Computer Science

For Class –10th

Y5G2F3

ਇਹ ਪੁਸਤਕ ਪੰਜਾਬ ਸਰਕਾਰ ਦੁਆਰਾ ਮੁਫ਼ਤ
ਦਿੱਤੀ ਜਾਣੀ ਹੈ ਅਤੇ ਵਿਕਰੀ ਲਈ ਨਹੀਂ ਹੈ।

Punjab School Education Board
Sahibzada Ajit Singh Nagar

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ਇਹ ਪੁਸਤਕ ਵਿਕਰੀ ਲਈ ਨਹੀਂ ਹੈ।

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FOREWORD

Punjab School Education Board, since its inception has been engaged in an endeavor to prepare text-books on various subjects at school level. This textbook is one in the series and is designed to focus on students-centered learning for the students of Computer Science. The book has been developed as per recommendations of Punjab Curriculum Framework 2013 based on National Curriculum Framework-2005, accordingly to which the school life of the students needs to be linked to the outside world. The book is a step forward to move from the traditional book-based learning to activity-based learning.

The need for study of computer science as a subject is increasing day by day because in the age of scientific and technological advancement computer education improves the work efficiency in every field to socio-economic life. With the advancement of communication and information technology, computerization is being done in every department. Computer Education has become mandatory to have access to information from various departments, e-governance and internet access in various aspects of modern life such as education, business, health, transportation and many more.

Keeping in view such requirements, Punjab School Education Board has implemented the guidelines of the Punjab Government to make the computer science subject as a compulsory subject from Class VI to XII. Every effort has been made to include requisite information accordingly to level of class tenth in this book. Hopefully this book will be useful for students and teachers.

Punjab School Education Board acknowledges the sincere efforts made by writers, translators and vetters for the preparation of this book. Board also welcomes comments and suggestions for any further improvements.

Chairman
Punjab School Education Board

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OFFICE TOOLS

Objectives of this Chapter:

1.1 Introduction
1.2 Software – It's types
1.3 Different Types of Office Tools
1.4 Online Office Tools

1.1 INTRODUCTION

Office Tools include some application softwares. These softwares are designed to make computer users more productive and efficient at their workplace. Usually these tools/softwares are used to create, update, manage documents, handle large data, create presentations etc. These tools help users to save their large amount of time and effort. Lots of repetitive tasks can be done very easily with the help of various office tools. Examples of such tools/softwares are: Word Processors, Presentation Tools, Spreadsheet softwares, database management tools, graphics tools etc.

As the internet becomes an important tool for businesses, many new online office apps and tools are being used all over, such as Google Docs, Google Sheets, Google Slides, Google Drive, Microsoft One Drive, Gmail, Google Forms etc.In this chapter, we are going to have a look on some of these commonly used offline and online tools.

1.2 SOFTWARE AND IT'S TYPES

Computer Software plays the role of mediator between the user and computer hardware. A Software is a set of programs that enable a user to perform some specific task or used to operate a computer. These are the softwares that direct all the peripheral devices on the computer system – what to do and how to perform a task. Hardware and Software work together to accomplish a task. Without software, a user can't perform any task on a computer. Software can be further divided into mainly two types: Application Software and System Software.

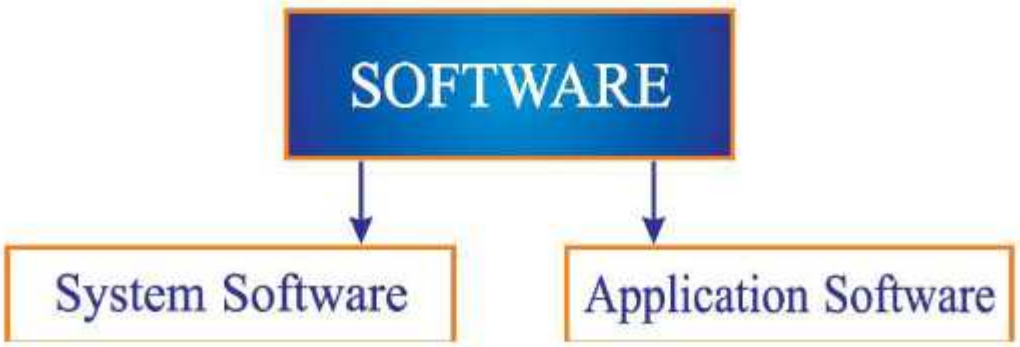


Fig: 1.1 Types of Software

1.2.1 System Software:

System software is a collection of system programs. These softwares are designed to operate, control, and extend the processing capabilities of the computer itself. These softwares are usually written in Low-Level Computer Programming languages, such as Assembly Language etc. Low-Level programming languages have the capability to interact with the hardware at a very basic level. System softwares are generally prepared by the computer manufacturers. Some examples of system software are Operating System (Windows, Linux etc.), Language Translators (Compilers, Interpreter, Assemblers), etc.

1.2.2 Application Software

Applications softwares are also known as End-User Applications.These softwares are mostly designed and developed to perform specific tasks for users. Application softwares are used by users as per their requirements. Different users have different requirements. So, every user may use different types of softwares according to his/her requirements, for example: a photographer usually uses application software - photoshop to edit photographs, an accountant usually uses application software - Tally for maintaining accounting records, office-users uses application softwares - word processors etc. to prepare documents etc.

These softwares are usually written in various types of High-Level Computer Programming languages, such as Java, Visual Studio .NET etc. These softwares reside above the system software. Application software cannot run without the support of Operating System.

Various types of Office Tools also fall in the category of application softwares. Users use various types of application softwares (office tools) in the computers at their workplaces (offices) to perform office related specific tasks, such as creating word processor documents, spreadsheets, presentations, graphics, sending the email, etc.

1.3 DIFFERENT TYPES OF OFFICE TOOLS

Application software that support users in regular office jobs like creating, updating and maintaining documents, handling large amounts of data, creating presentations, scheduling, etc. are called office tools. Using office tools saves time and effort and lots of repetitive tasks can be done easily. Some of the software that perform these operations are –

1. Word processor Softwares
2. Spreadsheet Softwares
3. Presentation Software
4. Database Systems

5. Multimedia Tools, etc.

We have already learnt about many of these tools in very detail in the previous classes. So, we are going to have an overview of these tools:

1.3.1 Word Processor Tools:

A software for creating, storing and manipulating text documents is called word processor. In simple words, we can say that Word Processor is a software that is used to manage text documents. User can create, update and format text files using word processor. A word processor is an essential part of any office suite. A word processor usually runs on local machine as a desktop application like Microsoft Word, but nowadays cloud based Word Processors like Google docs are also used which makes it easier for teams to manage their documents on cloud.

Examples of some word processors are:

1. **MS-Word**: Retail Cross-Platform word processor
2. **Word Pad**: Retail Windows only word processor
3. **Word Perfect**: Retail Cross-Platform word processor
4. **Google Docs**: Freeware Cloud Based word processor
5. **Open Office Writer**: Open Source word processor

1.3.2 Spreadsheet Softwares

Spreadsheet is a software that allows users to process and analyse tabular data easily. It is a computerized mathematical and accounting tool. In a Spreadsheet, data is always stored in cells. A cell is an intersection of rows and columns. Users can use functions and formulas very easily to process data stored in the cells. Spreadsheets are usually used to maintain budget, financial statements and sales records etc.

Examples of some spreadsheet software are:

1. **MS-Excel**: Retail Cross-Platform spreadsheet package
2. **Google Sheets**: Freeware Cloud Based spreadsheet package
3. **OpenOffice Calc**: Open Source spreadsheet package

1.3.3 Presentation Softwares

A Presentation Tool enables users to demonstrate information in the form of a slide show. This information is broken into small pieces called slides. A series of slides that present information about some idea or concept to an audience is called a presentation.The slides in the presentation can have text, images, tables, audio, video or any other multimedia information.

Examples of some presentation tool are:

1. **MS-PowerPoint**: Retail Cross-Platform presentation tool
2. **Lotus Freelance**: Proprietary software presentation tool
3. **Google Slides**: Freeware Cloud Based presentation tool

4. **OpenOffice Impress**: Open Source presentation tool

1.3.4 Database Management Systems

DBMS (Database Management System) is a software that manages data by creating databases. A database is an organised collection of data. It is a computerized approach for managing data of organizations.

Examples of some Database Management Systems are:

1. **My SQL**: GPL (General Public License) or Proprietary Open-Source Relational Database Management System
2. **Postgre SQL**: Free and Open-Source Relational Database Management System
3. **Oracle**: Proprietary Software for Relational Database Management System
4. **MS Access**: Retail database tool by Microsoft
5. **Open Office Base**: Open Source database tool

1.3.5Multimedia Tools

Multimedia is a form of communication that combines different forms of contents such as text, audio, images, animations, or video into a single presentation. Multimedia tools allow users to create multimedia applications/contents using various forms of contents. In offices, multimedia tools are used to create and play business presentations, for employee's training purpose, for advertising and documentaries. Adobe Flash, Media Players and Real players are the examples of multimedia tools.

So far, we have introduced various important and essential office tools to perform different types of tasks in office environment. Besides these, there are various other office tools which can be used for communication (such as emails, group chat, video conferencing etc), cloud storage (such as google drive, one drive etc.), various types of conversions (such as pdf to word, word to pdf, jpg to pdf etc.), file compression (such as winzip, winrar, 7zip etc.) etc.

1.4 ONLINE OFFICE TOOLS

As the internet becomes an ever more important tool for business, many new online office apps and tools are being used all over. Online office tools are those office tools that are offered in the form of web applications. These tools are accessed online using a web browser. It allows people to work together worldwide and at any time. Such accessibility leads to web-based collaboration and virtual teamwork. Some online office tools can be installed on office-computers, while other are offered only as Software as a Service (SaaS). Of the latter, basic versions can be offered for free, while more advanced versions are often made available with a subscription fee.

1.4.1 Common Online Office Tools:

Google apps for office work covers all our business needs and has the added advantage of getting all our apps delivered from the same source. So, there are no concern of incompatibility. We are

also guaranteed about the security of our data and efficiency of the tools. Google Docs, Google Sheets and Google Slides are the Google Apps that are commonly used as online office tools.

Files created in these Google Apps (Google Docs/Sheets/Slides) can be stored both online on the Google cloud or on the user's computer. Access to these files is available from any computer with an Internet connection and a fully-featured Web browser. The files created in Google Docs/Sheets/Slides may be viewed by other google groups and members with the file owner's permission. These Google Apps (Docs, Sheets, and Slides)are also available as mobile apps on Android and iOS and as a desktop application on Google's Chrome OS.

These Google Apps are included as part of the free, web-based Google Workspace (also known as G Suite). Multiple people can work on the same file created in these Apps and Apps will save all of them automatically. These Google Apps also offers the benefit of cloud storage. It means users' files are saved automatically on an online storage, and these files may be retrieved even if our computer's hard drive fails. Now, Let's take a look at these popular online office tools from Google for our paperless office:

1.4.1.1 Google Docs

Google Docs is a free online word processor. It is a Web-based document management application for creating and editing documents. It helps us in real time online word processing. Google Docs allows us to export its document file in all major file types including .docx, .pdf, .odt, .rtf, .txt, and .html.

Opening Google Docs:

Google Docs is available on all devices and platforms; all we need is an internet connection and a web browser (in the case of mobile, the applicable apps). Docs supports several different file types, including .doc., .docx., .txt, .rtf, and .odt, making it easy to view and convert Microsoft Office files directly from Google Drive.

Fig: 1.2
Sign-In page for Google Account

Following are the steps to open and to work with Google Docs:

1. Open any Web Browser, For Example: Google Chrome
2. Type the url https://docs.google.com in the address bar of the web browser.
3. The first thing we'll need to do before we can use Google Docs is sign up for a Google account (an @gmail account). If we already have an account, we can move on to the next step. If not, we'll go over the simple way to create a Google account.
4. After Successful Sign-in into the google account, the Home page of Google Docs will appear in the web browser as shown in the figure 1.3

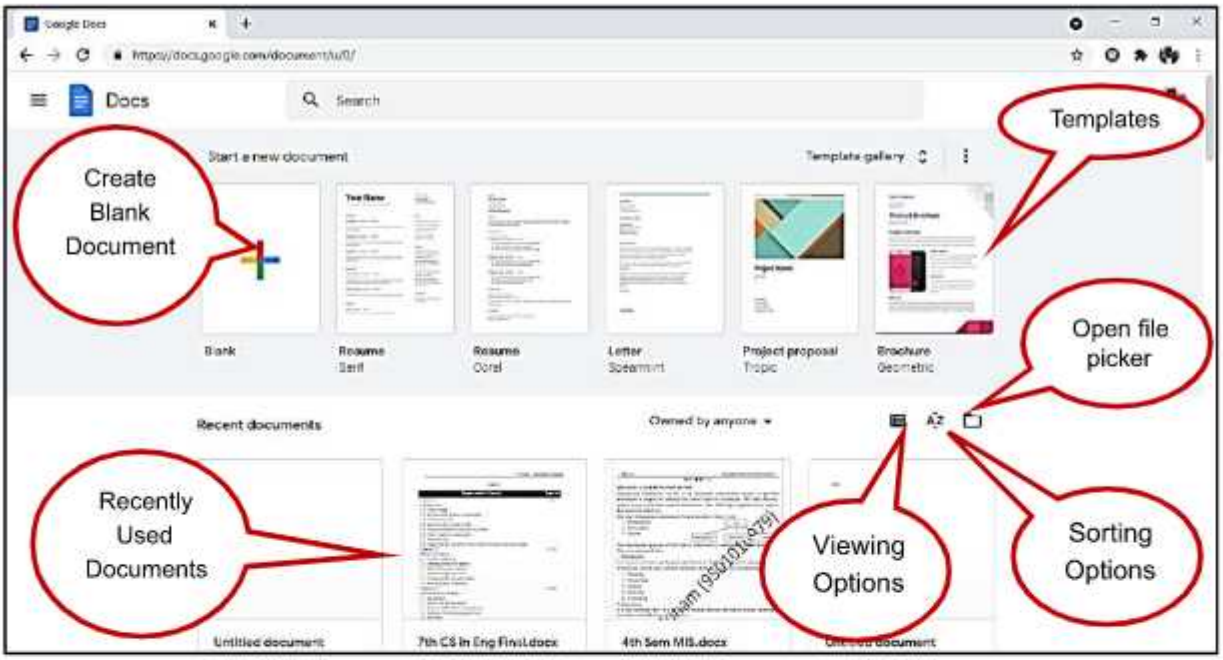


Fig: 1.3 Homepage of Google Docs

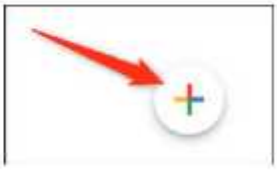
Creating a Blank Document using Google Docs:

After Signing-in into a Google account, it's time to create our first document. The Homepage of Google Docs shows two sections:

1. **Start a new document**: It shows Blank document option along with various templates for creating documents in template gallery.
2. **Recent documents**: It shows the list of recently used document files in the Google Docs application. It also shows **View** Options, **Sort** Options and **Open file picker** option at the top right side of this section.

To create a blank document, Move the cursor on the multi-coloured "+" icon in the **Start a new document** section of Google Docs Homepage. Now click it to open a Blank document in the Google Docs.

Opening a Microsoft Word Document using Google Docs:



We can also open the word document files in the Google Docs. For this purpose, we have to upload and import the word document file in the Google Docs. When we import a Word document, we can use either Google Docs or Google Drive to upload our files. Both methods allow us to drag and drop a file from our computer directly into the web browser for easy uploads. Our Google Drive stores all of our uploaded files, but for convenience sake, when ever we open the Docs homepage, it only shows us document-type files.

From the Google Docs homepage, click the Open file picker (folder icon) option in the top right corner of Recent documents section (as shown in figure 1.3). It will display **'Open a file'** dialog box (as shown in figure 1.4)to select the word document file. Click the "Upload" tab of this dialog

box. Now click on the **'Select a file from your device'** button to select the word document file saved in our computer system or just drag and drop the word document file in the **'Drag a file here'** area of upload tab.

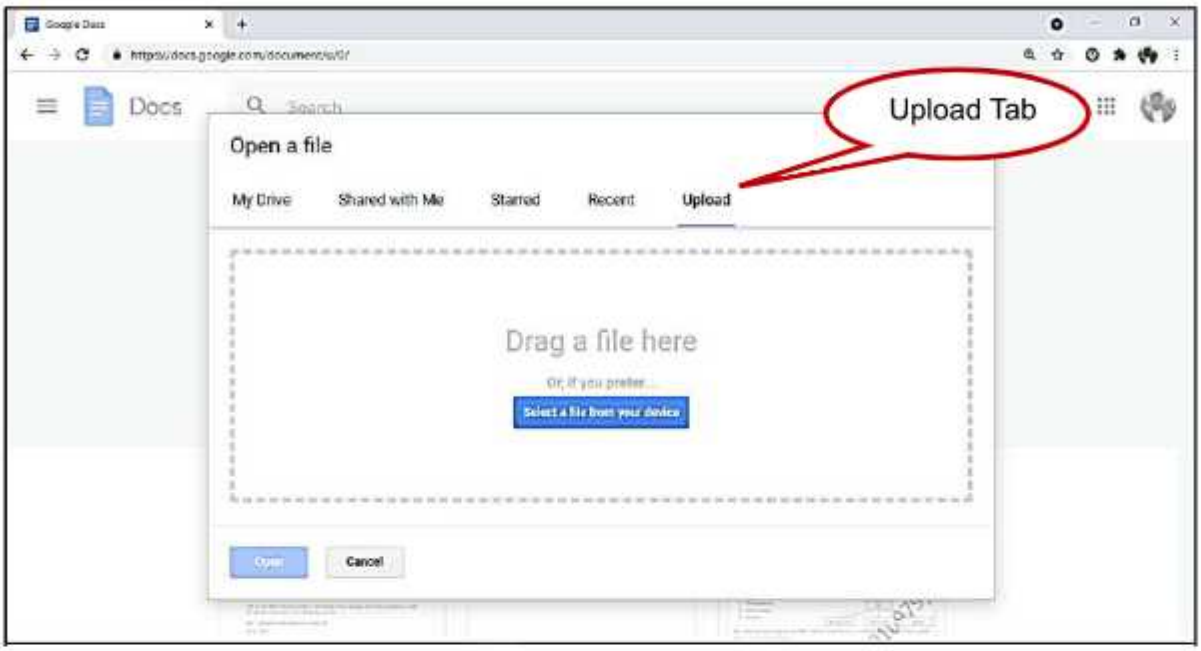


Fig: 1.4 Open a file dialog box to upload word document

Once the Word file uploads, Docs opens it automatically, ready for us to start to edit, share, and collaborate.

If we want to open a document from the list of recently used files, then just click on that file from our Google Docs homepage.Once the file opened in google docs, we can work with it in three different modes as shown in the figure 1.5

1. **Editing Mode**: In this mode, we can edit the document directly
2. **Suggesting Mode**: In this mode, editing in document will become suggestions for the author of the document.
3. **Viewing Mode**: In this mode, we can only read or print the opened document.

Fig: 1.5 Different Modes of Working with files

When we are in Editing or Suggesting Mode, we can do formatting and editing of the document in the same way as we do it in the Microsoft Office Word (about which we had learnt in our previous classes)

Downloading document files from Google Docs:

When we finish with the document, we can download our document back into DOCX, PDF, ODT, TXT, HTML, EPUB format. To download the document, perform the following steps:

1. Click on File menu
2. Click on Download option
3. From the Download Submenu, click on the desired format

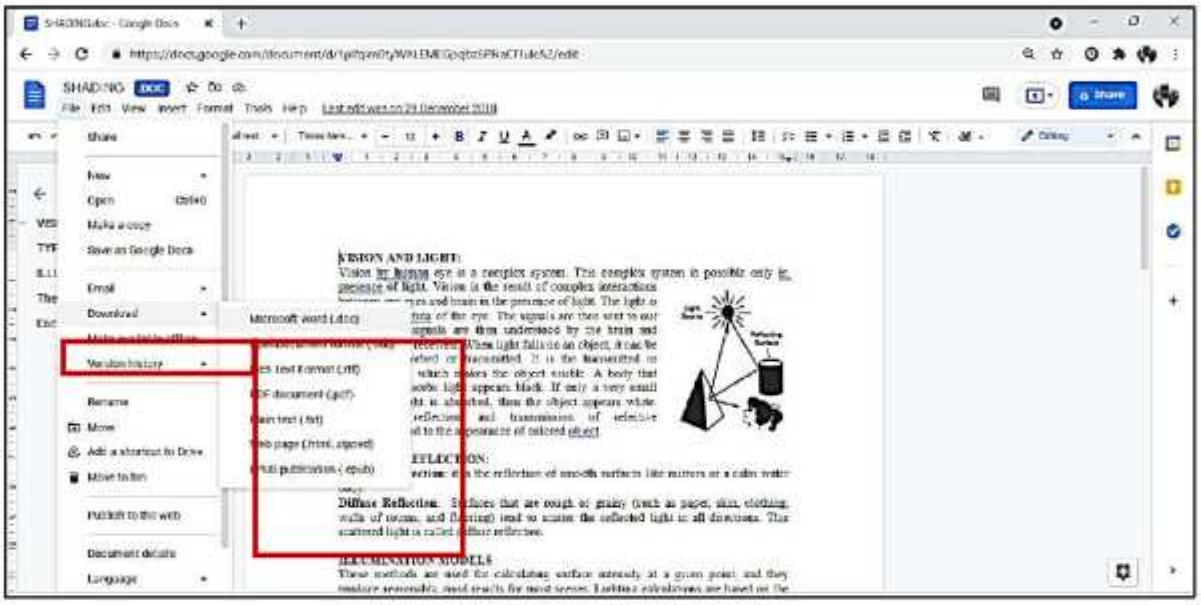


Fig 1.6 Download document file from Google Docs

It will download directly to the location where files are saved from our web browser.

Collaborating on Documents with Others:

One of the best features of Google Docs is the ability to generate a shareable link. It allows anyone with it to either view, suggest edits, or edit our document. Instead of sending a file back and forth between collaborators, we can make edits and suggestions all at once, as if we were all together working over the same computer in real time. The only difference is that each person has their own text entry cursor to use on their personal computer.

From the document that we want to share, click on the blue button "**Share**" to choose how and with whom you want to send a link of our file. Here, two sections will be shown:

1. **Share with people and groups**: In this section, we can enter email addresses manually to whom we want to send a link of our file through email.

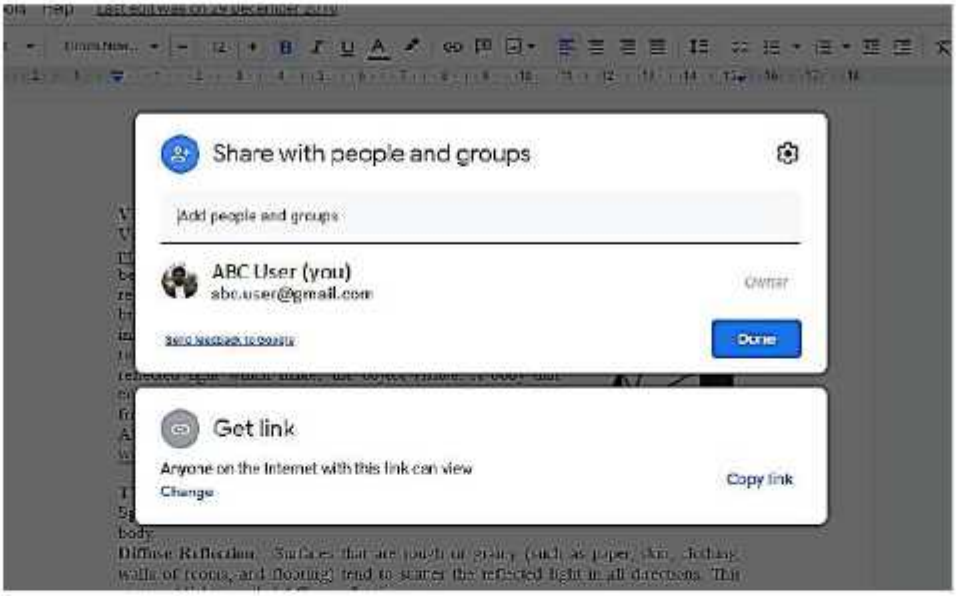


Fig: 1.7 Share with people and groups

2. Get link:In this section, we can get a link that can be shared by our self for inviting other persons to view or work on our document. We can also set the restrictions and various types of permissions for other users having the link. If we want to stop sharing our document, then we can use the **Restricted** option as shown below in figure, otherwise for sharing the document we have to choose the option – **Anyone with the link**.

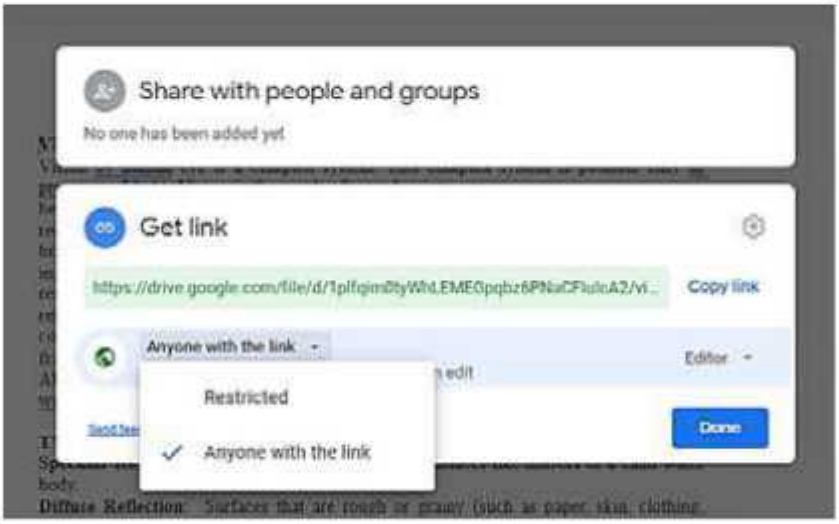


Fig: 1.8 Get Link options

After setting the option- Anyone with the link, we can set one of the following access levels using the drop-down menu for sharing the file:

1. Viewer: If we choose this access level for sharing, then anyone on the internet with this link can view the document, but can't edit it in any way. This is the default action when we share a file, and the best option if we are trying to share a file for download. Viewers of the file can also see comments and suggestions of our document.

