do you decide which are the most important terms to use?

But better than that can you turn the glossary into a song or poem and set it to music? Or even create your own video using all your new skills? Quite a challenge for you to work on together. It may take a bit of time. Think about how glossaries work usually in alphabetical order. Can you create a cartoon character to help guide your audience through your list?

TEACHER'S NOTES

- It would be useful to demonstrate all the steps required in creating a project in Lightworks, since the software is being taken up for the first time. The version described here is 11.5.
- The free version of Lightworks may be downloaded from http://www.lwks.com/ ▸ **Product** ▸ **Compare Versions.**
- Encourage a discussion on the other software available for video editing, and enquire whether any of the students have tried out a video-editing software.
- It may be ensured that students create a project in Lightworks to familiarize themselves with the software.

Chapter 7

Introduction to Photoshop CS3

You have worked with Microsoft Paint and drawn pictures using it. Suppose you wish to change your drawing or edit a stored image. Can you do that with Paint? Yes, you can, but Paint can help you draw or modify simple figures only. Professionals usually use Adobe Photoshop to finely edit complex images and photos.

Adobe Photoshop can be called a **one-stop image editing application** that can solve almost any problem that you face with images. In this chapter, you will learn how to work with images using the tools available in Adobe Photoshop CS3.

In this Chapter

- Starting Adobe Photoshop
- Selection Tools
- Working with Images
- Painting Tools
- Drawing Tools
- Transforming Objects

STARTING ADOBE PHOTOSHOP

Let us see how to start Adobe Photoshop:

Select **Start ▶ All Programs ▶ Adobe Design Premium CS3 ▶ Adobe Photoshop CS3** to open the Adobe Photoshop window (Fig. 7.1).

Adobe Photoshop Window

Figure 7.1 shows the Adobe Photoshop window with its components.

The main components of the Adobe Photoshop window are as follows:

Title bar It is the topmost bar of the Photoshop window.

It contains the name of the application with its icon. It also contains the **Maximize**, **Minimize**, and **Close** buttons.

Menu bar It contains the main menu commands.

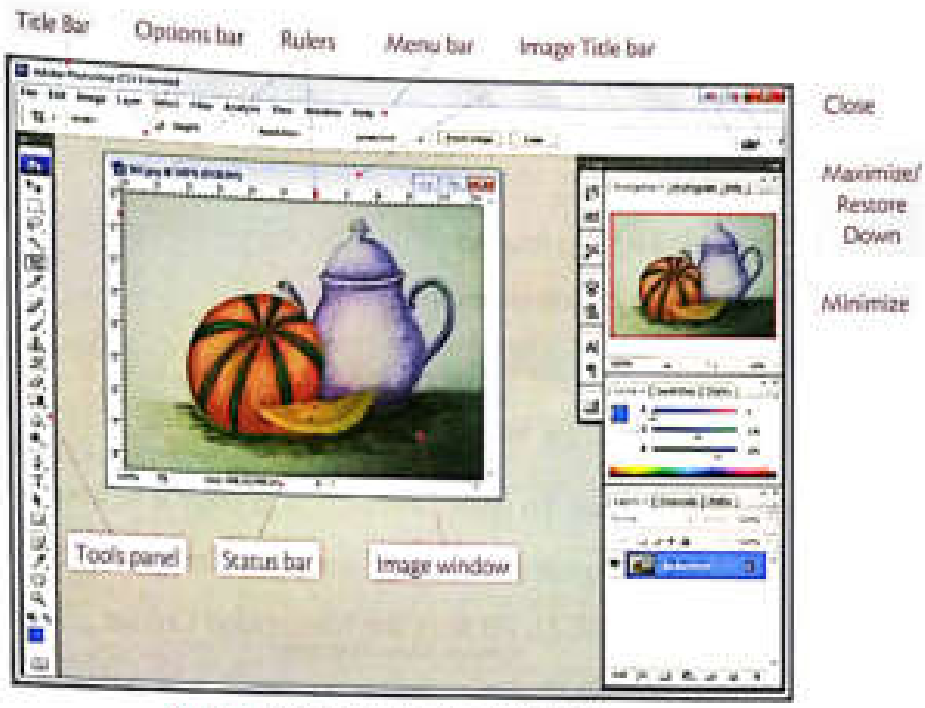


Fig. 7.1 Adobe Photoshop CS3 Window

Options bar It is below the menu bar. It displays the different options that are available for the tools selected from the **Tools panel**.

Tools panel It contains the various tools available in Adobe Photoshop.

Image title bar It displays information about the image opened in Photoshop.

Image window It contains the image that is being edited.

Top Tip

The **Analysis** menu in Photoshop CS3 provides options that help you take and record measurements.

We can mark, scale, or measure lengths with the help of this menu.

Status bar It is located at the bottom of every document window and displays information such as current magnification, file size, etc.

Rulers They are present along the top and left side of the image. They help to position the image precisely.

Adobe Photoshop Tools Panel

Let us now discuss the tools available in the Adobe Photoshop **Tools panel** (Fig. 7.2).

Rectangular Marquee Tool: To select part of an image

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Fig. 7.2 Adobe Photoshop Tools panel

- Move Tool: To select and move images
- Lasso Tool: To make a free selection as you go
- Magic Wand Tool: For making selections (similar Colours at once, for example)
- Crop Tool: To crop images
- Slice Tool: To create slices in an image
- Retouching Tools: To correct images
- Brush Tool: To draw freehand
- Clone Stamp Tool: To select a source and copy it to another place
- Eraser Tool: To erase an image or part of an image
- Paint Bucket Tool: To fill with the foreground Colour
- Blur Tool: To blur images
- Dodge Tool: To lighten pixels in an image
- Pen Tool: To create vector shapes
- Horizontal Type Tool: To insert text in an image
- Path Selection Tool: To select the active path
- Rectangle Tool: To draw a rectangle or a square
- Eyedropper Tool: To select a Colour
- Hand Tool: To drag an image when you are in the 'zoom in' state
- Zoom Tool: To zoom in and out

Using a Tool

To use any of the tools discussed above, do the following:

1. Click on the tool in the **Tools panel.**
2. If there is a small triangle at the tool's right bottom corner, hold down the mouse button to view the hidden tools. Then click on the tool you want to select from the submenu. For example, Figure 7.3 shows us the submenu of the **Lasso Tool.**

Fig. 7.3 Submenu of the **Lasso Tool**

To Open an Existing File

You can open an existing file (an already saved image) by following the steps below:

1. Select **File ▸ Open**. The **Open** dialog box appears.
2. Using the **Look in** option, select the location of the file you want to open. Then, select the file.
3. Click **Open**.

To Create a New File

In order to create a new file, follow the steps given below:

1. Select **File ▸ New**. The **New** dialog box appears (Fig. 7.4).
2. In the **New** dialog box, specify the following:
   - **Name** Assign a name to the file. By default, Photoshop names the files Untitled-1, Untitled-2, etc.
   - **Width** and **Height** Enter the width and height of the new file. You can choose the required unit (pixels, inches, centimetres, points, or picas). The default unit is **pixels**.
   - **Resolution** **Resolution** is the number of pixels per inch that make up an image. At a higher resolution, an image is sharper but its file size will also be bigger.
   - **Colour Mode** This decides the number of Colours that can appear in the image. You can choose from the given options (bitmap, grayscale, RGB Colour, CMYK Colour).
   - **Background Contents** You can choose from white, background Colour, and transparent.
3. Click **OK**. A new blank file opens on the screen.

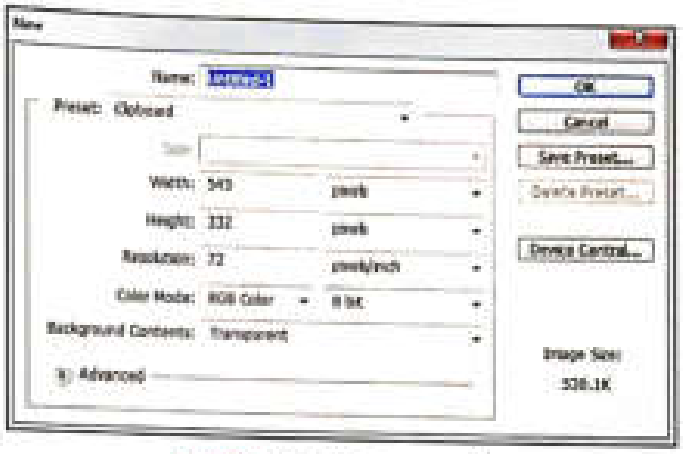

Fig. 7.4 Creating a new file

Saving a File

After you have finished working in Photoshop, you can save your file as follows:

1. Select **File ▸ Save As** to open the **Save As** dialog box.
2. Type the filename in the **Filename** text box.
3. Click **Save**.

The default extension of a Photoshop file is **.psd**.

Fast Forward

Open a file	CTRL + O
New file	CTRL + N
Save As dialog box	SHIFT + CTRL + S

Changing Background and Foreground Colours

Photoshop uses the **Foreground Color** to paint fill and stroke selections. The **Background Color** is used for gradient fill and for filling the erased areas of an image. The default foreground colour is **black**. You can change the foreground or background colour using the **Eye Dropper Tool** (also called the **Color Picker**).

Fig. 7.5 Tools panel

To change the foreground or background colour, the steps are:

1. Click the **Foreground** or **Background** colour selection box in the tools panel (Fig. 7.5).

   The **Color Picker** dialog box appears (Fig. 7.6).
2. Drag the Colour slider.
3. Click in the **Color Field** and choose a Colour.
4. Click **OK**.

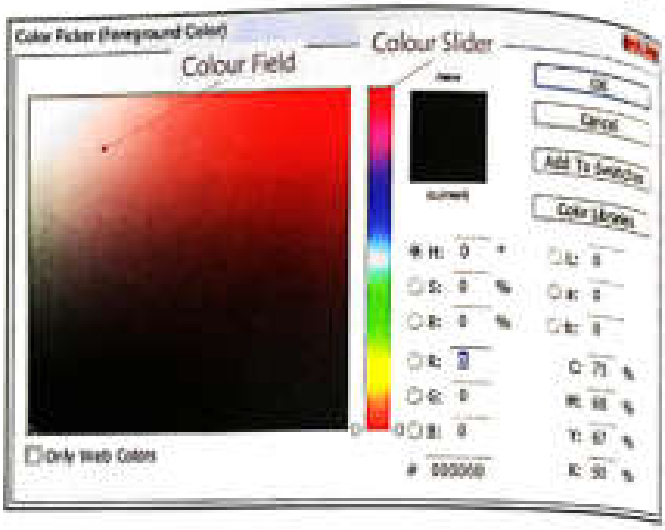

Fig. 7.6 **Colour Picker** dialog box

SELECTION TOOLS

In Adobe Photoshop, we can divide the selection tools into two major groups: **Marquee Tools** and **Lasso Tools**.

Marquee Tools

Using **Marquee Tools**, you can select areas of an image in rectangular, square, elliptical, or circular shapes. The steps for making a selection are:

1. Open the image.
2. Click on the small black arrow at the bottom right corner of the **Marquee Tool** to open the submenu (Fig. 7.7).
3. Select the required **Marquee Tool** from the list:
   - Rectangular Marquee Tool: To select a rectangular area of an image.
   - Elliptical Marquee Tool: To select an elliptical or circular area of an image.
   - Single Row Marquee Tool: To select a single row of one pixel width.
   - Single Column Marquee Tool: To select a single column one pixel wide.

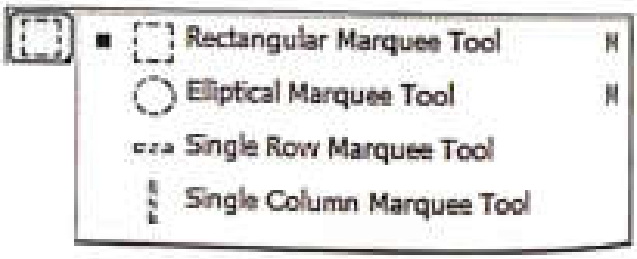

Fig. 7.7 Submenu of the **Marquee Tool**

4. Place the mouse pointer on the image and drag around the area to select. A dashed border surrounds the area you have selected (Fig. 7.8).

(a) Rectangle selection (b) Elliptical selection

Fig. 7.8 Marquee Tools selection

Top Tip

To make a square selection using the **Rectangular Marquee Tool** or a circular selection using the **Elliptical Marquee Tool**, hold the SHIFT key while making the selection.

Lasso Tools

The **Lasso Tools** are used to make free-hand selections in an image. Follow these steps to select an area of an image with one of the **Lasso Tools**:

1. Open the image.
2. Click on the small black arrow at the bottom-right corner of the **Lasso Tool**.
3. Select the required tool from the list of available tools (Fig. 7.9).

Fig. 7.9 Submenu of the **Lasso Tool**

- Lasso Tool: To make free-form selections in the desired shape
- Polygonal Lasso Tool: To select polygonal areas by clicking at different points. To close the selection border, position the mouse pointer over the starting point and click or double-click the mouse.
- Magnetic Lasso Tool: This tool sticks to the edges of the image, thus making the selection very easy. To close the selection border, double-click the mouse.

Top Tip

Before making a selection, you can specify the feathering value in the options bar. This feature blurs the edges by building a transition boundary between the selection and its surrounding pixels.

4. Place the mouse pointer on the image and drag it around the area you want to select (Fig. 7.10).

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(a) Lasso Tool (b) Magnetic Lasso Tool

Fig. 7.10 Lasso Tools selection

Magic Wand Tool

The **Magic Wand Tool** is used to select adjacent areas of the same Colour in an image. You can use this tool by following the steps below:

1. Click the **Magic Wand Tool**. The shape of the mouse pointer changes.
2. In the options bar, you can specify the following:
   - **Tolerance:** The higher the tolerance setting value, the wider the range of selected pixels. The tolerance ranges from 0 to 255.
   - **Anti-alias**: Defines a smooth edge.
   - **Contiguous**: Selects only adjacent areas having the same Colours, otherwise all pixels of the same Colour in the entire image are selected.
   - **Sample All Layers:** Selects only pixels from all visible layers. If this option is not selected, Colours from the active layer alone are selected.

Fig. 7.11 Selections done with the **Magic Wand Tool**

3. Click on one part of the image. All the adjacent pixels with the same Colour get selected (Fig. 7.11). The **Magic Wand** tool selects pixels based on Colour values. Thus, you can cut out foreground objects from the background. This tool works best for selecting objects that are primarily in one Colour, e.g., the sky, a flower, etc.

   If an object has several Colours then you can hold down the SHIFT key and combine several selections.

WORKING WITH IMAGES

While working with images, a part of an image can be moved, can be copied to another location in the same image, or copied to some other image. Let us see how we can do that.

Moving an Image

The **Move Tool** is used for moving an image, or a part of an image, from one location to another. The steps are:

1. Click on the **Move Tool** in the **Tools panel.**
2. Place the mouse pointer over the image or the selected part of the image (Fig. 7.12).
3. Drag the mouse to move the selected part to another location (Fig. 7.13). If you do this without selecting any area, the entire image will move.

Fig. 7.12 Select the area to move

Fig. 7.13 Selected area being moved

Copying Images

While working with images, we can copy a part of an image to another location on the same image or to some other image.

Copying a Selection to the Same Image

The steps to copy part of an image to another location in the same image are:

1. Open the image. Select an area using the **Marquee** or the **Lasso Tool** (Fig. 7.14).
2. Click on the **Move Tool** in the **Tools panel.**
3. With the **ALT** key pressed, drag the selection to another location (Fig. 7.15).

Fig. 7.14 Select the area to copy

Fig. 7.15 The selected area has been copied

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4. Click the arrow beside the **Brush** command in the Options bar. The **Brush Preset Picker** appears (Fig. 7.18).
5. Click on a brush style of your choice.
6. Click on **Set foreground Colour** in the **Tools panel**. The **Colour Picker Palette** appears.
7. Choose the Colour you want from the **Colour Picker Palette** and click **OK**.

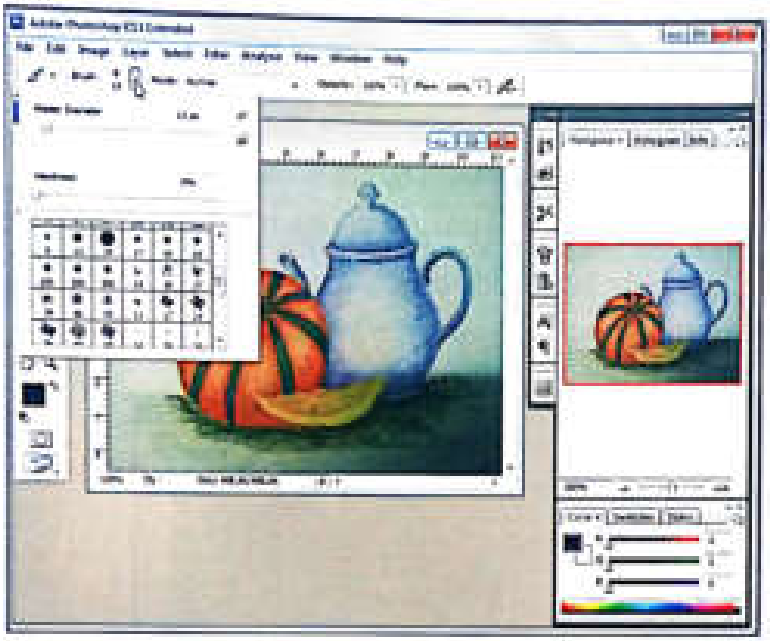

Fig. 7.18 **Brush Preset Picker** in the Options bar

8. Click and drag the mouse pointer on the image to draw strokes of the selected Colour (Fig. 7.19).

Fig. 7.19 Applying brush strokes

Note: The **Brush Tool** draws only in the selected area. Nothing happens if you drag the mouse pointer over the unselected part of the image.

Top Tip

The **Gradient Tool** is behind the **Paint Bucket Tool**. If the **Gradient Tool** is not visible, click and hold the mouse over the **Paint Bucket Tool** to reveal the tool.

Gradient Tool

A gradient is a fill consisting of two or more Colours blending together. The **Gradient Tool** is used to fill a selected area or an entire layer with a gradient. The steps are:

1. Open an image.
2. Click the **Gradient Tool** in the **Tools panel**.
3. From the Options bar, select a **Gradient type** from **Linear**, **Radial**, **Angle**, **Reflected**, and **Diamond** (Fig. 7.20).

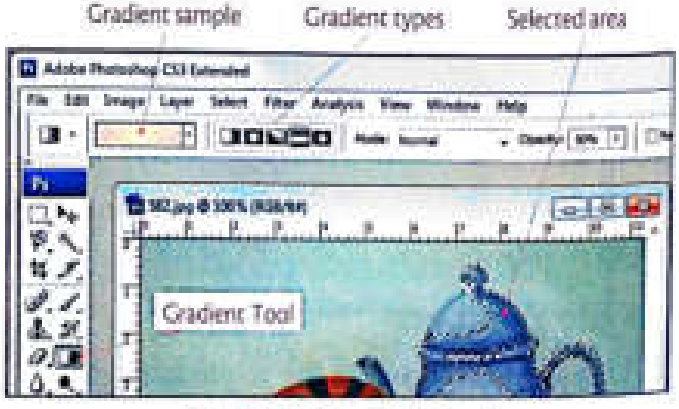

Fig. 7.20 **Gradient Tool**

4. Click the gradient sample bar in the Options bar. The **Gradient Editor** dialog box appears (Fig. 7.21).
5. Choose any of the gradients from the **Presets** box or create a new gradient using the **Gradient** bar.

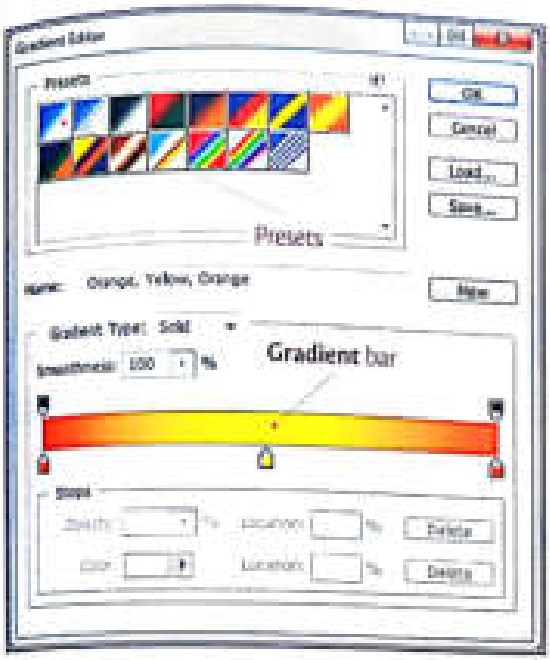

Fig. 7.21 **Gradient Editor** dialog box

6. Drag and release the mouse in the image. The selected area will be filled with the gradient (Fig. 7.22).

Fig. 7.22 Gradient fill

DRAWING TOOLS

Adobe Photoshop has a collection of drawing tools: **Rectangle**, **Rounded Rectangle**, **Ellipse**, **Polygon**, **Line**, **Custom Shape**, etc. To draw a shape, say a rectangle, do the following:

1. Click the **Rectangle Tool** in the **Tools panel**.
2. Select the required tool from the list of options (Fig. 7.23).
3. Click on the **Set Foreground Colour** box in the **Tools panel** to get the **Colour Picker Palette**. Choose the required Colour.
4. Click on **Create new shape layer** in the Options bar.

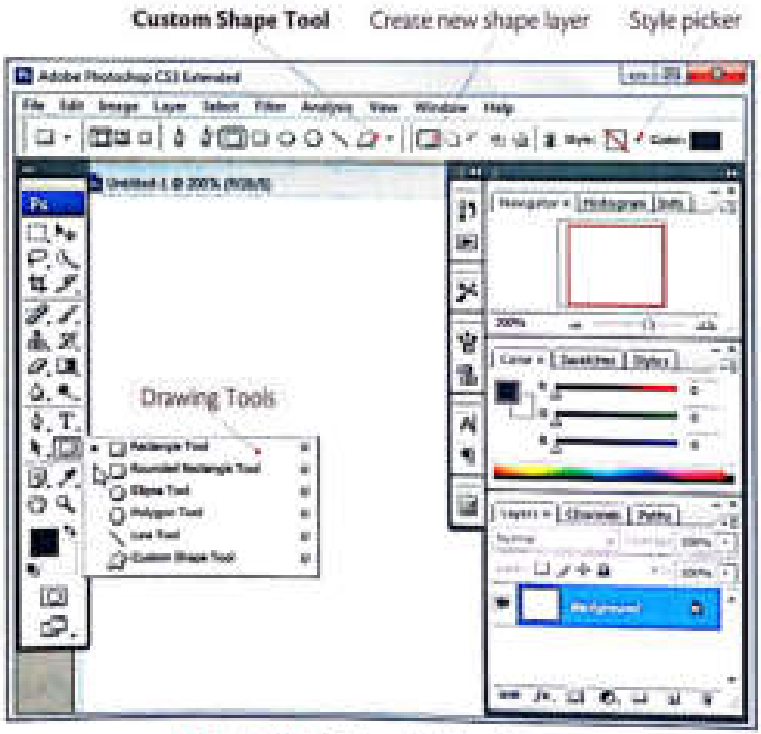

Fig. 7.23 **Rectangle Tool** menu

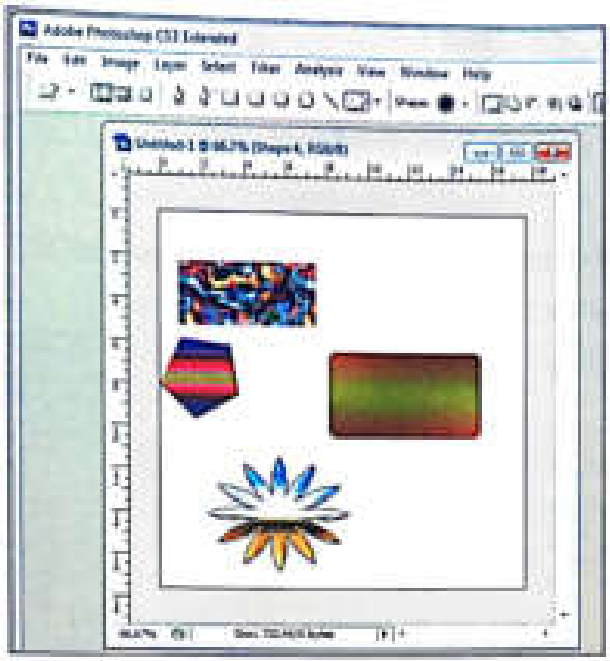

Fig. 7.24 Drawing shapes

5. You can also click the arrow next to **Style** and choose a shape style.
6. Drag the mouse with the button pressed to draw the shape (Fig. 7.24).

Custom Shape Tool

Using the **Custom Shape Tool**, you can draw shapes other than the basic geometric shapes. This tool has a collection of predefined shapes like flowers, moon, arrows, leaves, etc. To draw a shape with the **Custom Shape Tool**, the steps are:

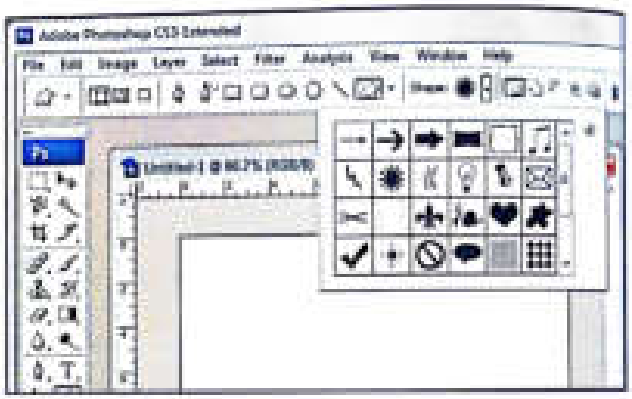

Fig. 7.25 **Custom Shape** tool options

1. Select the **Custom Shape Tool**.
2. Click the arrow beside the **Shape** option in the Options bar and select the required shape (Fig. 7.25).
3. Click and drag the mouse to draw the shape.

TRANSFORMING OBJECTS

You can also scale, rotate, skew, distort, and apply a perspective to an image in Photoshop. You can flip the image vertically or horizontally too.
The steps are:

1. Select the image, or the part of the image, you want to transform (Fig 7.26).
2. Select **Edit ▸ Transform ▸ Scale** (or any other option).
3. Do one of the following according to the option you chose in the **Transform** menu:
   - **Scale**: When you position the mouse pointer over a sizing handle, the pointer becomes a double arrow. Drag a sizing handle to change the size. Press the SHIFT key as you drag a corner handle, if you want to scale the image proportionally.

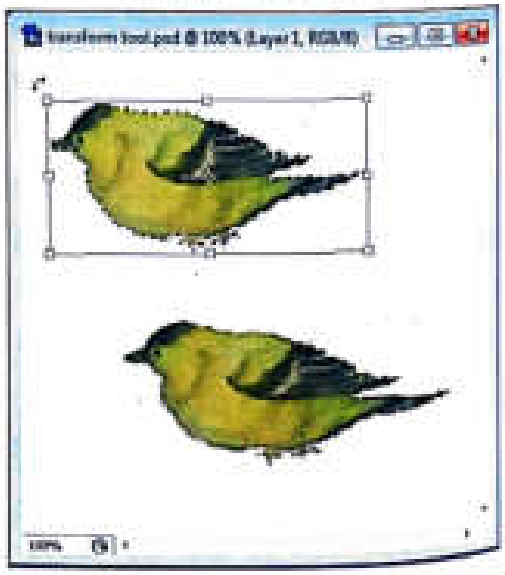

Fig 7.26 Original image

- **Rotate**: When you place the mouse pointer over a corner handle, it takes the shape of a curved, two-sided arrow (Fig. 7.26). Click and drag the handle to rotate the image (Fig. 7.27).
- **Skew**: Drag a side handle to skew the image.
- **Distort**: Drag a corner handle to stretch the image.
- **Perspective**: Drag a corner handle to apply a perspective to the image.
- **Flip Horizontally**: Flips the image horizontally (Fig. 7.27).
- **Flip Vertically**: Flips the image vertically.

4. Press the **Enter** key to apply the transformation.

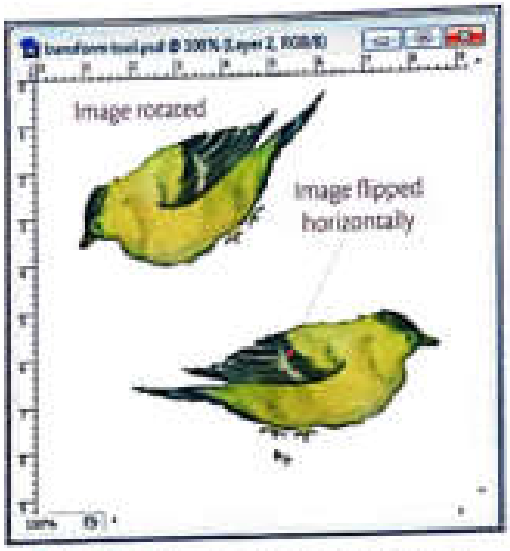

Fig 7.27 Image after rotation and horizontal flipping

PRACTICE TIME

The Art and Craft teacher has asked the students of class VIII to create a scenery by inserting different shapes and using brush strokes. Mehreen has created the image seen alongside. Create a similar scenery using the tools in Photoshop.

SOLUTION

1. Start Adobe Photoshop CS3.
2. To insert the shape of a dog, a tortoise, a bird, etc:
   a. Select the **Custom Shape Tool**.
   b. Click the arrow beside the **Shape** option in the Options bar and select the required shape.
   c. Click and drag the mouse to draw the shape.
   d. You can also change the Colour of the shapes.
3. To add grass strokes to the image:
   a. Click the **Brush Tool** in the **Tools panel**.

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b. Click the arrow beside the **Brush** command in the Options bar. The **Brush Preset Picker** appears.

c. Click on a brush style of your choice.

d. Select the foreground and the background Colour.

e. Click and drag the mouse pointer on the image to draw strokes of the selected Colour.

Tricky Terms

Resolution number of pixels per inch

Colour mode number of Colours that can appear in an image

Crop to remove unwanted areas of an image

Marquee tools tools used to select rectangular, square, elliptical, and circular shaped areas of an image

Lasso tools tools used to make free-hand selections of areas in an image

Memory Bytes

- The **Options** bar is below the menu bar. It displays different options of the currently selected tool.
- The image window contains the image to be edited. The title bar of the image window displays information about the image that has been opened.
- To open an existing Photoshop file, select **File ▸ Open** and then select the file in the **Open** dialog box.
- To create a new file, select **File ▸ New**.
- The default foreground Colour is black and the default background Colour is white. You can change the foreground and background Colours using the **Colour Picker**.
- To display the **Colour Picker Palette**, click either the foreground or the background Colour box in the **Tools panel**.
- Using various **Marquee Tools**, you can select rectangular, square, elliptical, or circular areas of an image.
- You can use the **Lasso Tools** to make free-hand selections in an image.
- Use the **Magic Wand Tool** to select adjacent areas of the same Colour in an image.
- The **Gradient Tool** is used to fill a selected portion or entire layer with transitions of one Colour to another.
- Photoshop provides a collection of drawing tools, like the **Rectangle**, the **Rounded Rectangle**, the **Ellipse**, the **Polygon**, the **Line**, **Custom Shape**, etc.
- The **Custom Shape Tool** lets you draw things other than basic geometric shapes.

EXERCISES

Objective Type Questions

1. Choose the correct option.

a. Which of the following buttons are available on the title bar?
i. Maximise ii. Minimise iii. Close iv. all of these

b. It displays information such as current magnification, file size, etc. of an image.
i. Image window ii. Status bar iii. Rulers iv. none of these

c. This tool is used to make a free selection.
i. **Lasso Tool** ii. **Marquee Tool** iii. **Blur Tool** iv. none of these

d. Which of the following can be chosen as a background?
i. White ii. Background Colour iii. Transparent iv. Any one of these

e. Which of the following can be used to select a circular area of pixels?
i. **Single Row Marquee Tool** ii. **Single Column Marquee Tool**
iii. **Elliptical Marquee Tool** iv. **Rectangular Marquee Tool**

f. The ..... Tool lets you draw things other than basic geometric shapes.
i. **Custom Shape** ii. **Rectangle** iii. **Line** iv. none of these

g. Which of the following tool sticks to the edges of an image, thus making it easy to select the shape of an image?
i. **Lasso Tool** ii. **Polygonal Lasso Tool**
iii. **Magnetic Lasso Tool** iv. none of these

h. The keyboard shortcut to get the **Save As** dialog box is
i. Alt + S ii. Shift + Ctrl + S iii. Ctrl + S iv. none of these

Descriptive Type Questions

Answer the following.

a. Name the various **Marquee Tools**.
b. What is the default foreground and background Colour?
c. How can you create a new file in Photoshop CS3?
d. What is the use of the **Gradient Tool**?
e. List the steps to change the foreground Colour.
f. What is the use of the **Circular Marquee Tool**?
g. Differentiate between the **Marquee** and the **Lasso** tools.

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h. What do you understand by the term 'resolution'?

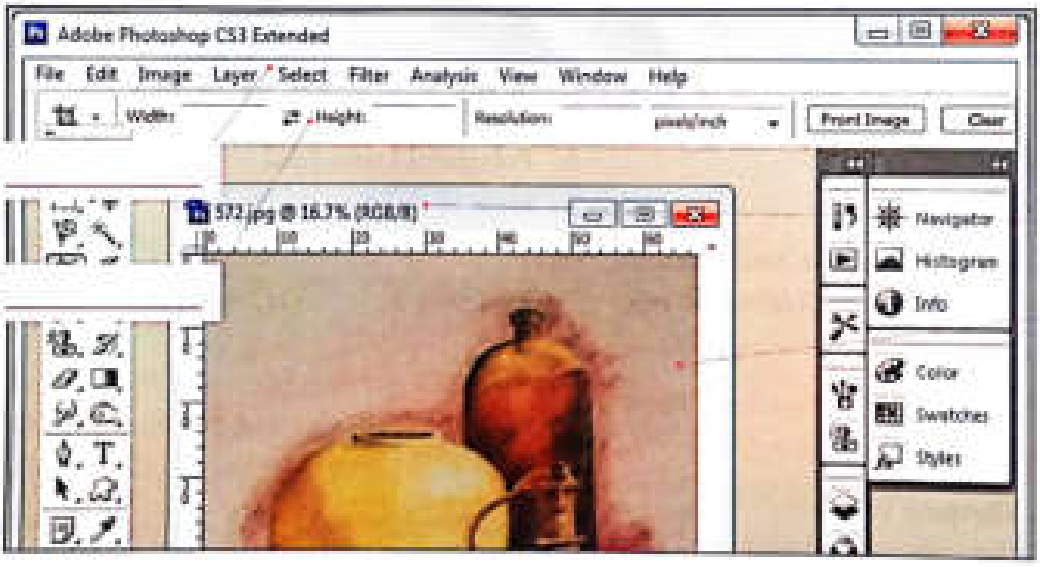
i. Alizeh is working on a picture of her pet dog and wants to show the image in different perspectives. Explain the different ways in which an image can be transformed in Photoshop. What are the potential benefits of doing this?

j. Bilal has been given the following pictures and has to make the required changes in them. How would he do this? Is it an easy task? Justify your response.
   - a picture of playground where he needs to focus on the two children in the foreground
   - an image where he needs to blend two background colours together
   - A picture where he needs to turn the people in the picture to the opposite side

k. Open the picture of your favourite super hero in Photoshop. Make the following changes to it and note down the steps you take for each of them. Why do you think is it important to follow the steps in order?
   - Change the background/foreground colour of the picture.
   - Crop away any details you do not like.
   - Copy the image within the same file.
   - Add a gradient and transform the picture.

Application-Based Questions

a. Observe the following figure and label the parts marked:



b. Tahir has to create a new file in Photoshop.
   i. Name the menu and the option he will use to create a new file.
   ii. What is the default name of the file?
   iii. What is the default unit of measurement for height and width?

c. Pinky has opened an image in Photoshop. She wants to select some portions of the image.
   i. Which tool should she use if she has to select a rectangular area of the image?

ii. Name the tool she should use to select a circular area in the image.
iii. She now wants to make a freehand selection in the image. Which tool would be the suitable one?

d. Dina has created an image in Photoshop, and has selected a part of the image.
i. How can she copy this part of the image to another location in the same image?
ii. What steps will she need to follow to copy the selected portion to another image?

IN THE LAB

1. Ghazanfar has two images—an image of a landscape and that of a horse. He has to copy the image of the horse to the image of the landscape which should form the background. Select similar images and blend the two so that they seem like part of one image.
2. Harmain wants to create an image of an aquarium. He has different pictures related to this. Collect relevant pictures of your own on the theme, and combine them to create your own image of an aquarium.
3. Select an image of a landscape and open it in Photoshop. Using different selection tools, select and copy different images of trees, and add them to the landscape so as to increase the number of trees. Also, add pictures of birds in the sky and create a beautiful nature scene.
4. Tanya has learnt to change the background Colour and insert different shapes in Photoshop. She has been told to create a border design in Photoshop. Create one on your system too in Photoshop.

GROUP WORK:

You have now learned the basics of about Photoshop but there are other easily available image editing software such as GIMP, Paint.NET, and Seashore. In your group carry out some research and assess whether these software packages work on Windows or MAC or both. Note down their similarities and differences. Present your findings in a chart.

TEACHER'S NOTES

- Explain to the students how to change the dimensions while creating a new file and discuss why it is important to do so.
- Demonstrate how to create different shades and blends with the **Gradient Tool**.
- Ensure that the students understand the differences between the **Lasso**, the **Polygonal**, and the **Magnetic Lasso Tools**.

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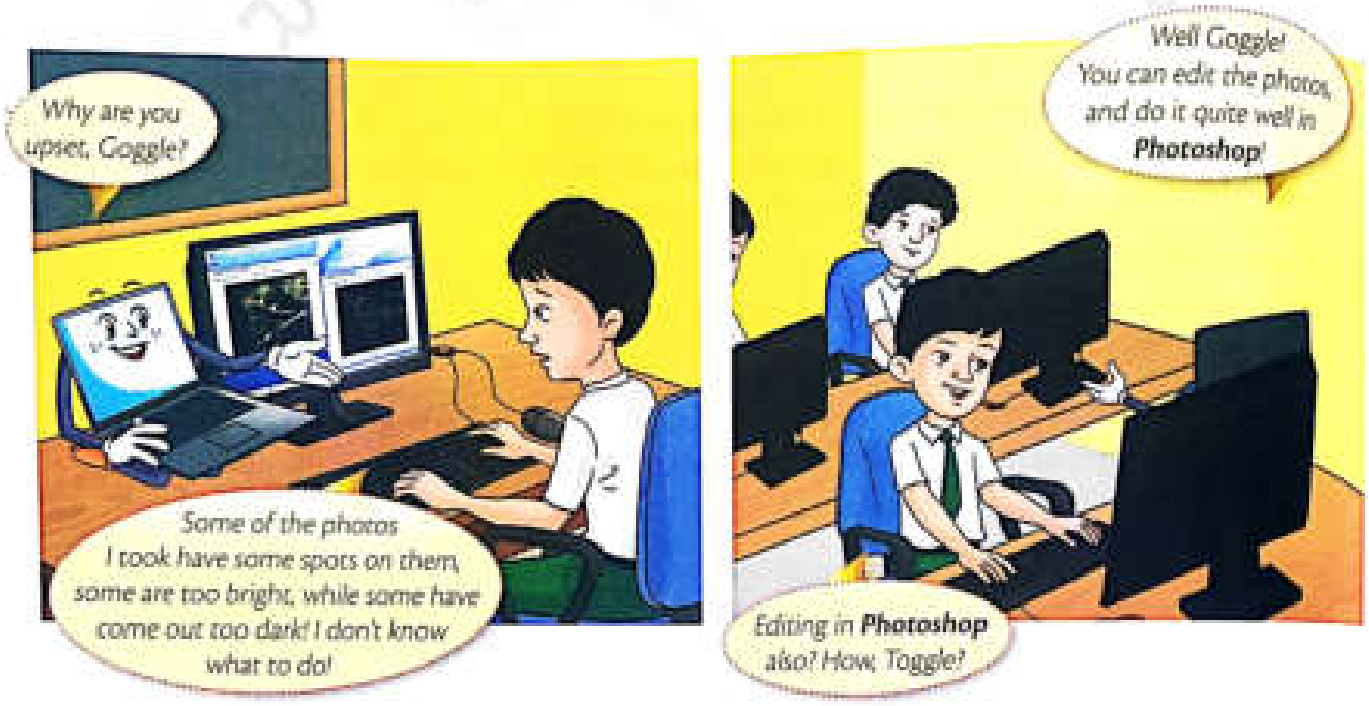
Chapter 8

Tools used in Photoshop CS3



In the last chapter, you had learnt about the various drawing and painting tools in Photoshop but, what if you need to edit an image? The answer lies in the set of retouching tools available in Photoshop. In this chapter, you will learn about some of them. You will also learn about layers and filters that help you work with images in a better way.

In this Chapter

- Retouching Tools
- Working with Layers
- Working with Text
- Using Filters

RETOUCHING TOOLS

The **Retouching Tools** help to change or edit the pixel arrangements in an image. These tools can be used on a selection or on an entire image.

Some of these are the **Spot Healing Brush Tool**, **Patch Tool**, **Red Eye Tool**, **Clone Stamp Tool**, **Eraser Tool**, **Blur Tool**, **Smudge Tool**, **Dodge Tool**, **Burn Tool**, and the **Sponge Tool**.

Spot Healing Brush Tool

The **Spot Healing Brush Tool** can remove blemishes, scars, spots, and other imperfections in your photograph. You can simply click and drag the mouse pointer across the affected area and the flaw disappears. Let us see the steps to use this tool:

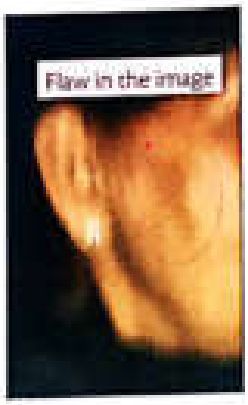


Fig. 8.1 Original image with flaws

1. Open the image (Fig. 8.1).
2. Select the **Spot Healing Brush Tool** from the **Tools panel**.
3. Specify the following in the Options bar (Fig. 8.2):

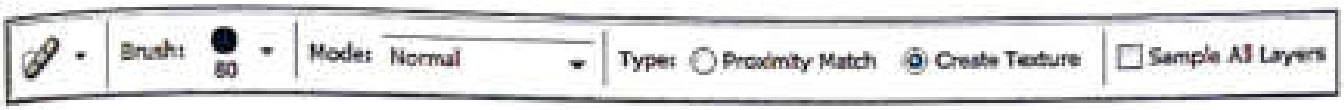


Fig. 8.2 **Spot Healing** options

- Brush size
- **Type**: Choose from **Proximity Match** or **Create Texture**
- **Sample All Layers**: Select to sample data from all visible layers

Deselect this option to sample data from the active layer only.

4. Click the area you want to fix, or click and drag, to remove the flaws (Fig. 8.3).

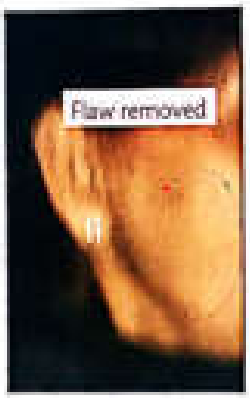


Fig. 8.3 After removing some flaws

Healing Brush Tool

You can use the **Healing Brush Tool** to paint with sampled pixels from an image. The sample is called the source. The flawed area is called the Destination. This tool also matches the texture, lighting, transparency, and shading of the sampled pixels.

The steps to use the **Healing Brush Tool** are:

1. Open the image.
2. Select the **Healing Brush Tool** from the **Spot Healing Brush Tool** menu.
3. Specify the following in the Options bar:
   - **Brush size** and **brush mode**
   - **Type of source** Choose **Sampled** to use pixels from the current image. Choose **Pattern** to use a pattern from the **Pattern Picker** drop-down palette.

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- **Aligned** Select to sample pixels continuously without losing the current sampling point, even if you release the mouse button. Deselect this option if you want to continue using the sampled pixels from the initial sampling point each time you stop and resume.
- **Sample All Layers** Click to sample data from all visible layers.

4. Place the pointer on the image area to select the sample Colour. Press ALT and click the mouse to select the sample.
5. Click and drag in the image (Fig. 8.4).

Fig. 8.4 After using the **Healing Brush Tool**

Clone Stamp Tool

The **Clone Stamp Tool** can clone or duplicate selected areas of an image. The steps to use the tool are:

1. Open the image (Fig. 8.5).
2. Click on the **Clone Stamp Tool** in the **Tools panel**.
3. Hold down the **ALT** key, click the part of the image you want to clone, and release the **ALT** key.
4. Click and drag the mouse over the area where you want to place the cloned pixels (Fig. 8.6).

Top Tip

You can change the opacity value, brush size, etc., in the Options bar.

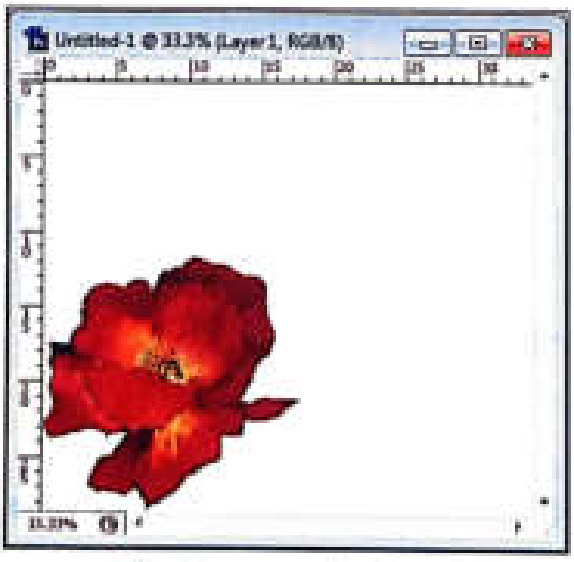

Fig.8.5 Image to be cloned

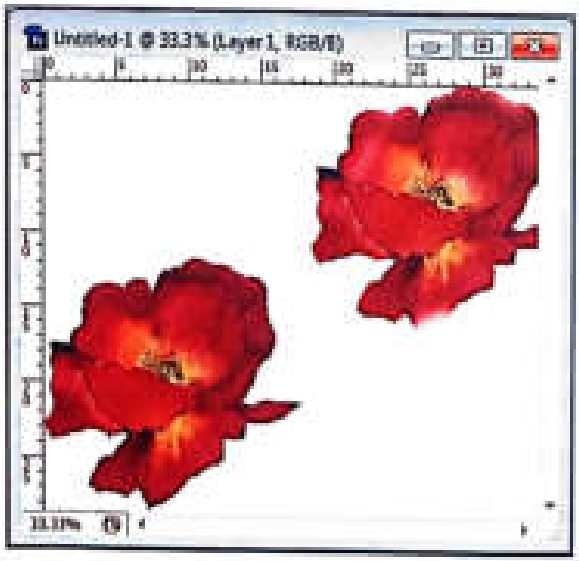

Fig. 8.6 Image cloned to the top right corner

Pattern Stamp Tool

The **Pattern Stamp Tool** clones from a pre-defined area of pixels such as a pattern. You first define a pattern and then clone it. The steps to use the tool are:

1. Open an image and select the area you want to define as a pattern (Fig. 8.7).

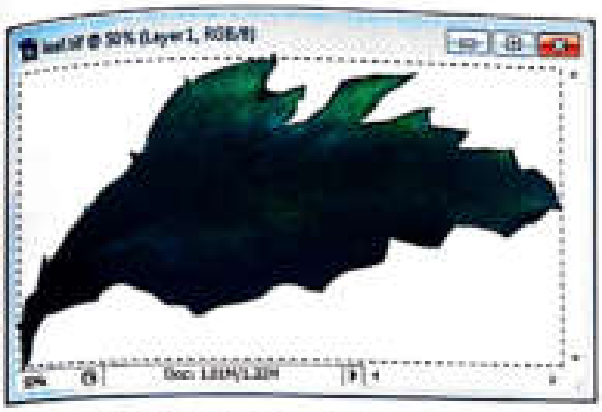

Fig. 8.7 Image with a pattern

2. Select **Edit ▸ Define Pattern**. The **Pattern Name** dialog box opens (Fig. 8.8).

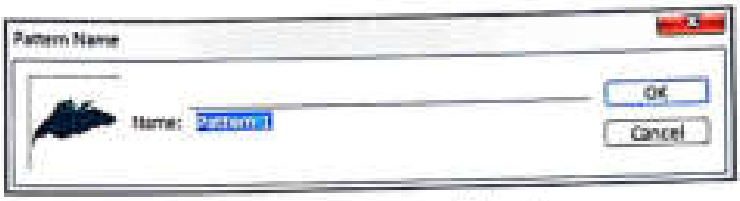

Fig. 8.8 **Pattern Name** dialog box

3. Type a pattern name and click **OK**.
4. Open the image where you want to apply the pattern.
5. Select the **Pattern Stamp Tool** in the **Tools panel**.
6. Select the **Aligned** checkbox in the Options bar. This will maintain the pattern's continuity with the original start point, even if you release the mouse button and then continue painting. Deselecting the **Aligned** option will restart the pattern each time you stop and start painting.
7. Open the **Pattern Picker** palette (Fig. 8.9).
8. Place the mouse pointer on the image and drag it over the part you want to fill with the pattern (Fig. 8.10). The pattern will be duplicated on the image or on your blank canvas.

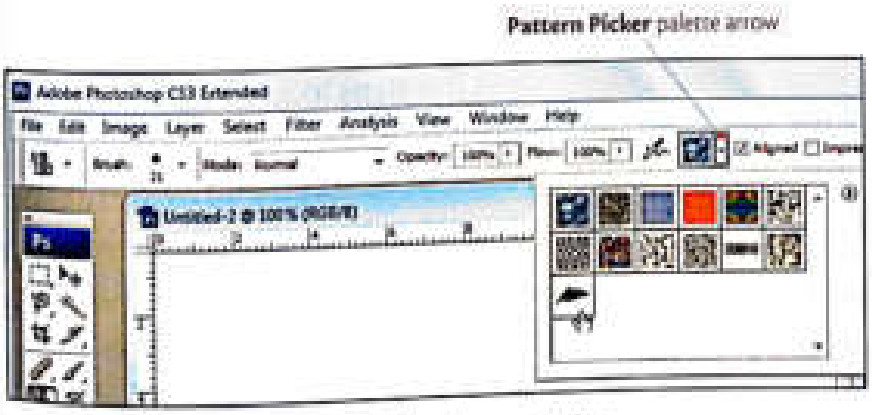

Fig. 8.9 Selecting a pattern

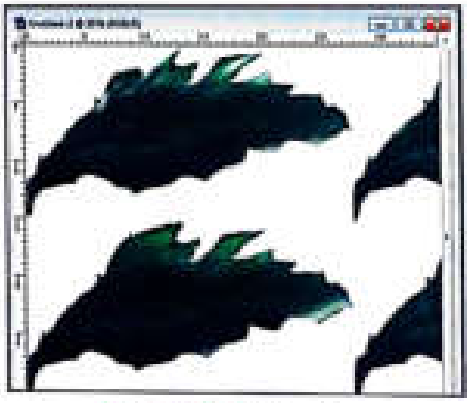

Fig. 8.10 Using the **Pattern Stamp Tool**

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Eraser Tool

The **Eraser Tool** can erase portions of an image. It has three options (Fig. 8.11):

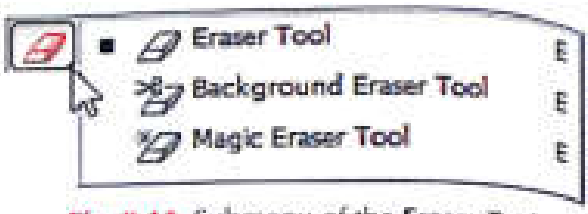

Fig. 8.11 Submenu of the **Eraser Tool**

- **Eraser Tool**
- **Background Eraser Tool** This erases parts of an image and makes it transparent. If the image has multiple layers, it erases the pixels of the **Background** layer.
- **Magic Eraser Tool** This tool erases pixels from similarly-coloured areas.

Let us see how to use the **Eraser Tools:**

1. Open the image.
2. Click on the **Eraser Tool** in the **Tools panel**.
3. Select the eraser mode in the Options bar. The shape of the **Eraser Tool** changes according to your selection.
   - **Brush** The **Eraser Tool** takes the shape of a brush. The eraser strokes are like those of the **Paintbrush** tool.
   - **Pencil** The **Eraser Tool** takes the shape of a pencil. The eraser strokes are like those of the **Pencil** tool.
   - **Block** The **Eraser Tool** takes the shape of a wooden block of fixed size.
4. Set the value for **Opacity** in the Options bar.
5. Click and drag on the area to be erased (Fig. 8.12).

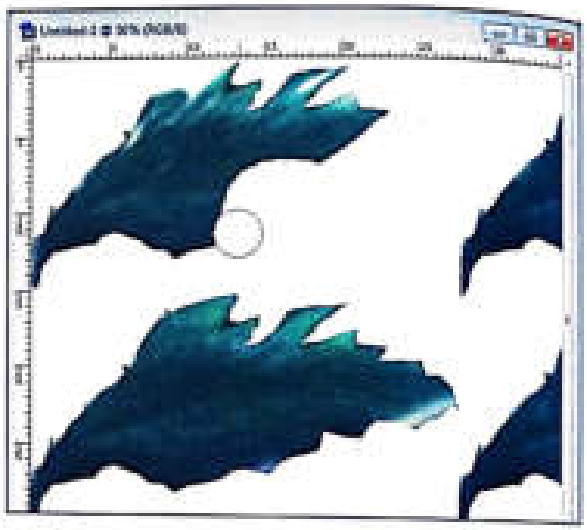

Fig. 8.12 Using the **Eraser Tool**

Top Tip

The higher the opacity value, the more the number of pixels erased at a time.