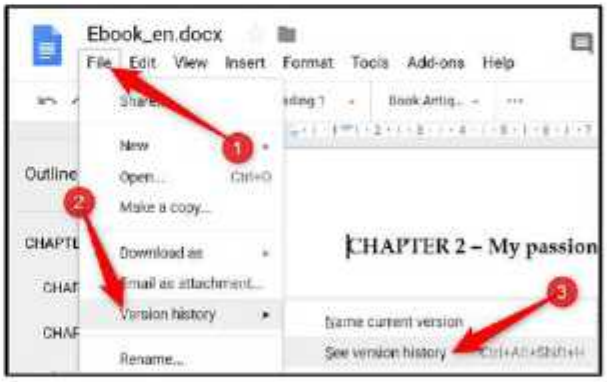
2. **Commenter**: If we choose this access level for sharing, then anyone on the internet with this link can comment on our document. It is helpful for shared users to leave comments if desired— This is great for team projects.

3. **Editor**: If we choose this access level for sharing, then anyone on the internet with this link can edit our document. This access level gives full read/write access to shared user. But, they still can't delete it from our Drive, though-this is just for the contents of the file.

Fig: 1.9 Access Levels for shared users

Viewing All the Recent Changes to a Document:

When we share documents with others, it's difficult to keep track of all the small changes that are made by other users. For that, there's version history. Google Docs keeps track of all the changes that occur in a document and groups them into periods. We can even revert a file to any of the previous versions listed in the history with the click of a mouse.



We can view a list of all recent changes by performing the following steps:

1. Click on File menu
2. Click on Version History
3. From submenu, click on See Version History

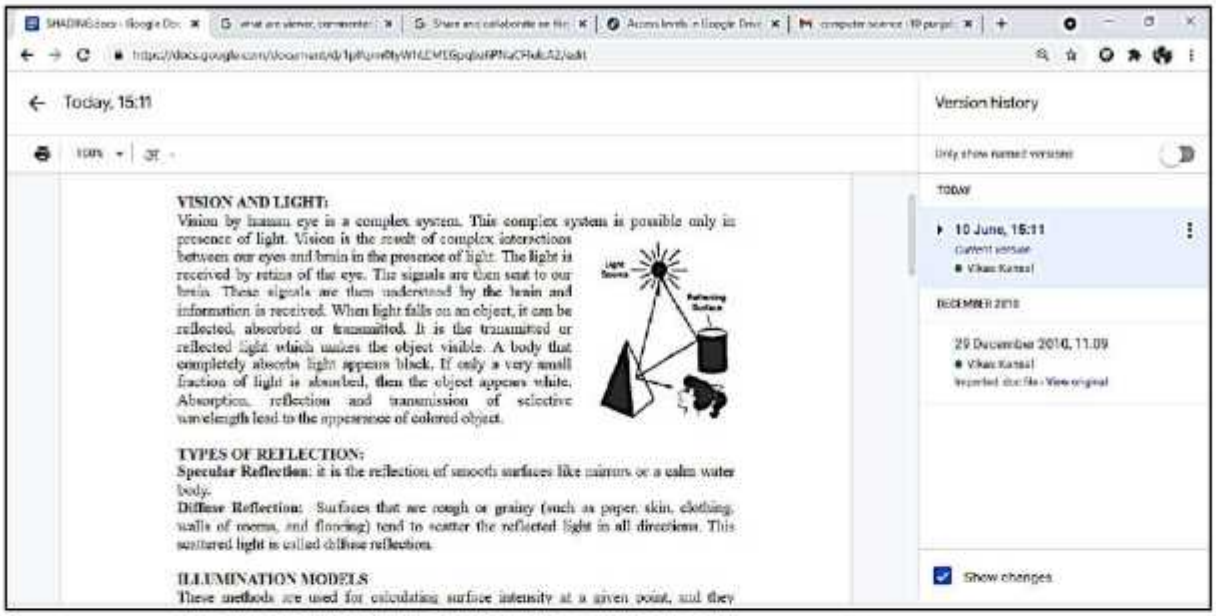


Fig: 1.10 Version History of document file

1.4.1.2 Google Sheets

Google Sheets is a free online spreadsheet web application. It includes nearly all capabilities of a traditional spreadsheet program such as Microsoft Excel. It comes with excellent data analysis tools along with powerful functions and formulas for performing calculations. We can also insert charts, create pivot table reports and apply filters etc. in the spreadsheets. The sheets may be viewed by other google groups and members with the spreadsheet owner's permission. We can export the file in all major file types including .xlsx, .csv, .html, .ods, .pdf, and .txt.

Opening Google Sheets:

Google Sheets is available on all devices and platforms; all we need is an internet connection and a web browser (in the case of mobile, the applicable apps). Google Sheets supports several different file types, including .xlsx, .csv, .html, .ods, .pdf, and .txt. making it easy to view and convert Microsoft Office files directly from Google Drive.

Following are the steps to open and work with Google Sheets:

1. Open any Web Browser, For Example: Google Chrome
2. Type the url https://sheets.google.com in the address bar of the web browser.
3. Sign-In into the google account.
4. After Successful Sign-in into the google account, the Homepage of Google Sheets will appear in the web browser as shown in the figure 1.11

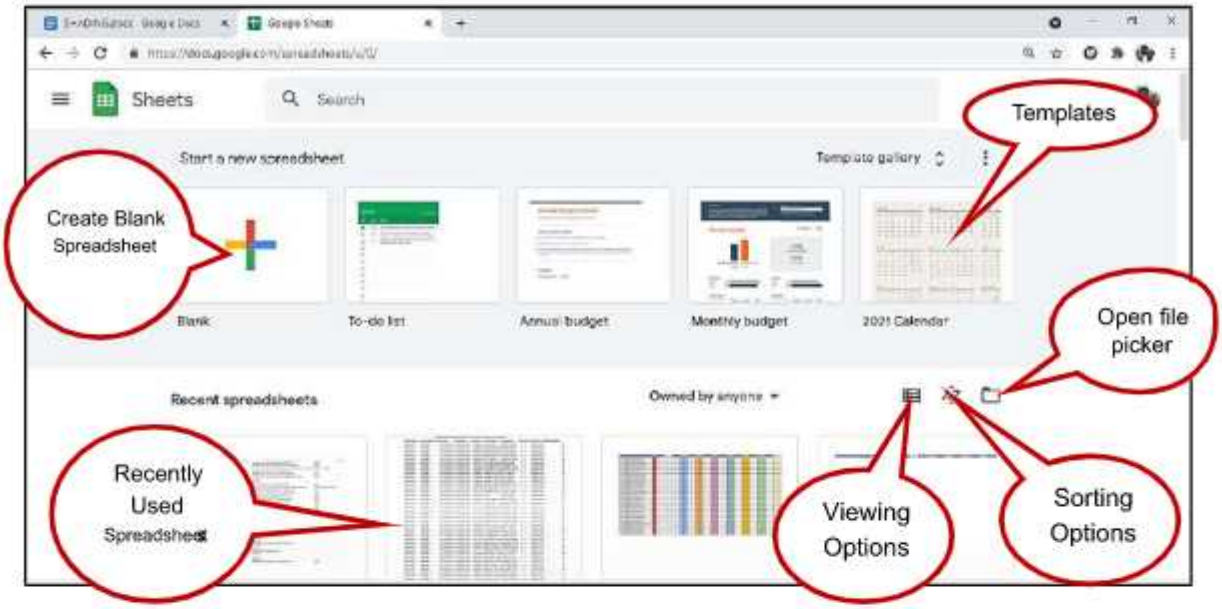


Fig: 1.11 Homepage of Google Sheets

Creating a Blank spreadsheet using Google Sheets:

After Signing-in into a Google account, it is time to create our first spreadsheet. Similar to Google Docs' Homepage, the Homepage of Google Sheets also shows two sections:

1. **Start a new spreadsheet**: It shows Blank spreadsheet option along with various templates for creating spreadsheets in template gallery.
2. **Recent spreadsheets**: It shows the list of recently used spreadsheet files in the Google Sheets application. It also shows **View** Options, **Sort** Options and **Open file picker** option at the top right side of this section.

To create a blank spreadsheet, Move the cursor on the multi-coloured "+" icon in the **Start a new spreadsheet** section of Google Sheets Homepage. Now click it to open a Blank spread sheet in the Google Sheets.

Other features of Google sheets work in the same way as we did with the Google Docs, in the previous section of this chapter. Formatting and Editing in Google Sheets is also done in same way as we do in the Microsoft Office Excel.

1.4.1.3 Google Slides

Google Slides is a free presentation web application. It was formerly known as Google Presentations. It allows us to create better looking presentations from our browser. It includes nearly all the capabilities of a traditional presentation program, such as Microsoft PowerPoint. Google slides support the .ppt, .pptx, .pptm, .pps, .ppsx, .ppsm, .pot, .potx, and .potm presentation file types.

Opening Google Slides:

Google Slides is available on all devices and platforms; all we need is an internet connection and a web browser (in the case of mobile, the applicable apps). Google Slides supports several different file types, including .ppt, .pptx, .pptm, .pps, .ppsx, .ppsm, .pot, .potx, and .potm making it easy to view and convert Microsoft Office files directly from Google Drive.

Following are the steps to open and work with Google Slides:

1. Open any Web Browser, For Example: Google Chrome
2. Type the url https://slides.google.com in the address bar of the web browser.
3. Sign-In into the google account.
4. After Successful Sign-in into the google account, the Homepage of Google Slides will appear in the web browser as shown in the figure 1.12

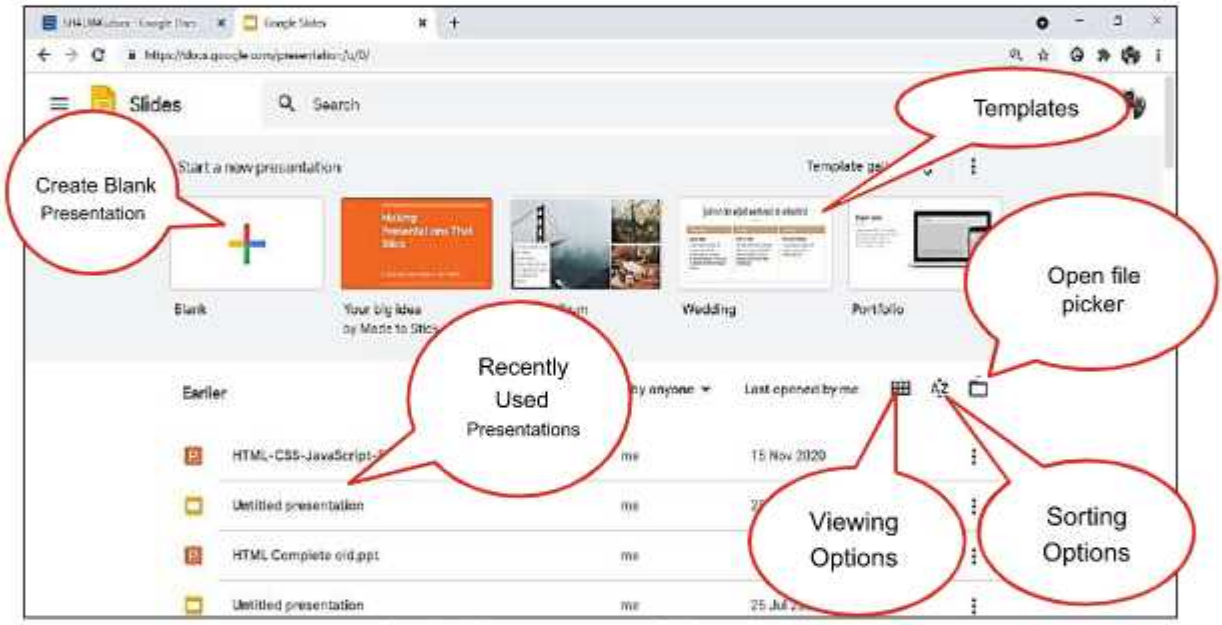
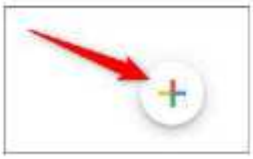


Fig: 1.12 Homepage of Google Slides

Creating a Blank presentation using Google Slides:

After Signing-in to a Google account, it's time to create our first presentation. Similar to Google Docs' Homepage, the Homepage of Google Slides also shows two sections:

1. **Start a new presentation**: It shows Blank presentation option along with various templates for creating presentations in template gallery.
2. **Earlier**: It shows the list of recently used presentation files in the Google Slides application. It also shows **View** Options, **Sort** Options and **Open file picker** option at the top right side of this section.



To create a blank presentation, Move the cursor on the multi-coloured "+" icon in the **Start a new presentation** section of Google Slides Homepage. Now click it to open a Blank presentation in the Google Slides.

Other features of Google Slides work in the same way as we did with the Google Docs, in the previous sections of this chapter. Formatting and Editing in Google Slides is also done in same way as we do in the Microsoft Office PowerPoint.

All these apps – Google Docs, Google Sheets and Google Slides has also been integrated with the Google Drive. Google Drive is a cloud-based storage solution which provides us the online storage of many types of files. These files can be accessed from many different devices such as mobiles, tablets, desktop computers, laptops etc.

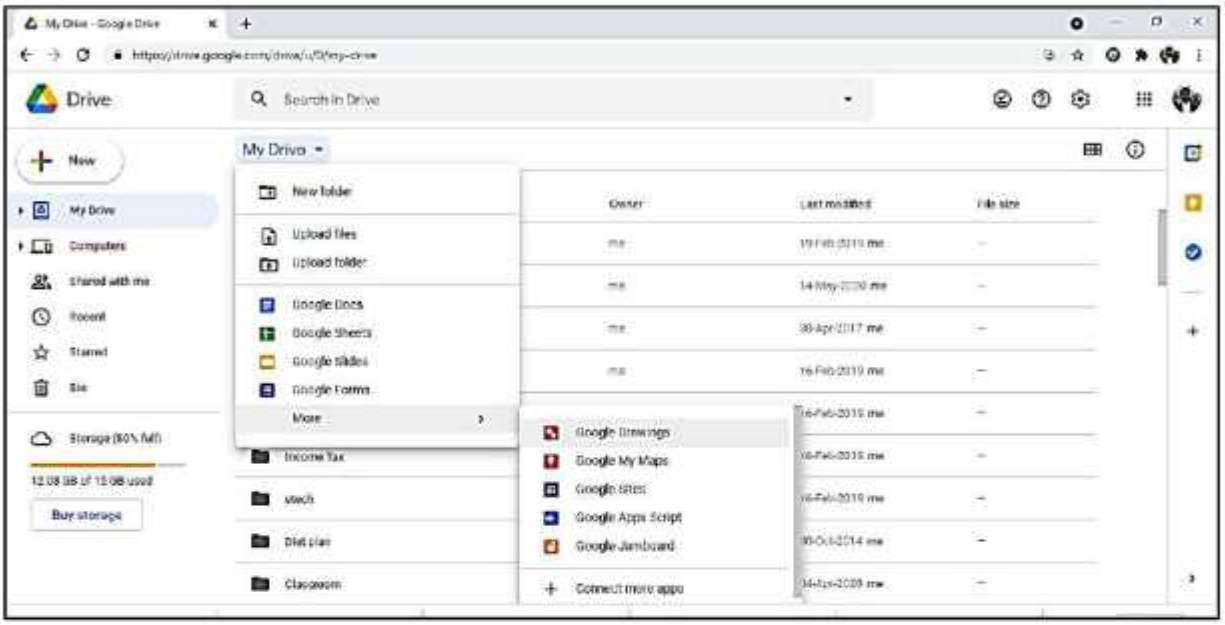


Fig 1.13 Google Drive and Other Integrated Office Apps

Online office tools discussed so far has their advantages and disadvantages too. An overview of these advantages and disadvantages of using online office tools are given below:

1.4.2 Advantages and Disadvantages of Online Office Tools:

Using online office tools has their own advantages and disadvantages. Some of the important advantages and disadvantages are given below:

1.4.2.1 Advantages of Using Online Office Tools:

1. The cost is low. In most cases, there is no specific charge for using the service for users who already have access to a computer with a web browser and a connection to the Internet.
2. There is no need to download or install the tools/software.
3. Online office tools can run on thin clients (N Computing) with minimal hardware requirements.
4. Online office tools provide the ability to share files.
5. There is no need to purchase or upgrade a software license. Instead, the online office suite is available in the form of Software as a Service.

6. Online office tools are portable. Users can access their documents from almost any device with a connection to the Internet, regardless of which operating system they use.
7. If the user's computer fails, the documents are still safely stored on the remote server.

1.4.2.2 Disadvantages of Using Online Office Tools:

1. Access requires connectivity—if the remote server or network is unavailable, the content will also be unavailable.
2. There are speed and accessibility issues. Most of the available online office tools require a high speed (broadband) Internet connection. That can be a problem for users who are limited by a slower connection to the Internet.
3. The number of features available is an issue. Online office suites tend to lack the advanced features available on their offline counterparts.
4. In the long term, if there is a subscription charge to use the service, the ongoing subscription cost may be more expensive than purchasing offline software upfront.
5. The user has no control over the version of the software used. If the software is changed the user is forced to use the changed version, even if the changed version is less suited to the user.
6. The user is reliant on the service provider for security and privacy of their documents.

1.4.3 Offline Vs Online Office Tools:

Following table shows the comparison between Offline and Online Office Tools:

Offline Office Tools	Online Office Tools
1. No internet connection is required for using these tools	1. Internet connection is required for using these office tools.
2. Files created in offline office tools are stored in the local storage of computer system	2. Files created in online office tools are stored on the cloud storage.
3. Files can be accessed only on the local computer system where they are stored	3. Files can be accessed from anywhere in the world as files are stored at online storage media
4. Files cannot be shared easily. Third party tools can be used to share files with others.	4. File can be shared easily as these tools have the inbuilt option to share files.
5. Multiple people cannot work on the same file created in these Apps.	5. Multiple people can work on the same file created in these Apps.
6. Examples: MS Word, Excel, PowerPoint etc.	6. Examples: Google Docs, Google Sheets, Google Slides etc.

Table: 1.1 Comparison between Offline and Online Office Tools

Points to Remember

1. A Software is a set of programs that enable a user to perform some specific task or used to operate a computer.
2. System software is a collection of system programs that are designed to operate, control and extend the processing capabilities of the computer itself.
3. Applications softwares are also known as End-User Applications which are mostly designed and developed to perform specific tasks for users.
4. Application software that support users in regular office jobs like creating, updating and maintaining documents, handling large amounts of data, creating presentations, scheduling etc. are called office tools.
5. A software for creating, storing and manipulating text documents is called word processor.
6. Spreadsheet is a software that allows users to process and analyse tabular data easily.
7. A Presentation Tool enables users to demonstrate information in the form of a slide show.
8. Multimedia is a form of communication that combines different forms of contents such as text, audio, images, animations, or video into a single presentation.
9. Online office tools are those office tools that are offered in the form of web applications.
10. Some online office tools can be installed on office-computers, while other are offered only as Software as a Service (SaaS).
11. Google Docs is a free online word processor. It is a Web-based document management application for creating and editing documents.
12. Once the file opened in google docs, we can work with it in three different modes – Editing, Suggesting and Viewing
13. Google Sheets is a free online spreadsheet web application.
14. Google Slides is a free presentation web application that allows us to create better looking presentations from our browser.
15. Google Docs, Google Sheets and Google Slides has also been integrated with the Google Drive.

EXERCISE

Que:1 Multiple Choice Questions:

I. Which of the following is an example of office tool?

a. MS Word
b. Google Slides
c. MS PowerPoint
d. All of these

II. Which of the following is the example of Word Processor?

a. Google Docs
b. Google Sheets
c. Google Drive
d. MS Excel

III. Which of the following is not an example of Google's Online Office Tool?

a. Google Slides
b. Google Docs
c. Open Office Writer
d. Google Sheets

IV. Which softwares are designed to operate, control and extend the processing capabilities of the computer itself ?

a. Application Software
b. System Software
c. Google's online office tools
c. All of these

V. _____ is a set of programs that enable a user to perform some specific task.

a. Software
c. Hardware
c. Language Translators
d. Programming Languages

VI. After setting the option "Anyone with the link", we can set one of the following access levels using the drop-down menu for sharing the file created in Google Docs?

a. Viewer
b. Commenter
c. Editor
d. All of these

Que:2 Fill in the Blanks

I. Application Softwares are also known as _____

II. System softwares are usually written in _____ level Computer Programming Languages.

III. Various types of Office Tools fall in the category of _____ softwares.

IV. _____ is a software that allows users to process and analyse tabular data easily.

V. _____ is a free online word processor.

Que:3 Short Answer Type Questions

I. Define Office Tools.

II. What is Application Software?

III. Write some examples of Word Processor Tools.

IV. Write about Multimedia Tools.

V. Explain Google Docs.

Que:4 Long Answer Type Questions

I. What are Softwares? Explain different types of softwares.

II. What are the advantages and disadvantages of using online office tools?

III. Compare Offline and Online Office Tools.

Chapter–2nd

HTML PART-I

Objectives of this Chapter:

2.1 Introduction
2.2 HTML
2.3 Software Requirements for HTML - Editors and Web Browsers
2.4 Tags and Attributes
2.5 Basic Structure of HTML document
2.6 Formatting in HTML

2.1 INTRODUCTION

World Wide Web, which is also known as a Web, is a collection of websites or web pages. These web sites/pages are stored on web servers. Each web site/page is given a unique online address called a Uniform Resource Locator (URL). A particular collection of web pages that belong to a specific URL is called a website, e.g., *www.facebook.com*, *www.google.com*, etc.

Users can access the content of these sites from any part of the world over the internet using their devices such as computers, laptops, cell phones, etc. The contents in these web pages can be in the form of text, digital images, audios, videos, etc.

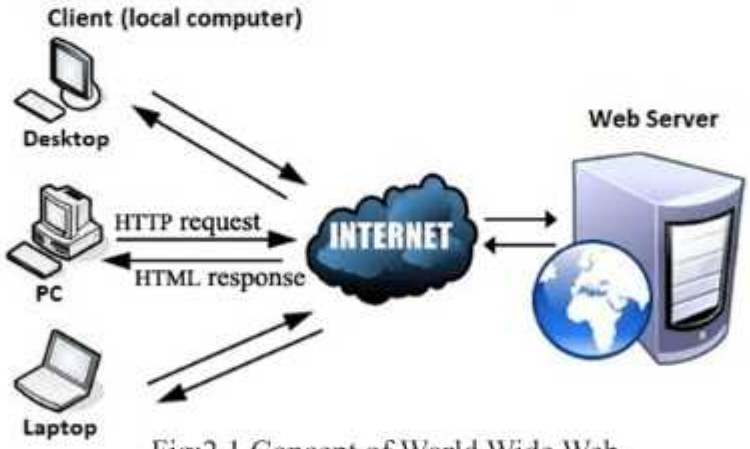


Fig:2.1 Concept of World Wide Web

Web pages are designed and formatted in HTML. These pages are connected with each other by links, which are also known as Hyperlinks. These links are electronic connections that connects related pieces of information so that users can access the desired information quickly. These web pages can be accessed by HTTP (Hyper Text Transfer Protocols) using web browsers. In this chapter, we are going to start discussion about the basics of HTML.

2.2 HTML

HTML was created by Tim Berners-Lee in 1991. There are lots of version of HTML which are being developed. From an initial version of 1.0 to the latest version of 5.2, HTML has developed a lot. W3C (World Wide Web Consortium) has also maintained standards so that all browsers could have a common standard to follow. HTML5 has developed a lot with new tags and the support of form elements.

HTML stands for Hyper Text Markup Language. It is the standard markup language for creating Web pages. A **Markup** language is a computer language that uses tags (<>) to define elements within a document. These languages are used by web browsers to manipulate text, images, and other contents of web pages, in order to display them on the internet. It is not a case-sensitive language.

Hyper Text is the text which contains links to other web pages. Using these links, internet users can navigate on the world wide web. By clicking on these links, also called hyper links, users are brought to new web pages. Here, the word hyper means it is not linear, so users can go anywhere on the Internet simply by clicking on the available links.

Fig: 2.2 Concept of Navigation on Internet

2.3 SOFTWARE REQUIREMENTS FOR HTML

There are no minimum system requirements for developing HTML programs. HTML Programming can be done on any type of computer and with any operating system. We need only the following software to begin with programming in HTML:

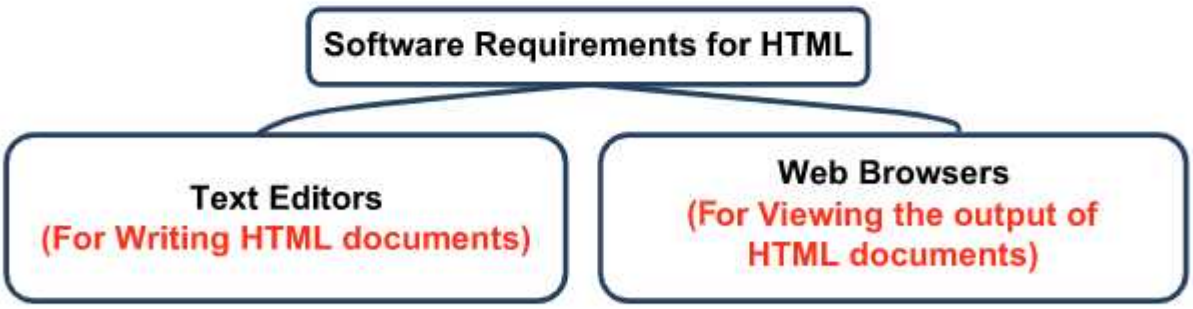


Fig: 2.3 Software Requirements for HTML

2.3.1 TextEditors:

A web page is a text file in which a hypertext is written according to HTML syntax. So, for making web pages using HTML, we just require any simple Text Editor, such as Notepad (a built-in text editor of window) etc.Some computers with different Operating-system have different text editors. But all text editors are used to write and save texts in various formats.**".html"** or **".htm"** are the two extensions that are used to write and save HTML files using these text-editors.

Although, many advanced text editors are also available in the market for programming in HTML. Notepad++, Dreamweaver, Sublime, NetBeans etc. are mainly used for writing and editing HTML coding. Notepad++ is a free and powerful code-editor. It can be downloaded free from the Internet (website: https://notepad-plus-plus.org/). It has the convenience of Tabs and we can edit & work with multiple files at the same time. Following figures show the interface of Notepad and Notepad++ Editor.

Fig 2.4 Notepad **Fig 2.5 Notepad++**

Many specialized online apps are also available on the web to create and edit web pages such as W3Schools Online Code Editor, OneCompiler, JS Bin, JSFiddle, Dabblet, CodePen etc. We can also use these online editors to create web pages using HTML.(For more information about using Online HTML editors, see the detail in Appendix-I.)

2.3.2 Web Browsers

To view the output of HTML program, we have to open it in the Web Browser such as: Chrome, Internet Explorer, Firefox, Safari, etc. Internet Explorer is the inbuilt browser of Windows operating system, while other web browsers should be installed explicitly. HTML code is displayed by the browser converting it to a web page.

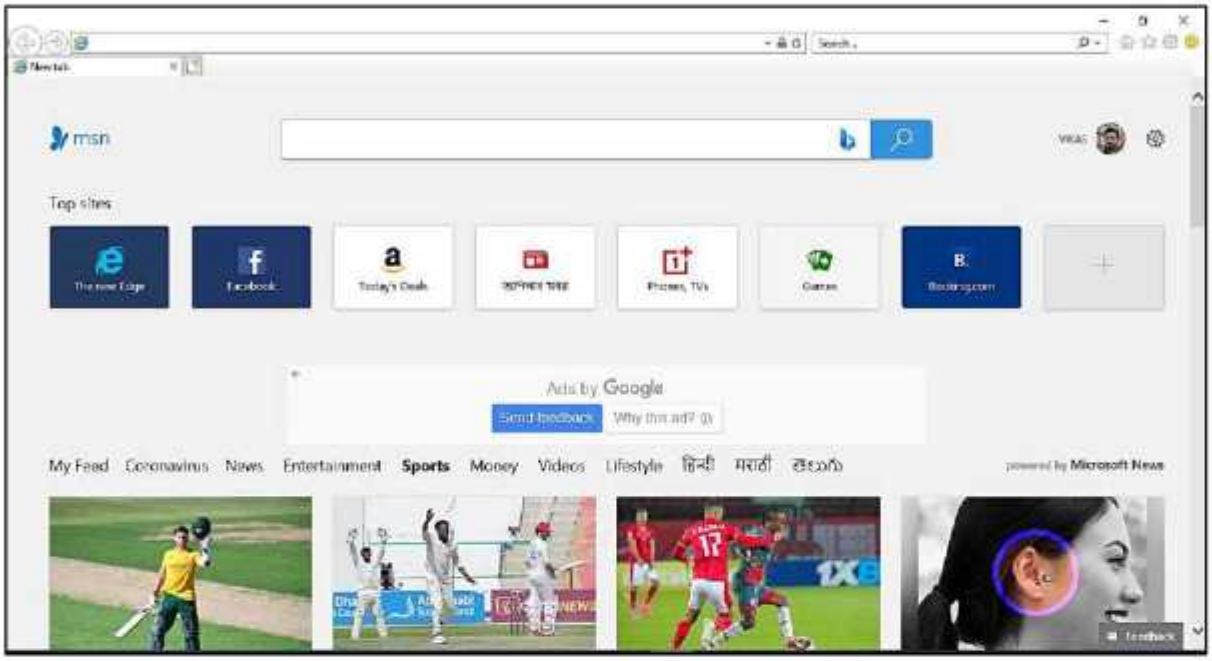


Fig: 2.6 Internet Explorer (Web Browser)

If we prepare HTML web page in the simple text editor (Notepad), then we have to open the web page manually to view it in the web browser. To open the HTML document file manually using the web browser, we usually use the Open dialog box which can be opened by pressing the shortcut key **Ctrl + O**.

But, in the case of Notepad++, we can do it from within the Notepad++ interface. To preview the html code in the web browser, we can follow the steps given below:

1. Click on the **View** Menu.
2. Click on the "**View Current file in**" to open the submenu.
3. Now, click on the desired web browser that is listed in the submenu, to view the output of HTML program.

We can also view the output of HTML program by right clicking on the tab and select **Open in Default Viewer**.

If we are using Online HTML Editors for creating and editing web pages, then it implicitly too provides the options to view the output of created/edited web pages.(For more information, see the detail in Appendix-I.)

2.4 TAGS AND ATTRIBUTES

HTML is a hyper text markup language; It has a predetermined set of markup tags (also known as elements). These markup tags are special type of instructions that are used in HTML documents to design web pages. Each tag starts with Opening Angle Bracket (<) and ends with closing angle bracket (>). These tags instruct web browsers how they will format and display the contents of a web page. With the help of tags, a web browser can distinguish between an HTML content and a simple content. HTML tags contain three main parts: opening tag, content and closing tag. But some HTML tags are unclosed tags. Therefore, these HTML tags can be mainly divided into following two types:

- **Paired Tags**: These tags are also known as Companion or Container tags. A paired tag consists of two tags: first one is called an opening tag (<tag>) and the second one is called a closing tag (</tag>). The text on which we want to apply tag's effect is placed in between these opening and closing tags. For Example:

  ```
  <b>Hello from
  HTML</b>
  ```

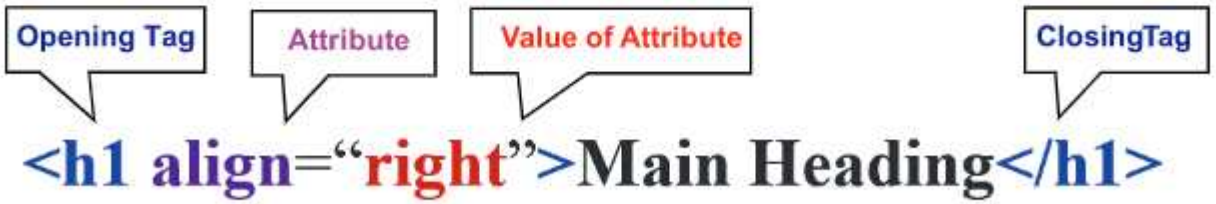
  Here, is called opening tag and is called closing tag. We want to apply the bold effect on the text "Hello from HTML" so this text is placed in between the opening and closing tags.

- **Unpaired Tags**: These tags are also known as Singular or Stand-Alone tags. These tags do not need to be closed. For Example:

, <hr> tags etc.

  These tags do not require any closing tag.

HTML tags can also have attributes. **Attributes** are used to provide additional information about HTML tags. These attributes are always specified in the Opening tag. Attributes usually come in name/value pairs like: name="value".Attribute values should always be enclosed in quotation marks. For Example:



In this example, we are using paired tag <h1> which is used to create a Heading of level one. In the opening tag of <h1>, we are using **align** attribute having value "**right**". Here, align attribute

provides additional information about the heading that it will be aligned to the right side. If we do not provide this attribute, then <h1> tag will take its default alignment, i.e. left. So, to change the alignment to the right side for heading tag, we used **align**="**right**" attribute.

Different tags can have different attributes. Some attributes are required for certain elements, for instance: an <img> tag must contain a **src** attribute, while for most of the tags, the use of attributes depends on the requirement.

HTML is relatively easy to learn because every tag is predefined, so only we need to know the work of tags and their attributes. HTML tags and attributes can be written in small or capital letters of English Alphabets.

2.5 BASIC STRUCTURE OF HTML DOCUMENT

Basic structure of HTML Document can be mainly divided into two parts: head part and body part as shown in the following figure:

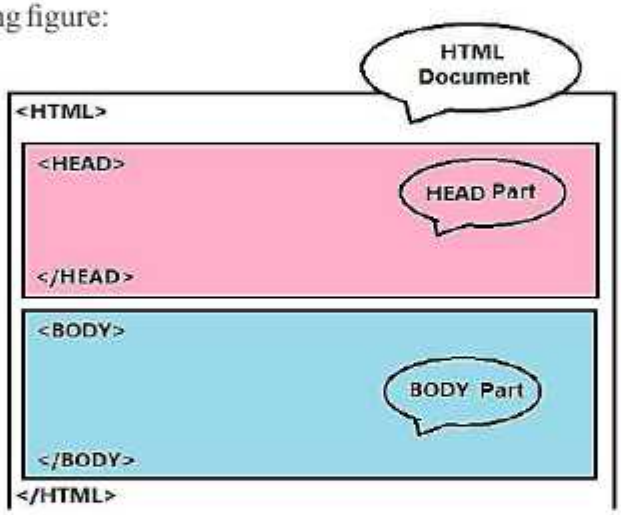


Fig: 2.7 Basic Structure of HTML document

As shown in the above figure, HTML document begins with opening tag <HTML> and ends with closing tag </HTML>. These tags contain everything inside the document, including the Head and Body.<HTML> tag acts as a root of the document. This tag should be only one for the entire document. Following description shows the role of head part and body part in the html document.

- **HEAD Part**: This part includes header information about the HTML document, for example: page title, information about meta-data etc. Meta-data refers to other information related to the data available in the html page, such as keywords used by the search engines etc. Information in the head part is used by the web browsers and even web servers. Head part is defined by <HEAD> tag which is a container tag. It begins with <HEAD> tag and ends with </HEAD> tag. This tag is always defined before the <BODY> tag. Different types of tags can be used for different purposes in head part of html documents. Following are some commonly used tags within the head part (within <head> and </head>) of the web page:

Tag	Description
<title>	It is used to define the title of the HTML document
<meta>	It is used to represent the metadata of the HTML document
<style>	It is used to define the styles (CSS) for the HTML document
<script>	It is used to insert scripts (such as JavaScript, php, asp etc.) in the HTML document
<link>	It is used to define the link for external resource (such as style sheet etc.)that will be used in the HTML document

- **BODY Part**: This part contains all those contents that are displayed on the web page to the end user. Body part is defined by the <BODY> tag which is also a container tag. It begins with <BODY> tag and ends with </BODY> tag. All the contents, such as text, pictures, videos, tables, lists, forms etc. shown to user is defined within this tag. Body of the html document should start immediately after the closing head tag, i.e. </head>.

Note: CSS (Cascading Style Sheet) is a style sheet language that is used for describing the presentation of a document written in a markup language such as HTML.

2.5.1 Creating a Web Page with Basic Structure of HTML document:

To create a web page, perform the following steps:

1. Open any Text Editor such as Notepad or Notepad++ etc.
2. If you are using Notepad++, Create a new file by clicking on File New or by using the shortcut key Ctrl+N, while if you are using the Notepad, then it will automatically open a new file for you.
3. Now, start typing a very simple HTML program code as shown in the example below:

```
<!DOCTYPE html>
<html>
  <head>
   <title>Example Page</title>
  </head>

  <body>
   <h1>Introduction to HTML</h1>
   <p>HTML stands for Hypertext Markup Language</p>
  </body>
</html>
```

Program2.1 Simple Example of HTML program

4. After typing HTML code (Program 2.1) in the text editor, now save it using File Save or using shortcut key Ctrl+S. Make it sure to type the extension (.html) of HTML document after typing the file name, i.e. filename.html (for example: p1.html)

Every HTML webpage has such type of code. Let's learn about the code given in the Program 2.1:

<! DOCTYPE html>tag describes the version of html. It shows that the HTML document is going to use version 5 of html. It must only appear once, at the top of the page (before any HTML tags).The <!DOCTYPE> declaration is not case sensitive. This declaration will be used only if we

want to use the HTML5 version for web designing, otherwise if we omit this declaration, then the HTML4 version will be used by default.

In the **Head part** of above program, we are using only title tag. Title tag is a container tag. It begins with the <title> tag and ends with the </title> tag. This tag defines the title of the web page. Title of the web page should appear in between the opening and closing tag of the title tag. The title appears in the title bar of the web browser when web page gets loaded in the web browser.

In the **Body part**, we have written a simple text message. This message will be displayed to the end user in the main window of the web browser when web page gets loaded in the web browser. We can even display more contents such as pictures, videos, formatted text, tables, lists etc. in the body part of HTML document instead of only a simple message. For this, we have to use different types of tags in the body part of the document.

2.5.2 Viewing the Web Page with Basic Structure of HTML document:

Once HTML document file is saved, it can be opened as a webpage in the web browser. If we prepare HTML web page in the simple text editor (Notepad), then we have to open the web page manually to view it in the web browser. To open the HTML document file manually using the web browser, we usually use the Open dialog box which can be opened by pressing the shortcut key **Ctrl + O**.

If we are using Notepad++, we can open it in the web browser very easily. Just right click on the file tab and click on the option "**Open in default Viewer**". It will open the web page in the default web browser as shown below:

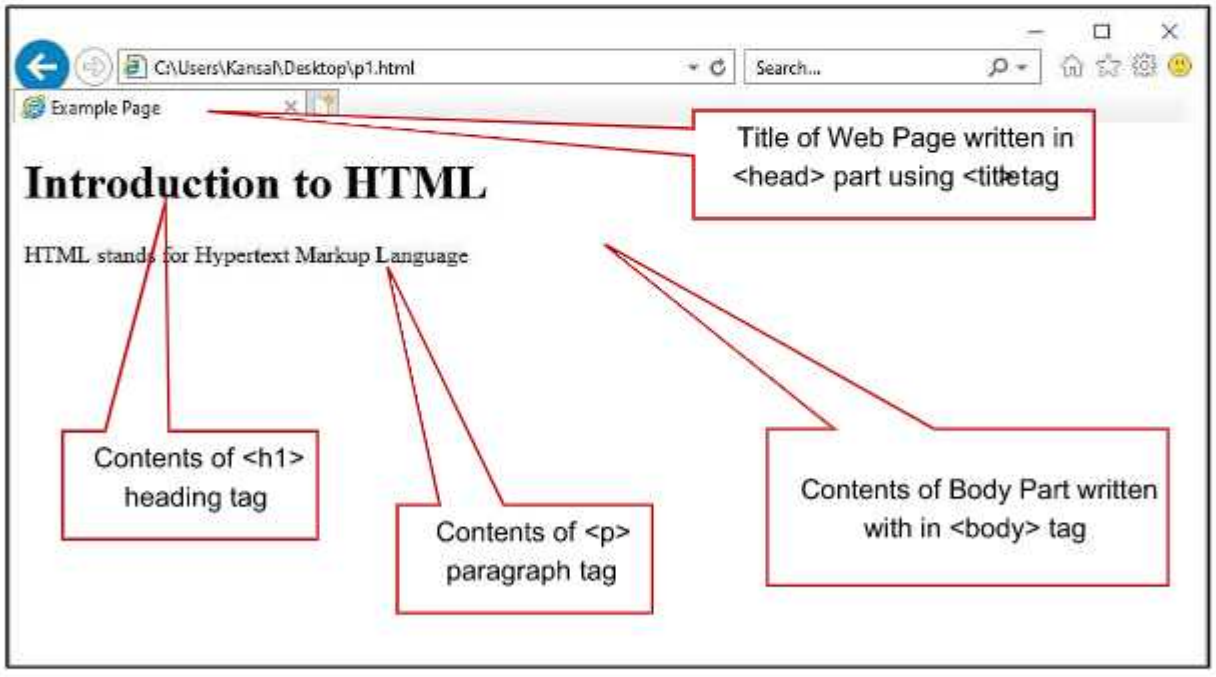


Fig: 2.7 Output of Program:2.1usingInternet Explorer

2.6 FORMATTING HTML DOCUMENTS:

We have learnt about how to create a **HTML** document with a basic structure. Now, we will add some more elements to the sample program of **HTML**. Let's discuss about the formatting of web page contents using various **HTML** tags.

HTML Formatting is a process of formatting text for better look and feel of web pages. HTML provides us ability to format text without using CSS (Cascading Style Sheets). There are many tags and attributes in HTML that helps us in formatting. These tags are used to make text bold, italicized, or underlined. Following is the description about commonly used tags and attributes that are used for formatting in HTML.

2.6.1 Bold, Italic, Underline and Strikethrough:

HTML provides us with the ability for formatting text just like we do it in MS Word or any text editing software. Following tags are used to apply these formatting effects on text:

- **Bold:** The tag is used to apply Bold effect on the text. It is a paired tag. Any text that appears within ... element, is displayed in bold format.
- **Italic:** The tagis used to apply *Italic* effect on the text. It is a paired tag. Any text that appears within ... element, is displayed in italic format.
- **Underline:** The <u> tag is used to apply underline effect on the text. It is a paired tag. Any text that appears within <u>...</u> element, is displayed in underline format.
- **Strikethrough:** The <s> tag is used to apply ~~strikethrough~~ effect on the text. It is a paired tag. Any text that appears within <s>...</s> element, is displayed in strikethrough format.

Following program shows the use of these formatting tags in the HTML document:

```
<html>
  <head>
    <title>Example Page</title>
  </head>

  <body>
    <u>HTML stands for <b>Hypertext</b> <s>Markup</s> <i>Language</i></u>
  </body>
</html>
```

Program 2.2 HTML program for making text bold, italic, underline and strikethrough

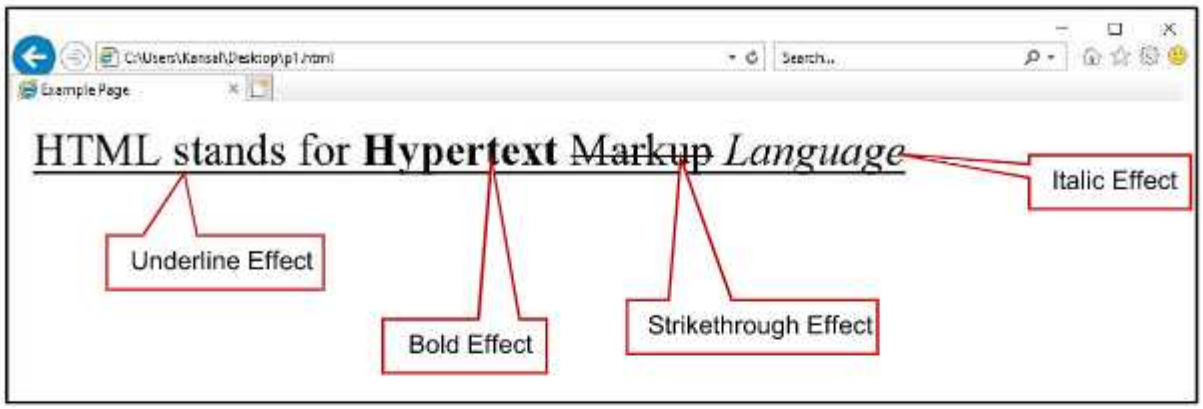


Fig: 2.9 Output of Program 2.2 in Internet Explorer

2.6.2 Adding Line Break and Horizontal Line:

- **Line Break:** When any text is written in different lines by pressing the Enter key in HTML document, then these line breaks are not considered by the browser. HTML will ignore the line breaks and treat everything as simple content and put everything in a single line. Therefore, HTML provides us a special tag to insert line break in our document.

  It is the <br> tag which can be used to insert a single line break wherever required in the document. This tag can be used to move the control to the next line. It immediately breaks the text and starts the text in the next line. This tag can be useful for writing addresses or poems etc. in the HTML document. This tag is unpaired tag, so it doesn't have any closing tag.

- **Horizontal Line:** To draw a horizontal line in HTML, we use <HR> tag. Here, HR stands for Horizontal Rule. It creates a horizontal line wherever it is used in the body of the document. This tag is used for a thematic break or used for separating content from one another. Following common attributes can also be used with this tag:
  - **align**: It is used to change the alignment of the rule on the web page. If no value is specified, the default value is center. The align attribute has no effect unless the width attribute is set to less than 100%. This align attribut is value is set to left, right and centre.
  - **color**: It is used to change the color of the horizontal line through color name or hexadecimal value.
  - **size**: It is used to set the height of horizontal line in pixels.
  - **width**: It is used to set the length of the horizontal line on the web page through pixels or percentage value.

Following Example Program 2.3 shows the usage of line break and horizontal rule tags

```
<html>
  <head>
   <title>Line Break Example</title>
  </head>

  <body>
   <b>My Address:</b>
   Mr. Paramveer Kansal,
   H.No: 174, Sector 92,
   S.A.S. Nagar Mohali.
   <hr width="80%" size="5" color="red">
   <b>My Address:</b> <br>
   Mr. Paramveer Kansal,<br>
   H.No: 174, Sector 92,<br>
   S.A.S. Nagar Mohali.<br>
  </body>
</html>
```

Program: 2.3 HTML Program for Line Break

Fig: 2.10 Output of Program 2.3

2.6.3 Heading Level Tags:

Users often view a page by its headings. It is important to use headings to show the document structure. HTML headings are defined with the <h1> to <h6> tags. There are 6 levels of headings in HTML. <h1> headings should be used for main headings, followed by <h2> headings, then the less important <h3>, and so on. In simple words, the <h1> heading denotes the most important and <h6> heading denotes the least important heading in HTML document. Search engines use the headings to index the structure and content of your web pages.

When we place the text within the heading tags <h1>.....</h1> then it is displayed in the browser in the bold format, and size of the text depends on the level of Heading.

By default, these headings are left aligned. If we want to change the alignment of these headings, i.e. *right, center* or *left* alignment, then we have to use its attribute – ***align***. Consider the following example:

```
<html>
  <head>
    <title>Heading Example Page</title>
  </head>

  <body>
    <h1>This is the Most Important Heading</h1>
    <h2 align="right">This is 2nd level of Heading</h2>
    <h3 align="center">This is 3rd level of Heading</h3>
    <h4 align="left">This is 4th level of Heading</h4>
    <h5 align="right">This is 5th level of Heading</h5>
    <h6>This is Least Important Heading</h6>
  </body>
</html>
```

Program 2.4 HTML program for Heading levels

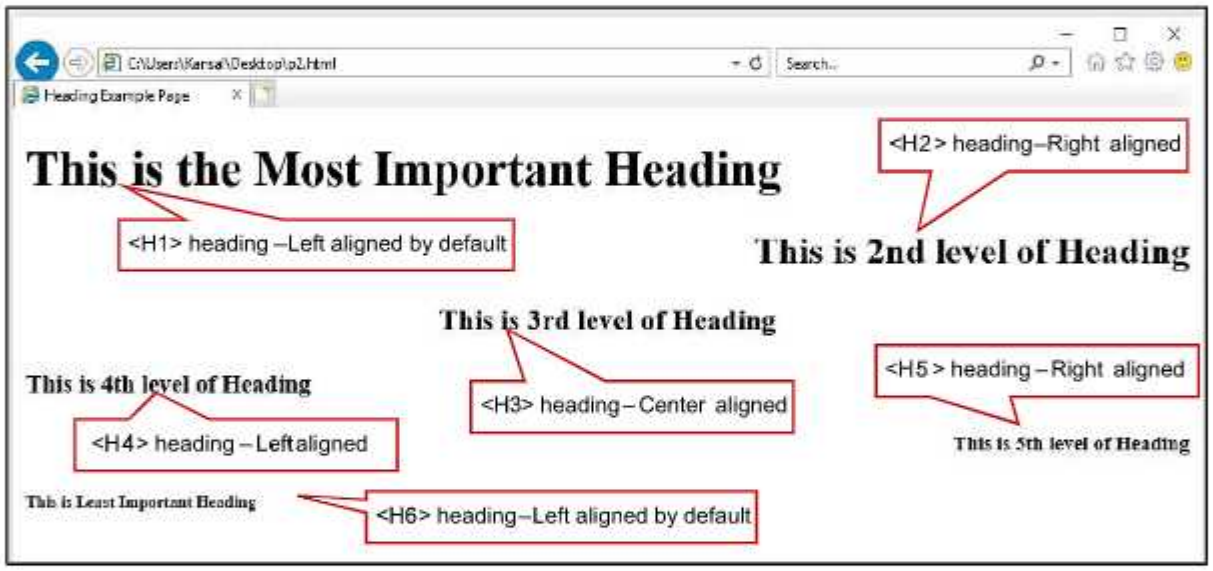


Fig: 2.11 Output of Program 2.4 in Internet Explorer

2.6.4Making Paragraphs

The tag is used to define a paragraph in the HTML document. It is a container tag. Any text written in between and tags is considered as a paragraph. The tag automatically adds space before and after any paragraph, which is basically margins added by the browser. If a user adds multiple lines in between the and tags, the browser reduces them to a single line. Similarly, If a user adds multiple spaces in between the text of a paragraph, the browser also reduces them to a single space.