Blur Tool

The **Blur Tool** can blur or soften an image or part of an image. The steps to use it are:

1. Open the image (Fig. 8.13).
2. Click on the **Blur Tool** in the **Tools panel**.
3. In the Options bar, you can do the following:
   - Select the appropriate brush from the palette in the Options bar.
   - Set options for the blending mode and strength.
   - Select **Use All Layers** in the Options bar to blur using data from all visible layers. If this option is deselected, the tool uses data from only the active layer.

4. Click and drag on the image to blur the pixels (Fig. 8.14).

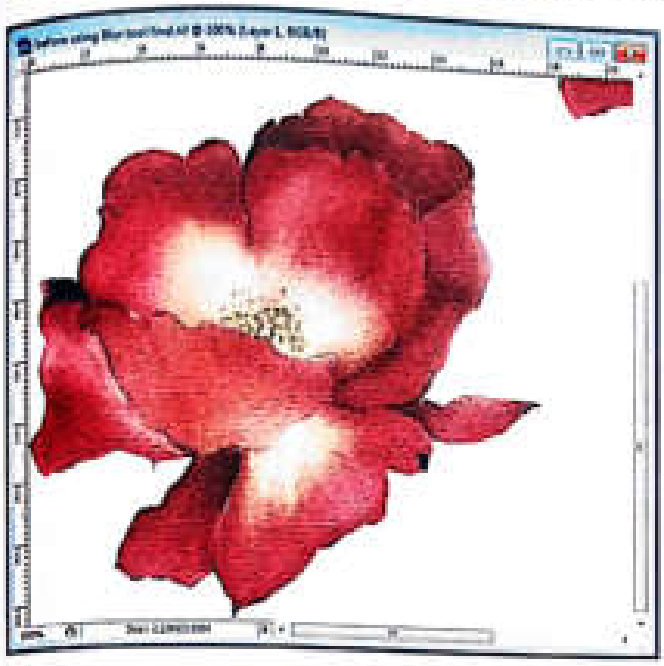

Fig. 8.13 Before using the **Blur Tool**

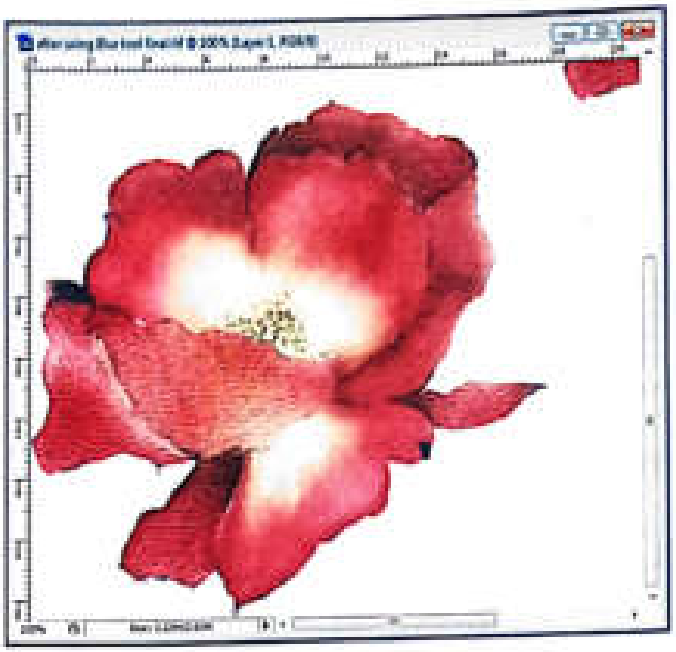

Fig. 8.14 After using the **Blur Tool**

Smudge Tool

The **Smudge Tool** creates an effect like wet paint smudged with a finger. To use this tool, follow the steps given below:

1. Open the image (Fig. 8.15).
2. Select the **Smudge Tool** in the **Tools panel**.
3. In the Options bar, you can do the following:
   - Choose the Brush type.
   - Select the blending mode.
   - Select **Use All Layers** to smudge using Colour data from all visible layers.
   - Select **Finger Painting** if you want to smudge using the foreground colour at the beginning of each stroke. If this option is deselected, then the **Smudge Tool** uses the colour under the pointer at the beginning of each stroke.
4. Click and drag on the image to smudge an area (Fig. 8.16).

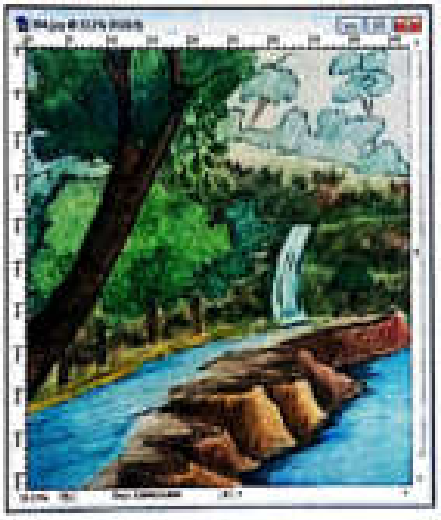

Fig. 8.15 Before using the **Smudge Tool**

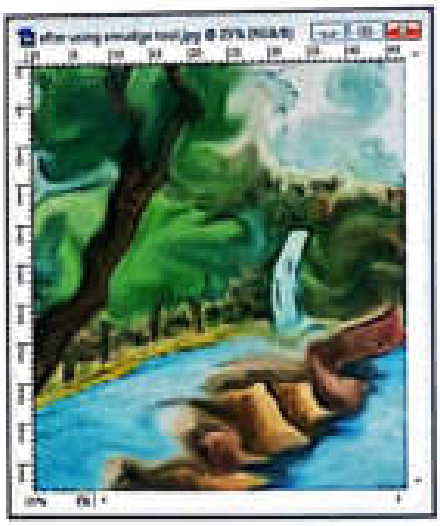

Fig. 8.16 After using the **Smudge Tool**

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Dodge Tool

The **Dodge Tool** can make darker portions of an image lighter. Follow the steps below to use this tool:

1. Open the image (Fig. 8.17).
2. Select the **Dodge Tool** in the **Tools panel**.
3. Click the arrow next to **Brush** in the Options bar. Select a soft-edged brush to get better results.
4. Select the **Range** and set the value of **Exposure** in the Options bar.
5. Click and drag the mouse on the image area to lighten the pixels (Fig. 8.18).

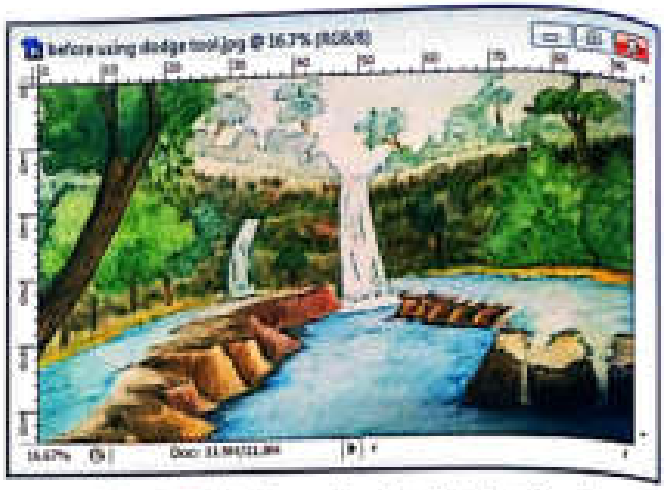

Fig. 8.17 Before using the **Dodge Tool**

Fig. 8.18 After using the **Dodge Tool**

Burn Tool

The **Burn Tool** is used to darken the pixels in an image. The steps to use it are:

1. Open the image (Fig. 8.19).
2. Use any of the selection tools to select an area to darken, or you can darken the whole image.
3. Select the **Burn Tool** in the **Tools panel**.
4. In the Options bar, set the **Exposure** percentage.
5. Drag the brush over the image to darken it (Fig. 8.20).

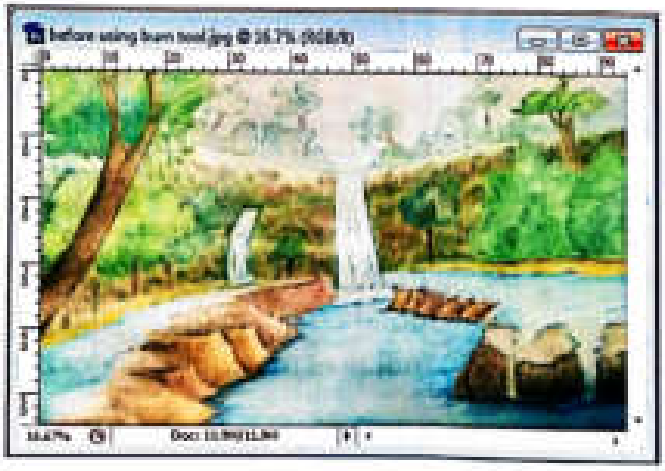

Fig. 8.19 Image before using the **Burn Tool**

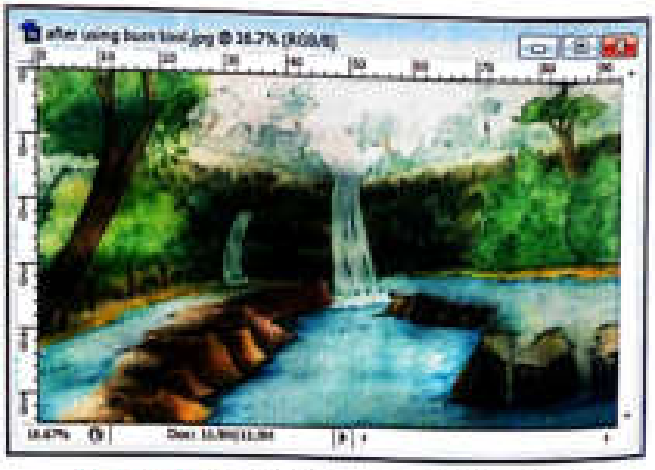

Fig. 8.20 Image after using the **Burn Tool**

WORKING WITH LAYERS

Layers allow you to work with one element of an image without disturbing the others.

You can think of layers as transparent sheets stacked one on top of the other. You can see through transparent areas of a layer to the layers below. A new image in Photoshop has a single layer. You can add a number of additional layers.

Layers Palette

The **Layers** palette lists all layers, groups, and layer effects in an image (Fig. 8.21). You can use the **Layers** palette to show and hide layers, create new layers, delete layers, etc.

To display the **Layers** palette, select **Window ▸ Layers**.

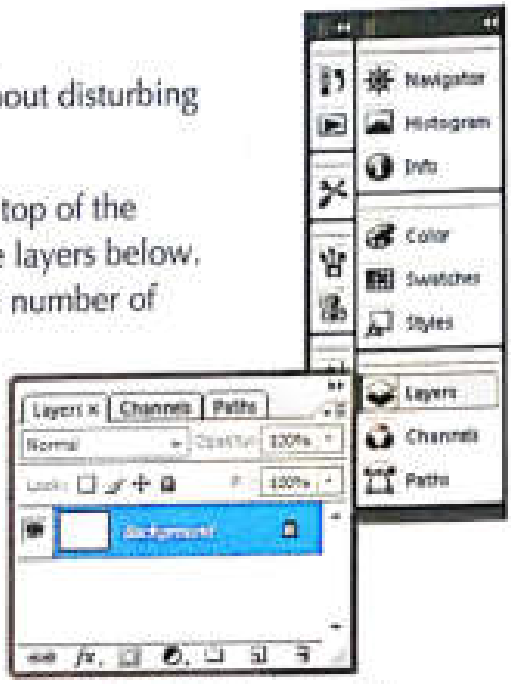

Fig. 8.21 **Layers** palette

Background Layer

The **Background** is a special layer. It is created automatically when you create a new image. An image can have only one background layer. It is behind all the other layers and you cannot change its position. You cannot delete it, move its contents, or change the opacity. But you can convert it into a regular layer.

Top Tip

When you create a new image with a transparent background, then the image does not have a background layer.

All the other layers that you add will appear above the **Background** layer. The following cannot be done on the **Background** layer:

- You cannot move the contents of the **Background** layer.
- You cannot move the **Background** layer above any other layer.
- You cannot move any other layer below the **Background** layer.
- The **Background** layer doesn't support transparency.

Renaming the Background Layer

1. Select **Layer ▸ New ▸ Layer From Background**
2. The **New Layer** dialog box appears. Type a new name for the layer. The default is 'Layer 0'. Click **OK**.
3. Now you can see the name of the **Background** layer changed to the new layer name.

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Creating a New Layer

When you add a new layer, it is always above the selected layer. Follow these steps to create a new layer.

1. Choose **Layer ▸ New ▸ Layer.**
2. The **New Layer** dialog box appears (Fig. 8.22).

   Set the following options:

   - The default name of the new layer is Layer 1. You can change it to something more appropriate.
   - Click the drop-down menu arrow in the **Colour** text box, and select a Colour for the layer.
   - Set the **Opacity** value.
3. Click **OK.**

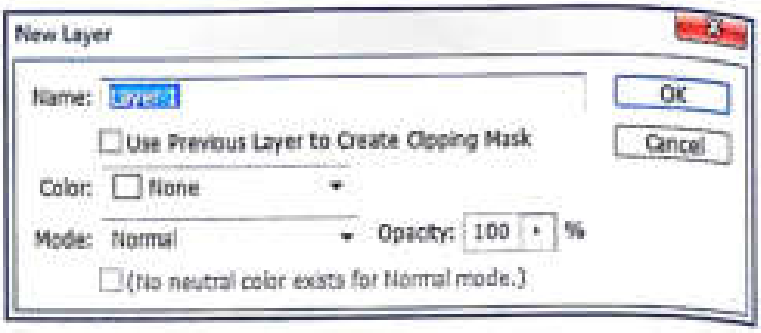

Fig. 8.22 **New Layer** dialog box

You will see a new blank layer in the **Layers** palette (Fig. 8.23).

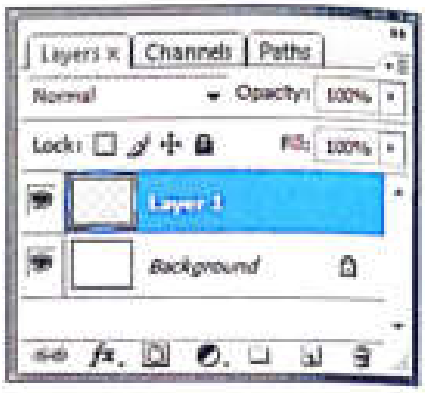

Fig. 8.23 **Layers** palette

Selecting Layers

You can select one or more layers to work on them. For activities like painting, drawing, and editing, you can work on only one layer at a time. The selected layer is called the **active layer.**

To select a layer, click a layer in the **Layers** palette. To select multiple adjacent layers, click the first layer and then press **SHIFT** and **Click** on the last layer.

To select all layers, choose **Select ▸ All Layers.**

Fast Forward

Insert a layer **SHIFT + CTRL + N**

Top Tip

To show/hide a layer, click the **Eye** icon next to the layer in the **Layers** palette.

Changing Order of Layers

To change the order of layers:

1. Click and drag the layer up or down in the **Layers** palette.
2. Release the mouse button when the highlighted line appears where you want to place the layer.

Rename a Layer

To rename a layer:

1. Double-click the layer in the **Layers** palette.
2. Type a new name.

Delete a Layer

To delete a layer or layers, the steps are:

1. Select one or more layers in the **Layers** palette.
2. Click the **Delete** icon in the **Layers** palette.

Or

Select **Layer ▸ Delete ▸ Layer**.

Flatten Layers

Flattening reduces the file size by merging all visible layers into the background. Any remaining transparent areas are filled white. To flatten the layers, make sure that all the layers are visible, and then select **Layer ▸ Flatten Image**.

Layer Effects

Photoshop provides a number of effects that let you quickly change the appearance of a layer's contents, like shadows, glows, bevels, etc. The steps to apply Layer effects are:

1. Select a layer in the **Layers** palette.
2. Click the **Layer Styles** button at the bottom of the **Layers** palette and choose an effect from the list (Fig. 8.24).

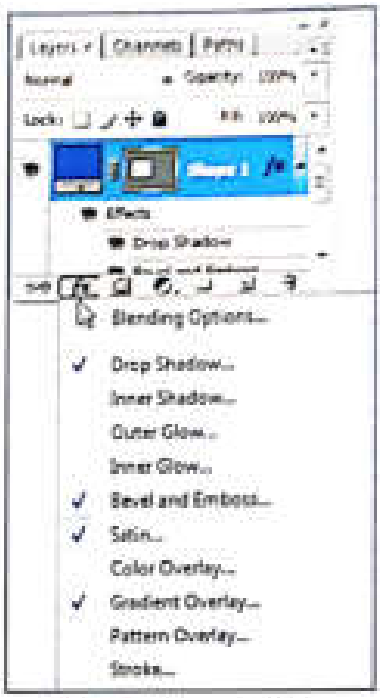

Fig. 8.24 Layer Styles menu

Or

Select **Layer ▸ Layer Style** and choose an effect from the submenu (Fig. 8.25).

3. The **Layer Style** dialog box appears (Fig. 8.26). Choose an effect, for example, **Drop Shadow**, and set effect options. If desired, you can add another effect by clicking the check box to the left of the effect name.
4. Click **OK** and see the result (Fig. 8.27).

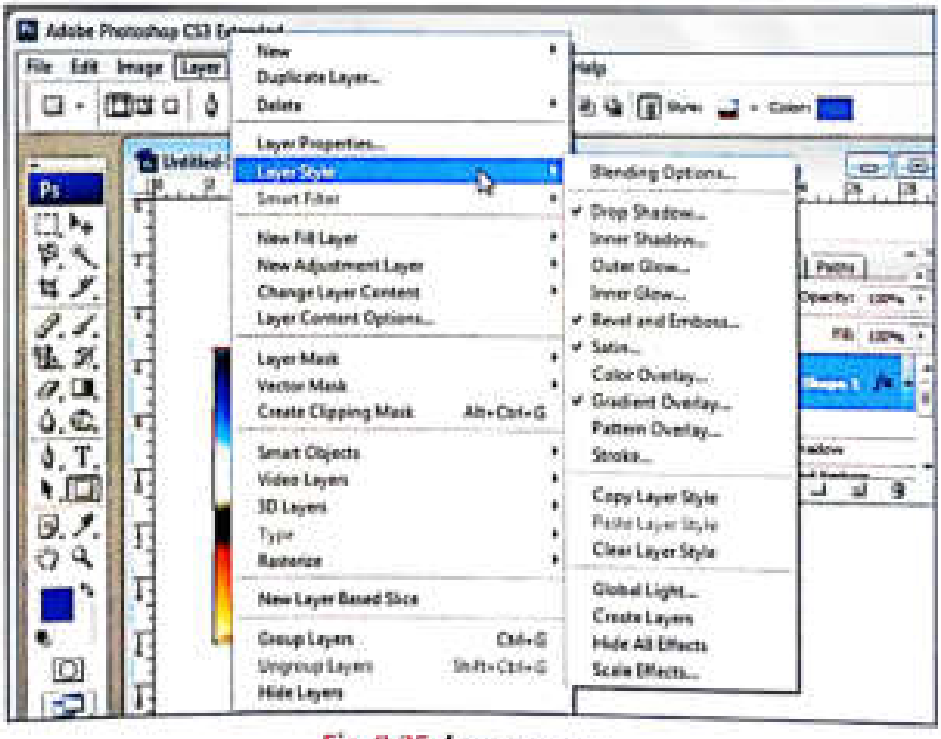

Fig. 8.25 Layers menu

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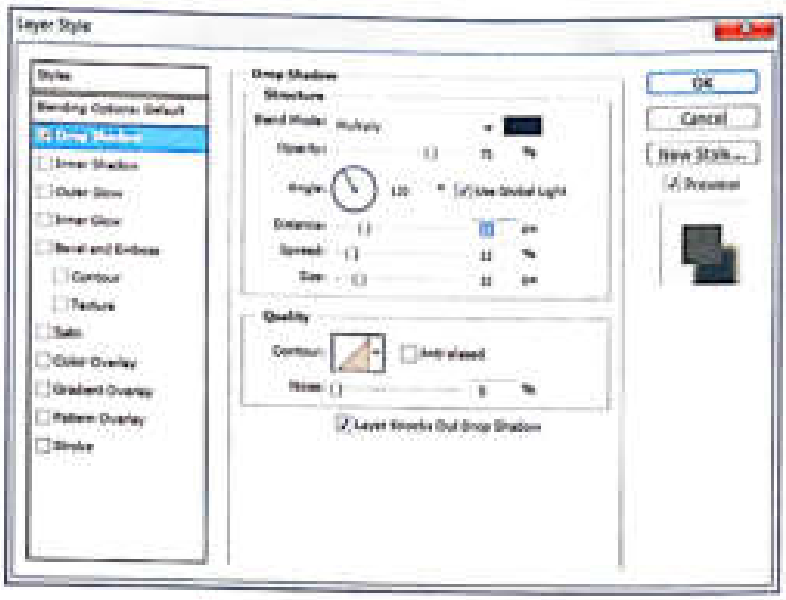

Fig. 8.26 **Layer Style** dialog box

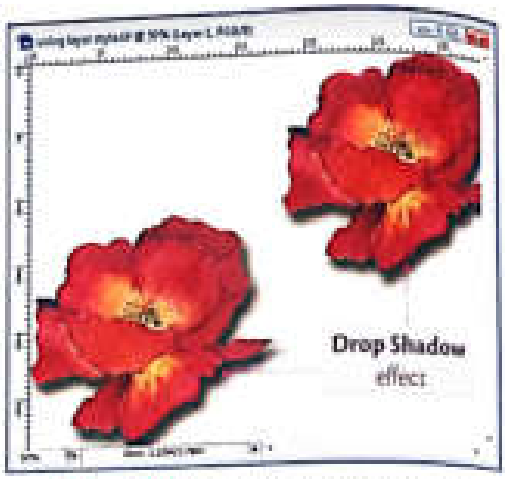

Fig. 8.27 **Drop Shadow** effect applied to the image

PRACTICE TIME

Razia recently visited Thailand with her family members. Her mother has told her to create a digital collage of the photographs they have taken. What are the steps she needs to follow?

SOLUTION

1. Start Photoshop CS3.
2. Create a new file.
3. To add a new layer:
   a. Select **Layer ▶ New ▶ Layer**.
   b. Give the layer an appropriate name.
   c. Click **OK**. You will see a new blank layer in the Layers palette.
4. Copy the required image and paste it into this new layer.
5. To change the size of the image:
   a. Select the layer.
   b. Select **Edit ▶ Transform ▶ Scale**. Scaling handles appear.
   c. Click and drag the scaling handle to resize the image.
   d. Double-click inside the image to apply this transformation.

6. To rotate the image:
   a. Select the Layer or image.
   b. Select **Edit ▶ Transform ▶ Rotate**. The rotation handles appear.
   c. Click and drag the rotation handle.
   d. Double-click inside the image to apply the transformation.
7. Repeat steps 3 to 6 to add more images. Each image will be in its own layer.

WORKING WITH TEXT

For typing text in a Photoshop document, we use the **Type Tool**. When we type text in Photoshop, it is added to a separate layer called the **Type Layer**.

The steps to add text to an image are given below (Fig. 8.28):

1. Open the image.
2. Click the **Type Tool** in the **Tools panel**.
3. Select font, size, and Colour in the Options bar.
4. Click the left mouse button on the image and type the text. Notice that the type is created in a new layer.

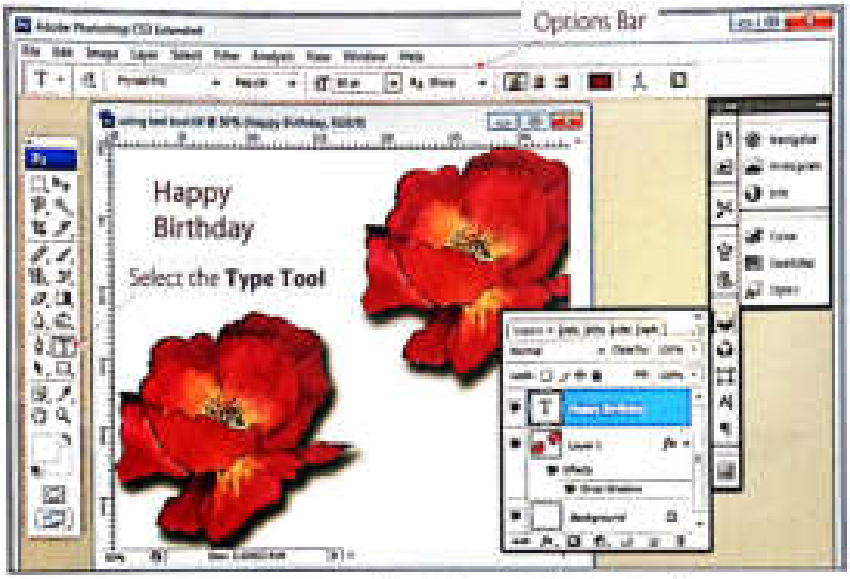

Fig. 8.28 Using the **Horizontal Type Tool**

Moving Text

You can move text from one position to another on the image. The steps are:

1. Select the **Type** layer in the **Layers** palette.
2. Click the **Move Tool** in the **Tools panel**.
3. Click on the text, drag it to the desired position on the stage, and release the mouse button (Fig. 8.29).

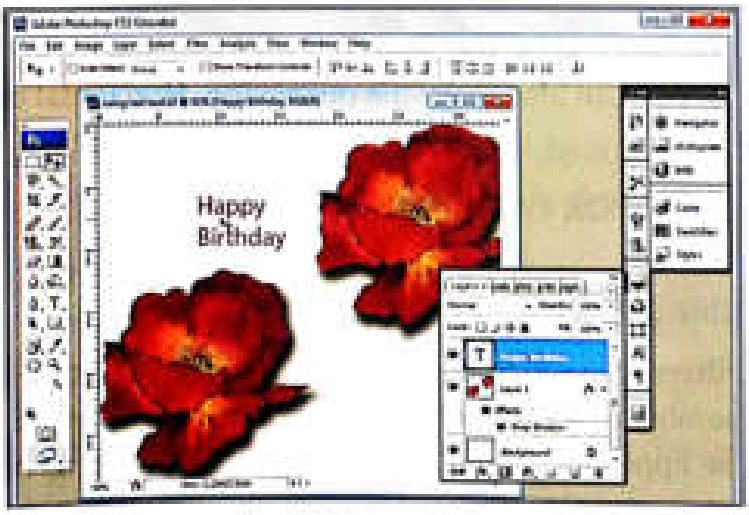

Fig. 8.29 Moving Text

Warping Text

Warping lets you distort text into a variety of shapes. For example, you can warp text into the shape of an arc or a wave. The steps are:

1. Select the **Type** layer.
2. Select the **Type Tool** in the **Tools panel.**
3. Click the **Create Warped Text** button in the Options bar (Fig. 8.30).

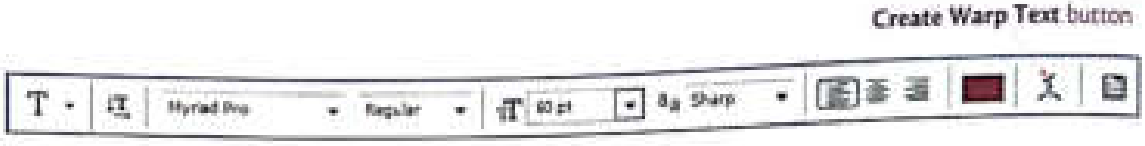

Fig. 8.30 Options bar

4. The **Warp Text** dialog box appears. Select a style from the **Style** drop-down list. In this case, we selected **Arc** (Fig. 8.31).

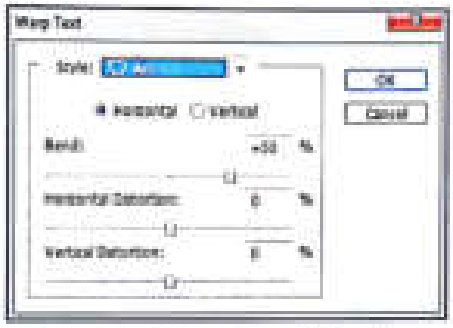

Fig. 8.31 **Warp Text** dialog box

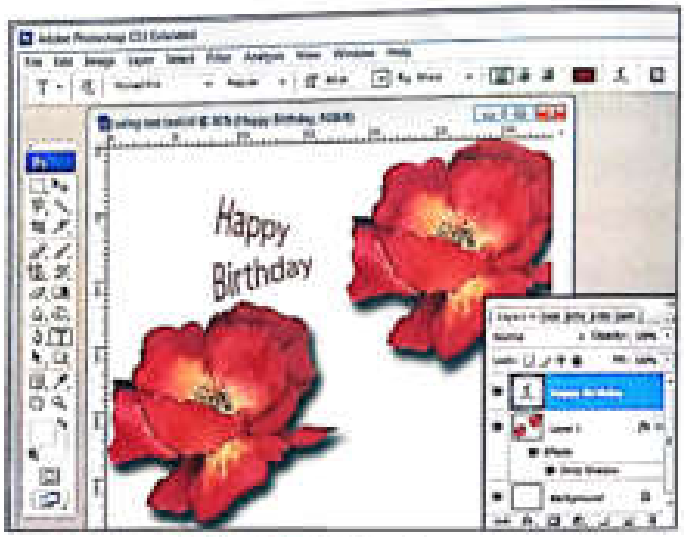

Fig. 8.32 Warped text

5. You can also select the orientation, **Horizontal** or **Vertical.**
   If required, specify the values for **Bend, Horizontal Distortion,** and **Vertical Distortion.**
6. Click **OK** to see the result of your selections (Fig. 8.32).

USING FILTERS

Filters are used to add a variety of special effects to an image. You can modify the image in a number of ways. For example, you can use filters to change the look of your image by giving it the appearance of mosaic tiles by adding lighting, or distortion.

Applying a Filter

Follow these steps to apply a filter:

1. To apply a filter to an entire layer, make sure that the layer is active. To apply a filter to part of a layer, select that area.
2. Choose a filter from the submenus in the **Filter** menu (Fig. 8.33).
3. Fill values and select options in the dialog box (Fig. 8.34).
4. Click **OK** to apply the filter (Fig. 8.35).

Note: With some filter effects, you will not see a dialog box. The effect will be applied immediately.

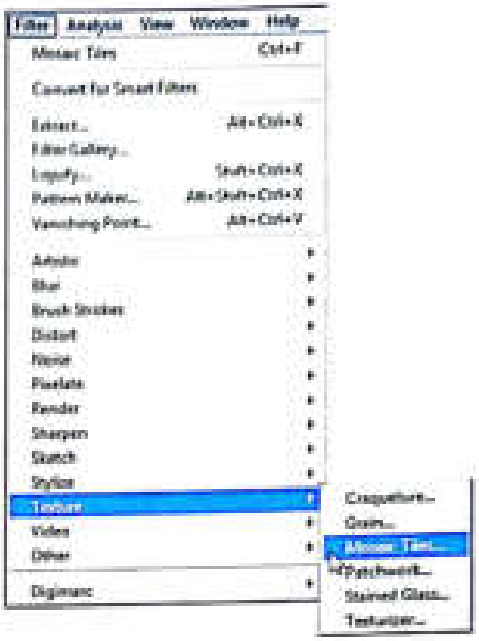

Fig. 8.33 **Filter** menu

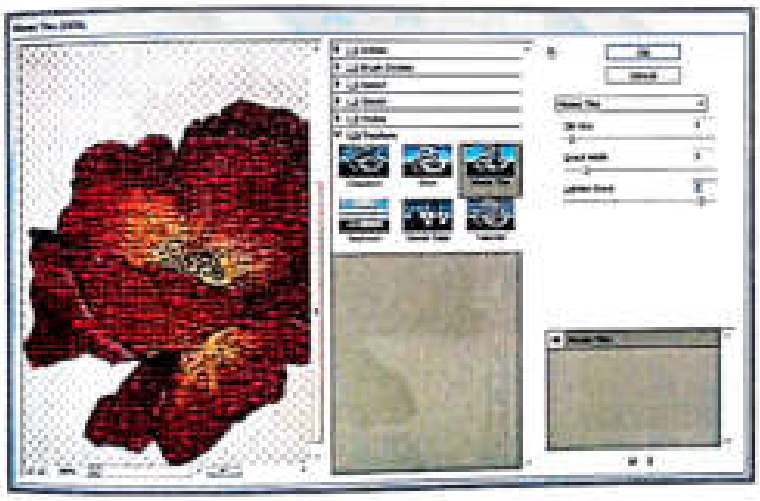

Fig. 8.34 **Mosaic Tiles** dialog box

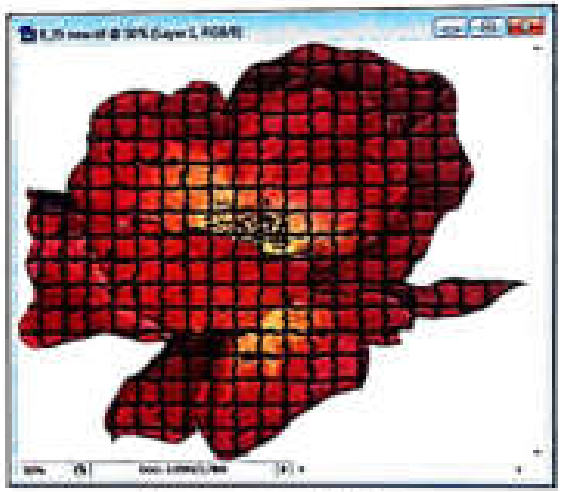

Fig. 8.35 Applied filter (**Mosaic Tiles** effect)

Filter Gallery

Filters are used to change the appearance of an image, layer, or a selection in Photoshop.

The **Filter Gallery** in Photoshop lets you apply filters incrementally and apply individual filters more than once. You can view thumbnail examples of what each filter does, rearrange filters, and change the settings of filters you have applied.

To display the **Filter Gallery**, select **Filter ▸ Filter Gallery**. Click a filter category name to display thumbnails of available filter effects.

OXFORD

Follow these steps to apply filters from the **Filter Gallery**:

1. To apply a filter to an entire layer, make sure that the layer is active or selected. To apply a filter to an area of a layer, select that area.
2. Select **Filter ▸ Filter Gallery**.
3. Click a filter to add it to the image. The name of the filter appears in the applied filter list at the lower right corner of the **Filter Gallery** dialog box (Fig. 8.36).
4. Enter values or choose options for the filter you have selected.
5. To apply filters cumulatively, click **New Effect Layer** and choose an additional filter to apply. Repeat this step to add more filters.
6. To remove an applied filter, select a filter from the applied filter list and click **Delete**.
7. After applying all the filters, click **OK** (Fig. 8.37).

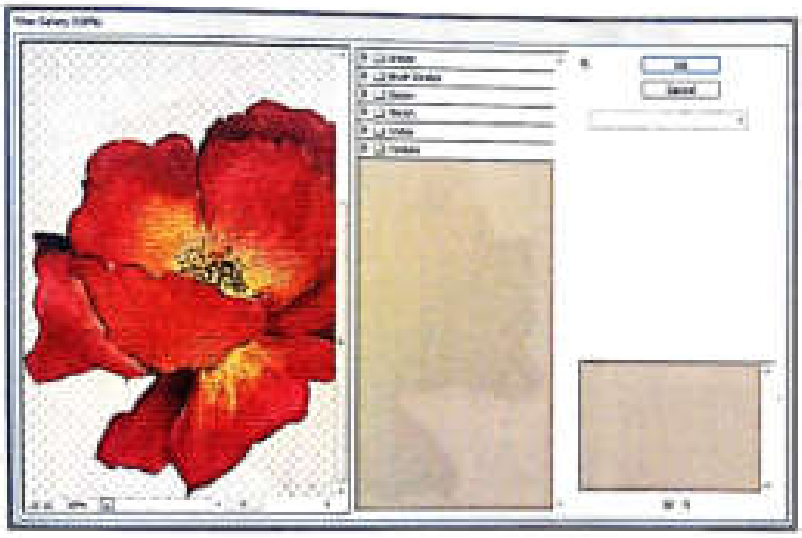

Fig. 8.36 **Filter Gallery** dialog box

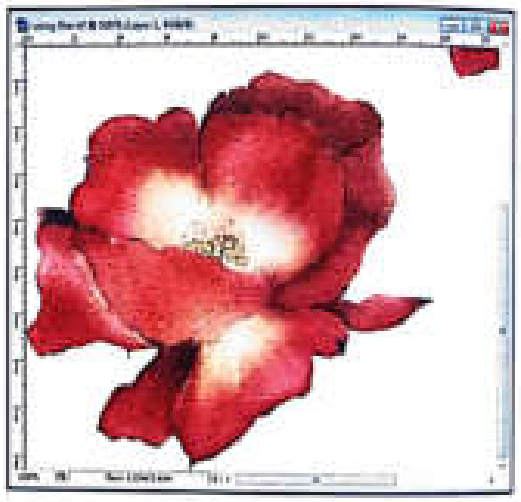

Fig. 8.37 Multiple filters applied

Tricky Terms

Retouching tools tools for changing or editing pixel arrangements in an image

Clone to duplicate an image or part of an image

Layer effects effects like shadows, glows, etc., that are provided in Photoshop to allow you to quickly change the appearance of a layer

Warp to distort text into a shape like an arc, a wave, etc.

Memory Bytes

- Retouching tools are used to change or edit pixel arrangements in an image.
- The **Spot Healing Brush Tool** can remove blemishes, scars, spots, and other imperfections in a photograph.
- The **Clone Stamp Tool** can clone or duplicate selected areas of an image.
- The **Eraser Tool** can erase portions of an image.
- The **Blur Tool** can blur or soften portions of an image.
- The **Smudge Tool** can create the effect of wet paint smudged with a finger.
- The **Dodge Tool** can lighten parts of an image.
- The **Burn Tool** can darken parts of an image.
- Layers allow you to work with one element of an image without disturbing the others.
- A new Photoshop image has a single layer. You can add additional layers.
- The **Layers** palette lists all layers, groups, and layer effects in an image.
- You can add a new layer by selecting **Layer ▶ New ▶ Layer**.
- Flattening reduces the file size by merging all visible layers into the background. To flatten all the visible layers, select **Layer ▶ Flatten Image**.
- You can type text in a Photoshop document by using the **Type Tool**.
- Whenever you type text in Photoshop, it is added on a separate layer called the **Type** layer.
- With filters, you can add a variety of special effects to your images.
- The **Filter Gallery** lets you apply filters cumulatively and apply individual filters more than once.

EXERCISES

Objective Type Questions

1. Choose the correct option.

a. Which of the following options of the **Eraser Tool** will erase pixels of the Background layer?
i. **Eraser Tool** ii. **Background Eraser Tool** iii. **Magic Eraser Tool** iv. none of these

b. Which of the following layer is created automatically when you create a new image?
i. Background ii. Image iii. Text iv. none of these

c. Which of the following options are available in the **Layer** menu?
i. Delete ii. Flatten Image iii. Layer Style iv. all of these

d. The Layer Styles button is present at the bottom of the .....
i. Tools panel ii. Layers palette iii. Image window iv. none of these

e. When you type text, a separate layer called the ..... is added.
i. Type Layer ii. Text Layer iii. New Layer iv. none of these

OXFORD

f. To distort text into a shape, use the **Create Warped Text** button on the .....
   i. Tools panel ii. Layers Palette iii. Options bar iv. none of these

g. ..... are used to add special effects to an image.
   i. Filters ii. Animation iii. Custom animation iv. none of these

h. Which of the following effects are available on clicking the **Filter** menu?
   i. Texture ii. Blur iii. Artistic iv. all of these

Descriptive Type Questions

Answer the following.

a. Can you select multiple layers in Photoshop? If yes, how?
b. What is the use of the **Spot Healing Brush Tool**?
c. How can you flatten all visible layers? What is the use of flattening the layers?
d. What is the currently selected layer in Photoshop called?
e. What are the steps to rename a layer?
f. Analyse the importance of working with layers in Photoshop.
g. Hamza is having trouble working out how a number of tools work in Photoshop. Explain the workings of each of the following tools: blur, clone, smudge, dodge, burn. These are great tool names, but why are they so called?
h. Using the image of your superhero which you designed for Question 3 in Chapter 7, add more layers to it and give it a more detailed look. At each step document what you did and why you did it.

Application-Based Questions

a. Diya clicked her grandmother's photograph. When she opened the photograph in Photoshop, she noticed some dark patches on the face.
   i. Name the tool she can use to remove those dark patches.
   ii. List the steps to use that tool.

b. Kamil has created a collage in Photoshop on the topic 'Festivals of Pakistan'. Each picture was added in a separate layer.
   i. How can a new layer be inserted? Also write the keyboard shortcut for the same.
   ii. She wants to change the order of the layers. Can this be done? If yes, how?

c. Shaheer went for a picnic with his school friends and clicked many photographs. Now his friends want him to make a digital collage of these photographs. For this he created a new file and inserted these pictures in different layers.
   i. When he inserts new layers, what are the default layer names that are given to these layers?
   ii. So that he doesn't get confused, he wants to give appropriate names to these layers. List the steps to rename a layer.

d. Saima has to design a greeting card for her friend in Photoshop. She has typed some text on the card.
   i. Which layer is added when you add text to an image?
   ii. Which button do you use to change the shape and style of the text? Where is this button present?

IN THE LAB

1. Yumna has written a collection of short stories that she wants to publish in the form of a book. She has decided to design a book cover for it. Help her design a book cover using the tools available in Photoshop.
2. Ghazal class teacher has asked her to design a cover for the attendance register of the class. Which tools should she use? How can she change the Colour of the background?
3. Ishaa loves watching cartoons. She has opened the image of her favourite cartoon character in Photoshop and applied different textures to the image. Open an image of your favourite cartoon character and apply different filters to see their effect and create a collage.
4. Irma has to participate in an Eid card design competition wherein the design can be created in Photoshop. Name the tools she can use for this purpose. Create an Eid card design of your own.

GROUP WORK

You are a team of software developers and have been tasked with coming up with some new user-friendly software specifically for the older generation who are not as quick on computers as you are. These users will need to easily manipulate text and images and be introduced to the basics of using audio and video. Based on your new found knowledge of different software packages, create a list of features you would like to use in your own software programme. Justify why you would include some features but not others. How would you make it interesting and relevant to your target audience?

TEACHER'S NOTES

- Tell the students how to scan pictures and open them in Photoshop. Then demonstrate how to use retouching tools to edit these pictures.
- Demonstrate how to apply filters and layer styles effectively.

Chapter 9

Introduction to Dreamweaver CS3

You have learnt how to create simple web pages by writing HTML code. However, it is possible to create web pages even without writing HTML code. If you use a web design program (also called a WYSIWYG HTML editor), you do not need to learn HTML tags, as the software creates the HTML code by itself. This chapter introduces one such program called **Adobe Dreamweaver**. The version we will use is CS3.

In this Chapter

- Adobe Dreamweaver
- Elements of Dreamweaver
- Adding Text and Images
- Working with Hyperlinks
- Adding Flash Buttons

ADOBE DREAMWEAVER

You can use Adobe Dreamweaver to create individual web pages and complete websites. It has a **W**hat **Y**ou **S**ee **I**s **W**hat **Y**ou **G**et (WYSIWYG) editor, which means that you design your web page as you wish to see them, by placing elements in the editor window. As you know, a collection of related web pages forms a website. When you upload this website to a web server, then anyone on the Internet can see this website. The term 'site' refers to a local or a remote storage location for the documents on a website.

A Dreamweaver site consists of the following folders:

- **Local root folder** This folder is on your local computer and stores the files you are currently working on. Dreamweaver refers to it as your 'local site'.
- **Remote folder** This folder is on the computer where your web server software is running. Dreamweaver refers to this folder as your 'Remote site'.

Together, the local and remote folders enable you to transfer files between your local computer's hard disk and the web server, making it easy to manage files in your Dreamweaver sites.

In this chapter, we will use only a local root folder for creating a website and will preview this website in a web browser.

Did you Know?

Softwares like **Dreamweaver** let you organise and manage your web documents, upload them to a web server, track and maintain your links, and share files. Other such programs are Amaya, Microsoft Expressions Web, Microsoft SharePoint Designer, and KompoZer.

Did you Know?

You need space on a Web server to work with a remote folder. It is not free; you have to pay for it.

Starting Dreamweaver

Follow these steps to start Dreamweaver:

1. Select **Start ▸ All Programs ▸ Adobe Design Premium CS3 ▸ Adobe Dreamweaver CS3** (Fig. 9.1).
2. The first screen will appear (Fig. 9.2). Here, you can open a recently created document or start a new document.

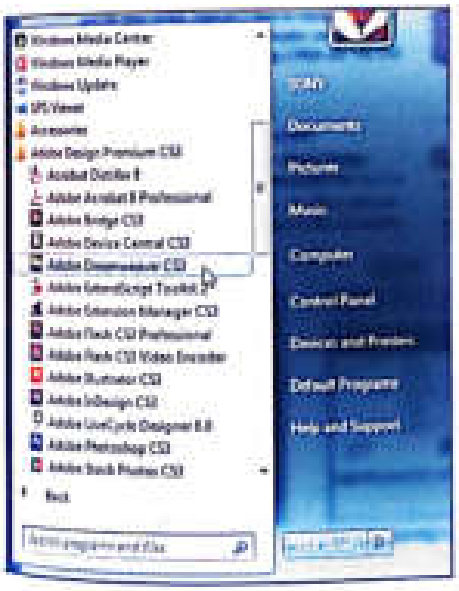

Fig. 9.1 Starting **Dreamweaver CS3**

Fig. 9.2 Opening screen of **Dreamweaver CS3**

Create WebSite

To create a new website, follow the steps below:

1. In the opening page, under **Create New**, click **Dreamweaver Site...** (Fig. 9.2).

   Or

   Click **Site ▸ New Site...** to open a new website (Fig. 9.3).

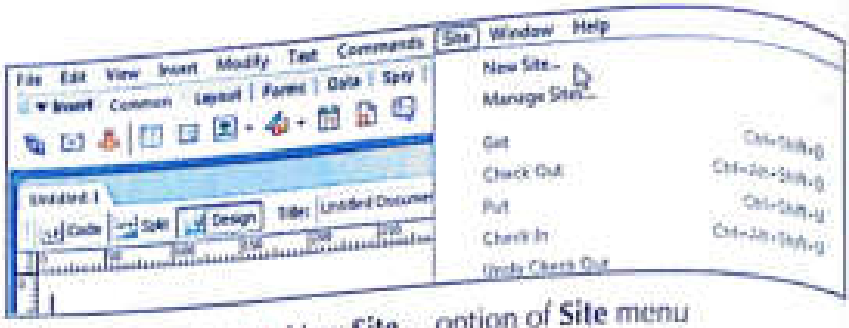

Fig. 9.3 **New Site...** option of **Site** menu

2. The **Site Definition for** screen will appear (Fig. 9.4). It has two tabs, **Basic** and **Advanced**. The **Basic** tab is selected by default. Here you enter information for your website in a series of screens that appear as you keep clicking the **Next** button.

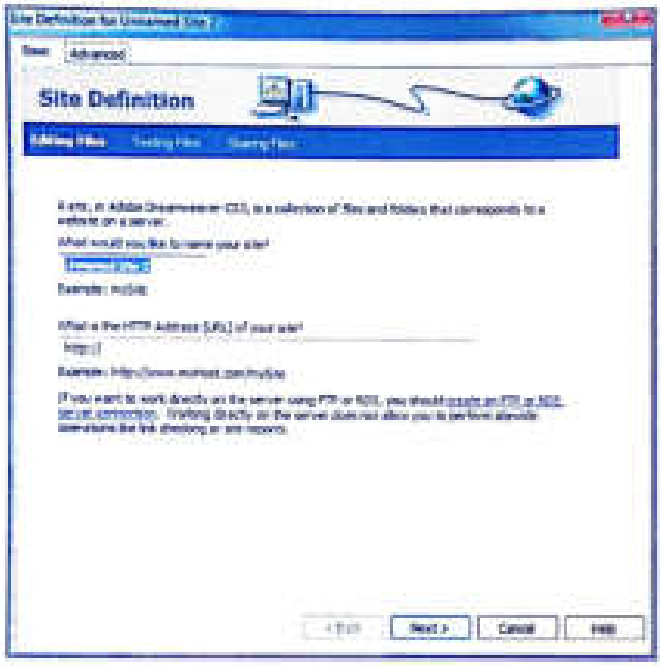

Fig. 9.4 **Site Definition** dialog box

Fig. 9.5 **Advanced** tab of the **Site Definition** dialog box

Alternatively, you can click the **Advanced** tab. In this, you enter all the information in just one screen (Fig. 9.5). Enter the site name; here it has been entered as new website. Enter the local root folder or locate it using the **Browse** button. Finally click **OK**.

3. You will now see the new website folder in the **Files panel** on the right (Fig. 9.6).

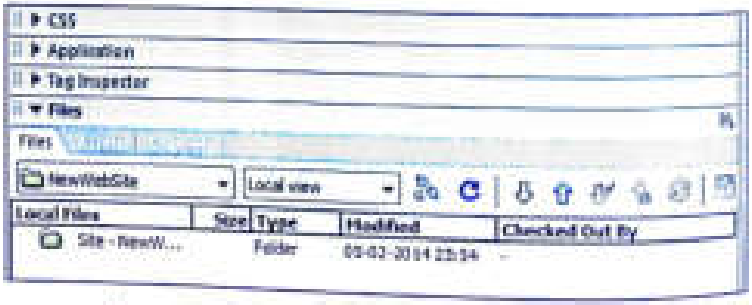

Fig. 9.6 **Files panel** with **NewWebSite** folder

Adding Web Pages to the Folder

We can now add pages to the folder. Follow these steps:

1. To create a web page, select **File ▸ New**.
2. The **New Document** dialog box appears (Fig. 9.7). By default, the following options are selected: the new document is a **Blank Page**, the **Page Type** is **HTML**, and the Layout is **None**. Click **Create**.
3. The **Document** window appears. Type the text as shown in Figure 9.8.
4. Click **File ▸ Save** to save the HTML file. The **Save As** dialog box appears (Fig. 9.9). Type a name for the file and click **Save**.

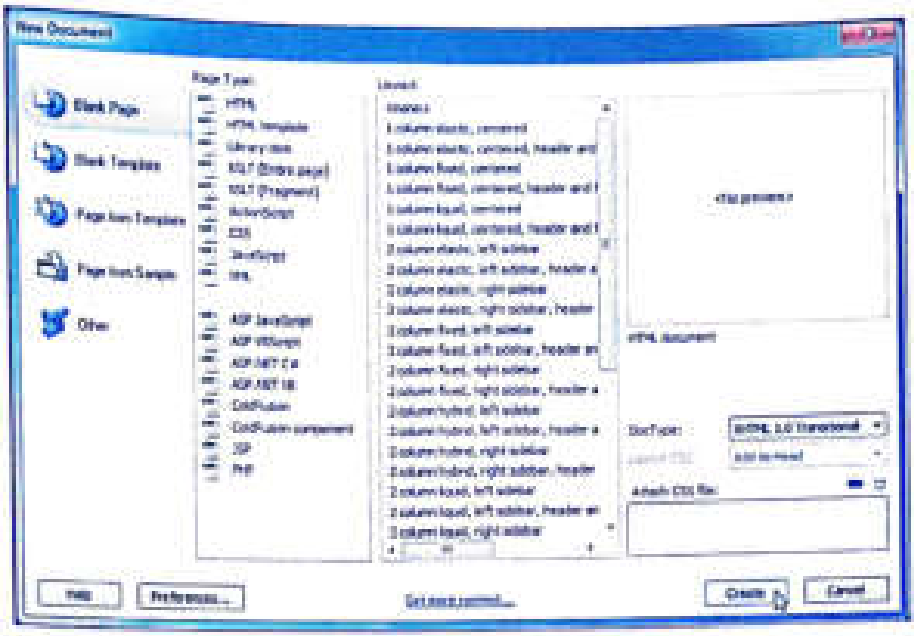

Fig. 9.7 **New Document** dialog box

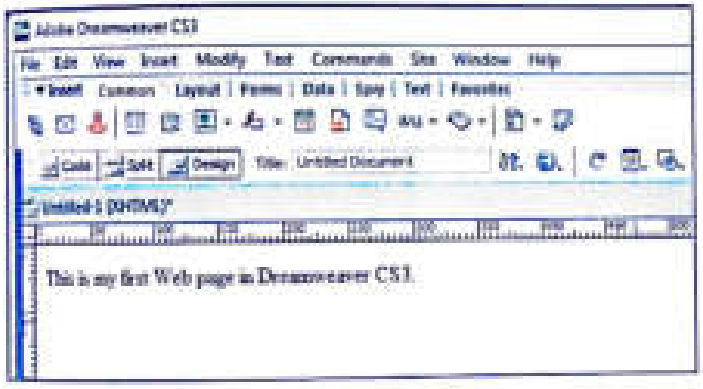

Fig. 9.8 **Document** window

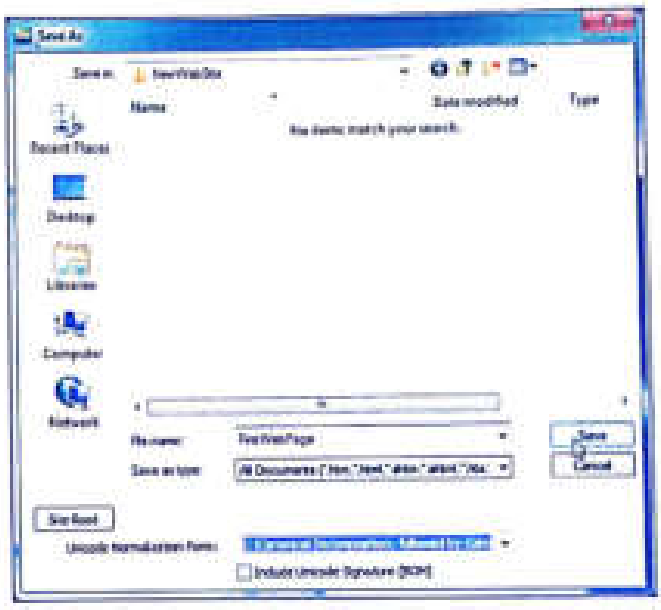

Fig 9.9 **Save As** dialog box

Follow these steps for another method of creating a web page:

1. Right-click the folder in the **Files panel** and select **New File** from the context menu (Fig. 9.10).

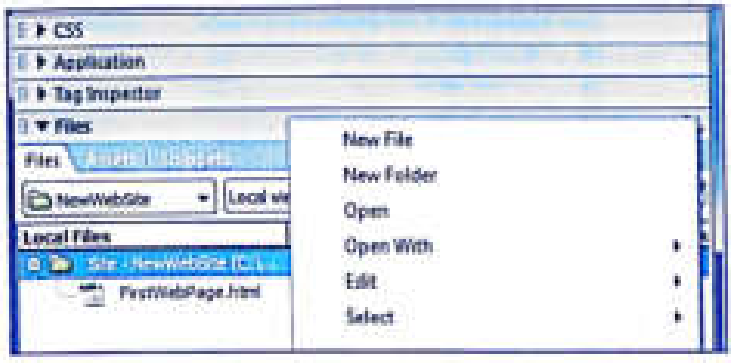

Fig. 9.10 **New File** option of context menu

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2. The **untitled.html** web page is created (Fig. 9.11).
3. Click on the filename and type the new name, say, SecondWebPage.html. You will see it in the panel under the website name (Fig. 9.12).