We can also change the alignment of a paragraph using the **align** attributes of tag. Here, the **align** attribute can have *left, right, center* and *justify* values for aligning the paragraph in different ways. By default, paragraphs are left aligned in web pages. Following program shows the use of paragraph tag in the HTML document:

```
<html>
  <head>
   <title>Paragraph Example</title>
  </head>

  <body>
   <p>World Wide Web        is also known as a Web.
   It is a collection of websites or web pages.
   These web sites/pages are stored on web servers.
   Each web site/page is given a unique online address called a Uniform Resource
   Locator       (URL) . </p>
   <p align="right">World Wide Web        is also known as a Web.
   It is a collection of websites or web pages.
   These web sites/pages are stored on web servers.
   Each web site/page is given a unique online address called a Uniform Resource
   Locator       (URL) . </p>
   <p align="justify">World Wide Web is      also known as a Web.
   It is a collection of websites or web pages.
   These web sites/pages are stored on web servers.
   Each web site/page is given a unique online address called a Uniform Resource
   Locator       (URL) . </p>
  </body>
</html>
```

Program 2.5 HTML Program for the Use of Paragraph tag <p>

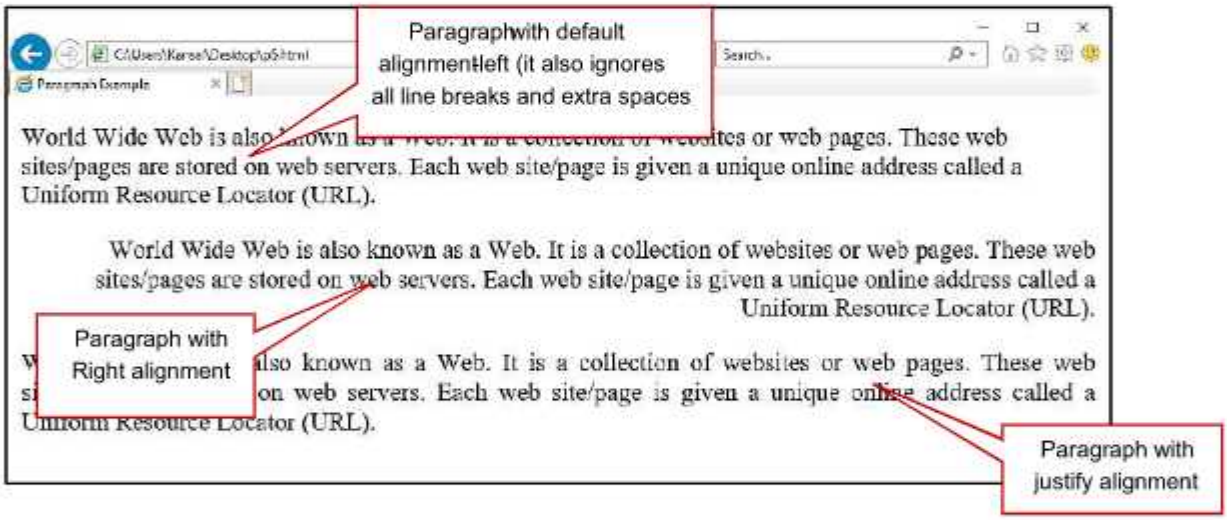


Fig: 2.12 Output of Program 2.5 in Internet Explorer

2.6.5 Superscript and Subscript Text:

The <sup> tag is used to add a superscript text to the HTML document. It is a container tag. The content written in between **^{...}** element will be shown as a superscript. Superscript text appears half a character above the normal line and is sometimes rendered in a smaller font. Superscript text can be used in mathematical equations. For example: x^2y, here 2 is a superscript. Superscript text can also be used for footnotes.

The <sub> tag is used to add a subscript text to the HTML document. It is a container tag. The content written in between **_{...}** element will be shown as a subscript. Subscript text appears half a character below the normal line and is sometimes rendered in a smaller font. Subscript text can be used for chemical formulas, like H2O to be written as H_2O.

```
<html>
  <head>
   <title>Subscript and Superscript Example</title>
  </head>

  <body>
   <h1>Mathematical Equation X<sup>2</sup>Y</h1>
   <h1>Chemical Equation H<sub>2</sub>O</h1>
  </body>
</html>
```

Program 2.6 HTML Program for Superscript and Subscript

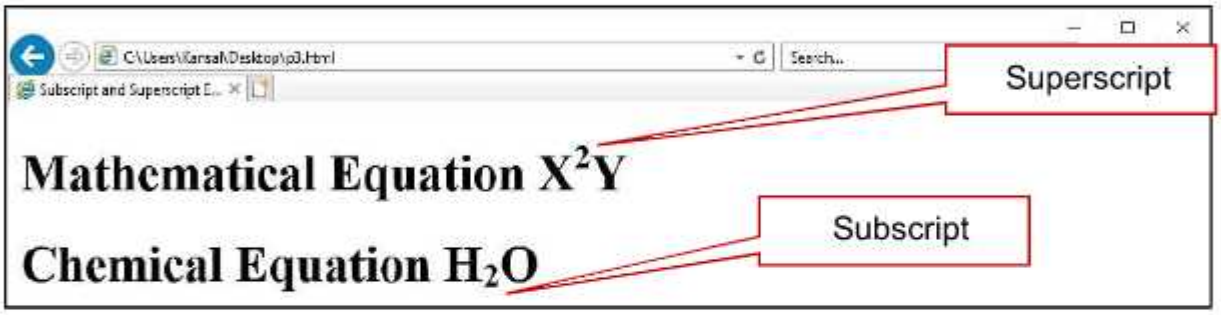


Fig: 2.13 Output of Program 2.6 in Internet Explorer

2.6.6 Working with Fonts:

To work with the fonts of text, we use <font> tag in HTML documents. The <font> tag plays an important role in the web page to create an attractive and readable web page. This tag is used to change the color, size, and face/style of a text. It has the following three attributes:

- **Color**: This attribute is used to change the color of text using either hexadecimal code or named color (i.e. black, red, white)
- **Face**: This attribute is used to change the *fontface*. If the user viewing the page doesn't have the font installed, user will see the default font face applicable to the user's computer.
- **Size**: This attribute is used to change the Font size. Size can be expressed as either a numeric or relative value. The range of accepted numeric values is from 1 (smallest) to 7 (largest). The default size of a font is 3.We can specify the size using Relative values, such as +1 (increasing by one font size than the pre-set font size) or -2 (decreasing by 2 font sizes than the pre-set font size) etc.

To change any of the font attributes at any time within our webpage, simply use the <font> tag. The <font> tag is obsolete in HTML5.

```
<html>
  <head>
   <title>Font Example</title>
  </head>

  <body>
   This is the Sample Text 1 <br>
   This is the <font color="red">Sample Text 2</font> <br>
   This is the <font size="5">Sample Text 3 </font><br>
   This is the <font face="Impact">Sample Text 4 </font><br>
   This is the <font face="Arial" color="blue" size="3">Sample Text 5
   </font><br>
  </body>
</html>
```

Program 2.7 HTML Program for Working with Fonts tag

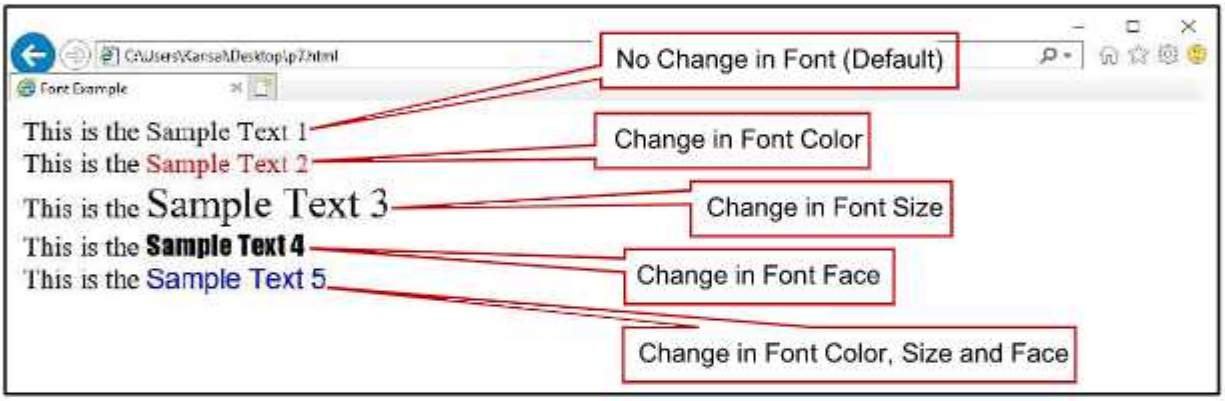


Fig: 2.14 Output of Program 2.7 in Internet Explorer

2.6.7 Making Text Size Larger or Smaller:

HTML <big> tag was used to increase the text font size one level bigger than the document's base font size or surrounding text size, such as from small to medium, medium to large, large to x-large, etc. HTML <big> tag is no longer supported by HTML5.

Similarly, HTML <small> tag was used to decrease the text font size one level smaller than the document's base font size or surrounding text size, such as from x-large to large, large to medium, medium to small, etc. HTML <small> tag is no longer supported by HTML5.

Both of these tags are paired tag. Following HTML program shows the usage of these tags:

```
<html>
  <head>
   <title>Bigger and Smaller Text Examle</title>
  </head>

  <body>
   This is an example of <big>Bigger Text</big><br>
   This is an example of <small>Smaller Text</small><br>
  </body>
</html>
```

Program 2.8 HTML Program for Making Text Bigger or Smaller

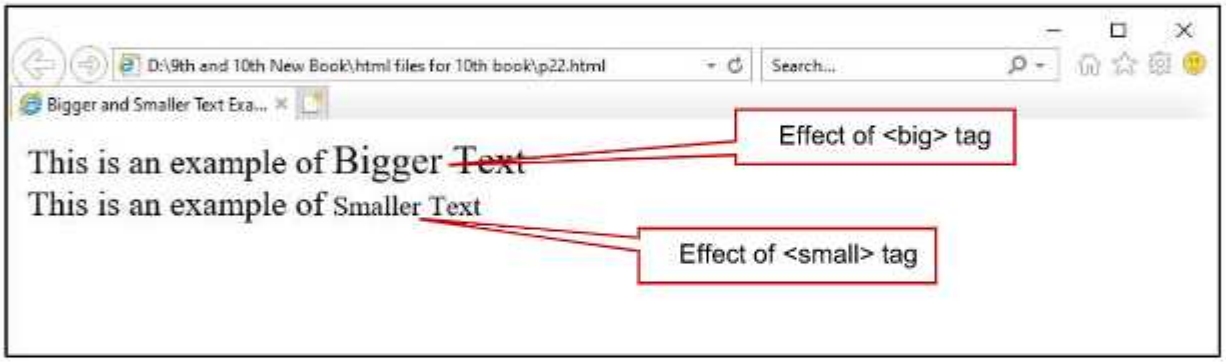


Fig: 2.15 Output of Program 2.8 in Internet Explorer

2.6.8 Monospaced Font

We know that most of the fonts are known as variable-width fonts because different letters have different width. (for example: 'w' is wider than 'I'). Monospaced Font provides similar space among every letter. If we want that each letter has the same width then we should write the content within <tt>...</tt> element.The <tt> tag is the abbreviation of teletype text. This tag is depreciated from HTML 5.Consider the following example which shows the usage of <tt> tag:

```
<html>
  <head>
   <title>Monospaced Example</title>
  </head>

  <body>
   <h3>Text in Common Font</h3>
   The quick brown fox jumps over a lazy dog.
   <hr>
   <h3>Text in Monospaced Font</h3>
   <tt>The quick brown fox jumps over a lazy dog.</tt>
  </body>
</html>
```

Program 2.9 HTML Program for Monospaced Text

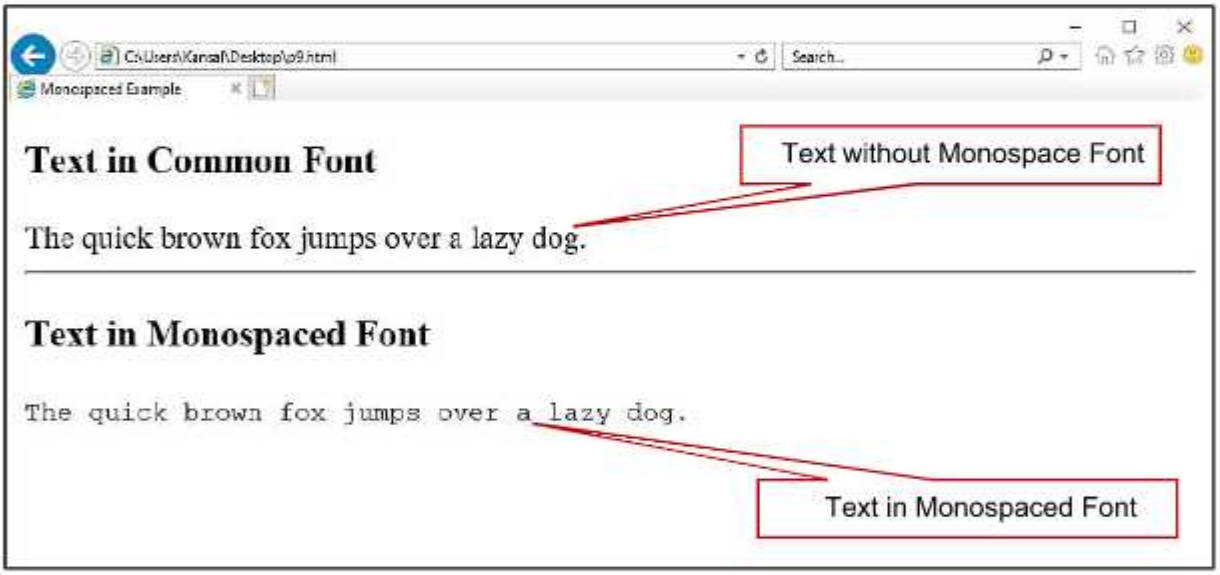


Fig: 2.16 Output of Program 2.9 in Internet Explorer

2.6.9 Pre-formatted Text:

The **<pre>**tag is used *to specify pre-formatted text*. It is a paired tag. Text within <pre>.....</pre> tag is displayed in a fixed-width (monospace) font. The spaces and line breaks in the text are preserved.

The <pre> tag is usually used to display code, or a text (for example, a poem), where the author himself sets the location of the lines relative to each other. Following HTML program shows the usage of this tag.

```
<html>
  <head>
   <title>Preformatted Text Example</title>
  </head>

  <body>
   <pre>
   #       # #
   #       # #
   # # #   # #
   #       # #
   #       # #
   </pre>
  </body>
</html>
```

Program 2.9 HTML Program for Preformatted Text

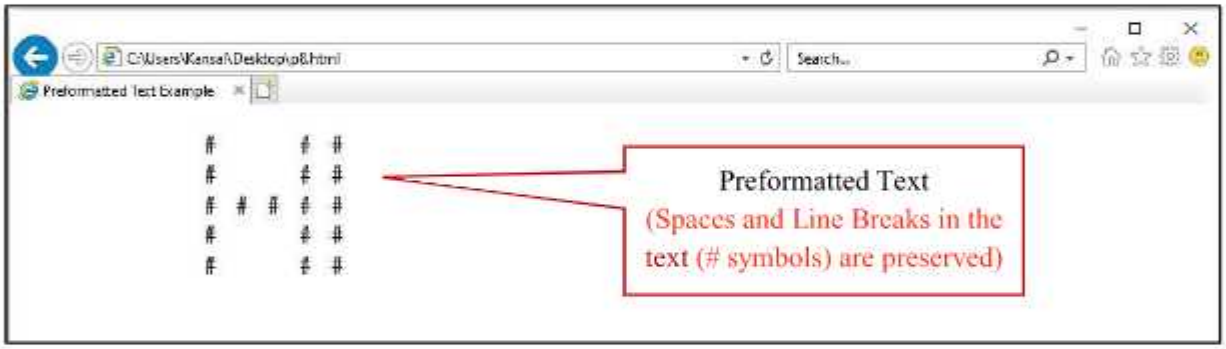


Fig: 2.17 Output of Program 2.9 in Internet Explorer

2.6.10 Center Alignment:

So far, we have used the align attribute of various HTML tags to align the contents in the center. If we want to align any content (text, graphic elements, tables and so on) in the center of web page, we can also use tag in the HTML document. The ** tag** is used to center the contents horizontally in the HTML document. It is a paired tag. The content written in between the …. elements will be displayed horizontally at the middle of the page. This tag is not supported in HTML5.

2.6.11 Marked Formatting:

If we want to mark or highlight a text, we should write the content within <mark>.....</mark> tags. Consider the following example program which shows the usage of center and mark tags in HTML documents:

```
<!DOCTYPE html>
<html>
  <head>
   <title>HTML Example</title>
  </head>
  <body>
   <center> Hello Students </center>
   This is an example of <mark> marked text </mark>
  </body>
</html>
```

Program 2.10 HTML Program for <Center> and <Mark> tags

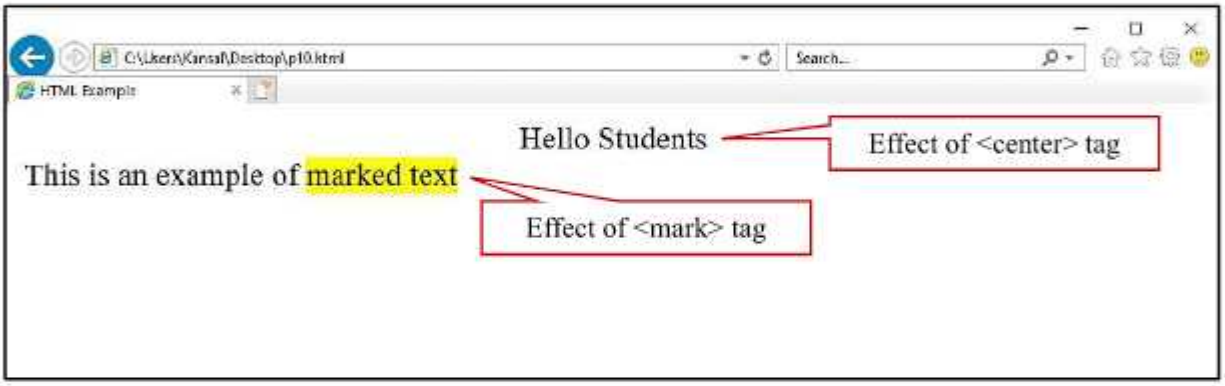


Fig: 2.18 Output of Program 2.10 in Internet Explorer

2.6.12 Scrolling Text:

Marquee is one of the important tags introduced in HTML. It is used to create scrollable texts and images within a web page. It scrolls either from horizontally - left to right or right to left, or vertically - top to bottom or bottom to top. The <marquee> tag is a container tag of HTML. This tag is deprecated in HTML5. Following are some of the common attributes that can be used with marquee tag:

- **Behaviour**: This attribute is used to define the scrolling type. *Scroll, slide, alternate* are the possible values of this attribute
- **Bgcolor**: This attribute is used to set a background color for scrollable text. We can use *hexadecimal codes or named-colors* as values for this attribute.
- **Direction**: This attribute is used to set the direction for the scrolling content. *Up, down, left, right* are the possible values for this attribute.
- **Height**: This attribute is used to define the height for scrollable text. We can set its value either in *pixels* or in *percent*.
- **Loop**: This attribute is used to define how many times the content will scroll. If we don't define this, the content will scroll forever.
- **Scrollamount**: This attribute is used to define the scrolling amount at each interval in pixels. Its default value is 6.
- **Width**: This attribute is used to define the width of scrollable width. We can set its value either in *pixels* or in *percent*.

Following example program shows how to use marquee tag in the HTML document:

```
<html>
  <head>
   <title>Marquee Example</title>
  </head>
  <body>
   <marquee> Welcome to the World of HTML-1 </marquee>
   <marquee bgcolor="pink" direction="right" width="100%"> Welcome to the
   World of HTML-2</marquee>
   <marquee direction="down" height="200"> Welcome to the World of HTML-3
   </marquee> <br>
   <marquee bgcolor="red" behavior="alternate" width="80%">Welcome to the
   World of HTML-4 </marquee>
  </body>
</html>
```

Program 2.11 HTML Program for Scrolling Text using <marquee> tags

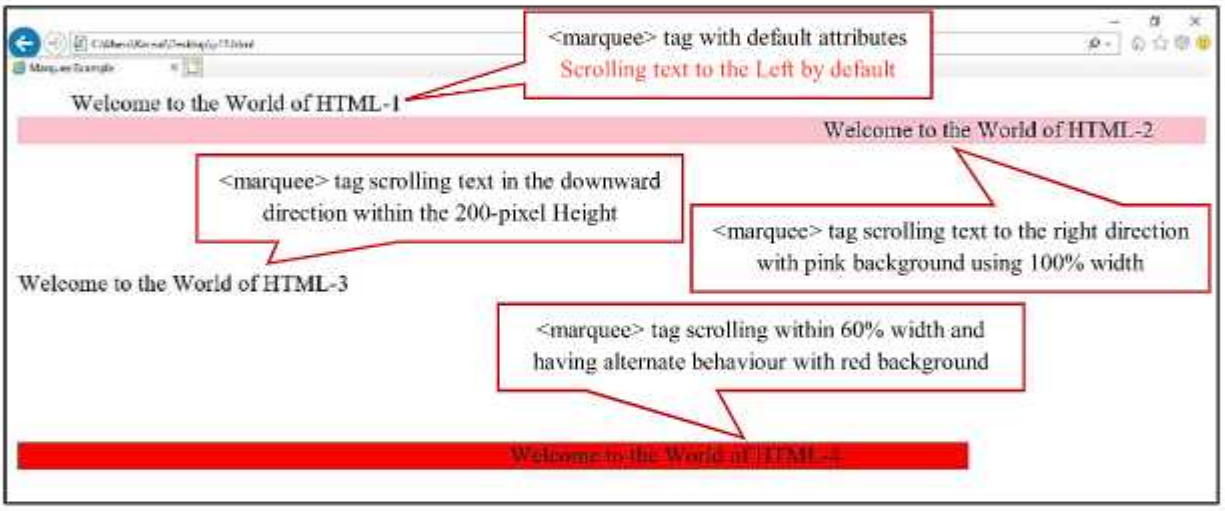


Fig: 2.19 Output of Program 2.11 in Internet Explorer

2.6.13 Formatting Body of HTML document:

We can also format the body of the web page using the attributes of <body> tag. We can set the foreground and background color of the body. We can also set a picture at the background of the body. Link colors can also be changed. For all these settings, we have to use the attributes of the <body> tag. Following are some of common attributes that can be used to format the body part of the document.

- **Background**: This attribute is used to set the background image for the HTML document. We have to set the url of the image to use the picture as background of the body.
- **Bgcolor**: This attribute is used to set a background color of the HTML document.
- **Link**: This attribute is used to change the color of unvisited link for the HTML document.

- **Text**: This attribute is used to change the text color for the HTML document.

Following HTML program shows how to use these attributes:

```
<html>
  <head>
    <title>Body Format Example</title>
  </head>

  <body bgcolor="black" text="yellow">
    <h1>HTML stands for Hypertext Markup Language</h1>
  </body>
</html>
```

Program 2.12 HTML Program for Formatting body of document

Fig: 2.20 Output of Program 2.12 in Internet Explorer

POINTS TO REMEMBER

1. World Wide Webis a collection of websites or web pages.
2. Web pages are designed and formatted in HTML.
3. A **Markup** language is a computer language that uses tags (<>) to define elements within a document.
4. **HyperText** is the text which contains links to other web pages.
5. For making web pages using HTML, we just require any simple Text Editor, such as Notepad (a built-in text editor of window) etc.
6. To view the output of HTML program, we have to open it in the Web Browser such as: Chrome, Internet Explorer, Firefox, Safari, etc.
7. Markup tags are special type of instructions that are used in HTML documents to design web pages.
8. HTML tags can be mainly divided into following two types: Paired and Unpaired Tags.
9. **Attributes** are used to provide additional information about HTML tags.
10. HTML document begins with opening tag <HTML> and ends with closing tag </HTML>. These tags contain everything inside the document, including the Head and Body.
11. Head part includes header information about the HTML document, for example: page title, information about meta-data etc. It begins with <HEAD> tag and ends with </HEAD> tag.
12. Body part contains all those contents that are displayed on the web page to the end user. It begins with <BODY> tag and ends with </BODY> tag.
13. **<! DOCTYPE html>** tag describes the version of html. It shows that the HTML document is going to use version 5 of html.
14. HTML **Formatting** is a process of formatting text for better look and feel of web pages.
15. It is the <br> tag which can be used to insert a single line break wherever required in the document.
16. If we want that each letter has the same width then we should write the content within <tt>...</tt> element. The <tt> tag is the abbreviation of teletype text.
17. The **<pre>**tag is used *to specify pre-formatted text.*
18. The <marquee> tag is used to create scrollable texts and images within a web page.

EXERCISE

Que:1 Multiple Choice Questions:

I. _____ is a collection of websites or web pages.

a. World Wide Web
b. Web Sites
c. HTML
d. HyperText

II. _____ is the text which contains links to other web pages.

a. Static Text
b. Hyper Text
c. Plain Text
d. All of these

III. To view the output of HTML program, we have to open it in the _____

a. Text Editor
b. Word Processor
c. File Explorer
d. Web Browser

IV. _____ are used to provide additional information about HTML tags.

a. Paired tags
b. Unpaired Tags
c. meta-data
d. Attributes

V. _____ tag is used to create scrollable texts and images within a web page.

a. <title>
b.
c. <marquee>
d. <sup>

Que:2 Fill in the Blanks

I. Paired Tags are also known as _____ tags

II. _____ part contains all those contents that are displayed on the web page to the end user.

III. <! DOCTYPE html> tag describes the _____ of HTML.

IV. _____ tag is used to insert a single line break.

V. _____ tag is used to add a subscript text to the HTML document.

VI. _____ attribute is used to set the background image for the HTML document.

Que:3 Write the full forms of the following HTML tags:

I. **<b>**
II. **<I>**
III. **<u>**
IV. **<s>**
V. **<p>**
VI. **<tt>**
VII. **<hr>**
VIII. **
**
IX. **<sup>**
X. **<sub>**

Que:4 Short Answer Type Questions

I. What is HTML?
II. Write the name of softwares required for HTML programming.
III. What are attributes?
IV. Write the name of any five tags used for formatting in HTML.
V. How will you scroll text and images in HTML document?