Fig. 9.11 The **Untitled.html** web page

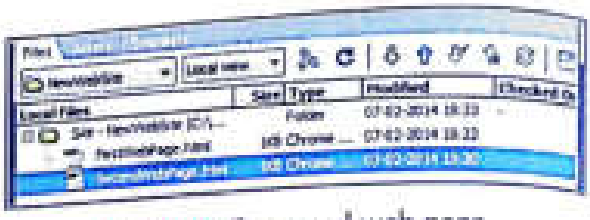

Fig. 9.12 Renamed web page

4. Double-click SecondWebPage.html to edit it. The **Document** window will appear (Fig. 9.13).
5. Add the content and then save it by selecting **File ▸ Save**.

Fig. 9.13 Document window for SecondWebPage.html

ELEMENTS OF DREAMWEAVER

The different parts of the Dreamweaver window are labelled in Figure 9.14.

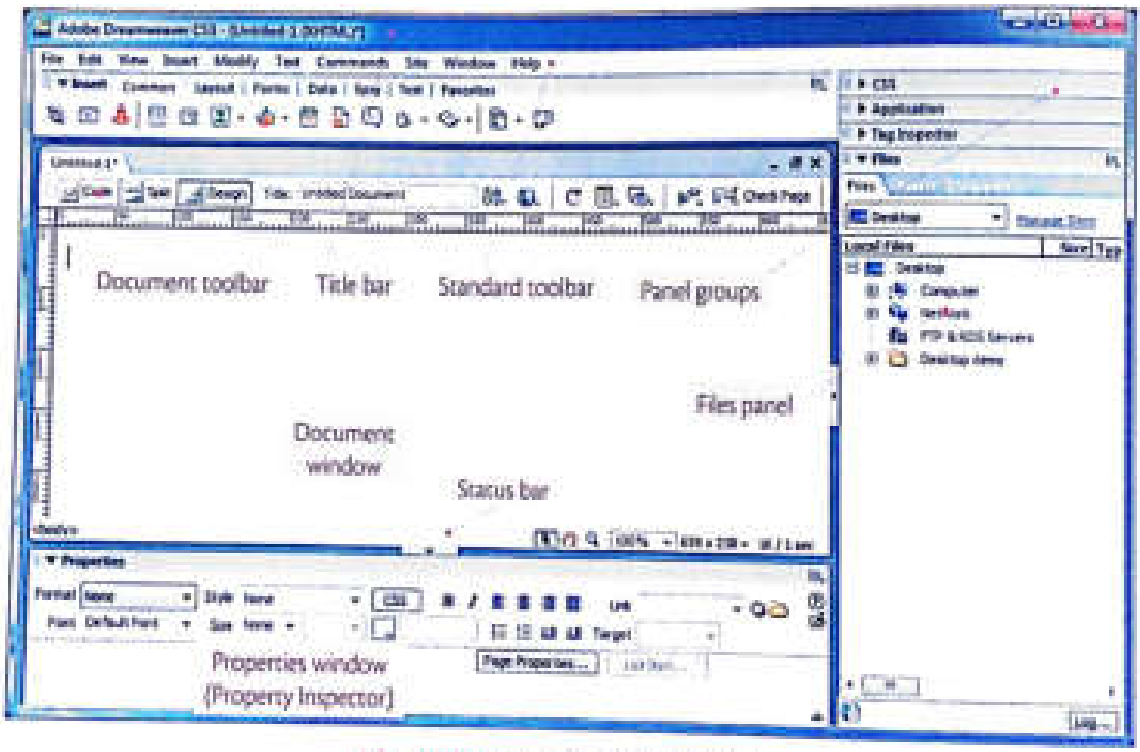

Fig. 9.14 Dreamweaver window

Title bar The title bar displays the page title with the file path and filename in parentheses (Fig. 9.15). If the file has unsaved changes, you see an asterisk after the filename.

Fig. 9.15 Title Bar

Standard toolbar The **File** and **Edit** menus have common operations like **New**, **Open**, **Save**, **Save As**, **Cut**, **Copy**, **Paste**, **Undo**, and **Redo** (Fig. 9.16). If the standard toolbar is not visible, click **View** ▸ **Toolbars** ▸ **Standard**.

Fig. 9.16 **Standard** toolbar

Insert bar The **Insert bar** contains buttons for creating and inserting objects including tables and images. When you move the pointer over a button, a tooltip appears with the name of the button. The buttons are grouped into categories which you can see by clicking the tabs at the top. Figure 9.17 shows the buttons on the **Common** tab.

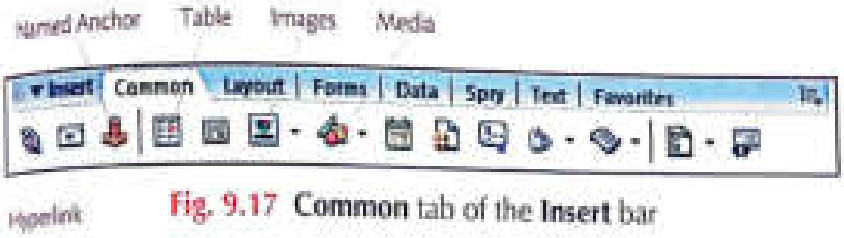

Fig. 9.17 **Common** tab of the **Insert** bar

Did you Know?

Each object is a piece of HTML code and you can set various attributes.

Some buttons on the **Insert** bar have an arrow with a drop-down menu. When you select an option from the drop-down menu, it becomes the default action for that button. For example, the **Images** button usually inserts an image. However, if you select **Image Placeholder** from the **Images** drop-down menu, then the next time you click **Images**, it will insert an image placeholder rather than an image.

Top Tip

The **Property Inspector** panel is at the lower edge of the workspace by default. You can dock it at the upper edge of the workspace or make it a floating panel.

Property Inspector It lets you see and edit the most common properties for the currently selected page element, like text, image, etc. (Fig. 9.18).

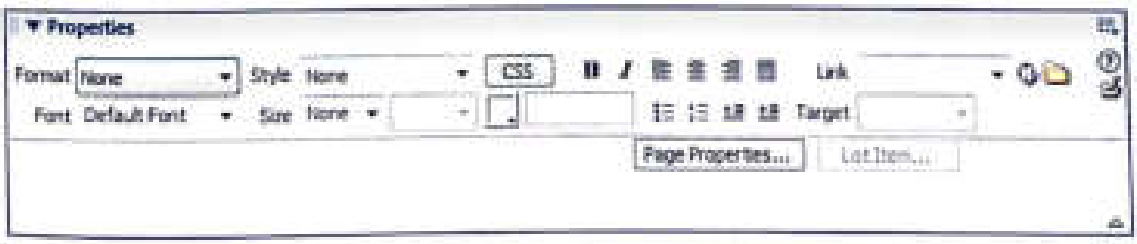

Fig. 9.18 Property Inspector

OXFORD

Panel groups These are sets of related panels grouped together under one heading. To expand a panel group, click the arrow to the left of the group's name. The **Files panel** lets you manage files and folders on a local machine or on the remote server (Fig. 9.19). It also lets you access files on your local disk in the same way as Windows Explorer.

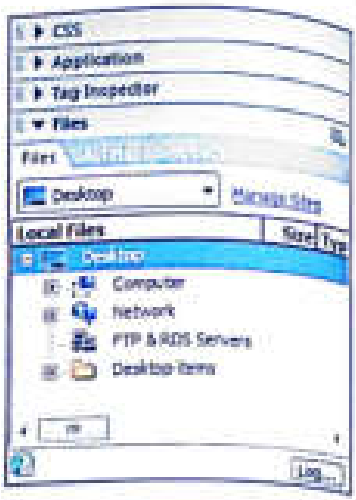

Fig. 9.19 Panel groups

Document Window with Toolbar

Figure 9.20 shows the document toolbar with many buttons on it.

- **Show Code view** It displays the HTML code for the web page.
- **Show Code and Design views** It displays the web page in the upper half of the window and the HTML code in the lower half.

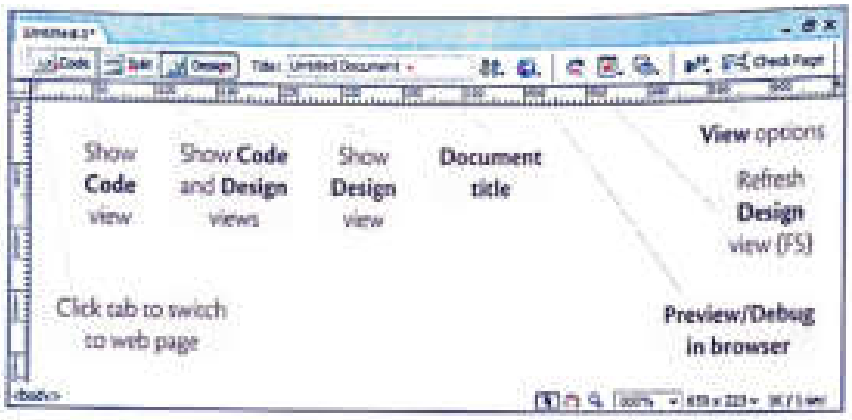

Fig. 9.20 **Document** window with toolbar

- **Show Design view** It displays the web page.
- **Document title** Here you enter a title to be displayed in the browser's title bar.
- **Preview/Debug in browser** It allows you to preview or debug your document in a browser.

You can select a browser from the menu that appears on clicking the button.

- **Refresh Design view** Changes in **Code view** do not appear in the **Design view** automatically. You have to first save the file or click this button.
- **View options** It allows you to set options for **Code view** and **Design view**.

Status bar The **Status bar** is at the bottom of the **Document** window (Fig. 9.21). It provides additional information about the document you are creating.

Fig. 9.21 Status bar

- **Select tool** Enable / Disable **Hand** tool.
- **Hand tool** It lets you click the document and drag it in the Document window.

- **Zoom tool and Set Magnification** It lets you set the magnification level for your document.
- **Window Size** It lets you resize the **Document** window to predetermined or custom dimensions.
- **Document Size and Download time** It shows the estimated document size and download time for the page including all dependent files such as images and other media files.

ADDING TEXT AND IMAGES

Let us now see how to add text and images to a Dreamweaver document.

Adding Text

To insert text simply click inside a document window and type in your content. When you press **ENTER**, Dreamweaver automatically adds paragraph spacing. To add a line space, press **SHIFT + ENTER**.

Open an existing document or create a new document. Here, a document called SecondWebPage. html is open in **Design** view.

1. Type some text in the **Document** window as shown in Figure 9.22.

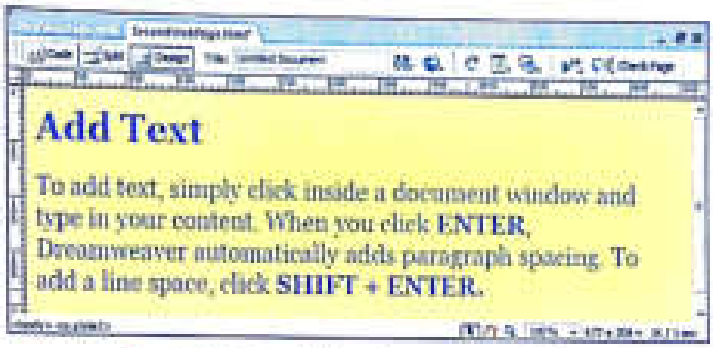

Fig. 9.22 Text in the Document window

2. At the bottom of the screen, you will see the **Property Inspector** for text properties (Fig. 9.23). Select the text and click **Bold**. The selected text will appear in bold.

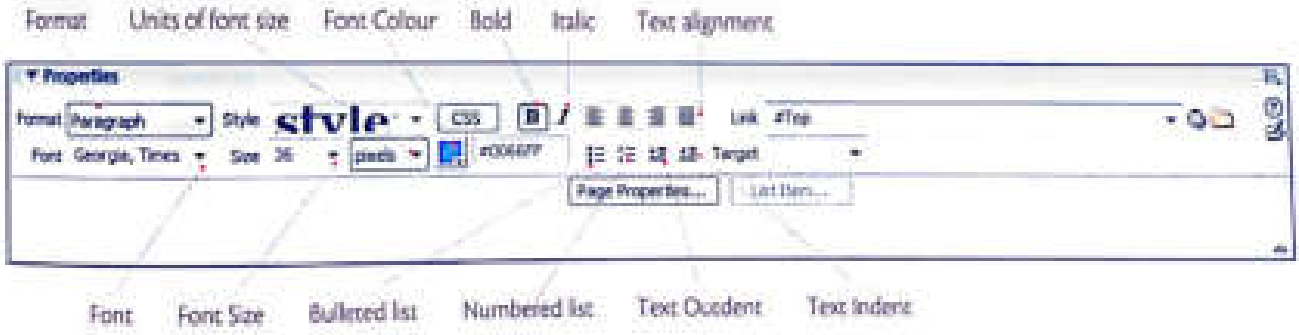

Fig. 9.23 Text **Property Inspector**

3. Click the **Page Properties...** button to display the **Page Properties** dialog box (Fig. 9.24). You can make more changes using the options in this dialog box.

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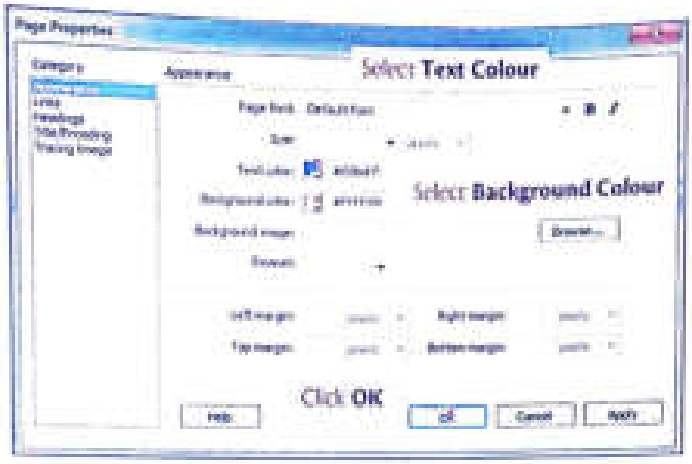

Fig. 9.24 **Page Properties** dialog box

Adding Images

Place the cursor where you want to insert an image on the web page and follow these steps:

1. Click the **Image** button and select **Image** from the menu that appears (Fig. 9.25).

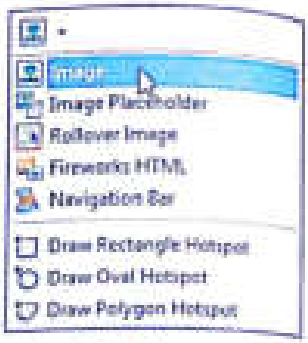

Fig. 9.25 **Image** menu

2. The **Select Image Source** dialog box appears (Fig. 9.26). Navigate to the location of the image file, select the image, and click **OK**.

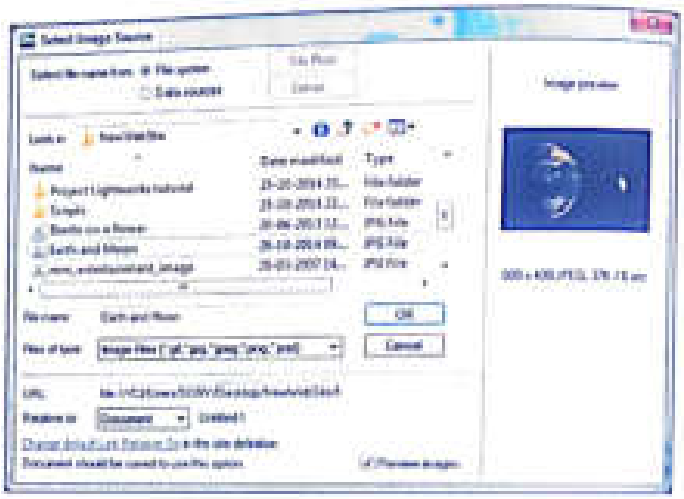

Fig. 9.26 **Select Image Source** dialog box

Top Tip

To insert an image, you can also select the **Image** option of the **Insert** menu.

Alternatively, add the image using these steps:

1. In the **Files panel**, click the **Assets** tab. The folder will appear on the left side of the panel. Click the **Image** folder.

   All the image files in the folder **New Website** will appear. (Remember, a folder **New Website** was created on the Desktop which has all the web pages, image files and any other file that is required for the website). Select the desired image and drag it to the desired location in the **Document** window (Fig. 9.27).

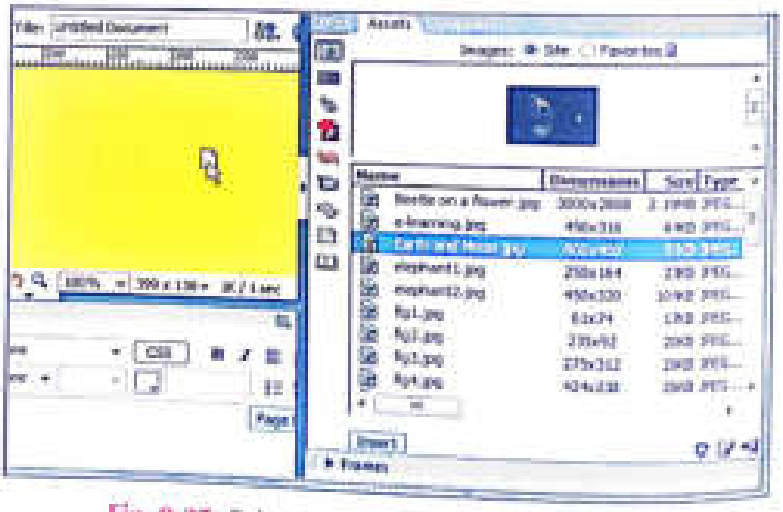

Fig. 9.27 Selecting image file in **Image** folder

2. The **Image Tag Accessibility Attributes** dialog box will appear (Fig. 9.28). You will see two fields: **Alternate text** and **Long description**.

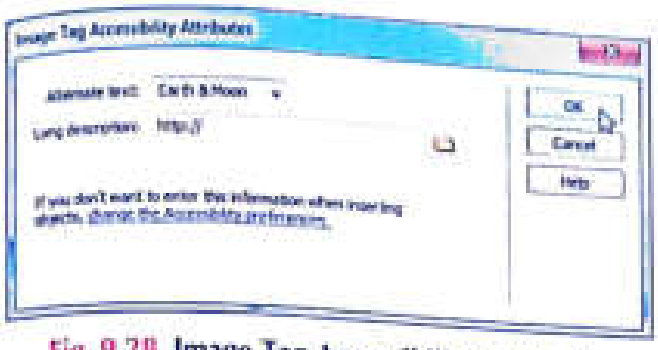

Fig. 9.28 **Image Tag Accessibility Attributes** dialog box

Top Tip

You can enter information in one or both the text boxes depending on your needs. The screen reader will read only the alternate text for the image.

Alternate text Enter a name or brief description up to 50 characters long.

Long description Enter the location of the file here. This is displayed when the user clicks the image.

With either of these two methods, the image will be inserted as shown in Figure 9.29.

Fig. 9.29 Picture inserted in the web page

You can set image properties in the **Property Inspector** (Fig. 9.30).

- **W and H** This is the width and height of the image in pixels. When you insert an image in a web page, Dreamweaver fills these text boxes with the image's original dimensions.
- **Src** It specifies the source file for the image.
- **Link** It specifies the hyperlink for the image.
- **Alt** It specifies the alternate text that appears in place of the image for text-only browsers.
- **Align** It specifies the alignment of the image on the web page.

Fig. 9.30 **Property Inspector** for image properties

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- **Crop** It trims the size of an image by removing unwanted areas (Fig. 9.31). Drag the corner handle to resize the image (Fig. 9.32).
- **Border** It defines the width of the image border in pixels. The default value is 0, for no border. Figure 9.33 shows an image with a 12-pixel border.

Fig. 9.31 Cropped image

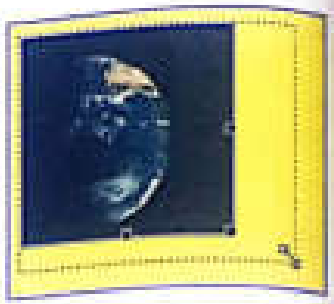


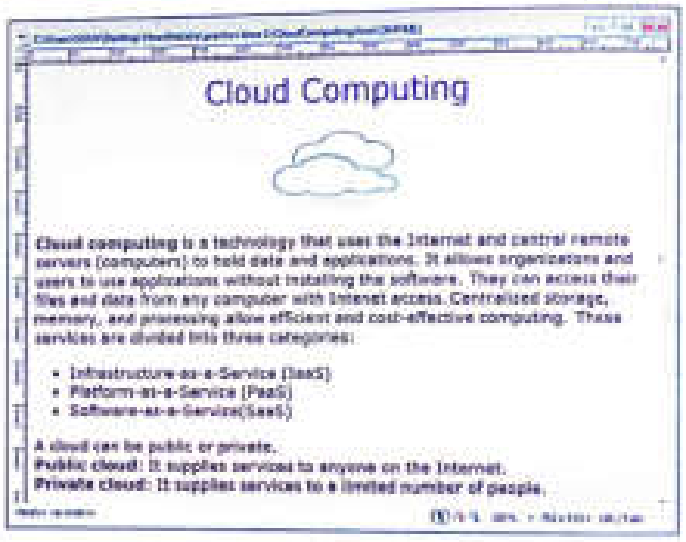
Fig. 9.32 Resized image

Fig. 9.33 Image with border

- **Brightness and Contrast** It adjusts the settings related to image brightness and contrast.
- **Sharpen** It adjusts the sharpness of an image.
- **Hotspot Tools (Pointer, Rectangle, Circle and Polygon)** It is used to draw hotspots in various shapes on the selected image.

PRACTICE TIME

Rashid has been assigned to create a web page on cloud computing. He has to explain cloud computing and support the text by adding an image. The web page should look as given in the figure alongside. How should he proceed?



SOLUTION

1. Create a folder called **Website1** on the desktop. Now start Dreamweaver.
2. Click **Site ▶ New Site**. The **Site Definition for** dialog box appears.
3. Click on the **Advanced** tab. Type the site name as Website1. Set the **local root folder** to the Website1 folder and click **OK**. Store the image file of cloud computing in this folder.
4. Right-click on the **Website1** folder in the **Files panel**. Select **New File** from the context menu. Name it as CloudComputing.html.
5. Double-click CloudComputing.html to open the page.

6. Type the text as shown in the figure.
7. The text is formatted as follows:
   a. Select the relevant text and click the **bold** button.
   b. Select the relevant text and click the **Italic** button.
   c. Select the text and click the **Text Colour** down-arrow; a colour palette appears. Select a Colour from the palette.
   d. To add a bulleted list, select the relevant text and click the **Unordered list** button.
   e. To center the text, select the text and click the **Align Center** button.
8. To add the image, select the image in the **Files panel** and drag it to the required position on the web page.
9. To center the image, select the image and click the **Align Center** button.
10. To save the web page after making all these changes, press **CTRL + S.**
11. Preview the web page by clicking the **Preview/Debug in browser** button.

WORKING WITH HYPERLINKS

A **hyperlink** is a word, phrase, or image that you can click on to move to a new document or a new section within the current document. Nearly all web pages have hyperlinks, allowing users to click and move from one web page to another. When you move the cursor over a hyperlink, whether text or image, the arrow changes to a small hand pointing at the link. When you click it, you go to a new page or to a new place in the current page.

Setting Text/Image as a Hyperlink

Follow these steps to create a hyperlink:

1. Select the **text** or **image** that you want to set as hyperlink (Fig. 9.34).
2. Click the **Hyperlink** button on the **Common** tab of the **Insert** bar (Fig. 9.35).
3. The **Hyperlink** dialog box will appear (Fig. 9.36).

(a) Selected text (b) Selected image

Fig. 9.34 Select the text/image to be set as a hyperlink

Fig. 9.35 **Common** tab of **Insert** bar

Fig. 9.36 **Hyperlink** dialog box

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4. Click the **Browse** button. The **Select File** dialog box will appear (Fig. 9.37). Browse to the folder that has the target document for the hyperlink and select the file. Then click **OK** to return to the **Hyperlink** dialog box.

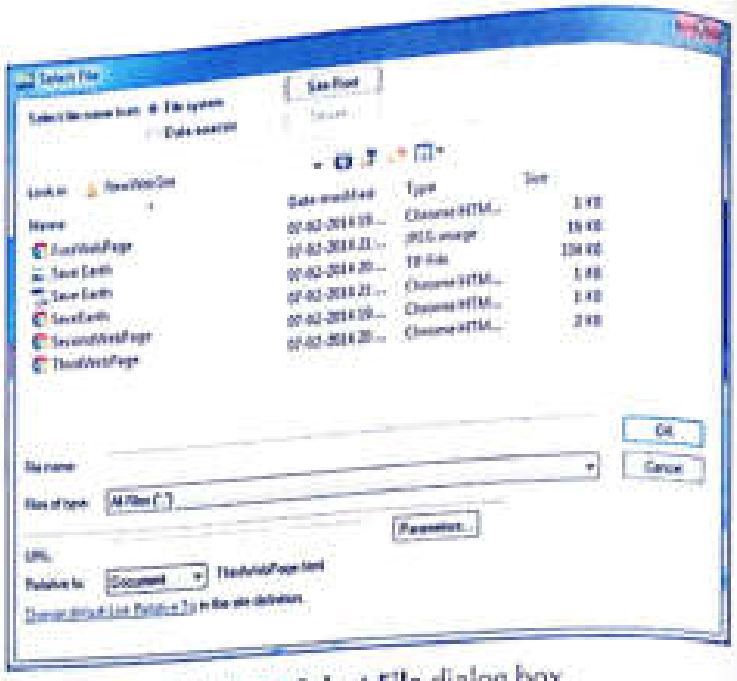

Fig. 9.37 **Select File** dialog box

5. From the **Target** menu of the **Hyperlink** dialog box, select the window in which the target file should open. Choose from the following:
   - **_blank**: Loads the linked file in a new unnamed browser window.
   - **_parent**: Loads the linked file in the parent frameset or window of the frame that contains the link.
   - **_self**: Loads the linked file in the same frame or window as the link.
   - **_top**: Loads the linked file in the full browser window, thus removing all frames.