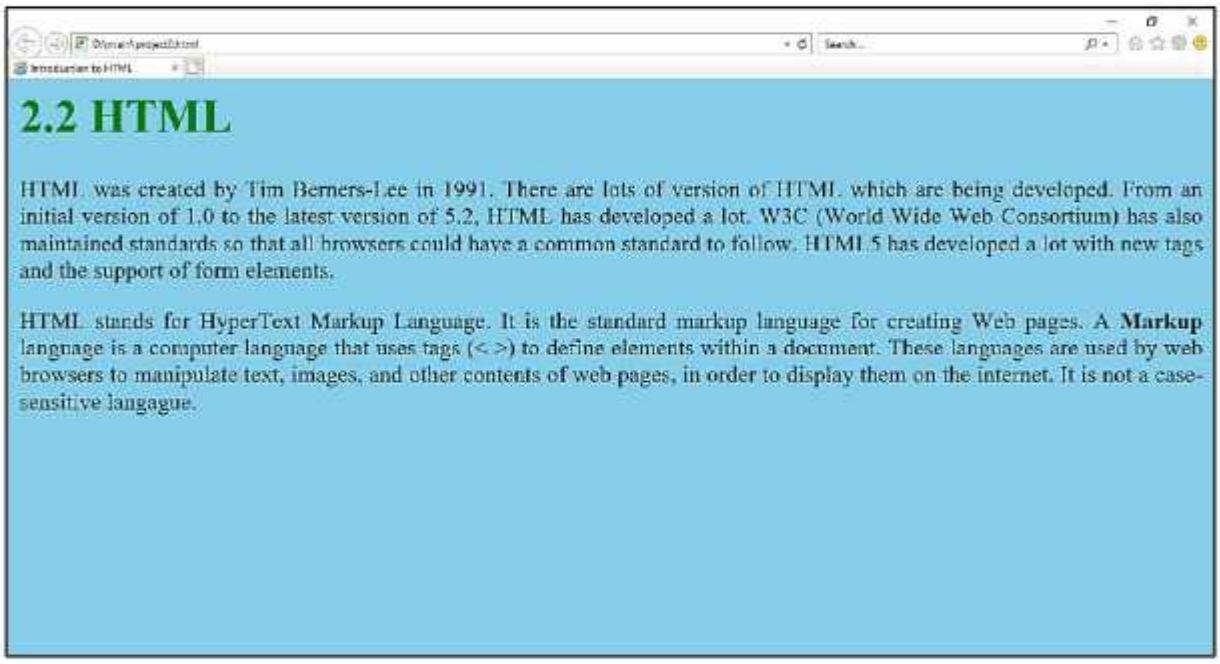
Que:5 Long Answer Type Questions

I. What are Tags? Explain two different types of tags used in HTML.
II. How will you work with fonts in the HTML document?
III. Explain about the body part of the HTML document? How will you format it?

Lab Activities

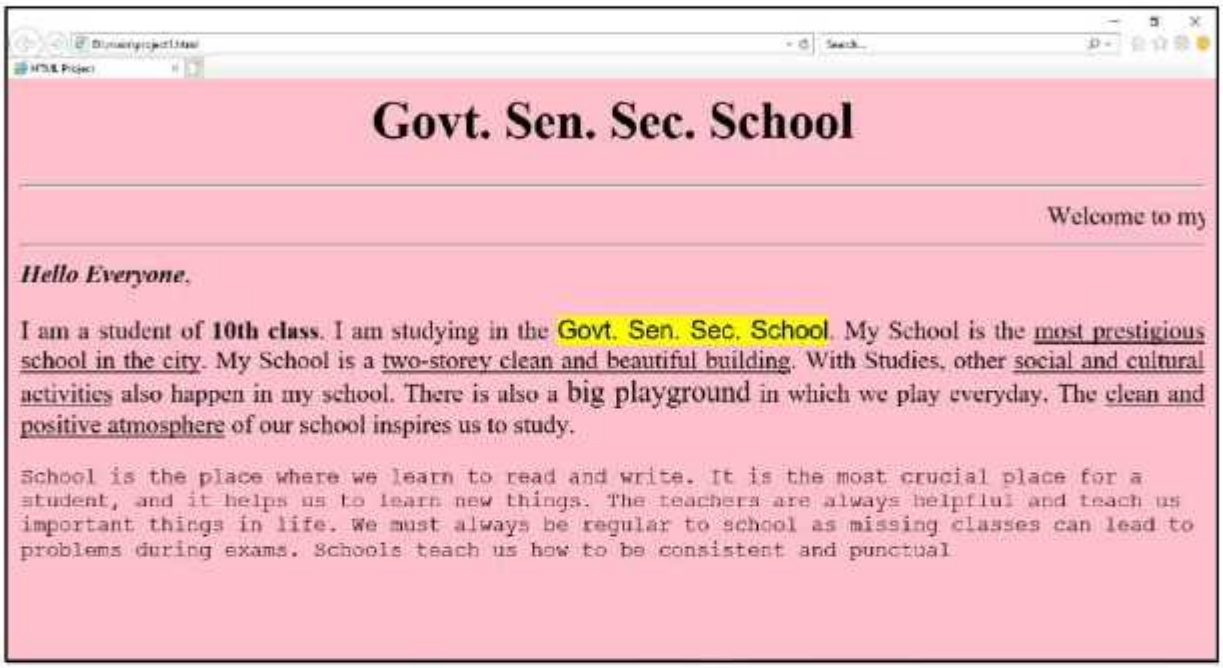
Activity 2.1:

1. Make a web page which represents the Introduction to HTML (Given under Title 2.2 HTML of this chapter)
2. Set the background color to **skyblue** for the entire body of web page.
3. Save the file with "**project0.html**" and view the output of webpage in the web browser.



Activity 2.2:

Make the following webpage using basic tags of HTML that we have discussed in this chapter:



Note: HTML Coding for these activities has been given for assistance in the Appendix III of this book.

Chapter–3rd

HTML PART-II

Objectives of this Chapter:

3.1 Working with Lists
3.2 Working with Tables

In the previous lesson, we learned how to create and view HTML documents along with various types of tags that can be used for formatting web pages. In this chapter, we're going to add various types of lists and tables to our webpage. HTML lists allow web developers to group a set of related items in lists while HTML tables allow web developers to arrange data into rows and columns. Let's begin working with lists and tables in the HTML document.

3.1 WORKING WITH LISTS:

HTML lists are used to present list of information in a well-formed way. In our daily life, we usually use many types of lists, such as shopping list, To-do list etc. All lists may contain one or more list elements. Articles, website navigation menus, and product features on e-commerce websites, all make frequent use of lists. So, lists play an important role in defining important information in the form of few lines.

In HTML documents, we can create and use three different types of lists:

1. Unordered List or Bulleted List
2. Ordered List or Numbered List
3. Definition List or Description List

Each of these lists has a specific purpose and meaning. In the following sections of this chapter, we will cover all these three types of list one by one:

3.1.1 Unordered List:

An unordered list is a list in which the order of the list items does not matter. In this list, all the list items are marked with bullets. That is why, unordered list is also known as Bulleted List. The <ul> tag is used to create this type of list in HTML document. Here, UL stands for unordered list. The <ul> tag is a paired tag. All the list items are placed in between <ul> and tag. Each item of list starts with <li> tag which stands for List Item. We can also change the type of bullet with the help of <ul> tag's attributes. Following example shows how to use the unordered list in the HTML document:

```
<html>
   <head>
      <title>HTML Unordered List</title>
   </head>
   <body>
    <h1>Hardware Examples</h1>
      <ul>
        <li>Monitor</li>
        <li>Keyboard</li>
        <li>Mouse</li>
        <li>CPU</li>
      </ul>
   </body>
</html>
```

Program: 3.1 HTML Program for Unordered List

Fig:3.1 Output of Program 3.1 in Internet Explorer

Attributes of Unordered List:

If we want to change the type of bullets for the unordered list, we can use the "**Type**" attribute of <ul> tag in the HTML document. Following are the possible options for the type attribute:

```
<ul type = "square">
<ul type = "disc">
<ul type = "circle">
```

By default, *disc* type of bullets is used for <ul> tag.

Following example shows how to change the bullet style using the Type attribute of unordered list in a HTML document:

```
<html>
   <head>
      <title>HTML Unordered List</title>
   </head>
   <body>
   <h1>Hardware Examples</h1>
      <ul type="circle">
        <li>Monitor</li>
        <li>Keyboard</li>
        <li>Mouse</li>
        <li>CPU</li>
      </ul>
    <h1>Software Examples</h1>
      <ul type="square">
        <li>MS Word</li>
        <li>MS Excel</li>
        <li>MS PowerPoint</li>
        <li>MS WIndow</li>
      </ul>
   </body>
</html>
```

Program: 3.2 HTML Program for Unordered List with Type attribute

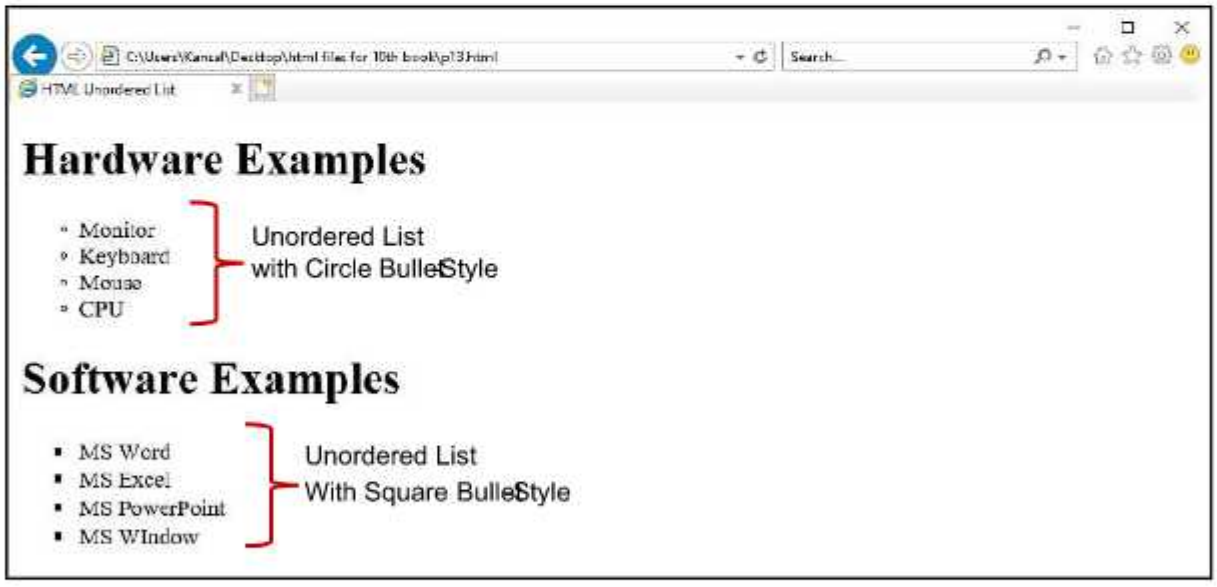


Fig:3.2 Output of Program 3.2 in Internet Explorer

3.1.2 Ordered List:

Ordered lists are used when the order of the items in the list is important. This list is also known as Numbered List because it displays list items in the numbered format. The <ol> tag is used to create this type of list in HTML document. Here, OL stands for ordered list. The <ol> tag is a paired tag. All the list items are placed in between <ol> and tag. Like the unordered list, each item of the list starts with <li> tag. Following example shows how to use the ordered list in the HTML document:

```
<html>
   <head>
      <title>HTML Ordered List</title>
   </head>
   <body>
    <h1>Hardware Examples</h1>
      <ol>
        <li>Monitor</li>
        <li>Keyboard</li>
        <li>Mouse</li>
        <li>CPU</li>
      </ol>
   </body>
</html>
```

Program: 3.3 HTML Program for Ordered List

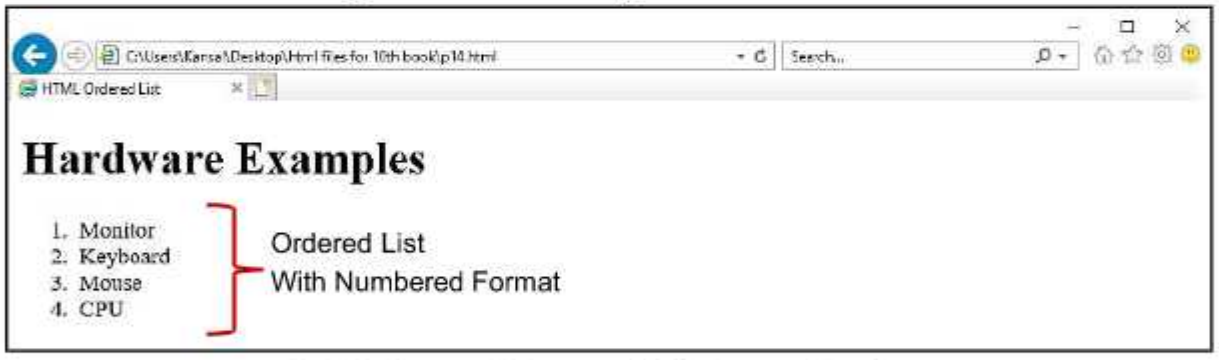


Fig:3.3 Output of Program 3.3 in Internet Explorer

Attributes of Ordered List:

We can use ordered list to represent items either in numerical order format or alphabetical order format, or any format where an order is emphasized. There can be different types of numbered list:

- Numbered List with Numeric Numbers (1, 2, 3)
- Numbered List with Capital Roman Numbers (I II III)
- Numbered List with Small Roman Numbers (i ii iii)
- Numbered List with Capital Alphabets (A B C)
- Numbered List with Small Alphabets (a b c)

We can use **Type** attribute for <ol> tag to specify the type of numbering we like. By default, it is a number. Following are the possible options for **Type** attribute to change the format of numbers for ordered lists:

- <ol type = "1"> - It is the default-case numerals.
- <ol type = "I"> - It is used for Upper-Case Roman Numerals.
- <ol type = "i"> - It is used for Lower-Case Roman Numerals.
- <ol type = "A"> - It is used for Upper-Case Letters.
- <ol type = "a"> - It is used for Lower-Case Letters.

We can also use **Start** attribute for <ol> tag to specify the starting point of numbering we need. For example: <ol type = "i" start = "5"> will start the numbering of list items from the value "v". Following program example shows how to use the ordered list with **Type** and **Start** attribute in the HTML:

```
<html>
   <head>
      <title>HTML Ordered List</title>
   </head>
   <body>
    <h1>Hardware Examples</h1>
      <ol Type-"A">
        <li>Monitor</li>
        <li>Keyboard</li>
        <li>Mouse</li>
        <li>CPU</li>
      </ol>
    <h1>Software Examples</h1>
      <ol type="i" start="5">
        <li>MS Word</li>
        <li>MS Excel</li>
        <li>MS PowerPoint</li>
        <li>MS WIndow</li>
      </ol>
   </body>
</html>
```

Program: 3.4 HTML Program for Ordered List with Type attribute

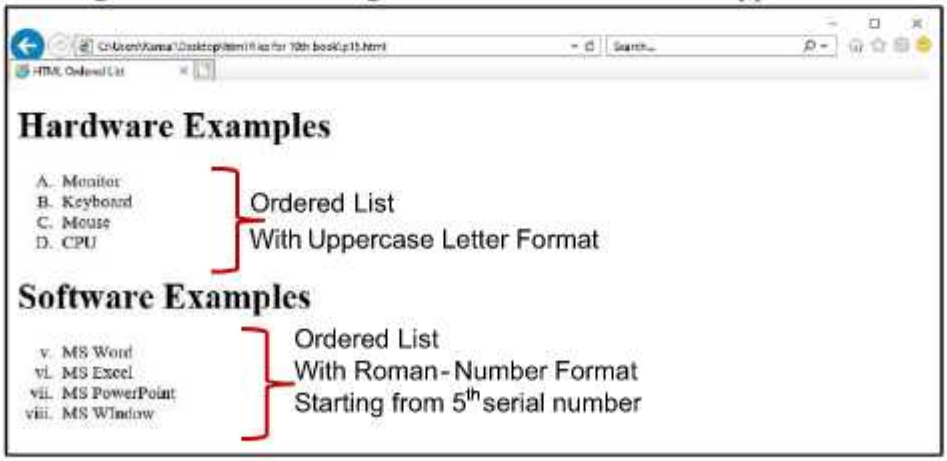


Fig:3.4 Output of Program 3.4 in Internet Explorer

3.1.3 Definition List:

HTML supports one more list style which is called **Definition List** or **Description List**.A description list is a list of items with a description or definition of each item or term. In this list, items are listed like in a dictionary. The HTML <dl> tag is used for declaring a definition list. Each list item in the definition list contains two entries:

- **Definition Title (also called Data Term):** The <dt> tag defines *definition title*.
- **Definition Description (also called Data Definition):** The <dd> tag defines *definition description.*

The <dt> and <dd> tags are used in between the <dl> and </dl> tags. There are no attributes that can be used with the <dl> tag. Following example shows how to work with definition lists in HTML document:

```
<html>
   <head>
      <title>HTML Definition List</title>
   </head>
   <body>
    <dl>
        <dt>HTML</dt>
        <dd>HTML stands for HyperText Markup Language. It is the standard markup language
        for creating Web pages. A Markup language is a computer language that uses tags(< >)
        to define elements within a document. </dd>

        <dt>CSS</dt>
        <dd>CSS stands for Cascading Style Sheets. It describes how HTML elements are to be
        displayed on screen, paper, or in other media CSS saves a lot of work. It can
        control the layout of multiple web pages all at once. External stylesheets are
        stored in CSS files</dd>
    </dl>
   </body>
</html>
```

Program: 3.5 HTML Program for Definition List

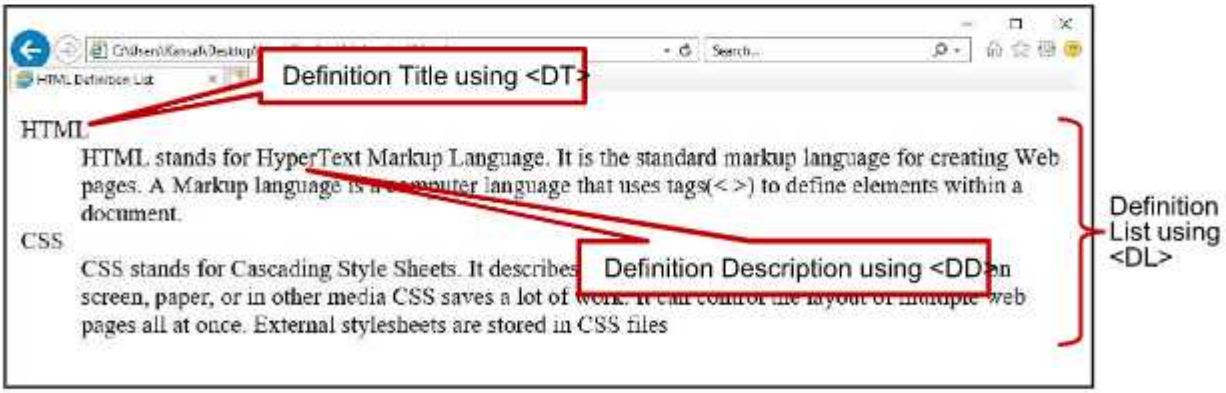


Fig:3.5 Output of Program 3.5 in Internet Explorer

3.1.4 Nesting of Lists:

A nested list is also known as a sub-list. It is not any new type of list in HTML and no special tag is used to create such lists. Simply, we can say that it is a list within a list. The nested list has to be a child of the <li> element and not of a list. We can nest different types of lists, too. Following procedure can be used to create nested lists in HTML documents:

1. Start by creating a list. It can be ordered or unordered. For example:

```
<ul>
   <li>Hardware</li>
   <li>Software</li>
   <li>User</li>
</ul>
```

2. Now, suppose we want to add numbered subitems – 'System Software', and 'Application Software', under the List Item – 'Software'. To do so, add an ordered-list to the list item – 'Software' to create a sub-list, as shown in the following HTML program:

```
<html>
    <head>
        <title>Nested List</title>
    </head>
    <body>
    <h2>Example of a Nested List </h2>
    <ul>
      <li>Hardware</li>
      <li>Software
        <ol type="i">
          <li>System Software</li>
          <li>Application Software</li>
        </ol>
      </li>
      <li>User</li>
    </ul>
    </body>
</html>
```

Outer– Unordered list

Inner Ordered Sub-list for List-item: Software

Program: 3.6 HTML Program for Nested List

Fig:3.6 Output of Program 3.6 in Internet Explorer

In the similar way, we can add more levels of nesting to the list.

3.2 WORKING WITH TABLES

A table is a structure in which data can be arranged in rows and columns. Tables are widely used to represent data in tabular form mainly for data analysis and research work etc. Information in tables is easily readable and understandable. They provide an excellent method of compiling lengthy and extensive information. All popular browser provides support for tables.

The HTML tables allow web authors to arrange data like text, images, links, etc. into rows and columns.The cross-sectional area of rows and columns is called a Cell. Contents of a table are shown in these cells. Following elements are used for working with tables in HTML documents.

- **<TABLE>:** The <table> is used to define a table in HTML documents. It is a paired/container tag. Every table must start with <table> and ends with </table>. All the rows and columns including data must be defined with in these table tags.
- **<TR> :** TR stands for Table Row. This tag is used to define a row in the <table> . This tag is also a paired/container tag. Each row of table begins with <tr> and ends with </tr>. Table Heading and Table Data are defined with in the <tr> and </tr> tags. For each row of a table, a separate <tr>...</tr> must be defined in the <table> tag.
- **<TH>:** TH stands for Table Heading. This tag is used to define the Table Headings. It is also a paired/container tag which begins with <th> tag and ends with </th> tag. For Each Table Header (Column Name), there must be a separate combination of <th>…</th> tags. These tags must be defined with in the <tr> and </tr> tags. Normally, we will put our top row as table heading, otherwise we can use <th> element in any row. By default, table headings are bold and centered in the cell.
- **<TD>:** TD stands for Table Data. This tag is used to define contents/data of a cell. It is also a paired/container tag. Cell contents/data must be defined with in the <td> and </td> tags. These tags must be defined with in the <tr> and </tr> tags. The contents defined by <td> are regular and left aligned by default.
- **<CAPTION>:** The <caption> tag will serve as a Title or Explanation for the table. It shows up at the top of the table. By default, a table caption will be center-aligned. The <caption> tag must be inserted immediately after the <table> tag. If we want to define a Title for the table, then we should use this tag, otherwise this tag is not compulsory to define the table.

Consider the following example of a simple table:

Table: Student Information

Roll No	Name of Student
101	Paramveer
102	Karanveer
103	Kavyanjali

If we want to create such type of table for a web page, then we can use the above-mentioned table tags in the HTML document. Following figure shows the concept how to use the table tags for creating the above table:

<table> <caption>Table: Student Information </caption>

<tr> <th> Roll No </th>	<th> Name of Student</th> </tr>
<tr> <td>101 </td>	<td> Paramveer </td> </tr>
<tr> <td>102 </td>	<td> Karanveer </td> </tr>
<tr> <td>103 </td>	<td> Kavyanjali </td> </tr>

</table>

Following is a complete example of HTML document for creating above mentioned table:

```
<html>
    <head>
        <title>Table Example</title>
    </head>
    <body>
    <table>
        <caption>Table: Student Information</caption>
        <tr><th>Roll No</th><th>Name of Student</th></tr>
        <tr><td>101</td><td>Paramveer</td></tr>
        <tr><td>102</td><td>Karanveer</td></tr>
        <tr><td>103</td><td>Kavyanjali</td></tr>
    </table>
    </body>
</html>
```

Program: 3.7 HTML Program for Creating a Simple Table

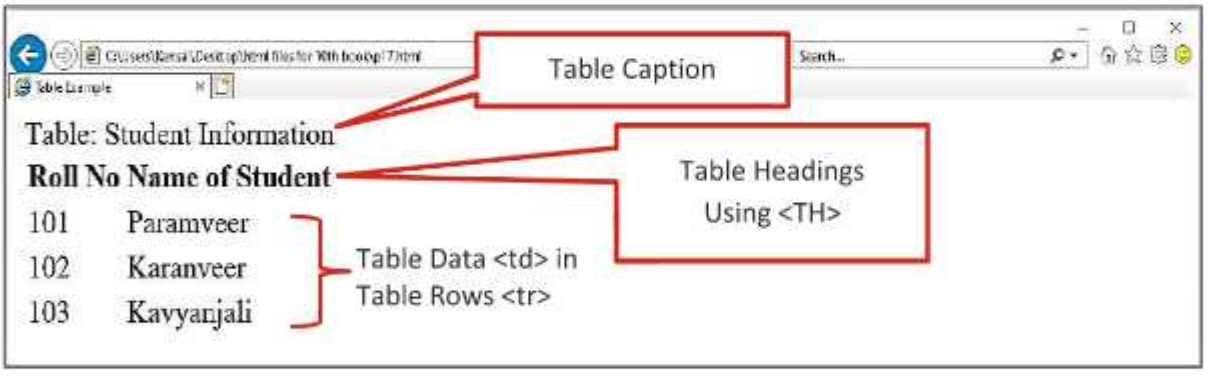


Fig:3.7 Output of Program 3.7 in Internet Explorer

In the above example, table and its data are shown without any cell borders. If we want to set the border of cells, we have to use the border property of the <table> tag. Besides border attribute, there are many other attributes too that can be used with the table and its associated tags. These attributes help us to format the table or to make changes in the structure of a table. Following description shows how to use various attributes of table tags with suitable examples:

3.2.1 Setting Table Height and Width:

We can set a table width and height using ***width*** and ***height*** attributes of <table> tag. We can specify table width or height in terms of pixels or in terms of percentage of available screen area.

For Example: ***<table width="50%" height="200">…….</table>***

In this example: 50% space of web browser window is used as a width of table, while 200 pixels are set to define the height of the table in web browser window.

3.2.2 Setting Table Border and Border Color:

By default, no border is set for the HTML table in the web page. It is the ***Border*** attribute of <table> tag that is used to put a border across all the cells. Border width is determined using a number. For example, for a thin border, use the number "1". For a thicker border, use a greater number. If we do not need a border, then we can use border = "0".

For Example: ***<table border="5">…….</table>***

In this example, a thick border has been defined because value of border is "5" which is greater than "1"

To change the color of table border, ***Border Color*** attribute can be used. Color of Border will be shown only when border value has been set to greater than or equals to 1.

For Example: ***<table border = "1" bordercolor = "red">…..</table>***

In the example, a thin border has been defined with red color.

Following HTML program example shows the use of table properties that has been explained so far:

```
<html>
    <head>
        <title>Table Example</title>
    </head>
    <body>
    <table width="50%" height="100" border="3" bordercolor="red">
        <caption>Table: Student Information</caption>
        <tr><th>Roll No</th><th>Name of Student</th></tr>
        <tr><td>101</td><td>Paramveer</td></tr>
        <tr><td>102</td><td>Karanveer</td></tr>
        <tr><td>103</td><td>Kavyanjali</td></tr>
    </table>
    </body>
</html>
```

Program 3.8 HTML Program for Table Properties: WIDTH, HEIGHT, BORDER and BORDERCOLOR

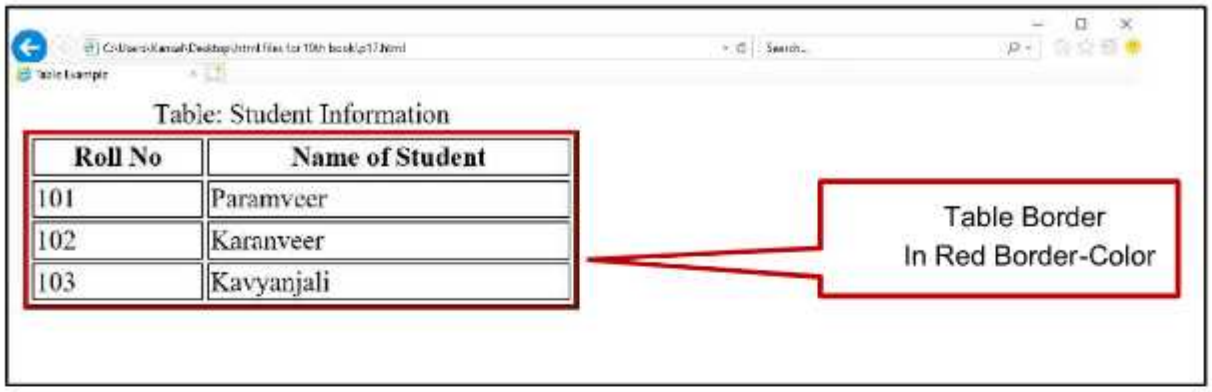


Fig: 3.8 Output of Program 3.8

Bordercolor attribute is deprecated in HTML5.

3.2.3 Setting Table Backgrounds:

We can set table background using one of the following two attributes:

- ***Bgcolor:*** This attribute is used to change the background color for the whole table. It could also be used to change the color of a table row or a table cell. Value of this property will be color name or a hexadecimal color code.

  For Example:*<table bgcolor="pink">…….</table>*

- ***Background:*** This attribute is used to set background image for the whole table or just for one cell. Value of this property will be the URL (location address) of the image with file extension.

  For Example:*<table background= "back.jpg">…….</table>*

These attributes have been deprecated in HTML5 in favour of style sheets. Following HTML program shows how to use these attributes in HTML document:

```
<html>
    <head>
        <title>Table Example</title>
    </head>
    <body>
    <table width="50%" height="150" border="3" background="sample1.jpg">
        <caption>Table: Student Information</caption>
        <tr ><th>Roll No</th><th>Name of Student</th></tr>
        <tr><td>101</td><td>Paramveer</td></tr>
        <tr bgcolor="yellow"><td>102</td><td>Karanveer</td></tr>
        <tr><td>103</td><td bgcolor="pink">Kavyanjali</td></tr>
    </table>
    </body>
</html>
```

Program 3.8 HTML Program for Table Properties: BGCOLOR and BACKGROUND

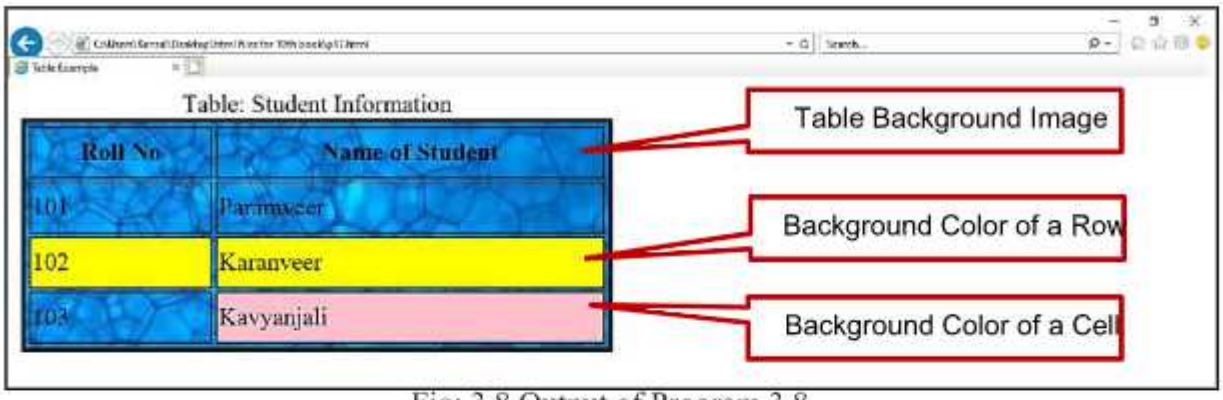


Fig: 3.8 Output of Program 3.8

3.2.4 Setting Cell Padding and Cell Spacing:

Cell padding and cell spacing can be used to adjust the white space in table cells. For adjusting these white spaces, two attributes ***cellpadding*** and ***cellspacing*** are used in table tags:

- **Cellpadding:** The cellpadding is an important feature to format and make table cells good. Cellpadding provides space inside the cells. It represents the distance between cell border and the content of a cell. The default cell padding is 1 pixel.

  For Example: ***<table cellpadding= "5">***
- **Cellspacing:** Cellspacing is another important attribute for <table> tag in HTML. It provides space outside the cells. Using cellspacing attribute, we can define space between table cells. The default cellspacing is 2 pixels.

  For Example: ***<table cellspacing= "7">***

Following figure shows the concept of Cell Padding and Cell Spacing in the HTML table:

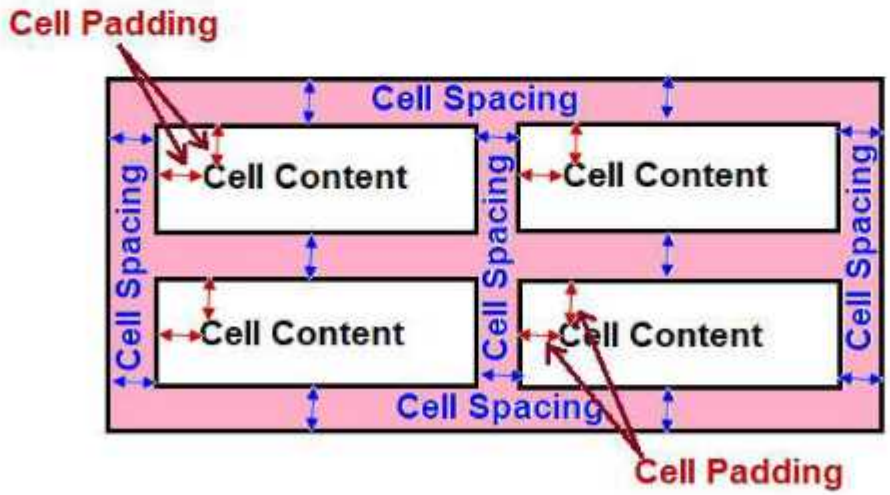


Fig: 3.9 Concepts of Cell Spacing and Cell Padding in a Table

Following HTML program shows how to use cellspacing and cell padding attributes in the

HTML Table:

```
<html>
    <head>
        <title>Table Example</title>
    </head>
    <body>
    <table cellpadding="5" cellspacing="10" width="50%" height="100" border="3">
        <caption>Table: Student Information</caption>
        <tr><th>Roll No</th><th>Name of Student</th></tr>
        <tr><td>101</td><td>Paramveer</td></tr>
        <tr><td>102</td><td>Karanveer</td></tr>
        <tr><td>103</td><td>Kavyanjali</td></tr>
    </table>
    </body>
</html>
```

Program 3.9 HTML Program for Table Properties: CELLPADDING and CELLSPACING

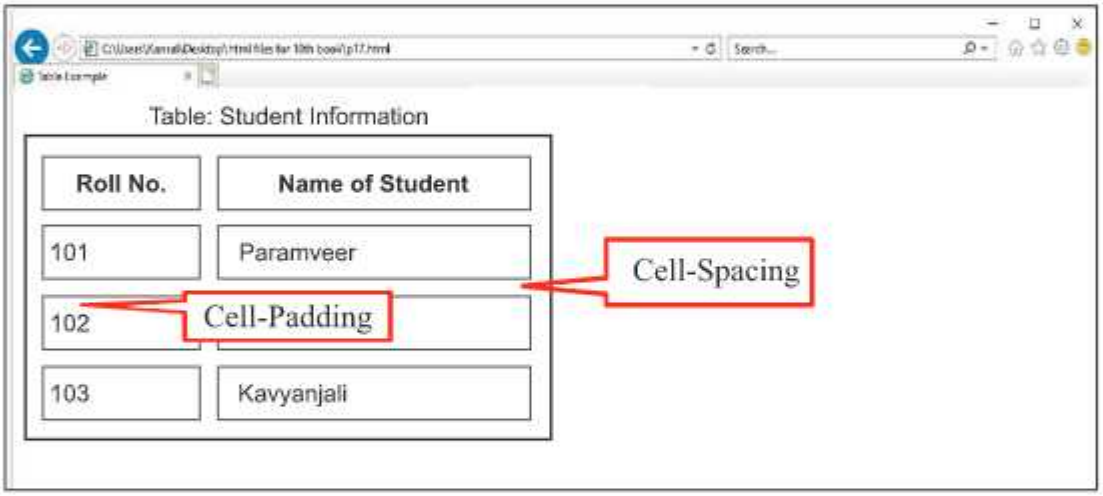


Fig: 3.10 Output of Program 3.9

3.2.5 Merging Cells:

Merging cells mean combining two or more cells to make a single cell. ***Colspan*** and ***Rowspan*** Attributes can be used to merge cells in HTML tables. These are the attributes of <td> or <th> tags.

- **Colspan**: We will use colspan attribute if we want to merge cells of two or more columns into a single cell, as shown in the figure: 3.11. Minimum value for **colspan** is 2.
  For Example: ***<td colspan= "2">***
- **Rowspan**: We will use rowspan attribute if we want to merge cells of two or more rows into a single cell, as shown in the figure: 3.11. Minimum value for **rowspan** is 2.
  For Example: ***<td rowspan= "2">***

Following figure shows the concept of Colspan and Rowspan in the HTML table:

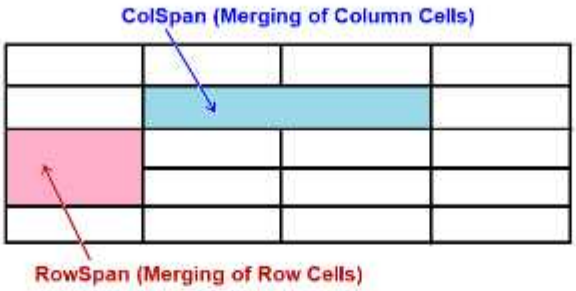


Fig: 3.11 Concepts of Colspan and Rowspan in HTML Tables

Following HTML program shows how to use colspan and rowspan attributes in the HTML Table:

```
<html>
    <head>
        <title>Table Example</title>
    </head>
    <body>
    <table  width="50%" height="100" border="3">
        <caption>Table: Student Information</caption>
        <tr><th>Roll No</th><th>Name of Student</th><th>Class</th></tr>
        <tr><td>101</td><td>Paramveer</td><td rowspan="2">12th</td></tr>
        <tr><td>102</td><td>Karanveer</td></tr>
        <tr><td>103</td><td>Kavyanjali</td><td rowspan="3">10th</td></tr>
        <tr><td>104</td><td>Divyanshi</td></tr>
        <tr><td>105</td><td>Sunny</td></tr>
        <tr><td colspan="2">Total Students</td><td>5</td></tr>
    </table>
    </body>
</html>
```

Program 3.10 HTML Program for Table Properties: COLSPAN and ROWSPAN

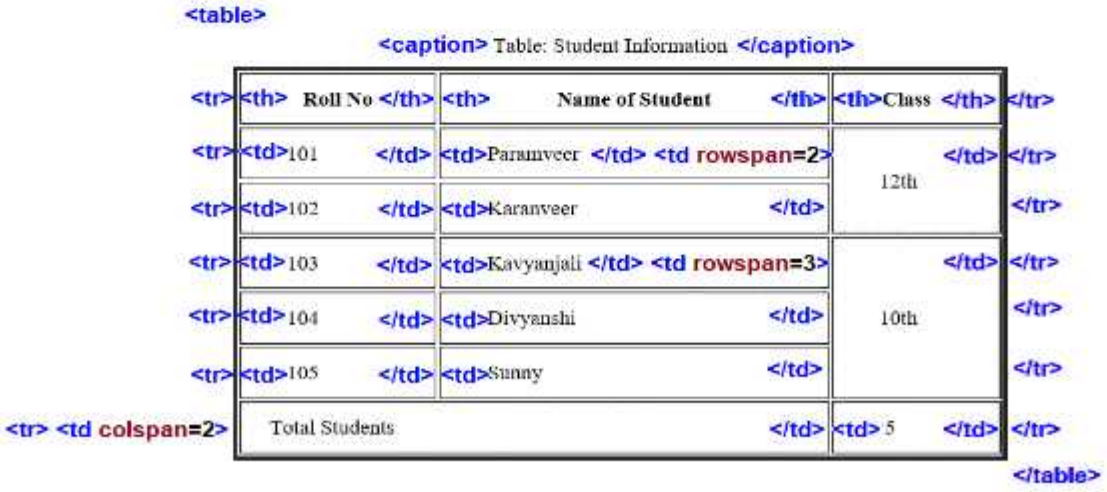


Fig:3.12 Working of ROWSPAN and COLSPAN in Example Program 3.10

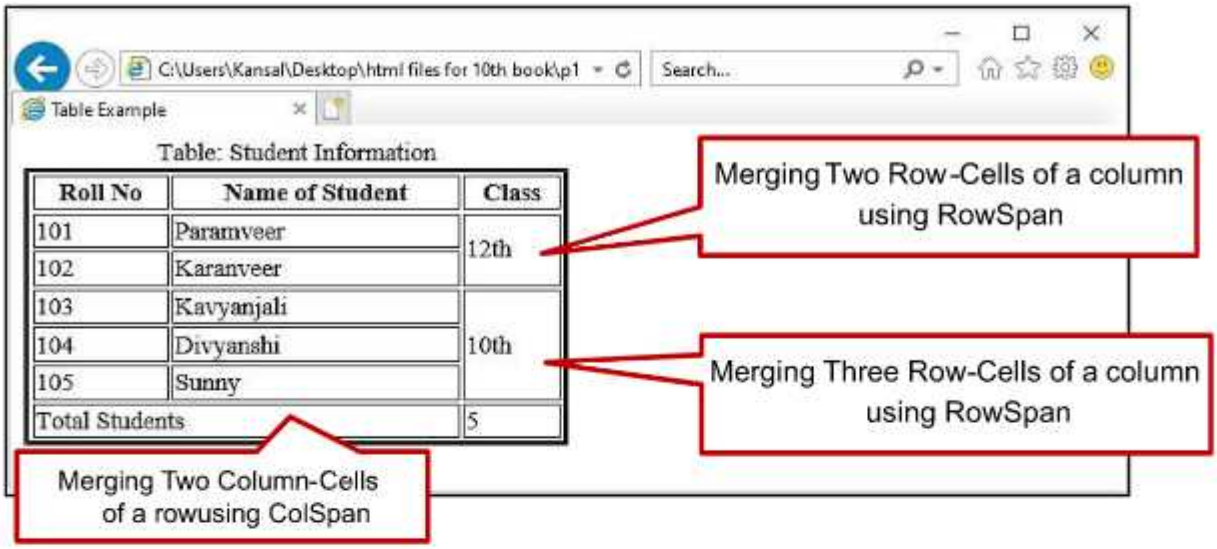


Fig: 3.13 Output of Program 3.10

3.2.6 Changing the Alignment of a Table or Cell Value:

We can set the alignments in two ways: Horizontally and Vertically. Table can be aligned only horizontally while contents in the cells can be aligned horizontally as well as vertically in both ways. Following discussion shows how to set the alignments of various HTML table tags:

3.2.6.1 Setting Horizontal Alignment:

We can set the horizontal alignment of the table and its cell contents using ***align*** attribute. Following description shows how to use align attribute for different table tags used in HTML documents:

- **Align attribute for <table> tag**: By default, tables are shown left aligned in web pages. Using align attribute in the <table> tag, we can change the alignment of the table horizontally. Align attribute can have either *Right*, *Left*, or *Center* value for <table> tag.

  For Example: ***<table align="right">***

- **Align attribute for <tr> tags**: By default, cell data in table rows are shown left aligned. Using align attribute in the <tr> tag, we can change the horizontal alignment of the contents for all cells in the row. Align attribute can have either *Right*, *Left*, *Center* or *Justify* value for <tr> tag.

  For Example: ***<tr align="center">***

- **Align attribute for <td> and <th> tags**: By default, cell contents of <td> are shown left aligned while default alignment for cell contents defined by <th> is center. If we use align attribute in the <td> or <th> tags, it will change the horizontal alignment of that particular cell on which it is applied. Align attribute can have either *Right, Left, Center* or *Justify* value for <td> and <th> tags.

  For Example: ***<td align="center">***

- **Align attribute for <caption> tag**: By default, a table caption is center-aligned and shown above the table. Align attribute indicates how the caption is aligned with respect to the table. Normally, align attribute can have either Top or Bottom value for <caption> tag. If we set *align="Top"*, the caption is displayed above the table and if we want the caption is displayed below the table then we can use *align="Bottom"* value for the <caption> tag. But, align attribute has been depreciated in HTML5 in favour of CSS style sheets.

  For Example: ***<caption align="bottom">***

3.2.6.2 Setting Vertical Alignment:

We can set the vertical alignment of only cell-contents using ***valign*** attribute. HTML valign attribute supports <td>, <th>, and <tr> elements. Following description shows how to use valign attribute for different table tags used in HTML documents:

- **valign attribute for <tr> tag**: By default, cell data in table rows are shown vertically center aligned. Using valign attribute in the <tr> tag, we can change the vertical alignment of the contents for all cells in the row. Valign attribute can have normally either *Top*, *Middle*, or *Bottom* value for <tr> tag.

  For Example: ***<tr valign="top">***

- **valign attribute for <td> and <th> tags**: By default, cell contents of <td> and <th> are shown vertically center aligned. If we use valign attribute in the <td> or <th> tags, it will change the vertical alignment of that particular cell on which it is applied. Valign attribute can have normally either *Top*, *Middle*, or *Bottom* value for <td> and <th> tags.

  For Example: ***<td valign="bottom">***

```
<html>
    <head>
        <title>Table Example</title>
    </head>
    <body>
    <table cellpadding="5" width="50%" height="300" border="3">
    <caption align="bottom">Table: Student Information</caption>
    <tr><th>Roll No</th><th>Name of Student</th><th>Class</th></tr>
    <tr><td>101</td><td>Paramveer</td><td rowspan="2" align="center" valign="top">12th</td></tr>
    <tr><td>102</td><td align="center">Karanveer</td></tr>
    <tr><td>103</td><td>Kavyanjali</td><td rowspan="3" valign="middle">10th</td></tr>
    <tr><td>104</td><td align="right">Divyanshi</td></tr>
    <tr><td>105</td><td align="right">Sunny</td></tr>
    <tr align="center"><td colspan="2">Total Students</td><td>5</td></tr>
    </table>
    </body>
</html>
```

Program 3.11 HTML Program for Table Properties: ALIGN and VALIGN

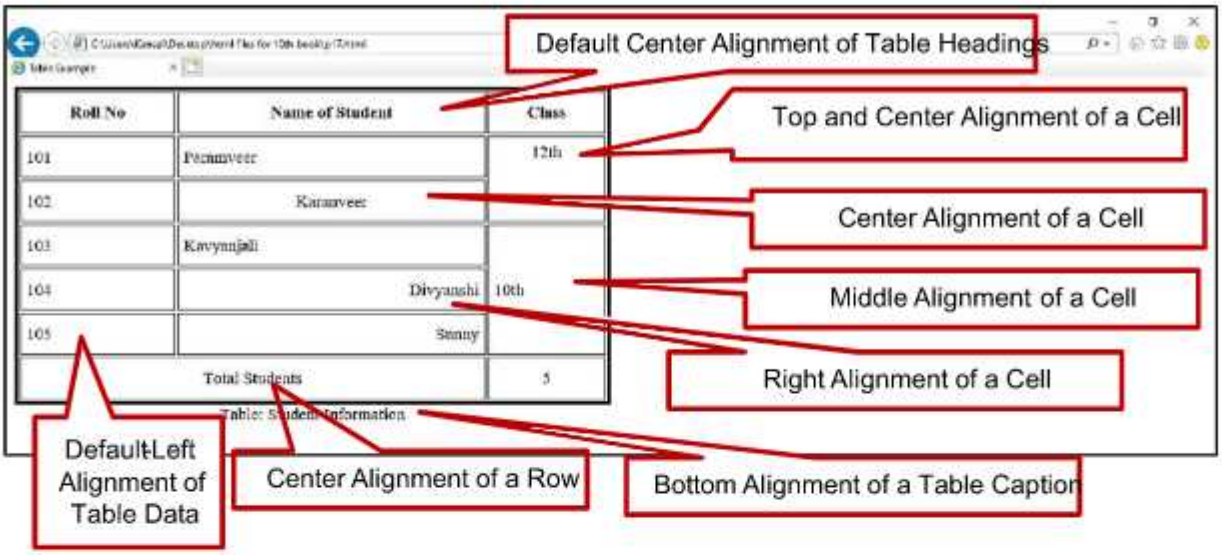


Fig: 3.14 Output of Program 3.11

Till now, we have discussed in detail about the table tags along with their attributes. Now, we are in a situation that we can work very flexibly with the data in tables. HTML tables are also used to manage the layout of the web pages, e.g. header section, navigation bar, body content, footer section etc. But, it is recommended to use tag over table to manage the layout of the web pages.

Note: All browsers do not support all tags and their attributes. Therefore, it may also be possible that some tags or attributes may not work as expected due to compatibility issues of web browsers. In such a case, try to run the HTML program in different browsers to get expected output of HTML documents.

POINTS TO REMEMBER

1. HTML lists are used to present a list of information in a well-formed way.
2. In HTML documents, we can create and use three different types of lists: Unordered, Ordered and Description list.
3. An unordered list is a list in which the order of the list items does not matter. In this list, all the list items are marked with bullets.
4. The <ul> tag is used to create an ordered list in HTML document. Here, UL stands for unordered list.
5. Ordered list is also known as Numbered List because it displays list items in the numbered format.
6. The <OL> tag is used to create an ordered list in HTML document. Here, OL stands for ordered list.
7. Type and Start are the two main attributes for Ordered Lists
8. A nested list is a list within a list. The nested list has to be a child of the <li> element and not of a list.
9. The HTML tables allow web authors to arrange data like text, images, links, etc. into rows and columns.
10. <TR> tag is used to define a row in the <table> tag. TR stands for Table Row.
11. <TH> tag is used to define the Table Headings. TH stands for Table Heading.
12. <TD> tag is used to define contents/data of a cell. TD stands for Table Data.
13. It is the ***Border*** attribute of <table> tag that is used to put a border across all the cells.
14. Bgcolor and Background attributes are used to format the background of a table in HTML document.
15. Cellpadding represents the distance between the cell border and the content of a cell.
16. Using the cellspacing attribute, we can define space between table cells.
17. Colspan attribute is used to merge cells of two or more columns into a single cell
18. Rowspan attribute is used to merge cells of two or more rows into a single cell
19. The horizontal alignment of the table and its cell contents can be changed using *align* attribute.
20. The vertical alignment of cell-contents only can be set byusing the valign attribute.