Fig. 9.38a Hyperlinked text

6. Enter a title for the link in the **Title** text box. This appears in the browser window.
7. Enter a one-letter keyboard equivalent in the **Access Key** text box. This will select the link in the browser.
8. In the **Tab Index** text box, enter the link's number in the tab order.
9. Click **OK**. The selected text/image is changed to a hyperlink (Fig. 9.38).

Fig. 9.38b Hyperlinked image

10. Select **File ▸ Save** to save the document.
11. Press F12 or click **Preview/Debug in Browser** to preview the page in a browser. When you click the hyperlink, the linked web page will open in the browser.

Now, there is a quicker method to create a hyperlink:

Select the text or image and drag the **Point to File** icon next to the **Link** text box in the **Property Inspector** to the target document in the **Files panel** (Fig. 9.39). Then select the option in the **Target** text box.

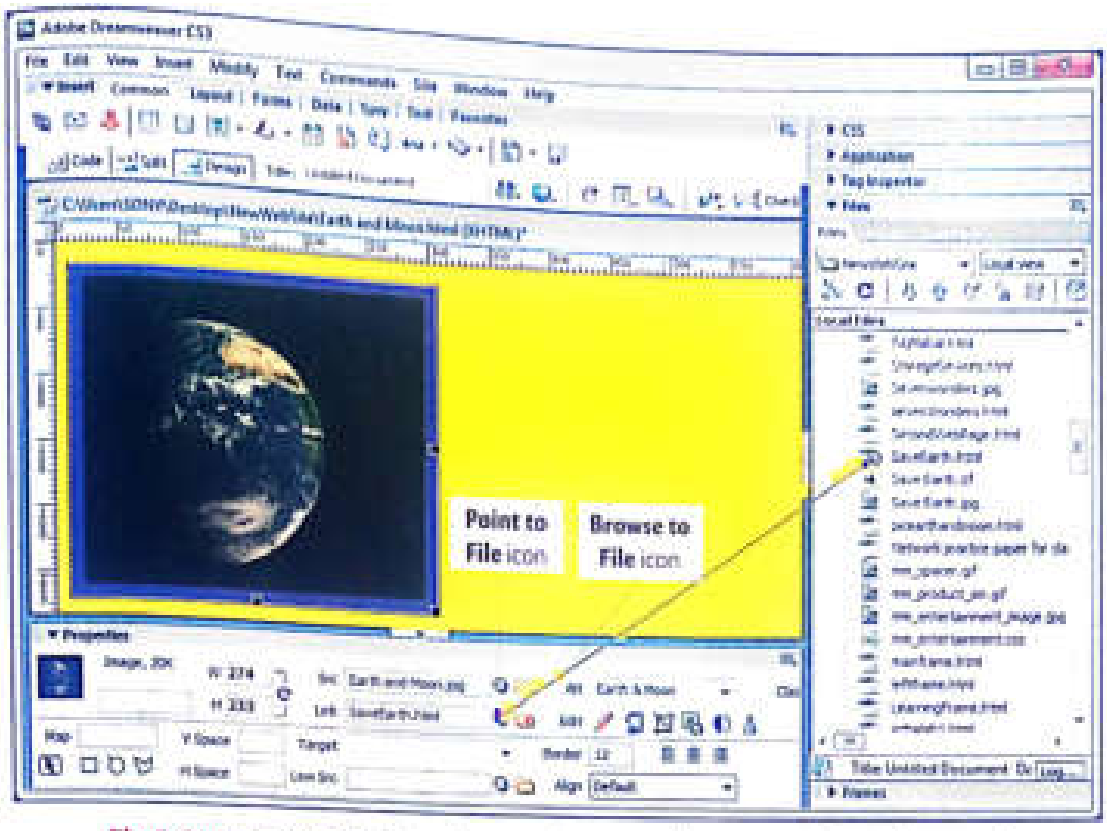

Fig 9.39 **Point to File** icon dragged to target document in the **Files panel**

Named Anchor Links

You can link to a particular point of a web page by first creating a named anchor. A **Named Anchor** lets you set a marker in the document, typically at the beginning of a topic or on top of a long page. Then you can create a link to the named anchor.

So creating a named anchor link is a two-step process. You first create a **Named Anchor** and then you create a link to the **Named Anchor**.

Fast Forward

Create a named anchor — **CTRL + ALT + A**

Follow the steps below to create a named anchor:

1. In **Design** view, place the cursor where you want the named anchor. In this case, the cursor has been placed beside the title **Save Earth**.
2. Select **Insert ▸ Named Anchor**.

   Or

   Click **Named Anchor** on the **Common** tab of the **Insert** bar.

Fig. 9.40 **Named Anchor** dialog box

3. The **Named Anchor** dialog box appears (Fig. 9.40). Type a name for the anchor, for example, Top, and click **OK**. The name cannot contain any space. The anchor icon appears where the cursor is in the **Document** window (Fig. 9.41).

Fig. 9.41 Anchor icon at the cursor position

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4. Select the text that will become the hyperlink.
5. Type the name of the named anchor along with a # sign in the **Link** text box of the **Property Inspector**. Here we type #Top (Fig. 9.42).

Fig. 9.42 **Link** text box in **Property Inspector**

6. Select **File ▸ Save** to save the file.
7. Select F12 or click **Preview/Debug in Browser** to view the page in a browser.
8. Click the named anchor text, it will move to the place where the anchor icon is set.
9. Close the browser.

Setting Link Colours

You can control the Colours the links on the web page show up in as described below:

1. Click **Page Properties...** in the **Property Inspector**. The **Page Properties** dialog box appears. Click the **Links** category (Fig. 9.43).
2. Set the **Link font** and font **Sizes** as per your choices.
3. You can set the following four Colours for links:
   - **Link Colour:** The default colour of all the links on the page.
   - **Visited Link:** The colour of a link after it has been clicked.
   - **Rollover Link:** The colour of a link when the cursor is over it.
   - **Active Link:** The colour of a link when the user is clicking it.

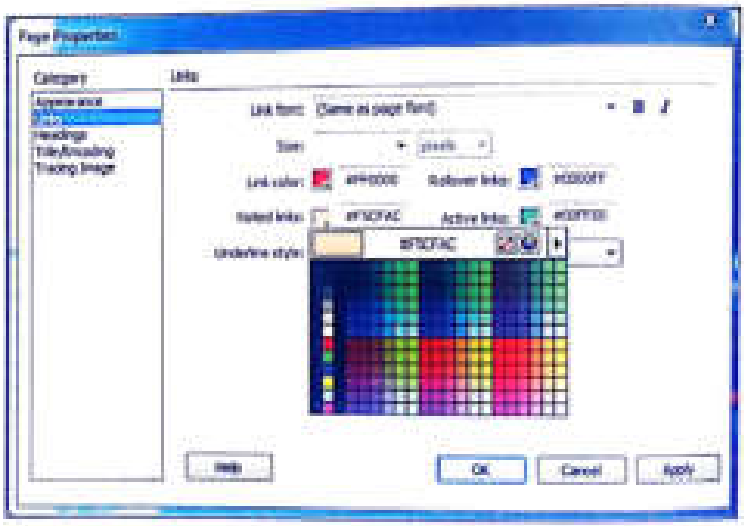

Fig. 9.43 **Links** category in the **Page Properties** dialog box

4. Choose one of these four underline styles: Always Underline, Never Underline, Show Underline Only on Rollover, and Hide Underline on Rollover. **Always Underline** is selected by default.
5. After making the desired changes, click **Apply** and then **OK**. Notice that the link Colour has changed to red (Fig. 9.44).

Modifying links

Right-click the linked text. The context menu appears (Fig. 9.44).

You can change the linked file or remove the link. You can also see the contents of the linked page by clicking **Open Linked Page**.

Fig. 9.44 Context menu of linked image/text

ADDING FLASH BUTTONS

Flash buttons are images that can be hyperlinked. You can insert Flash buttons in your document to make your web page more attractive. Some of these buttons have built-in animation.

1. Place the cursor where you want to insert the Flash button.
2. On the **Common** tab of the **Insert bar**, select **Media** and choose the **Flash Button** option from the menu (Fig. 9.45).

   Or

   Select **Insert** ▸ **Media** ▸ **Flash Button** (Fig. 9.46).
3. The **Insert Flash Button** dialog box appears (Fig. 9.47).

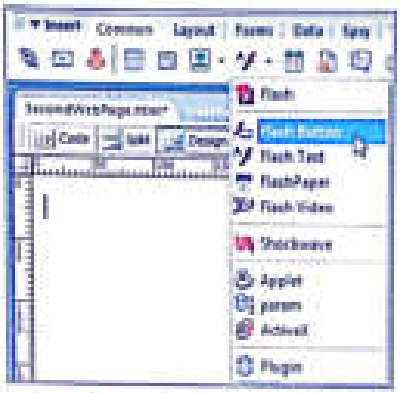

Fig. 9.45 **Flash** button in the Insert panel

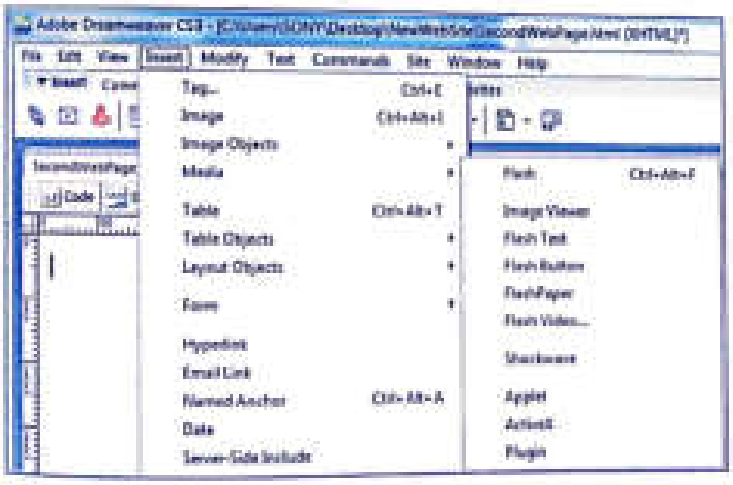

Fig. 9.46 **Media** menu

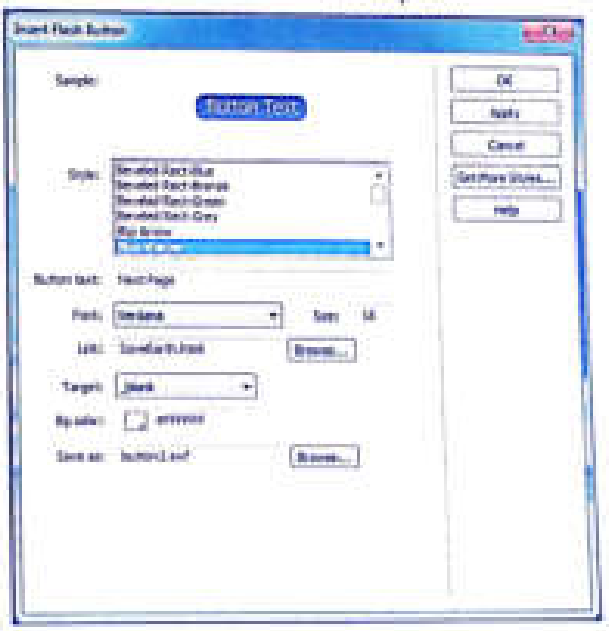

Fig. 9.47 **Insert Flash Button** dialog box

Select a **Style** for the button. Type the **Button text**. Select the **Font** and font **Size**. **Browse** to the file linked to this button. Select the **Target** window.

You can also change the background Colour of the button if you wish to.

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After selecting the desired options, click **Apply**. The button will appear on the web page (Fig. 9.48). If you like the button, click **OK**.

Fig. 9.48 Button on the web page

Otherwise, change your selections and click **Apply** again to see how it looks. Finally, click **OK**.

Note: If it is an animated button, select the button and click **Play** in the **Property Inspector**. The **Play** button will then change to a **Stop** button. Click **Stop** after viewing the animation.

PRACTICE TIME

The computer science teacher has asked the students of class VIII to make a tutorial in Dreamweaver CS3. Sobia decided to make a website on the Internet and the terminology associated with it. The website consists of two pages: InternetIndexPage.html and InternetTerminology.html. The image placed has to be linked to the web page explaining the terms associated with the Internet. What would be the steps you will have to follow to create a similar website?

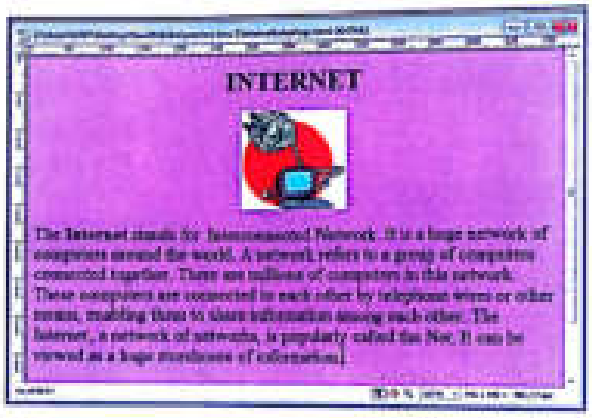

Fig. 9a InternetIndexPage.html

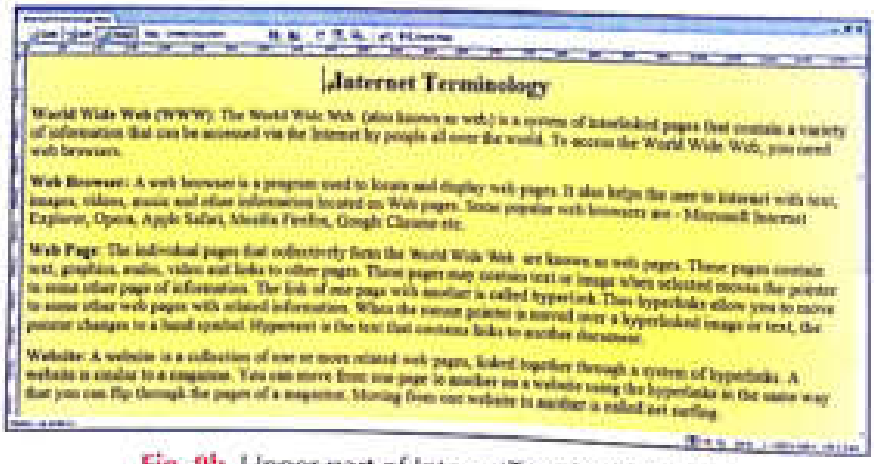

Fig. 9b Upper part of InternetTerminology.html

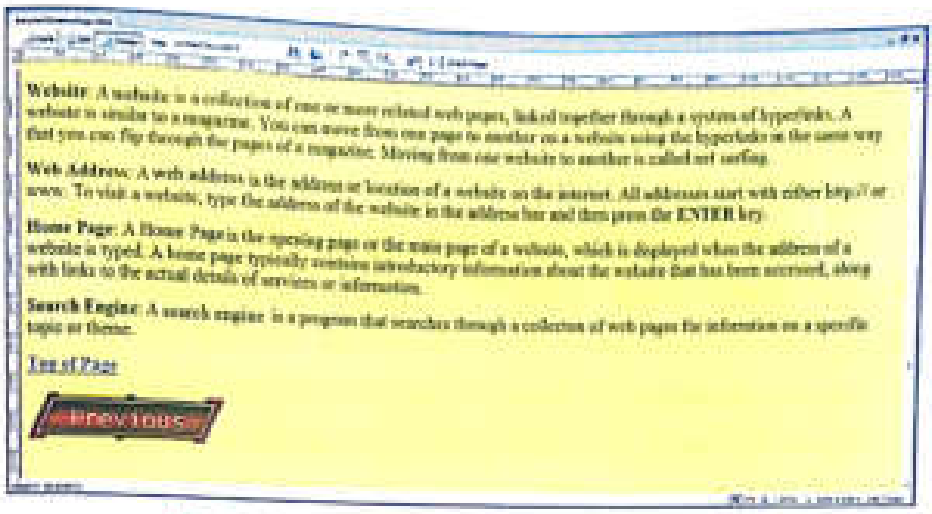

Fig. 9c Lower part of InternetTerminology.html

SOLUTION

1. Create a folder called WebSite3, say, in the **My Sites** folder on the C: drive. Now, open Dreamweaver.
2. Click **Site ▶ New Site**. The **Site Definition for** dialog box appears.
3. Click on the **Advanced** tab. Type the site name as The Internet and its Terminology. Set the **local root folder** to the WebSite3 folder and click **OK**. Store all image files in this folder.
4. Right-click the WebSite3 folder in the **Files panel**. Select **New File** from the context menu. Name it InternetIndexPage.html. Add one more page and call it InternetTerminology.html.
5. Now, double-click **InternetIndexPage.html** to open the page.
6. Type the text on the Internet as shown in the figure.
7. To format the text, select the text and choose the required options in the **Property Inspector.**
8. To set a background Colour, click **Page Properties** in the **Property Inspector**. This will open the **Page Properties** dialog box. Select the background Colour and click **OK**.
9. To insert the image, select the image in the **Files panel** and drag it to the required position and click **Align Center** in the **Property Inspector** to center-align the image.
10. To hyperlink the image, first select it and then in the **Link** text box, drag the **Point to File** icon to InternetTerminology.html in the **Files panel**. The name will appear in the **Link** text box. The image will now have a blue border. This shows that the image is hyperlinked.
11. Save the page by pressing **CTRL + S**.

Now to create the **InternetTerminology.html** web page do the following:

1. Double-click InternetTerminology.html in the **Files panel** to open it in the **Document** window.
2. Type the content as given in Figures 9b and 9c. As it is a long page, the figures show two views of the page—the upper part of InternetTerminology.html and the lower part of InternetTerminology.html.

3. As the page covers more than a screen, the bottom of the page should have a link to the top of the page for easier navigation. To add a link follow these steps:
   a. Bring the cursor to the heading text 'Internet Terminology' and click the **Named Anchor** button on the **Common** tab of the **Insert bar**.
   b. The **Named Anchor** dialog box appears. Type the name 'Top' and click **OK**. The anchor will appear at the insertion point.
   c. At the bottom of the page, select the text 'Top of Page' and type '#Top' in the **Link** text box of the **Property Inspector**. The text will now be blue in Colour and underlined.
4. Now, to create a link to the InternetIndexPage.html click **Media** on the **Common** tab of the **Insert bar** and select **Flash Button** from the submenu. Select the required button type, enter text as 'Previous', and click **OK**. The button will be inserted. Resize it to the required size.
5. Select the 'Previous' button. In the **Link** text box, drag the **Point to File** icon to InternetIndexPage.html in the **Files panel**. Set the target as **_blank**.
6. Save the page by pressing CTRL + S.

Note: Save your web page whenever you insert any object or text.

7. Preview the InternetIndexPage.html page by clicking **Preview/Debug in browser**. Click the hyperlinked image, which should open InternetTerminology.html. Clicking the **Previous** button should take you back to InternetIndexPage.html. Clicking **Top of Page** should take you to the top of the same page.

Tricky Terms

website a set of linked web pages related to a particular topic

Site a local or remote storage location for documents that belong to a website

WYSIWYG What You See Is What You Get

Hyperlink a word, phrase, or image on a document that you can click to move to a new document or a new location within the current document

Named Anchor a named position in a document

Memory Bytes

- Adobe Dreamweaver CS3 is a full-featured commercial web editor. It helps to create, build, and manage websites.
- A Dreamweaver site consists of a local root folder and a remote folder.
- Together, the local and remote folders enable you to transfer files between the local computer's hard disk and the web server.
- The two ways to create a new website are:
  - Click **Dreamweaver Site** in the first screen.

Or

➢ Click **Site ▶ New Site**.

- The two ways to create a new web page are:

➢ Select **File ▶ New**.

Or

➢ Right-click the website folder in the **Files panel** and click **New File** from the context menu.

- The elements of the Dreamweaver screen are the Document window, Standard toolbar, Insert bar, Document toolbar, Property Inspector, Status bar, and Panel groups.
- There are three ways to set text or image as a hyperlink:

➢ Click the **Hyperlink** button on the **Common** tab of the **Insert bar**.

Or

➢ Click the **Browse to File** icon in the **Property Inspector**.

Or

➢ Drag the **Point to File** icon in the **Property Inspector** to a document in the **Files** panel.

- There are two ways to insert Flash buttons in your document. Some of these buttons have built-in animation.

➢ On the **Insert** bar select **Media** on the **Common** tab, and click the **Flash Button** option in the menu.

Or

➢ Select **Insert ▶ Media ▶ Flash Button**

EXERCISES

Objective Type Questions

1. **Write T for the true statement and F for the false one. Correct the false statement(s).**

a. Once an image has been added to a web page, you cannot resize it. ☐

b. By default, the Property Inspector appears at the top of the window. ☐

c. To preview a web page, click **Preview/Debug in browser** button in the document toolbar. ☐

d. **Split view** allows you to see both the code and the web page for the same document in a single window. ☐

e. The **Property Inspector** shows the current properties of the selected element. ☐

f. A **named anchor** lets the user link to a specific location within a document. ☐

2. **Choose the correct option.**

a. The ..... target opens the destination document in the same document.

i. _blank ii. _parent iii. _child iv. _self

b. Dreamweaver displays a/an ....., following the file name if you have unsaved changes.

i. + ii. – iii. * iv. /

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c. You can modify default properties, such as the web page background Colour through the ..... dialog box.
   i. Page ii. Page Design iii. Page Properties iv. Page Modify

d. The **Set magnification** option appears on the ..... .
   i. Insert bar ii. Status bar iii. Document toolbar iv. Menu bar

e. The ..... box allows you to turn the selected text into a hyperlink.
   i. Target ii. Link iii. Src iv. URL

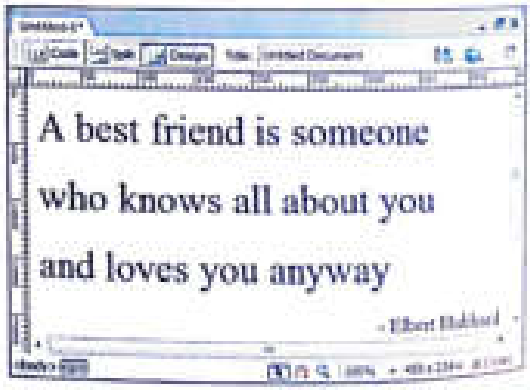
Descriptive Type Questions

Answer the following.

a. Differentiate between the local root folder and the remote folder.
b. What are the different ways to start a new website?
c. How will you add a web page to a website folder?
d. How will you set a text or an image as a hyperlink using the **Point to file** icon?
e. What is a Flash button? How will you add a Flash button to a web page?
f. Bilal's Science teacher has asked him to create a web page for his Science project. Bilal is confused whether to use HTML or Dreamweaver to make this page. Analyse the advantages and disadvantages of both software. Which one would you prefer?
g. Dreamweaver provides a number of options when it comes to dealing with hyperlinks, such as where to put the hyperlink, defining anchor links, and giving different colours to links. Evaluate the usefulness of all three features in relation to browsing on the Internet.
h. Create a web page for yourself entitled 'This is ME!' Use as many of the features as possible that are mentioned in this chapter. Your page should include some personal information, some pictures (linked and not linked), and any other information that is important to you. Make sure to save your work as this will be needed in the next chapter.

Application-Based Questions

a. Saba has added a web page titled **Untitled-1** to her website using Dreamweaver. She has typed some text in this web page as shown in the figure given alongside.
   i. What is the meaning of the * sign after the web page's name?
   ii. The pointer moves by 2 line spaces after she presses the ENTER key. Now she wants to move the pointer by 1 line space. What should she do?

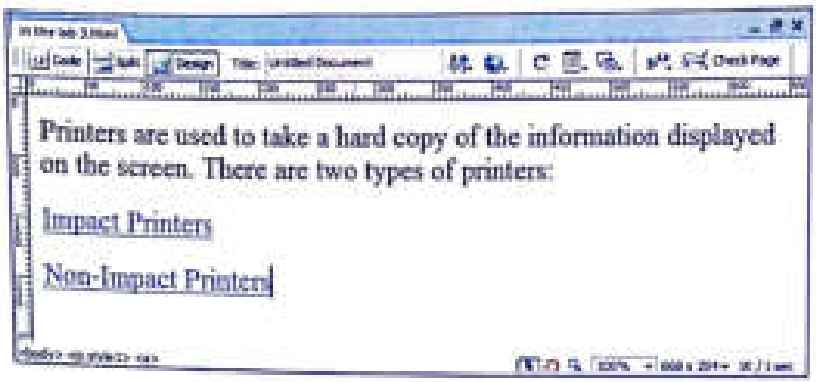


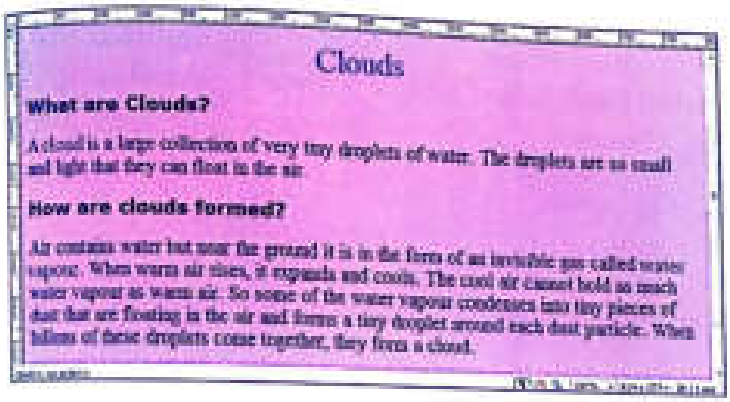
b. Consider the figure shown in Q1 again and answer the following:
   i. Which button is used to view the web page in a web browser?
   ii. Which button should be clicked to see the HTML code of the web page?

c. Consider the web page given alongside and answer the following questions:

i. How is the underlined text in blue different from the rest?

ii. Which property in the Property Inspector has been used?





d. Name the buttons used in the Property Inspector to format the text in the web page given alongside on the left.

e. Maria has added an image to her web page by selecting the image in the **Files panel** and dragging it to the required place. Now she wants to set the properties of the image as given below using the **Properties Inspector**.

i. To give a border of 10 points around the image what should she do? What will be the colour of the border?

ii. What will be the quickest method to turn this image into a hyperlink and link it to WebPage1.html?

iii. After setting the image as a hyperlink, what will be the colour of the border?

IN THE LAB

1. Rahman, the monitor of the class, has been given the task to create a web page for his class. The web page should list the various subjects taught in the class along with the respective names of the subject teachers. He then needs to insert a picture of the class teacher and save the page by the name ClassVIII.html. The teacher has asked Rahman to format the page as per his choice. Design a similar web page for your class.