EXERCISE

Que: 1 Multiple Choice Questions:

I. Which of the following list is not used in HTML documents?

a. Bulleted List
b. Numbered List
c. Ordered List
c. Data List

II. Which of the following tag is used to define the list items in the ordered and unordered lists?

a. <OL>
b. <UL>
c. <LI>
d. <DT>

III. _____ tag is used to create a table row in the HTML document.

a. <row> b. <table row>

c. <TR> d. <R>

IV. By using _____ attribute, we can adjust space between table cells.

a. cell-spacing b. cell-padding

c. rowspan d. colspan

V. We will use _____ attribute if we want to merge cells of two or more rows into a single cell.

a. cellspacing b. cellpadding

c. rowspan d. colspan

Que: 2 Write the full forms of the following tags or attributes:

I. <OL> VI. <DT>

II. <UL> VII. <DD>

III. <DL> VIII. <TR>

IV. <LI> IX. <TH>

V. <DL> X. <TD>

Que: 3 Fill in the Blanks:

I. In HTML documents, we can create and use _____ different types of lists

II. In _____ list, all the list items are marked with bullets.

III. A _____ list is a list within a list.

IV. _____ tag is used to define the Table Headings.

V. We can set the vertical alignment of only cell-contents using _____attribute.

VI. _____ represents the distance between the cell border and the content of a cell.

Que: 4 Short Answer Type Questions:

I. What is Definition List.

II. What is Ordered List? Write the name of tag and attributes for creating ordered lists.

III. Write the name of various basic tags used for creating tables in HTML.

IV. How will you merge cells of HTML table?

V. Explain the various attributes of <table> tag used for formatting its background.

Que: 5 Long Answer Type Questions

I. What are tables? Explain the basic tags used for creating a table in the HTML document.

II. What is Cell Padding and Cell Spacing? Explain with suitable example.

III. Differentiate between Ordered List and Unordered List.

Lab Activities

Activity 3.1:

Create a webpage using HTML which shows the following output in the web browser:

Components of a Computer System

Hardware
These are the physical components of computer system. We can touch these components of computer system.
Software
These are set of programs to perform a task in the computer system. we can not touch these components of computer system.

Examples of Hardware Components

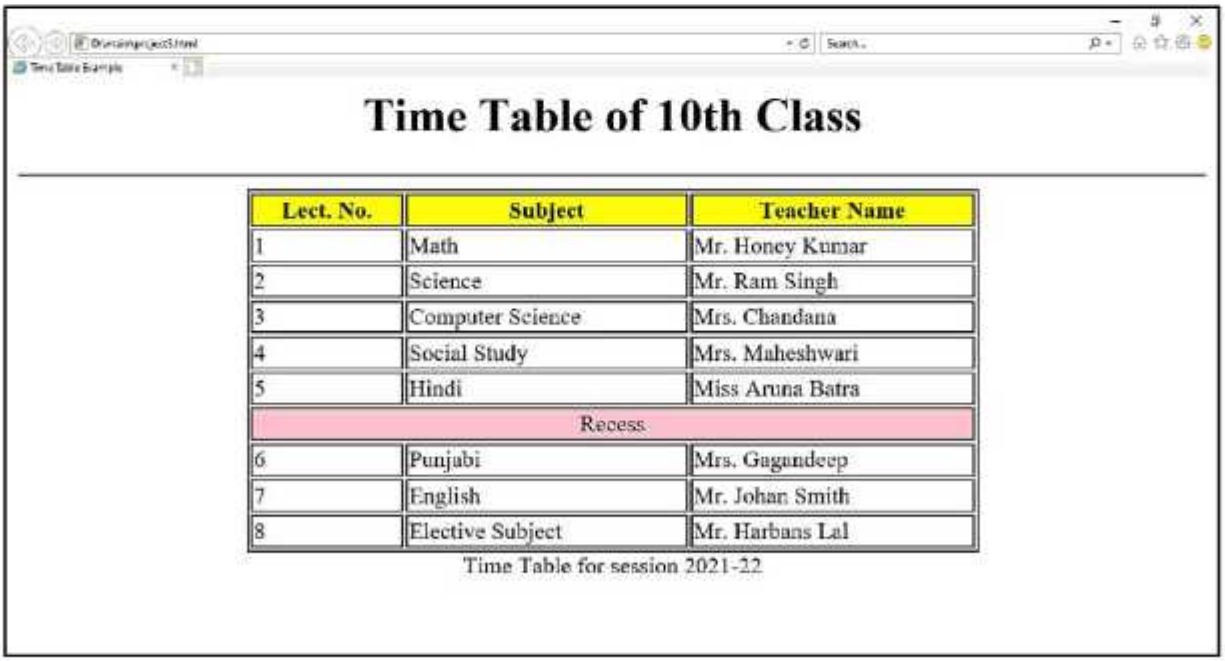
1. Moniter
2. Keyboard
3. Mouse
4. CPU
5. Speaker
6. Printer

Examples of Software

- Windows 10
- MS Paint
- Notepad
- Wordpad
- MS Word
- MS Excel
- MS PowerPoint

Activity 3.2:

Create a webpage to show the time table of your class as shown below:



Time Table of 10th Class

Lect. No.	Subject	Teacher Name
1	Math	Mr. Honey Kumar
2	Science	Mr. Ram Singh
3	Computer Science	Mrs. Chandana
4	Social Study	Mrs. Maheshwari
5	Hindi	Miss Aruna Batra
Recess		
6	Punjabi	Mrs. Gagandeep
7	English	Mr. Johan Smith
8	Elective Subject	Mr. Harbans Lal

Time Table for session 2021-22

***Note: HTML Coding for these activities has been given for assistance in the Appendix III of this book**

Chapter–4th

HTML PART – III

Objectives of this Chapter:

4.1 URLs and Their Types
4.2 Working with Images
4.3 Working with Hyperlinks
4.4 Working with Forms
4.5 Stages/Phases of Web Development

So far, we have discussed about the various tags and their attributes for developing web pages. We have learnt about creating and formatting web pages, working with different types of lists, representing and formatting data in the tables etc. In this chapter, we are going to discuss about how to use images in HTML documents to make web pages more attractive, how to create hyperlinks to access other web pages, how to accept data from user, and various stages of web development etc. For working with images and hyperlinks, first of all we have to know about the various types of resource locations and file-paths. So, in this chapter, we will start our discussion from the topic URLs and File Paths.

4.1 URLs AND THEIR TYPES

URL stands for Uniform Resource Locator. URLs play an important role in locating our resources on web server or local computer. In most cases, URL refers to remote resources on server and a file-path refers to local resource inside our computer. So, we can say any internet location available on server is called a **web URL** or a web address. Each website or webpage has a unique URL. For example: the website of **Punjab School Education Board** has web-address or web-URL called **http://pseb.ac.in/.** On the other hand, a File-Path specifies the location of a file inside a folder structure on our local computer. It is like an address of a file which helps us to access it.

Both URLs and File-paths are used to link external resources such as images, videos, style sheets, other web pages etc. To insert/use a file in a web page, its source must be known. For example, if we want to display an image on a web page then URL or file-path of that image must be known to us to specify it in the HTML document. A web URL is made up of four basic parts:

- Protocol
- Host name
- Folder name
- File-name

For example: ***http://pseb.ac.in/ebooks/cs12.pdf***

In this web-URL example, ***http:*** represents the protocol, ***pseb.ac.in*** represents the host name, ***ebooks*** represents the folder name and ***cs12.pdf*** represents the file name. Hence, this URL shows us the complete location of a pdf file (cs12.pdf) which is located in the ebooks folder on the website pseb.ac.in.

A File Path is made up of three basic parts –

- Drive Name
- Folder name
- File-name

For example: ***"D:\main\picture.jpg"***

In this File Path example, ***D:*** represents the Drive name, ***main*** represents the folder name and ***picture.jpg*** represents the file name. Hence, this File Path shows us the complete location of a jpg file (picture.jpg) which is located in the main folder on the D:\ drive.

4.1.1 Types of URLs:

Basically, URLs fall into two categories: Absolute and Relative URL.

(i) Absolute URL:

An absolute URL gives complete location to a resource (file). Absolute URL contains all the information necessary to find the files on the internet or on the local computer. Any URL written in absolute type does not change when the location of requesting file or server is being changed. Consider an example of file location which shows the local path of the file picture.jpg within index.html file:

"D:\main\picture.jpg" ⇨ 

This example shows us the complete file-path location of a picture file (picture.jpg) which is located in the **main** folder at **D:** drive of the computer system. Here, if we change the location of **index.html** to the root directory then the URL still remains pointing to the file **D:\main\picture.jpg**(**A**) regardless the root directory itself has a file **picture.jpg (B)**.

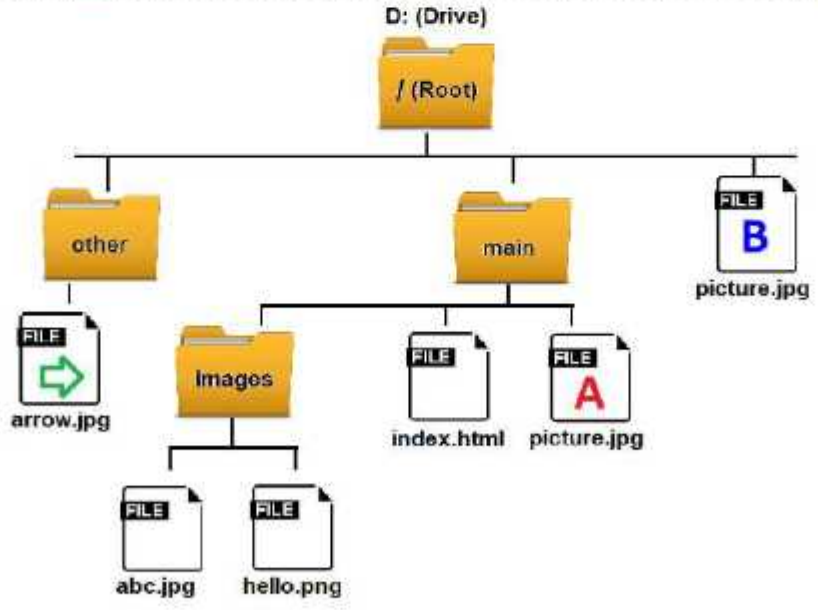


Fig: 4.1 Example of Folder Structure

(ii) Relative URL:

A Relative URL describes the path of the file relative to the location of the current web page file. It usually contains only the folder name and file name or even just the file name. Here, a browser doesn't need the server name or the protocol indicator. Its main advantage is that, this type of path changes according to the requesting resource's own location at web server or local directory structure. For example: if the path shown in the example of absolute URL is written as relative URL then it changes accordingly when the location of index.html is being changed. We can represent the same path in relative URL as:

"./picture.jpg" ⟹ 

When our index.html file is located in **main** directory then this path represents **D:\main\picture.jpg (A)**. But, if we change the location of **index.html** to root directory of the same directory structure then the same path will start representing **D:\picture.jpg (B)**. This dynamicity of path made it more useful to be used in local or web applications.

Relative File Path Delimiters:

While we use relative file paths, there are three delimiters(./, ../, and /)that are very important to understand. For example, consider we are working in the **index.html** file located at the **main** folder of **D:** drive, we can explain the use of relative file-path delimiters with the following example:

1. The delimiter**./** points to the parent folder of the current working file (**index.html**). For Example: **"./picture.jpg".** Here, "picture.jpg" (**A**) file is located in the same folder (**main** folder) as the current file (index.html)
2. The delimiter**../** points to one folder up the parent folder of the current working file (**index.html**). For example: **"../picture.jpg".** Here, the picture.jpg (**B**) file is pointed to the location **D:\picture.jpg**
3. The delimiter / points to the root folder of the web project at all times. For Example:**"/picture.jpg".** Here, "picture.jpg" (**B**) file is located at the root folder (D:\)

Absolute and relative URLs both are used to structure our site and link to its resources. There are advantages and disadvantages to each. While absolute URLs provide better security and improved **SEO (Search Engine Optimization)**, relative URLs are quicker and easier to use when developing websites.

4.2 WORKING WITH IMAGES

Images are the most common part of a great web site. Images make the web pages attractive. They can also be used as buttons on the web pages. To use images in the HTML documents, we should know some basics of images.

Many types of image formats are available to use in the web pages. In general, web-based images come in two basic formats: **GIF (Graphics Interchange Format)** and **JPEG (Joint Photographic Experts Group)**. File extension of GIF image format is .gif and JPEG image has

extension .jpg or .jpeg. A third format, **PNG (Portable Network Graphics)** is becoming popular for web pages. Its file extension is .png. It is supported in all the modern browsers.

Choosing the correct image is an important part of web design. In general, GIF images are good for illustrations such as logos or cartoons, whereas JPEG images are used for complex images such as photographs. While using these images in web pages, their size should be small so that the web pages do not take long time to load. Let's see how to add images on a webpage.

To add an image to HTML page, we use <img> tag in the HTML document. The <img> tag is an empty tag, which means it has no closing tag. It can contain only a list of attributes. Following is the basic syntax to add an image to a web page:

<imgsrc="image_url" >

Here, src is an essential attribute of <img> tag which stands for source. Every image tag has a src attribute which tells the browser where to find the image that we want to display. The "image_url" points to the location where the image is stored. We can specify the image_url either using absolute or relative file-path location. Following HTML program shows how to use an image in the web page using the basic syntax of the <img> tag:

```
<html>
    <head>
        <title>Image Example</title>
    </head>
    <body>
    <h1>Welcome to School Education</h1>
    <img src="./education.jpg">
    </body>
</html>
```

Program: 4.1 HTML Program (test1.html) is Example for Using Images in Web Pages

Here, our HTML program – **test1.html** and the image file – **education.jpg**, both are stored on the same location (i.e. in D:\main folder).

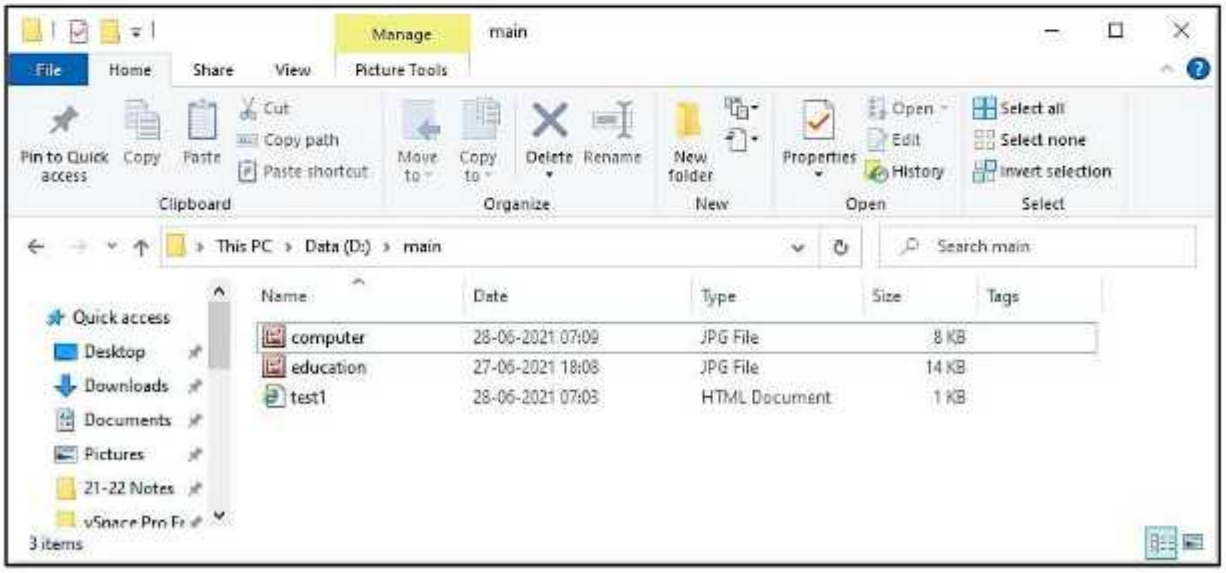


Fig: 4.2 File Path Location of test1.html and education.jpg files

In HTML program (test1.html), we used relative file path "./education.jpg" for the image source which tells the web browser that image file is located in the parent folder of the current working file (**test1.html**). When we open **test1.html** in the web browser, it will display the following web page:

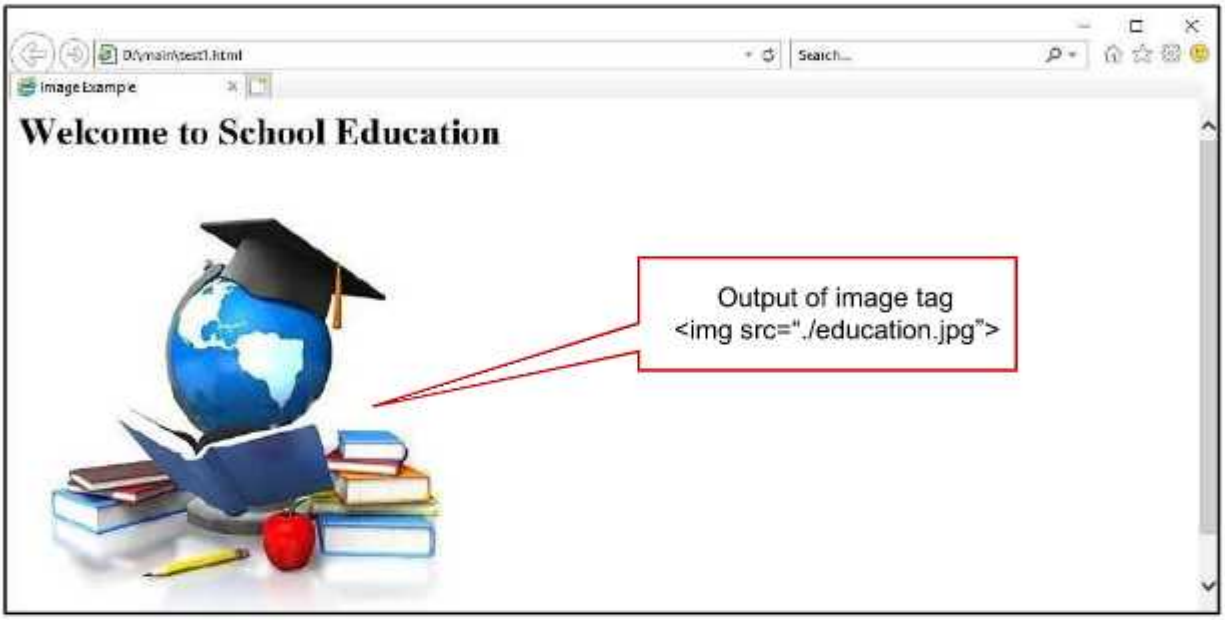


Fig: 4.3 Output of Program 4.1 (test1.html) in Internet Explorer

4.2.1 Working with Attributes of <IMG> tag:

The **src** attribute of <img> tag is essential for defining the image path. Though, some other attributes of <img> tag are also available that helps us to work with images in the HTML documents. Now, let's begin with what these attributes are and how to use them in <img> tag of HTML document:

Setting Alternate Text for the Image:

The ***alt*** attribute provides the alternate text for the image. If the user, for some reason, cannot view the image *(because of slow connection or due to any mistake in the image urlofsrc attribute)* then this alternate text will be displayed. The value of the **alt** attribute should describe the image. For Example:

```
<html>
    <head>
        <title>Image Example</title>
    </head>
    <body>
    <h1>Welcome to School Education</h1>
    <img src="./edu.jpg" alt="Educational Image">
    </body>
</html>
```

Program: 4.2 HTML Program (test1.html) Example for **alt** attribute of <IMG> tag

In this program, we mentioned the file name as **edu.jpg** in the src attribute, while the actual name of the file is **education.jpg**. Therefore, web browser will not be able to search the file named "edu.jpg" at the current location. So, this program will not show the image, instead it will show image error along with the alternate text mentioned in the **alt** attribute in <img> tag, as shown in the figure 4.4:

Fig: 4.4 Output of Program 4.2 in Internet Explorer

Setting Width and Height of the Image:

The *width* and *height* attributes are used to specify the width and height of an image.The values of these attributes are interpreted in pixels by default. We can specify width and height of the image in terms of percentage of its actual size.

```
<imgsrc="education.jpg"alt="Educational Image"width="500" height="600" >
```

Setting Image Border:

By default, image will have no border around it. ***Border*** attribute can be used to set the border of the image. We can specify border thickness in terms of pixels using *border* attribute. A thickness of 0 means, no border around the picture. The default value of <img> border attribute is 0.

```
<imgsrc="education.jpg"alt="Educational Image"width="500"height="600"border="5" >
```

Setting Image Alignment:

The **align** attribute of <img> tag is used to set the alignment of an image in HTML documents. It is used to specify the alignment of the image according to surrounding elements. By default, image will align from the bottom side. Following are the possible values of align attribute for the <img> tag:

- **left**: It sets the alignment of image to the left.
- **right**: It sets the alignment of image to the right.
- **middle**: It sets the alignment of image to the middle.
- **top**: It sets the alignment of image to the top.
- **bottom**: It sets the alignment of image to the bottom.

Following HTML program shows how to use various image attributes to work with images for web pages:

```
<html>
    <head>
        <title>Image Example</title>
    </head>
    <body>
     Computer <img src="computer.jpg" width="50" height="50" border="2">is an
     electronic device.
     <br><br><br>
     Computer <img src="computer.jpg" width="50" height="50" align="right">is an
     electronic device.
     <br><br><br>
     Computer <img src="computer.jpg" width="50" height="50" border="2" align="top"> is
     an electronic device.
     <br><br><br>
     Computer <img src="computer.jpg" width="50" height="50" border="2" align="middle">
     is an electronic device.
     <br><br><br>
     Computer <img src="computer.jpg" width="50" height="50" border="2" align="left">is
     an electronic device.
    </body>
</html>
```

Program 4.3 HTML Program for the usage of Image tag attributes

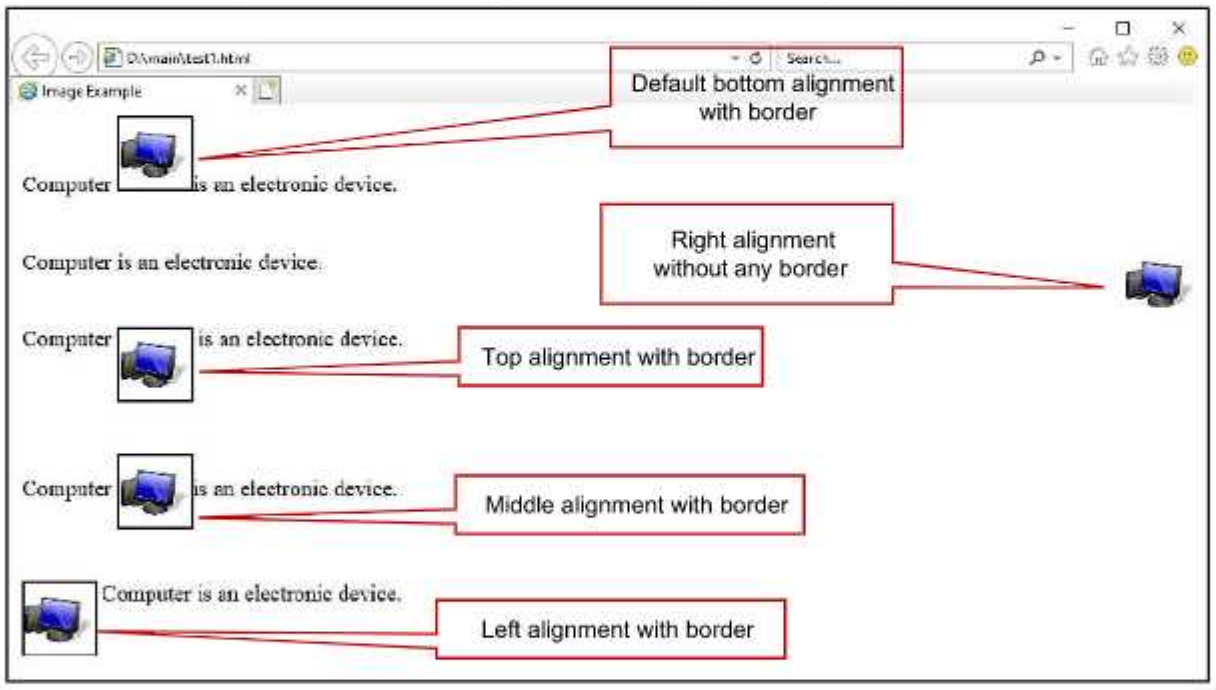


Fig: 4.5 Output of Program 4.3 in Internet Explorer

4.3 WORKING WITH HYPERLINKS

HTML links are called Hyperlinks. It is an important property of HTML. A webpage can contain various links. When we move the mouse over a link, the mouse arrow will turn into a little hand. Hyperlinks allow visitors to navigate between Web sites by clicking on words, phrases, and images. By default, web browser shows links in blue color with underline. When we click on the link, it takes us directly to other pages and even specific parts of a given page.

In HTML documents, a link is specified using **<a>** tag. This tag is called **anchor tag.** It is a paired tag. Anything between the opening <a> tag and the closing tag becomes part of the link. In

the opening tag of anchor tag, ***HREF*** attribute is used to specify the linked document, resource, or location. Here, HREF stands for **Hypertext Reference**. This attribute can be used to link to local files or files on the internet. Following is the simple syntax to use <a> tag.

Link Text or Image

Here, **link_url** is the address of linked document, resource or location. We can use absolute or relative urls to mention the link_url for the HREF attribute.When user clicks on this "Link Text or Image", the web browser will take the user to the linked document, resource or location.

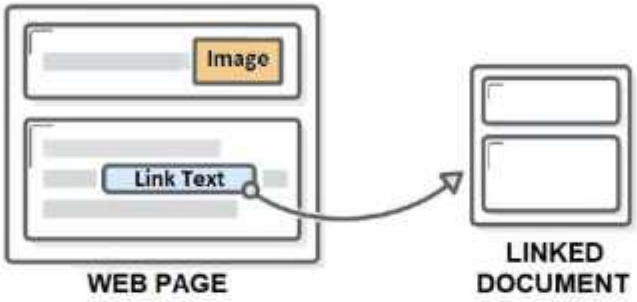


Fig: 4.6 Concept of Hyperlink

A hyperlink on the web page can have various states. Following are the common states of a link and their default appearance in web browsers:

- **Unvisited Links**: These are the links that has not yet been clicked by the user. An unvisited link is underlined and shown in **blue** color by default.
- **Visited Links**: These links are the links that user has previously clicked. A visited link is underlined and shown in **purple** color by default.
- **Active Links**: This state refers to a link in the moment a user clicks on it.An active link is underlined and shown in the **red** color by default.