2. The head boy of the school has been assigned to create a web page regarding the facilities available in the school—labs, sports facilities, swimming pool, Smart classes, school bus, etc. Also emphasize on the dedicated staff for these facilities in the school. As the page is very long, create a named anchor linking to the top of the page. Help him complete this task.

3. Speed Sports Academy wants a website designed that displays the details of various sports activities offered by the academy including timings, charges, address and contact number of the coaches, etc. Use the concept of hyperlinks. Ensure that the website has at least 3 web pages. Design a website that meets their requirements. Choose any five outdoor games of your preference to create the contents of the website.
4. The Computer Science teacher has asked Gul to make a tutorial on the topic 'Evolution of Computers' which the teacher will be able to use to teach the topic in class. Can you design a web page for this tutorial?
5. The Science teacher has asked the students of class VIII to make a website that conveys information on different types of pollution. There are six types of pollution—Air, Water, Land, Noise, Radioactive, and Thermal. Describe in detail any two in your website. Add an image for each type of pollution to make it more interesting. Also add a Flash button to your website for moving from one web page to another.

GROUP WORK

You have now learnt about a number of software programmes which help you in different ways. Create a user-friendly quick guide to the following programmes, highlight what each one does, give some interesting features/tools, and how it is useful. When you create your own production, you will be able to see at a glance which software is going to be the most appropriate one to use.

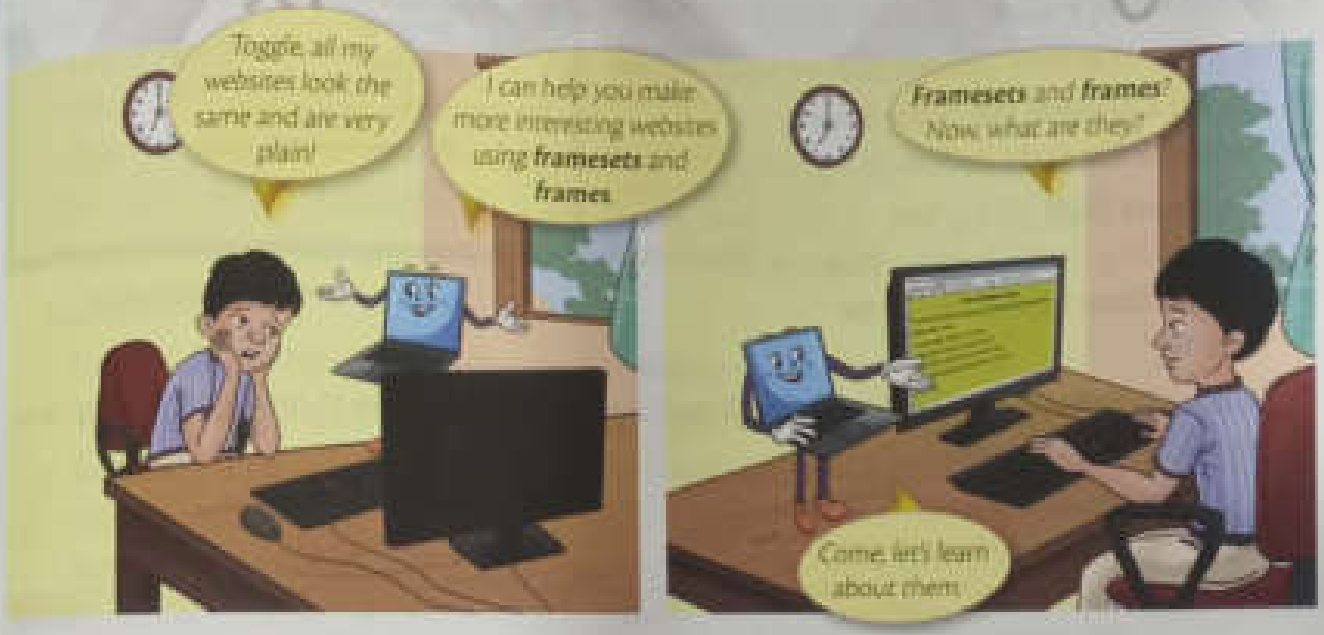
- Audacity
- Lightworks
- HTML
- Photoshop
- Dreamweaver

TEACHER'S NOTES

- Discuss the importance of spending some time in visualizing and planning a website before actually starting to create it.
- Explain the concept of websites and their importance by taking examples from real life.

Chapter 10

Images and Framesets in Dreamweaver CS3



You must have seen websites that have a **banner** at the top and a **navigation bar** on the left. On clicking an option on the left, the corresponding information appears on the right. In this chapter, we will discuss how to make professional looking websites using framesets and frames. As you know, images make a website more attractive. We will also discuss rollover images and image maps and learn to insert date/time and tables in a web page.

There are many different file formats for storing images, but only three of these formats are preferred for use in web pages. Most browsers support these formats:

- Graphic Interchange Format (GIF)
- Joint Photographic Experts Group (JPEG)
- Portable Network Group (PNG)

In this Chapter

- Insert Date
- Insert Table
- Rollover Images
- Image Placeholder
- Image Maps
- Frameset and Frames
- Linking to Word and Excel Documents

OXFORD

INSERT DATE

Dreamweaver provides a **Date** object which helps you insert the current date in the desired format (with or without time) and provides the option of updating that date whenever you save the file.

1. In the **Document** window, place the insertion point where you want the date to be inserted.
2. Select **Insert ▸ Date**

   Or

   On the **Common tab** of the **Insert** bar, click the **Date** button.
3. The **Insert Date** dialog box appears (Fig. 10.1). Select a **Day format**, **Date format** and **Time format**.

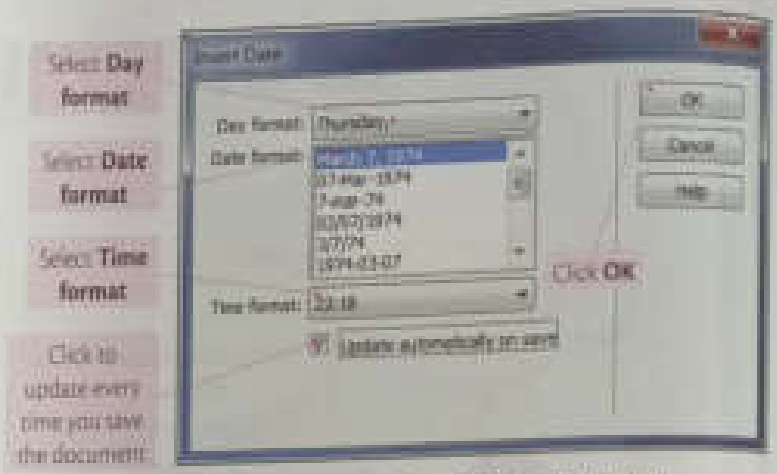


Fig. 10.1 **Insert Date** dialog box

4. Select **Update automatically on save**, if you want the inserted date to be updated every time you save the document.
5. Click **OK** to insert the date and time.

INSERT TABLE

You can use the **Insert** bar or the **Insert** menu to create a table. Add text and images to the table cells the same way that you would add text and images on a blank web page.

1. In the **Design** view of the **Document** window, place the insertion point where you want the table to appear.
2. Select **Insert ▸ Table**

   Or

   On the **Common tab** of the **Insert** bar, click **Table**.
3. The **Table** dialog box appears (Fig. 10.2). Set the following attributes:

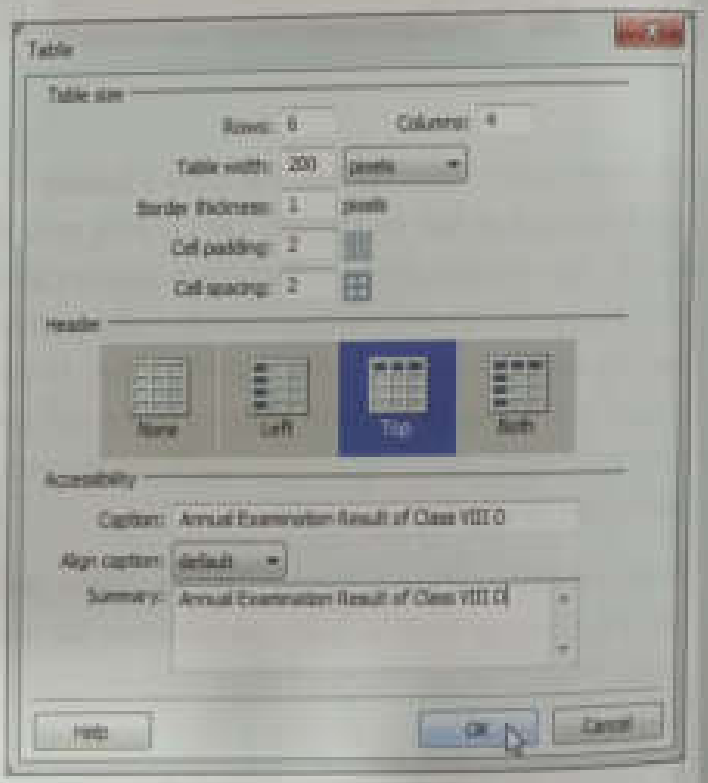


Fig. 10.2 **Table** dialog box

Table size

- **Rows**: It determines the number of rows in a table.

- **Columns**: It determines the number of columns in a table.
- **Table Width**: It specifies the width of a table in pixels or as a percentage of the browser window's width.
- **Border Thickness**: It specifies the width in pixels of a table's borders.
- **Cell Padding**: It determines the number of pixels between a cell's border and its contents.
- **Cell Spacing**: It determines the number of pixels between adjacent table cells.

Header

- **None**: It does not enable column or row headings for the table.
- **Left**: It sets the first column of the table for headings, so that you can enter a heading for each row of the table.
- **Top**: It makes the first row of the table a row for headings, so that you can enter a heading for each column of the table.
- **Both**: It enables you to enter both column and row headings in the table.

Accessibility

- **Caption**: It provides a table title which is displayed outside the table.
- **Align Caption**: It specifies where the table caption appears in relation to the table.
- **Summary**: It provides a table description. Screen readers read the summary text, but the text does not appear in the user's browser.

Note: When you do not explicitly assign values for border thickness or cell spacing and cell padding, most browsers display the table border thickness and cell padding set to 1, and cell spacing set to 2.

To display the table with no borders, padding, or spacing, set **Cell padding** and **Cell spacing** to 0.

4. Click **OK** to create the table.
5. Click in the individual cells and type the data or insert an image (Fig. 10.3).

Annual Examination Result of Class VIII D

Roll No.	Name	Total	Grade
1	Saheen Chughtai	465	A1
2	Naufil Rashid	310	B2
3	Azam Azhar	256	C1
4	Nisha Babar	397	B1
5	Wasim Malik	405	A2

Fig. 10.3 Data in the table

ROLLOVER IMAGES

A **rollover image**, when viewed in a browser, changes as the pointer moves across it. For this, we have two images:

- A **primary image** that is displayed when the web page is first loaded.
- A **secondary image** that appears when the pointer moves over the primary image.

The primary and secondary images should be of the same size. If they are not, Dreamweaver resizes the second image to match the size of the first image.

Follow these steps to create a rollover image:

1. Place the insertion point where you want the rollover image to appear in the **Document** window.
2. Click **Images** on the **Common** tab of the **Insert** bar and select **Rollover Image** (Fig. 10.4).

   Or

   Select **Insert** ▸ **Image Objects** ▸ **Rollover Image** (Fig. 10.5).

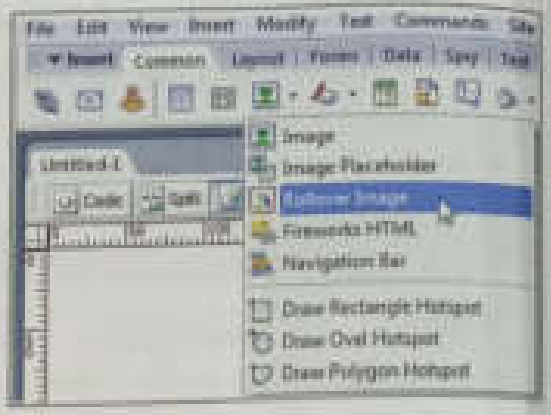


Fig. 10.4 **Insert** bar option

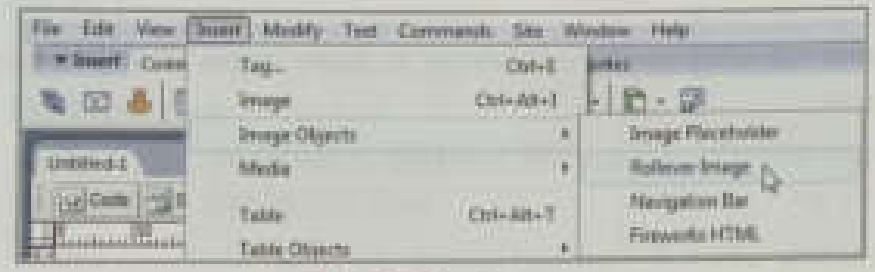


Fig. 10.5 **Insert** menu

3. The **Insert Rollover Image** dialog box appears (Fig. 10.6).

   Enter the following information and click **OK** when done:

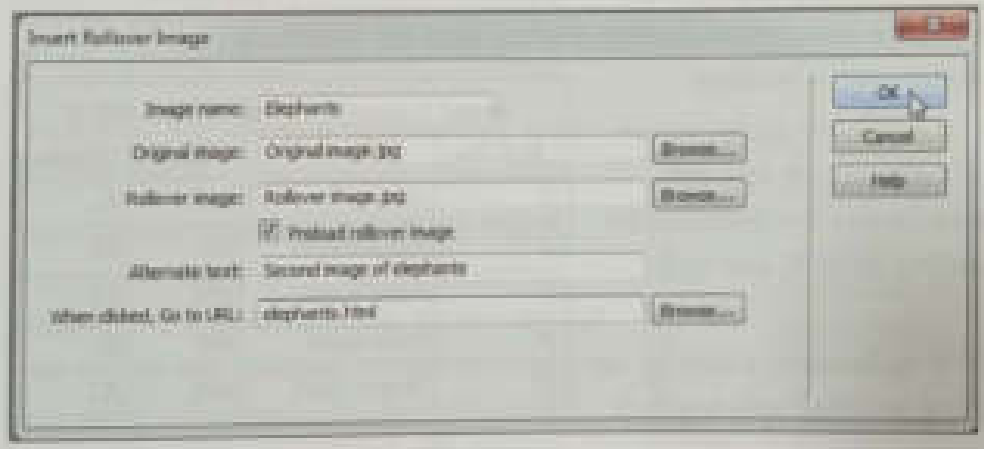


Fig. 10.6 **Insert Rollover Image** dialog box

- **Image name** The name of the image.
- **Original image** The image that gets displayed when the web page loads.
- **Rollover image** The image that gets displayed when the pointer rolls over the original image.
- **Preload rollover image** Specifies whether to preload the images in the browser's cache, so there is no delay when the user rolls the pointer over the image.
- **Alternate Text** (Optional) Text to describe the image for viewers using a text-only browser.
- **When clicked, Go to URL** The file that opens when the rollover image is clicked.

4. Press F12 or click **Preview/Debug** button and select the browser.

   Or

   Select **File** ▸ **Preview** to view the web page in a browser (Fig. 10.7).

5. Move the pointer over the original image to see the rollover image (Fig. 10.8).

Fig. 10.7 Original image

Fig. 10.8 The rollover image

IMAGE PLACEHOLDER

Sometimes it may so happen that the image or images you wish to use in your web page or website may not be ready. In such cases you can use **image placeholders**.

An **image placeholder** is a graphic you use until the final image to be added to a web page is decided. You can set the placeholder's size and colour as well as the text label.

1. In the **Document** window, place the insertion point where you want to insert a placeholder graphic.
2. Click **Images** on the **Common** tab of the **Insert** bar and select **Image Placeholder** (Fig. 10.4).

   Or

   Select **Insert** ▸ **Image Objects** ▸ **Image Placeholder** (Fig. 10.5).
3. The **Image Placeholder** dialog box appears (Fig. 10.9).

Fig. 10.9 **Image Placeholder** dialog box

In **Name** (optional) enter text you may prefer as a label for the image placeholder. Leave the text box blank if you do not want a label to appear. The name must begin with a letter and can contain only letters and numbers; spaces are not allowed.

   a. For **Width** and **Height** (required), type a number to set the image size in pixels.
   b. For **Color**, select a colour from the colour palette.
   c. For **Alternate Text** (optional), enter text to describe the image for viewers using a text-only browser.
   d. Click **OK**.
4. The placeholder's colour, size attributes, and label appear as seen in Figure 10.10.

Fig. 10.10 Placeholder image

OXFORD

5. When viewed in a browser, the label and size text do not appear (Fig. 10.11). What is seen is the alternative text you have specified.

Fig. 10.11 **Image Placeholder** in browser

IMAGE MAPS

An **image map** is an image divided into clickable regions called **hotspots**. Hotspots are **hyperlinks**.

When a user clicks a hotspot, the destination of the hyperlink is displayed. A hotspot can be in the shape of a rectangle, a circle, or a polygon. For example, consider Figure 10.12 showing various input and output devices.

When you click on any one device, you can make information on that device appear.

Fig. 10.12 Image showing various input devices

Do the following to create a hotspot:

1. Select the image in the **Document** window.
2. If you are using multiple image maps in the same document, type a unique **Map Name** for each in the **Property Inspector** (Fig. 10.13).

Arrow Type Map Name

Rectangle Circle Polygon

Fig. 10.13 **Property Inspector** with image map tools

3. To define the image map area, do one of the following:

   Select the **Circle** or **Rectangle** tool and drag the pointer over the image to create a circular or rectangular hotspot.

   Or

   Select the **Polygon** tool and click the corners for an irregularly shaped hotspot.

   Let us, as an example, select the **Rectangle** tool and drag it over the image of the track ball (Fig. 10.14). Click the **Arrow** tool to close the shape.

Fig. 10.14 Creating a hotspot with the **Rectangle** tool

4. The Hotspot **Property Inspector** appears (Fig. 10.15). The **Link** text box specifies the file to open when the user clicks the link.

Fig. 10.15 Hotspot **Property Inspector**

5. Click the folder icon to browse to and select the file.

Or

Drag the **Point to File** icon to the required file in the **Files panel**.

6. Select one of the following for **Target**:
   - **_blank** loads the linked file into a new, unnamed browser window
   - **_parent** loads the linked file into the parent frameset or window
   - **_self** loads the linked file into the same frame or window
   - **_top** loads the linked file into a full browser window, thereby removing all frames

Fig. 10.16 **Image map** with **three hotspots**

7. In the **Alt** text box, type the alternative text that will display in text-only browsers.
8. Repeat steps 3 to 7 to define additional hotspots in the image map. Figure 10.16 shows the image map with three hotspots: **rectangular**, **circular**, and **polygonal**.
9. After you finish, click a blank area in the document to change the **Property Inspector**.
10. View the page in a browser by pressing F12, or clicking **Preview/Debug in Browser**, or selecting **File ▸ Preview** (Fig. 10.17).
11. Move the pointer over the track ball image. Hotspots are hyperlinks, so the pointer changes to a 'pointing finger' symbol when it moves over them. Click a hotspot to display the linked web page.

Fig. 10.17 Image map in browser

PRACTICE TIME

The History teacher wants the students of class VIII to make a web page showing the Seven Wonders of the World. Each of the Wonders should be a hotspot. When a user clicks a hotspot, a web page with details of the Wonder should appear. How should they proceed?

SOLUTION

1. Create a root folder for the website. You can use the one you created in Chapter 9.
2. Right-click the folder in the **Files panel** and select **New Folder** from the context menu.
3. Rename the folder and call it **Wonders Image Map**.
4. Right-click the folder and select **New File** from the context menu.
5. Rename the file SevenWonders.html.
6. Create another file and rename it as TajMahal.html.
7. Double-click the file SevenWonders.html. The **New Document** dialog box appears.
8. Type the text and insert the image as shown in Figure 10a.
9. Now, select the image in the **Document** window.
10. In the **Property Inspector**, select the **Rectangle** tool and click around the image of the Taj Mahal to make a hotspot (Fig. 10b). Click the **Arrow** tool to close the shape.
11. After creating the hotspot as shown, the **Property Inspector** displays the hotspot properties.
    Do the following:
    a. In the **Link** box, drag **Point to File** to the required file in the **Files panel**.
    b. In the **Target** popup menu, select **_self** so that the linked web page appears in the same window.
    c. In the **Alt** box, type the alternative text for text-only browsers.
12. Repeat steps 10 and 11 to define additional hotspots in the image map, after creating appropriate files in the **Wonders Image Map** folder.
13. After you finish, click the blank area in the document to change the **Property Inspector**.
14. Double-click the file TajMahal.html in the **Files panel** and type the required content.

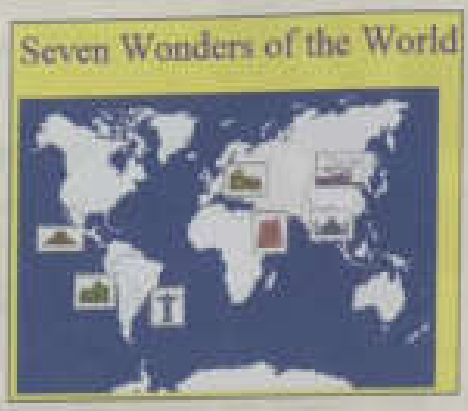


Fig. 10a SevenWonders.html

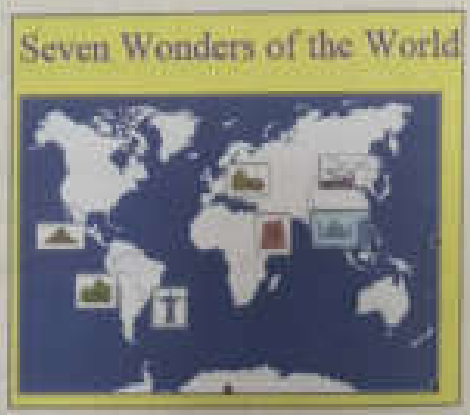


Fig. 10b Create a hotspot on the image of the Taj Mahal

15. At the end, insert a **Flash button** and link it to the file SevenWonders.html.
16. Save the web page by clicking **File ▸ Save**.
17. Now, double-click SevenWonders.html and press F12 to view it in a browser.
18. Move the pointer over the Taj Mahal image. The shape of the pointer changes (Fig. 10c) because that part of the image is hyperlinked. Click the image and the linked page will appear (Fig. 10d).

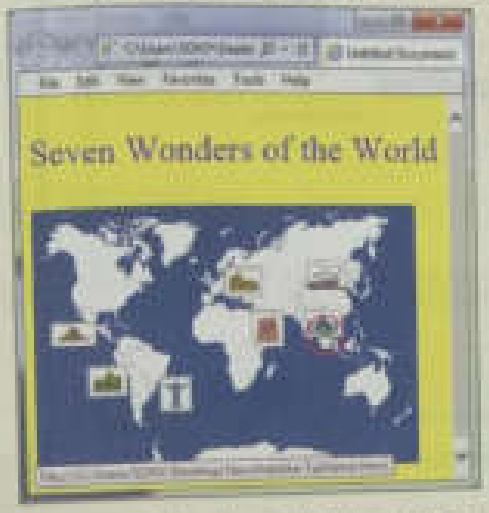


Fig. 10c Hyperlinked image of Taj Mahal

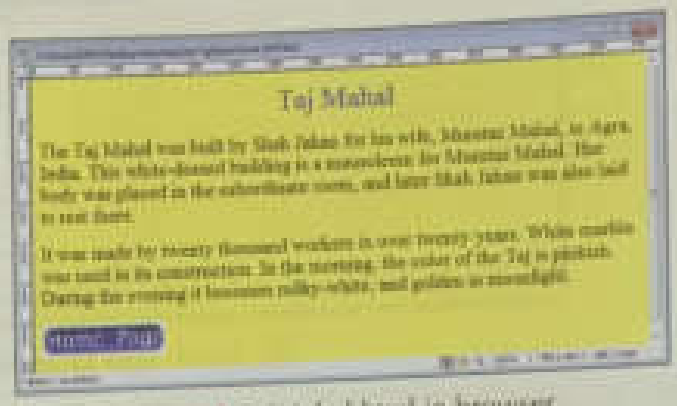


Fig. 10d TajMahal.html in browser

19. Similarly, create the web page for each Wonder by adding relevant text and images.

FRAMESETS AND FRAMES

A web page can be divided into different regions called **frames**, each of which can display an HTML document independently.

A frameset is an HTML file that defines the layout and properties of a set of frames, including the number of frames, the size and placement of each, and the URL of each page that appears in each frame.

The frameset file itself does not contain any HTML content that will be visible in a browser. To view a set of frames in a browser, enter the URL of the frameset file.

Creating a frameset

Follow these steps to create a frameset:

1. Select **File ▸ New**. The **New Document** dialog box appears.
2. Select **Page from Sample** as the type of web page, **Frameset** as the **Sample Folder**, select **Fixed Top, Nested Left** as the **Sample Page**, and click **Create** (Fig. 10.18).

OXFORD

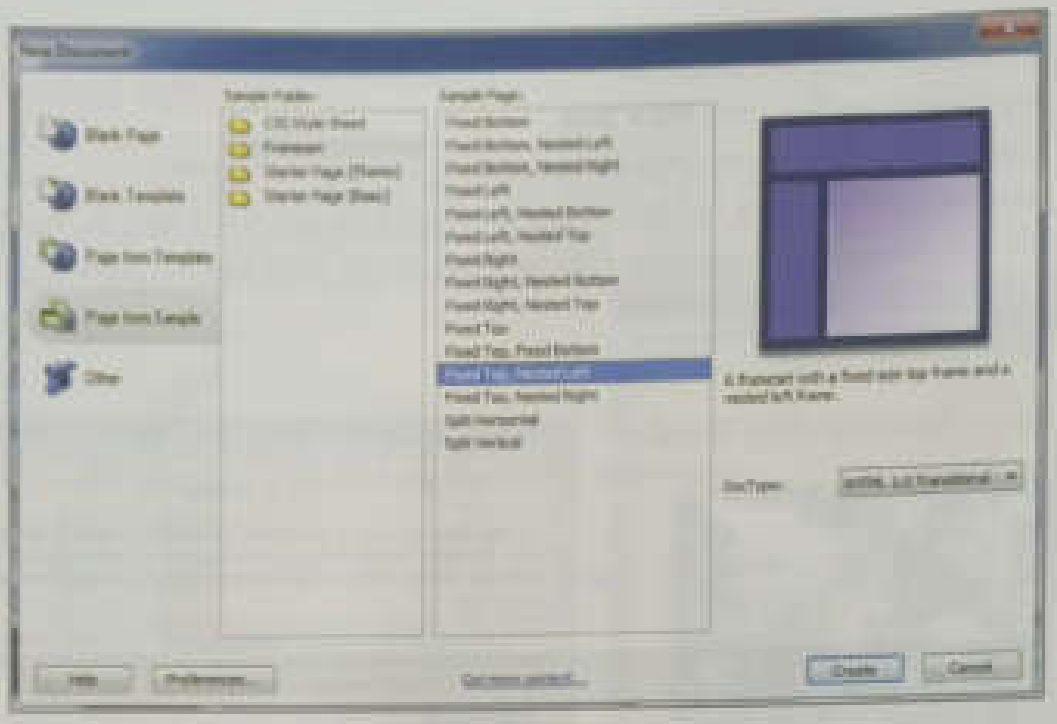


Fig. 10.18 **New Document** dialog box

3. The **Frame Tag Accessibility Attributes** dialog box appears (Fig. 10.19). Change frame titles as required and click **OK**.

Fig. 10.19 **Frame Tag Accessibility Attributes** dialog box

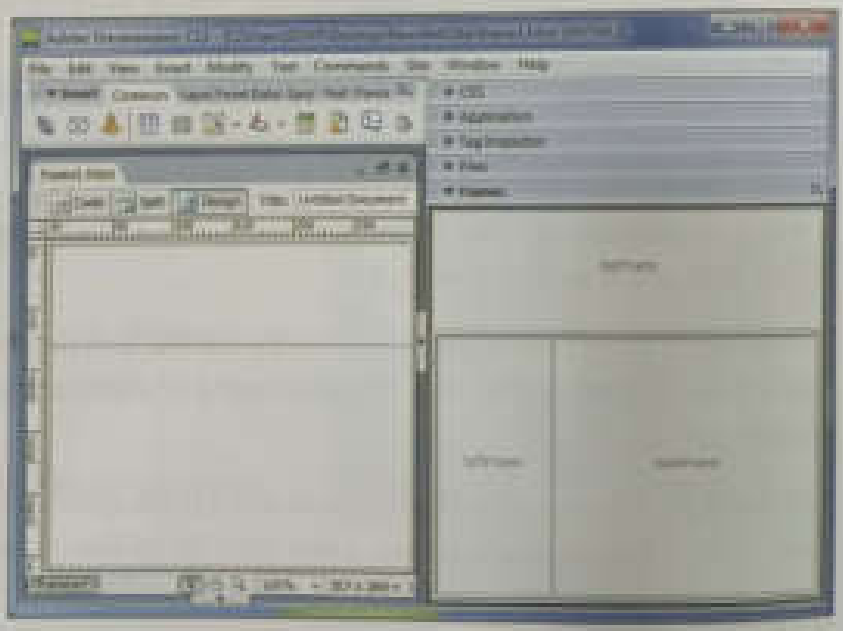


Fig. 10.20 Frameset with three frames

4. A new frameset with a set of three frames is inserted (Fig. 10.20). If the **Frames panel** is not visible, select **Window ▸ Frames** to display the **Frames panel**.

   The **Frames panel** visually represents the frames within a frameset. A very thick line surrounds the frameset.

5. To resize a frame, drag the frame border (Fig. 10.21).

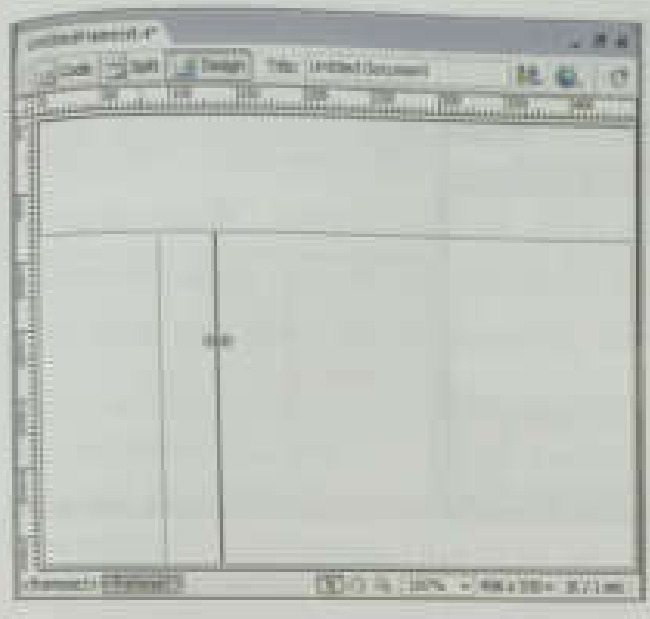


Fig. 10.21 Resizing a frame

6. To split a frame using a frame border that is not the edge of the Design view, press the **ALT** key and then drag the desired frame.
7. To delete a frame, drag a frame border off the page, or to the border of the parent frame.

Top Tip

You can also select **Modify ▸ Frameset** to create a frameset. Then choose a splitting item from the submenu, like **Split From Left**, **Split From Right**, **Split From Top**, and **Split From Bottom**. Dreamweaver splits the window into frames.

Saving a Frameset and Frames

Before you work with the frameset, you must save the frameset file and all the documents that will appear in the frames. You can save each file individually, or save them together all at once.

- To save a frameset, select **File ▸ Save Frameset**.
- To save a frame, click in a frame and select **File ▸ Save Frame**.
- To save a frameset file with the frame documents, click **File ▸ Save All**.

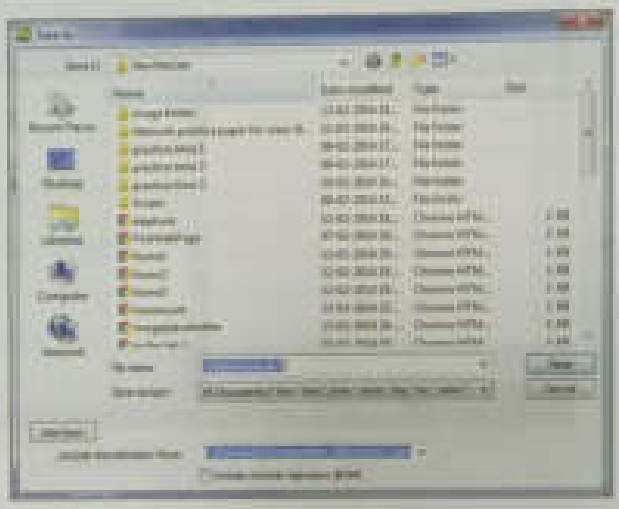


Fig. 10.22 **Save As** dialog box

The **Save As** dialog box appears (Fig. 10.22). Enter suitable names for the frameset and frames, and click **OK**.

When you save a frameset file with the frame documents, the **Save As** dialog box appears for saving the frameset and for saving each frame. While saving a frame, you will see a border around that frame.

Selecting Framesets and Frames

You have to select a frameset or a frame before you can change its properties. You can select framesets and frames either in the **Document** window or the **Frames panel**.

- Each frame is surrounded by a thin grey line and is identified by a frame name. When a frame is selected in the **Document** window, its borders are outlined with a dotted line.

If the frameset is selected, all the borders of the frames within that frameset are outlined with a light dotted line.

- To select a frame, press ALT and click inside a frame in **Design** view, or click a frame in the **Frames panel** (Fig. 10.23).
- To select a **frameset**, click one of the frameset's **internal frame** borders in **Design** view or click the frame border in the **Frames panel** (Fig. 10.24).

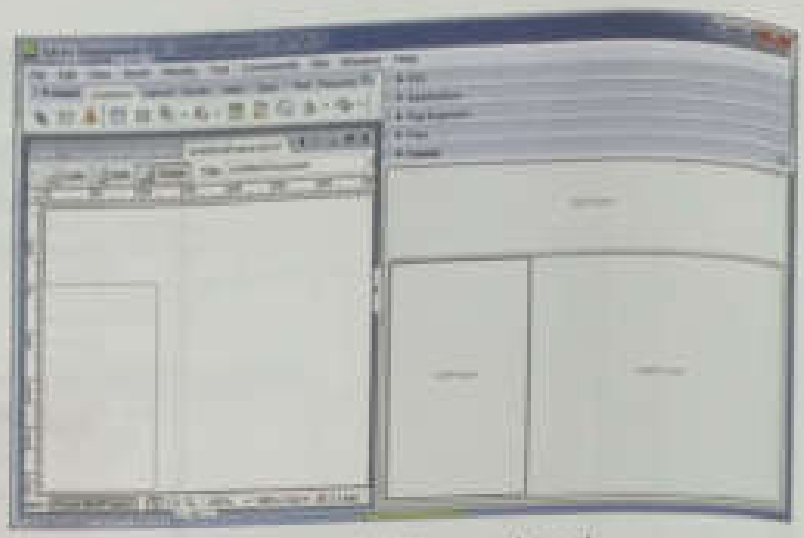


Fig. 10.23 Left frame selected

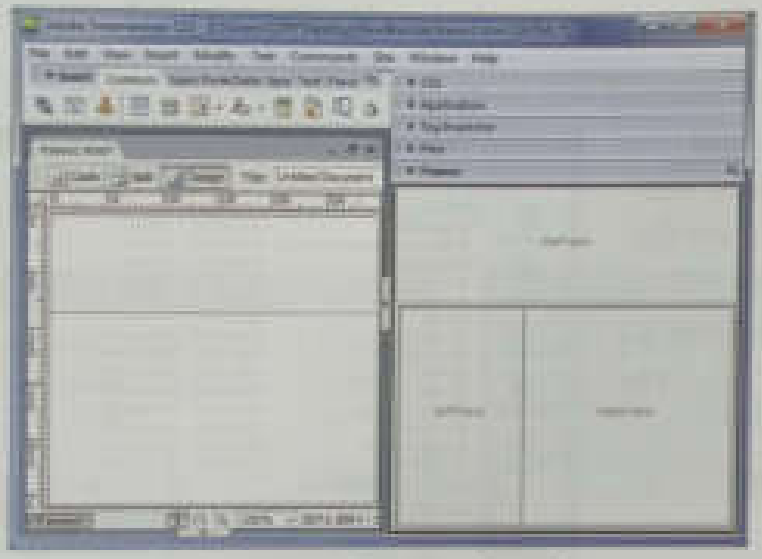


Fig. 10.24 Frameset selected

Top Tip

Rules for naming a frameset or frame:

- It must be a single word
- It can have underscores but no hyphens, periods, or spaces
- It must start with a letter
- It is case-sensitive
- It cannot be a reserved word

Frameset and Frame Properties

When you select a frameset, its properties are visible in the **Property Inspector** (Fig. 10.25). You can change them as required.

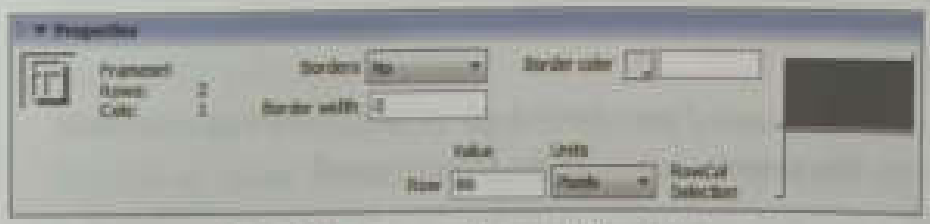


Fig. 10.25 Frameset **Property Inspector**

Top Tip

Selecting **Modify ▸ Page Properties** also opens the **Page Properties** dialog box.

- **Borders** specifies if borders will be visible
  Yes displays borders around frames
  No hides borders around frames
  Default allows the browser to determine how borders are displayed
- **Border width** sets the width for all borders in the frameset
- **Border Colour** sets the border colour. Choose a colour from a colour picker.
- **RowCol selection** sets the frame size for rows and columns of the frameset

Similarly, when you select a frame, you can view and change frame properties in the **Property Inspector** (Fig. 10.26). Frame properties override frameset properties.

Fig. 10.26 Frame **Property Inspector**

- **Src** specifies the source document to display in the frame. Click the folder icon to browse to and select a file.
- **Scroll** specifies if a scrollbar appears in the frame.
  Yes a scrollbar appears.
  No no scrollbar.
  Default allows the browser to use its default value.
  Auto a scrollbar appears when there is not enough space to display the entire content of a frame.

Top Tip

You can always resize frames in Dreamweaver. The **No Resize** option is for when frames are viewed in a browser.

- **No resize** prevents visitors from dragging the frame borders to resize the frame.
- **Borders** specifies whether to show or hide borders of the current frame.
- **Border Colour** sets the border colour for all borders that touch the frame.
- **Margin width** specifies the width in pixels of the left and right margins.
- **Margin height** specifies the height in pixels of the top and bottom margins.

You can change the background colour of a document in a frame:

1. Select the frame.
2. Click **Page Properties** in the **Property Inspector**. The **Page Properties** dialog box appears.
3. Click the **Background Color** menu and select a Color.

Control Frame Contents with Links

If your navigation bar is in the left frame, and you want the linked content to appear in the main frame on the right, you must specify the name of the frame as the target for each of the navigation bar links. When the visitor clicks a link, the specified content opens in the specified target frame.

1. In **Design** view, select the text or image that will become a hyperlink.
2. In the **Link** box of the **Property Inspector**, click the **Browse for File** icon and select the file.

   Or

   Drag the **Point to File** icon to the linked file in the **Files** panel.
3. Select the frame name in the **Target** menu of **Property Inspector**. Notice that frame names also appear in the menu, besides the usual **_top**, **_self**, **_parent** and **_blank** options (Fig. 10.27).

Fig. 10.27 Selecting a Target frame

LINKING TO WORD AND EXCEL DOCUMENTS

You can add a link to a **Word** or **Excel** document in an existing web page. The steps are:

1. Open the page that will have the link to the Word or Excel document.
2. Drag the **Word** or **Excel** file from its current location to anywhere on the Dreamweaver page. The **Insert Document** dialog box appears (Fig. 10.28).
3. Select **Create a link** and click **OK** (Fig. 10.29). If the document you are linking to is not in your site's root folder, Dreamweaver prompts you to copy it to the site root folder. This ensures that the document will be available when you publish the website.
4. Press F12 or click **Preview/Debug in Browser**.
5. The web page will show a link to the Word/Excel file (Fig. 10.30). The file is downloaded when you click to open the file.

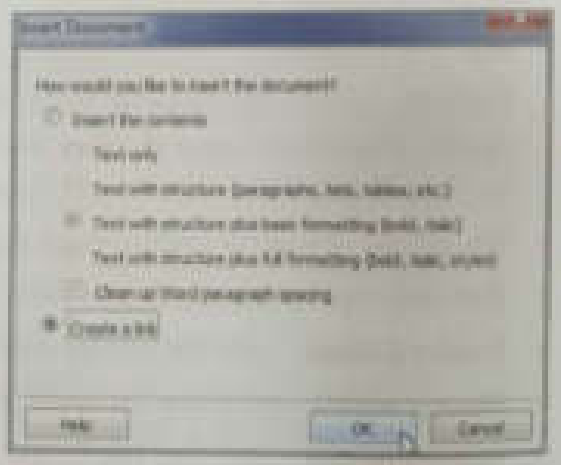


Fig. 10.28 **Insert Document** dialog box

Fig. 10.29 Link created

Fig. 10.30 Link in web page

PRACTICE TIME

Let us create a website that gives details about the home assignments for each subject. It should have a frameset with three frames. The subject names shall appear in the left frame and shall be hyperlinked to their respective pages. On clicking a subject name, the corresponding assignment page should appear in the right frame.

At the bottom of each page, there should be an option to download the assignment. As an example, you can see that in Figure 10e Computer Science is the hyperlinked text in the left frame and on clicking this text, the corresponding set of assignment questions should appear in the right frame. How will you proceed?

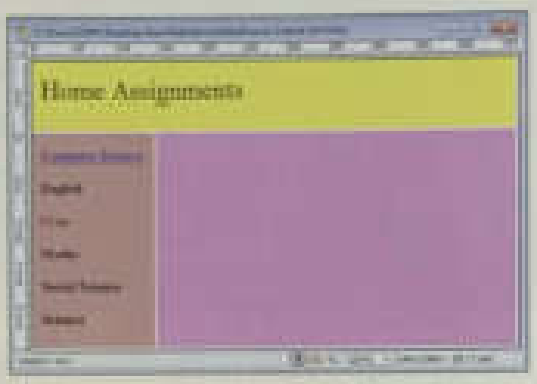


Fig. 10e

SOLUTION

1. Create a folder for a new website.
2. Right-click the folder in the **Files panel** and select **New Folder** from the context menu.
3. Rename the folder as **FrameConcept**.
4. Select the folder and click **File ▶ New.** The **New Document** dialog box appears.
   a. Select the **Page from Sample** category.
   b. Under **Sample Folder**, select **Frameset**.
   c. Under **Sample Page**, select **Fixed Top, Nested Left**.
5. You will see a frameset with a fixed-size top frame and a nested left frame on the right of the dialog box. Click **Create**.
6. The **Frame Tag Accessibility Attributes** dialog box appears. You can specify a title for each frame or let the frame name appear as a title name. Click **OK**. The **Untitled Frameset** will appear.
7. To save the frameset and frames, select **File ▶ Save All** and save the frameset as **topframe**, **leftframe** and **mainframe**. Click the **Save** button every time.
8. Drag the border of the left frame to make the frame wider.
9. Select the top frame and type the text 'Home Assignments'. Make the following changes in the **Property Inspector**:
   a. Change the **Font** to **Times New Roman**.
   b. Change the size to **xx-large**.
   c. Go to **Page Properties** and change the background Colour to light yellow.
10. Select the left frame and type the contents as shown in Figure10e. Make these changes in the **Property Inspector**:

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a. Change the **Font** to **Default Font**.

b. Change the **Size** to 18.

c. Click **Page Properties** and change **Background Color** to dark pink, **Link Color** to Blue, **Rollover links** to Red, and **Visited links** to Green.

11. Let us create a web page **InternetQuestions.html** for the subject **Computer Science**:

a. Right-click the folder **Frame Concept** and click **New File**. Rename the file as InternetQuestions.html.

b. Type the contents as shown in Figure 10f. Also create a **Word** file of the questions.

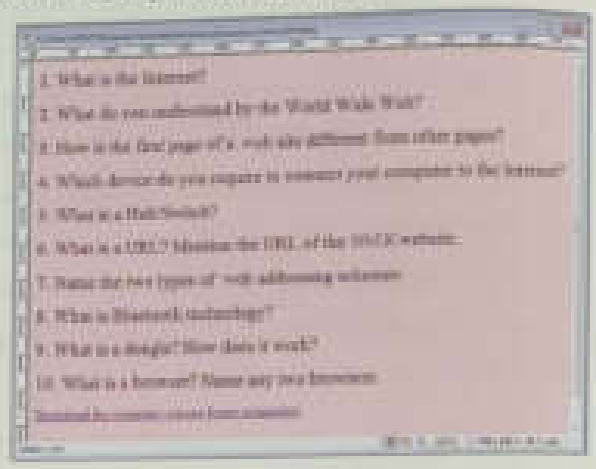


Fig. 10f

12. Then, to link the subject to the HTML document, select the subject 'Computer Science' in the left frame. Now,

a. Drag the **Point to File** icon next to the **Link** text box to the file InternetQuestions.html in the **Files panel** with questions as shown in Figure 10f. The filename will appear in the text box.

b. Set the **Target** to **mainframe**, i. e., the frame on the right.

c. Finally, drag the **Word** file that has the questions to the end of the page. Click **Create a Link** when a dialog box appears and click **OK**.

13. Repeat the steps for the other subjects. Remember that you should have created corresponding web pages that will link to these subject names and also **Word** files for download.

14. Select the main frame and click **Page Properties** and change **Background Color** to light pink.

15. Select **File ▶ Save All** to save the frameset and all the documents in the frames.

16. Press F12 to view the page or click **Preview/Debug in browser.**

17. In the browser, click the subject, 'Computer Science' in the left frame. The file InternetQuestions.html should appear in the main frame (Fig. 10g). Bring the pointer to the end of the page. Click **Download the computer science home assignment** to save the assignment to your system (Fig. 10h).

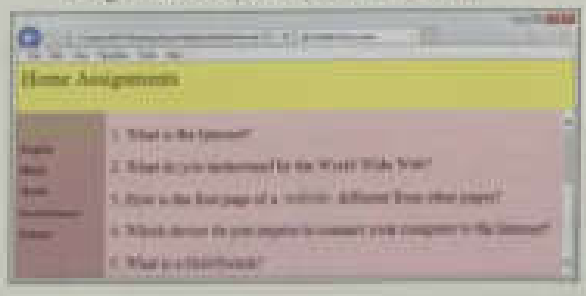


Fig. 10g

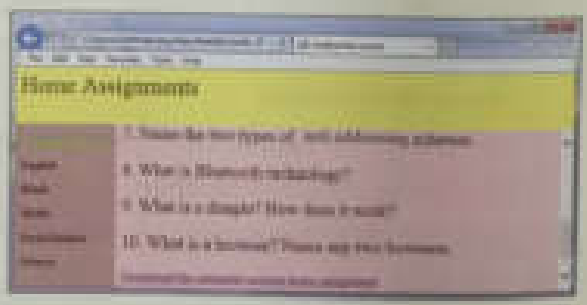


Fig. 10h

Computer Manners

Always install antivirus software on your computer and update it regularly. Updating the software helps protect the computer against new viruses.

Tricky Terms

Rollover image an image that changes to another image when the mouse moves over it in a browser

Image Placeholder it is a graphic you use till the final image to be added to a web page is decided.

Image map an image divided into clickable regions called hotspots, which have hyperlinks that open other files

Frameset a web page divided into regions called frames, each of which displays an HTML document independently

Memory Bytes

- The three graphic file formats supported by most browsers are GIF, JPEG, and PNG.
- A **rollover image** consists of two images: a **primary image** displayed when the web page is first loaded and a **secondary image** that appears when the pointer moves over the primary image.
- An image map is divided into clickable regions called **hotspots**.
- A hotspot is a shape on an image file that acts as a hyperlink.
- A **frameset** is an HTML file that defines the layout and property of a set of frames.
- You can specify the **target frame** when you create a hyperlink.
- You can also link text/images to a Microsoft Word or Microsoft Excel document.

EXERCISES

Objective Type Questions

1. Write T for the true statement and F for the false one. Correct the false statement(s).

   a. You cannot add more than one image to a web page. ☐
   b. Each frame in a frameset can display an HTML document independently. ☐
   c. A frame is an area that acts as an independent browser window and is independent of other regions in the window. ☐
   d. For removing a frame, drag it by any one of its borders off the page. ☐
   e. Frame names must start with a letter and are case-sensitive. ☐

2. Choose the correct option.

   a. Which one is a required specification in the **Image Placeholder** dialog box?
      i. Name ii. Width and Height iii. Alternate text iv. Colour

   b. To select a frame, press ..... and click inside a frame in Design view.
      i. SHIFT ii. ALT iii. CTRL iv. TAB

   c. A ..... is a designed area on an image map that the user clicks to cause an action to occur.
      i. Image map ii. Hotspot iii. Image iv. Nested image

   d. To create a frameset, click **File ▶ New ▶ Page** from **Sample**. Then point to ..... in the **Sample Folder**.
      i. Frames ii. Frameset iii. Create iv. Divide

   e. To split a frame using a frame border that is not at the edge of the Design View, press the ..... key and then drag the desired frame border.
      i. SHIFT ii. ALT iii. F2 iv. F4

Descriptive Type Questions

Answer the following.

a. What are the three formats of the image supported by web browsers?
b. What are the two ways of inserting a Rollover image?
c. What are the three shapes that can be used to define the image map area?
d. How will you add an Excel file to a web page?
e. What is the advantage of adding a frameset to a web page?
f. Tariq has been asked to compare the following framesets in Dreamweaver by drawing each of them on a chart and writing an explanation of what they do in terms of web pages:
   - Fixed bottom, nested right

- Fixed left, nested bottom
- Fixed right, nested top

Help Tanq out by suggesting how he could go about completing the task.

h. Analyse the usefulness of tables in making webpages. Give examples to support your answer.

i. Refer back to Question 3 in the previous chapter. Improve your webpage, 'This is ME!' by using framesets, image placeholders, rollover images, and tables.

Application-Based Questions

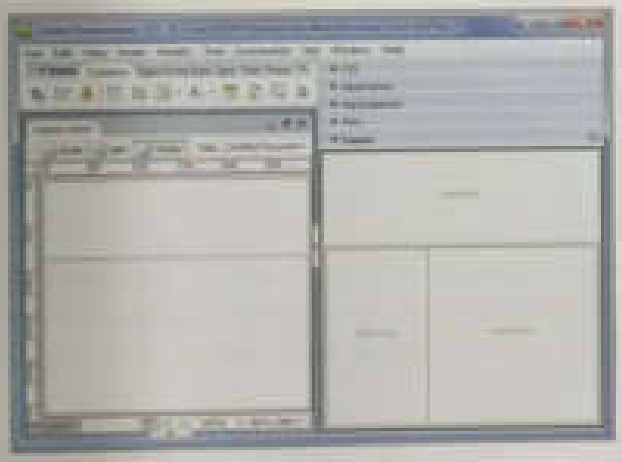
a. Ibran wants to make a website titled 'Tutorials on Geography for Class VIII' in Dreamweaver, but the images added to the web page have not been decided. What should he do?

b. Consider the figure alongside and answer the following:

i. Which concept is shown in the figure?

ii. Which text in the left frame is hyperlinked?

iii. What will be the Target value of the hyperlinked text so that the linked file appears in the main frame?



c. Observe the figure on the left and answer the following?

i. How will you increase the width of the left frame?

ii. How will you select the top frame?

iii. What will you do so that there are only two frames — the top frame and the left frame?

iv. What should you do so that nobody can resize a frame in the browser?

d. Consider the figure given alongside on the right and answer the following:

i. Which feature is shown in the figure?

ii. What is the shape of the mouse pointer when you bring it over the images in the browser?

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e. Rehan has an employment agency for which he has created a web page. He wants to add a link to a Word file containing details related to a vacancy on the web page. On clicking this link, the file should get downloaded on the computer. How should he proceed?

IN THE LAB

1. You must have been part of occasions like a picnic, a marriage celebration, or may have visited some tourist places with your friends or parents, where you would have taken photographs. Design a collage of these photographs in, say, Photoshop. Now use this collage in Dreamweaver and create hotspots on the collage such that on clicking each photograph in the collage an individual web page is displayed. The web page should display details such as the name, place, and time when the picture was clicked. You can also mention a memorable incident related to that picture.
2. The class teacher of VIII has asked the monitor to create an Excel file of the FA1, FA2 and SA1 results for the class, and link the Excel files to the class web page. What would be the steps to do this task?
3. The computer science teacher has asked Ronald to create a rollover image using one of his photographs and another of his best friend's. Create a similar rollover image in a web page of your own.
4. Farkhunda wants to create a web page that has the time table of her class. Can you help her with the task? What should she do?
5. The Computer Science teacher wants Rehana to create a tutorial on the topic 'Evolution of Computers' using the concept of framesets. Can you create a similar tutorial for your class?

GROUP WORK:

Working as a group, combine your answers to Question 3 and create a team website, 'This is US!' incorporating all your web pages. Add more links, images, image maps, and other features to make your website more unified. Make sure you have private and secure tabs on your web pages if you load them on to the Internet. Why is this important?

TEACHER'S NOTES

- Students should be made familiar with the different formats of the image files that are best-suited for web pages.
- Ensure that students are able to distinguish between framesets and frames.
- A demonstration of how to make interesting websites using framesets would be useful.

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