Following HTML program shows how to create Hyperlinks:

```
<html>
    <head>
        <title>Hyperlink Example</title>
    </head>
    <body>
    <h1>Hyperlink Examples</h1>
    Click on the following links to visit their websites:<br>
    <a href="http://google.com">Google</a> <br>
    <a href="http://pseb.ac.in">Punjab School Education Borad</a> <br>
    <a href="./test1.html">Web Page of Image Example</a> <br>
    </body>
</html>
```

Program 4.4 HTML Program (test2.html) for creating Hyperlinks

Fig: 4.7 Output of Program 4.4 (test2.html) in Internet Explorer

In the Program 4.4, we have created three links. First two links are linked with the website of google and Punjab school education board while third link is connected with local test1.html file that we have created for image examples in this chapter. If we click on any one of the first two links, then web browser will open the respective website while clicking on the third link will open the web page of our Image Example. Linked document will open in the same web browser window.

In the output of test2.html, first two links represent unvisited links (underlined in blue color) while the third link represents the visited state of the link (underlined in purple color), i.e. we have already visited/opened this link. If we click on any of the first two unvisited links, and reopen the test2.html, then color of visited links also turns into purple color with underline.

4.3.1 Attributes of Anchor Tag:

The **HREF** attribute is the essential attribute of anchor tag which is used to specify the address of the linked document or resource. Anchor tag is of no use without the HREF attribute. Besides HREF tag, there are some other attributes too that can be used in the anchor tag which are explained below:

Setting Titles for Links:

The `title` attribute specifies extra information about an element. The information is most often shown as a tooltip text when the mouse moves over the element. For Example:

```
< a href="https://google.com"title="Go to Google" >Google</a>
```

Setting Target Window:

By default, the linked page will be displayed in the current browser window. We can also open the linked document in the new tab-window. The target attribute is used to specify where to open the linked document. The common values for target attribute can be one of the following:

- **_self**:It is the default value of target attribute. It opens the document in the same window/tab as it was clicked.
- **_blank**:It opens the document in a new window or tab of web browser. For Example:

```
< a href="https://google.com"title="Go to Google"target="_blank" >Google</a>
```

Following HTML Program shows the usage of these attributes of anchor tag:

```
<html>
    <head>
        <title>Hyperlink Example</title>
    </head>
    <body>
    <h1>Hyperlink Examples</h1>
    Click on the following links to visit their websites:<br>
    <a href="http://google.com" title="Goto Google" target="_blank">Google</a><br>

    <a href="http://pseb.ac.in" title="Goto PSEB site" target="_self">Punjab
    School Education Borad</a> <br>

    <a href="./test1.html" title="Goto Test1.html">Web Page of Image Example</a>
    </body>
</html>
```

Program 4.5 HTML Program (test2.html) for creating Hyperlinks using **title** and **target** attributes

Fig: 4.8 Output of Program 4.5 (test2.html) in Internet Explorer

When we click on the Google hyperlink, it will be opened in the new tab window of the web browser, because in the target attribute of hyperlink is set to _blank:

< a href="https://google.com"title="Go to Google"target="_blank" >Google

Fig: 4.9 Google hyperlink in the new Tab window due to target="_blank"

4.3.2 Linking with Images:

We can also make hyperlinks with the images in web pages. For this, we put an image tag in between the <a> and tags. For example:

```
< a href="url" >
        <imgsrc="url_of_image">
</a>
```

Now, when we click on the image-link, it will display the linked resource that we mentioned as a url for href attribute. We can also make hyperlink with thumbnail images to present larger images. A thumbnail is an image with a reduced file size that is used as a placeholder for full sized image.

```
<a href="larger_image"><imgsrc="thumbnail"></a>
```

When user clicks on the thumbnail image, it will show the larger image of the thumbnail image to the user. Following HTML program shows how to create hyperlinks with the image:

```
<html>
    <head>
        <title>Hyperlink Example</title>
    </head>
    <body>
    <h1>Hyperlink with Image</h1>
        <a href="http://google.com#" title="Goto Google" target="_blank">
          <img src="search.png" width="50" height="50" border="2">
        </a>
    </body>
</html>
```

Fig: 4.10 Output of Program 4.6 (test3.html) in Internet Explorer

4.3.3Link to an Email Address:

HTML <a> tag provides us option to specify an email address to send an email with a predefined recipient address. While using <a> tag as an email tag, we will use **mailto:email_address** along with **href** attribute. When the user clicks on the mailto: link, the default email-client opens on the user's computer to send an email. An email client is a program or web application that is designed to receive, write, send, and keep our email messages. Following is the syntax of using **mailto:** instead of using http.

```
<a href = "mailto: abc@example.com">Send Email</a>
```

Now, if a user clicks this link, it launches one Email Client (like Lotus Notes, Outlook Express,

Thunderbird etc.) installed on user's computer to send email to the predefined recipient abc@example.com. If user do not have email client installed on their computer then it would not be possible to send email.

4.3.4 Named Anchors or Creating Bookmarks:

A named anchor is a label assigned to part of an html document. Anchor tag enables users to "jump" to this labelled part on a page. This is especially useful with large pages having many sections/subdivisions. **Named anchors** are also called **Bookmarks**. There are two steps for using bookmarks in HTML documents:

Step1: Create Named-Anchor:

For using bookmarks, first step is to create a named anchor in the HTML document. We can create a named anchor by using the ***name*** attribute of <a> tag. Consider the following example which creates a label assigned to a section named anchor - ***Section1***

```
<a name="Section1">Title of the Section</a>
```

Step2: Create Link to a Named-Anchor:

After creating named anchor, next step is to create a link to the named anchor. For creating such link to named anchor, we have to use ***href*** property of anchor tag and assign it the name of anchor (that we have created in step1) with # symbol. If we want to create link for named anchors that are available within the same document, the <a> element should be as follows:

```
<a href="#Section1"> Link Text for Section1</a>
```

Following HTML program shows how to implement the concept of bookmarks for a single web page:

```
<html>
    <head>
       <title>Bookmark Example</title>
    </head>
    <body>
    <h1>Bookmark Example Page</h1>
         <h3><a href="#computer">Computer System</a></h3>
         <h3><a href="#input">Input Devices</a></h3>
         <h3><a href="#output">Output Devices</a></h3>
         <h3><a href="#storage">Storage Devices</a></h3>
    <hr>
        <h2><a name="computer">Computer System</a></h2>
        <img src="computer.jpeg" border="1">
        <h2><a name="input">Input Devices</a></h2>
        <img src="input.png" border="1">
        <h2><a name="output">Output Devices</a></h2>
        <img src="output.jpg" border="1">
        <h2><a name="storage">Storage Devices</a></h2>
        <img src="storage.png" border="1">

    </body>
</html>
```

Step2: Creating Links to Named Anchors

Step1: Creating Named Anchors

Program 4

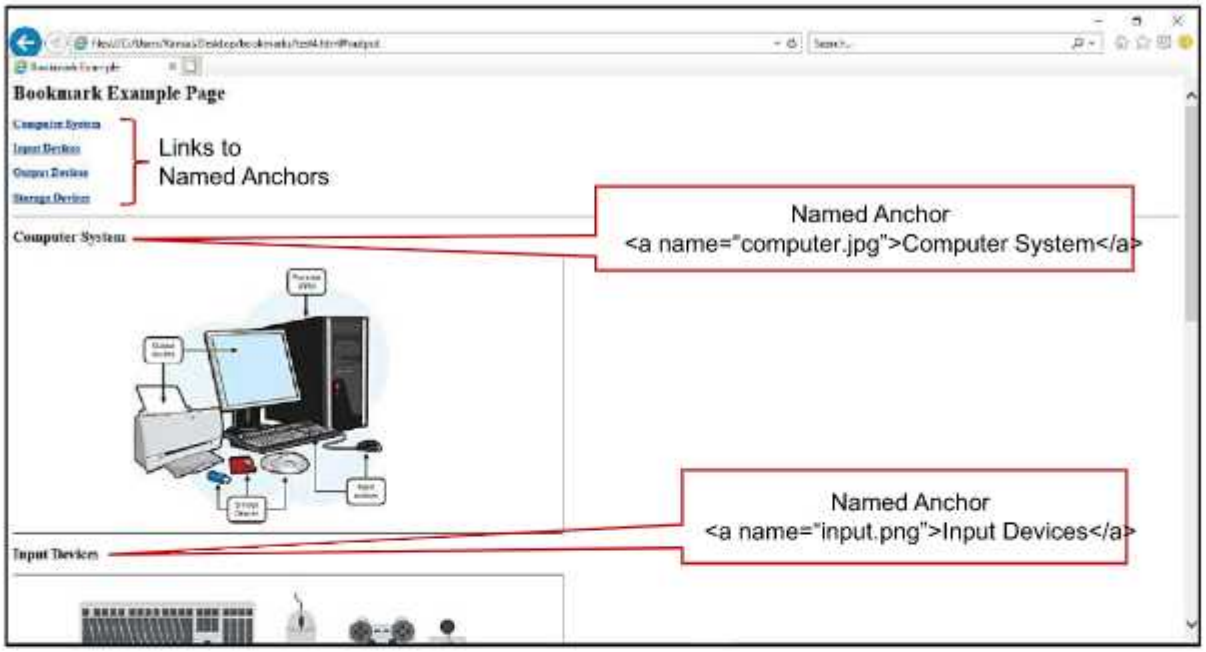


Fig:4.11Output of Program 4.7 in Internet Explorer

The Program 4.7 produces a very long web page. Only partial web page is shown in the above output. In the program, we have created 4 Bookmark links to named-anchors at the top of the page. When we click on any of the Bookmark Links (Computer System, Input Devices, Output Devices, or Storage Devices), the web browser directly navigates to the respective labelled part(named anchor) by scrolling automatically on the web page.

4.4 WORKING WITH FORMS

HTML Forms provide interactivity between user and website. These forms are like the simple forms. They are used to get data from the user,such as - registration information: name, email address, credit card, etc.A form will take input from the user. Then it will be posted/submitted to web-server.At web-server, server-side scripts (ASP or PHP etc.) process the form's data and stores it in the database. Following figure shows a sample HTML form with data filled by the user. After filling data, user clicks on the "Submit Data" button to submit the filled data to the web server. On the web server, a program, called server-side script, will get the filled data in the Form to process it or to store it in the database.

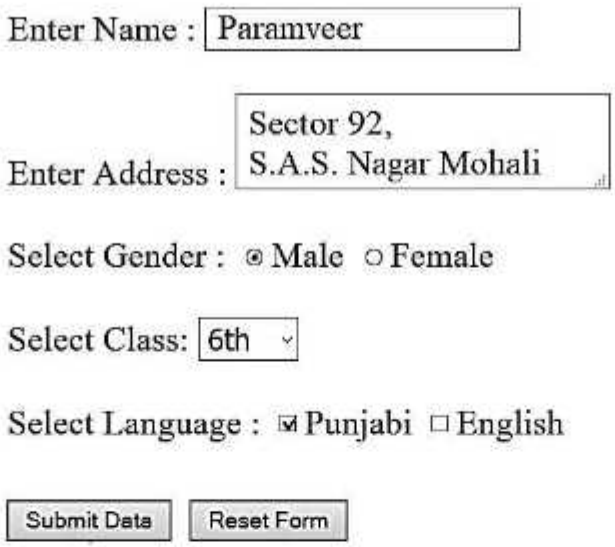


Fig: 4.12 Example of a HTML Form with data filled by User

As the Figure 4.12 shows, a form may contain many different types of elements/controls to accept different types of information from the user. Form elements can be a text field, text-area, drop-down list, radio button, checkbox, etc. Following discussion explains the different types of form elements and how to use them in the HTML document:

4.4.1 <FORM>Tag:

<FORM> tag is used to create a form in HTML document.<Form> is a paired tag. All the form elements/controls to accept data from user are placed inside the <Form> and </From> tags. A simple syntax of using <form> is as follows:

```
<formaction="script-file"method="posting method">
------------------------------
form elements like input, text-area, buttons etc.
   ------------------------------
</form>
```

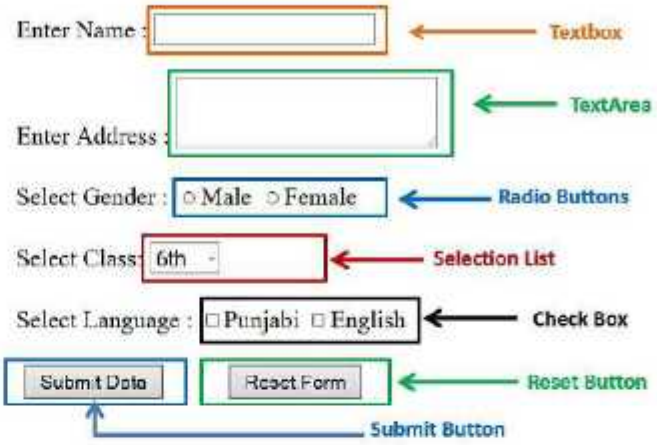
Here, action and method are the two most important attributes of form tag:

- **Action attribute:** It is used to specify the URL of the script which will receive form's data on the web server.
- **Method attribute:** It is used to specify HTTP method for sending form-data to web server. There are two kinds of HTTP methods, which are **GET** and **POST**:
  - **GET:** In this method, Form values will be visible in the address bar of the web browser after submitting the form-data. This method is not useful for sending sensitive/secure information (such as passwords etc.) to web server. It is also very useful in those situations where a user wants to bookmark the result.
  - **POST:** In this method, Form values will not be visible in the address bar of the web browser after submitting the form-data. It appends form data inside the body of the HTTP request. This method is essential when we want to store form-data to a database, or when submitting sensitive information, such as passwords etc. Form submission with POST cannot be book marked.

4.4.2 Elements or Controls for the HTML Form:

A Form contains many types of controls to accept the data from user. All these controls are put in between the <form> and </form> tags. Following are the commonly used controls of web-forms:

- TextboxControl
- Text Area Control
- Password Field Control
- Checkbox Control
- Radio button Control
- Selection List Control
- File Selection Control
- Button Control
- Submit Button
- Reset Button



Elements/Controls of HTML Form

These controls that are used commonly in web forms are explained here with suitable examples:

4.4.2.1 Textboxor Text-Field Control:

This form control is used to accept a single line of text from the user. For example:user name, search boxes etc. To create this control, we use **<input>** tag with *type="text"* attribute. Consider the following basic example of textbox control to accept single line of text:

```
<input type="text">
```

It will create a rectangular box where Users can input the text data. There are several optional attributes that can be used with the <input> tag, which are given below:

- *name*: It is used to set the name of the control. This attribute is required for the server-side scripting such as JSP, ASP, PHP etc. to get the data filled in the textbox.
- *value*: It is used to provide the default value for the textbox control.
- *size*: It is used to specify the width of the textbox in terms of characters.
- *maxlength*: It is used to specify the maximum number of characters a user can enter into the text box.

Consider the following example with additional attributes for accepting user name:

```
User Name:<input type="text" size="20" maxlength="50">
```

This code creates a textbox to accept maximum 50-characters long text in a single line. It will be shown 20 characters wide on the web page, as shown below. User can fill text-data in this text-field.

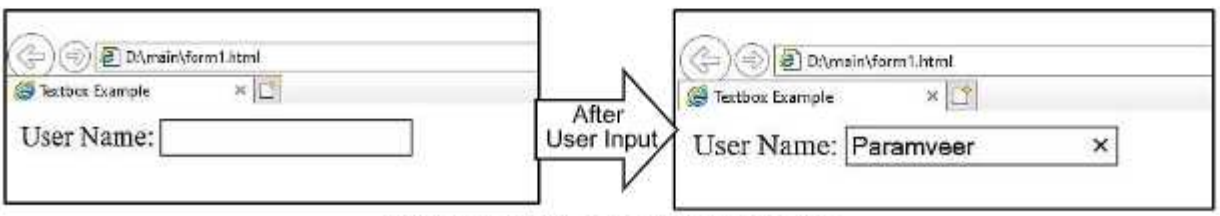


Fig:4.14 Example of Text Field Control

4.4.2.2 Password FieldControl:

It is also a Single-line text input control but it masks the input character as soon as a user enters it. Therefore, this control is used to accepts the password type secure information in the web pages. To create this control, we use **<input>** tag with *type="password"* attribute. Consider the following basic example of password control:

```
Input Password: <input type="password">
```

This code creates a text-field to accept password information. It masks the input character as soon as a user enters any text in it.

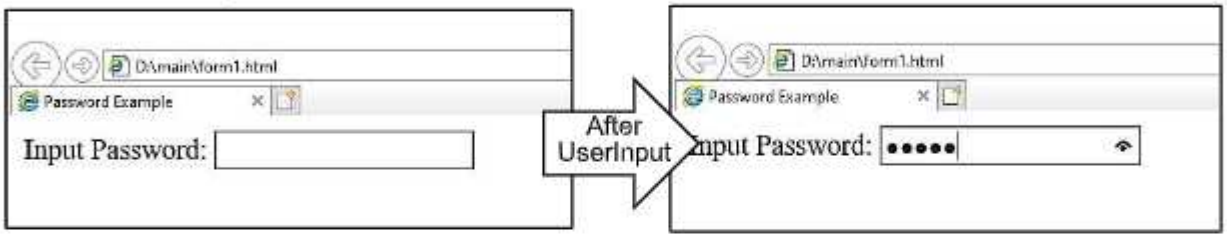


Fig:4.15 Example of Password_Field Control

This Control also supports *name*, *size*, *maxlength*, and *value* as optional attributes.

4.4.2.3 Text AreaControl:

This control is used to accept multiple lines of text from the user. Typically, this control is used to accept the address information, comments, feedback etc. from the user. To create this control, <textarea> element is used in the HTML documents. There are two important attributes of <textarea> control:

- *rows*: It is used to set the height (number of rows) of textarea control.
- *cols*: It is used to set the width of text area control in terms of characters.

<textarea> element is a paired tag. So, it must be closed with </textarea> closing tag. Consider the following basic example of text area control:

```
Address Information: <br>
<textarea rows="5" cols="50"></textarea>
```

This code creates a text-area having 5 rows and 50 columns (in terms of characters) to accept address information from user.

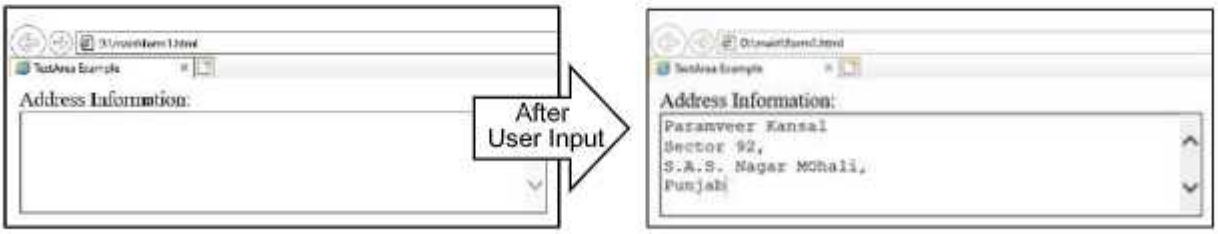


Fig:4.16 Example of Text Area Control

4.4.2.4 Checkbox Control:

Check boxes allows a user to select zero or more options from a limited set of choices. It is a very convenient way of accepting data when the possible inputs are already known. To create this control, we use **<input>** tag with *type="checkbox"* attribute. Consider the following basic example of checkbox control to accept user choice:

```
Select Your Subjects: <br>
<input type="checkbox" name="c1" value="Chemistry">Chemistry
<br>
<input type="checkbox" name="c1" value="Physics"> Physics<br>
<input type="checkbox" name="c1" value="Math">Math
```

This code creates three check boxes for selecting subjects from user. User can select zero or more subjects from the given choices. Here, the *name* attribute is required for the server-side scripting such as JSP, ASP, PHP etc. to get the values (mentioned in the *value* attribute) of selected check boxes. Check boxes can have the same name to form a group:

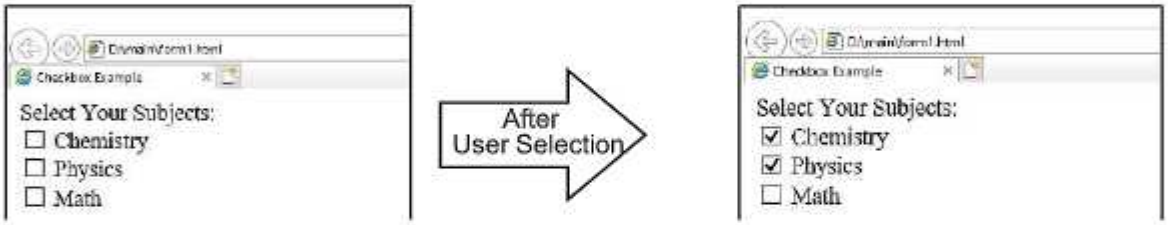


Fig:4.17 Example of Checkbox Control

4.4.2.5 Radio Button Control:

Radio buttons are used in those situations where we want to accepts as a Boolean value or we expect only one input as true out of multiple options. In simple terms, we can say that Radio Buttons are used for a single selection from a given group of options. Some common uses of radio buttons are gender determination, employee type (Regular/Temporary), etc. To create this control, we use **<input>** tag with *type="radio"* attribute. Consider the following basic example of radio button control:

```
Select Gender:<br>
<input type="radio" name="gender" value="Male">Male <br>
<input type="radio" name="gender" value="Female">Female
```

This code creates two radio buttons for selecting gender value from the user. User can select only one of the given choices. Here, the *name* attribute is required for the server-side scripting such as JSP, ASP, PHP etc. to get the values (mentioned in the *value* attribute) of selected radio button. Radio buttons can have the same name to form a group:

Fig:4.18 Example of Radio Button Control

4.4.2.6 Selection List Control:

Selection List control is also known as Drop Down List. This control is used to select one or more options from the huge list of options. The <select> tag is used to create Drop-Down box. The options to be selected is listed with <option> tag having ***value*** as the attribute. The value of selected option will be sent to the web-server after form submission. The HTML code given below shows the use of <select> tag with <option> tag to create a Selection Box or Dropdown control:

```
Select a Language:<br>
    <select name="language">
        <option value="Hindi">Hindi</option>
        <option value="Punjabi">Punjabi</option>
        <option value="English">English</option>
        <option value="Urdu">Urdu</option>
    </select>
```

This code will create a dropdown control to select a language from the given four options. By default, it will display the first option from the list. By clicking on the dropdown arrow, we can view the list of other available options. To select any option, just click on the option from the dropdown list.

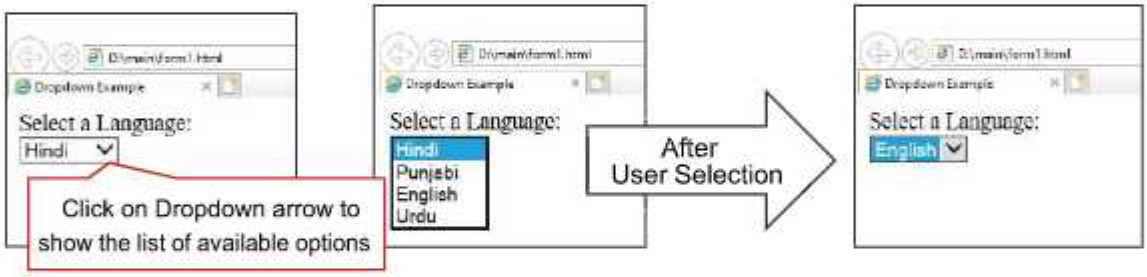


Fig:4.19 Example of Dropdown List Control

Attributes of <select> tag:

- ***Name***: This attribute is required for the server-side scripting such as JSP, ASP, PHP etc. to get the value of selected option.
- ***Size***: This attribute is used to make a scrollable list box.Its value is set to a number which determines how many list items gets visible in the list box.
- ***Multiple***: This attribute is used if we want to allows a user to select multiple items from the list.

The HTML code given below shows the use of various attributes of <select> tag

```
Select a Language: <br>
<select name="language"size="3" multiple="true">
    <option value="Hindi">Hindi</option>
    <option value="Punjabi">Punjabi</option>
    <option value="English">English</option>
    <option value="Urdu">Urdu</option>
</select>
```

This code creates a Scrollable List Box in which we can select multiple options by Holding the Control key + Left Clicking the Mouse:

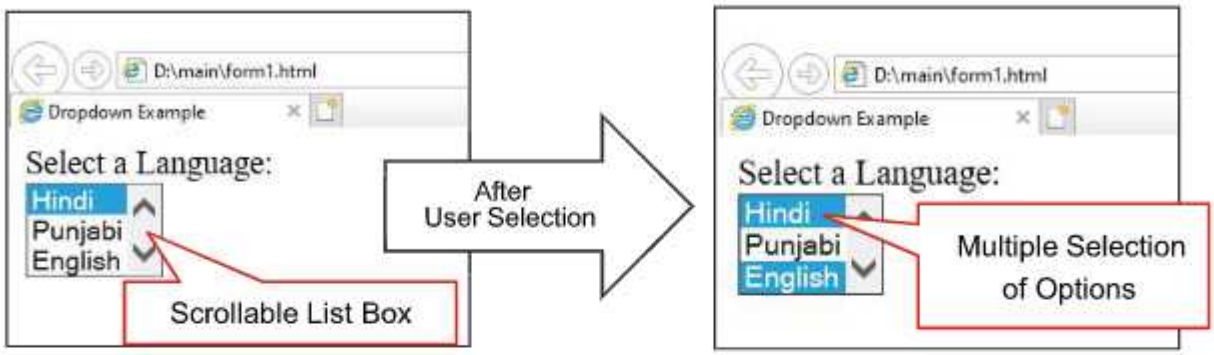


Fig:4.20 Example of Scrollable List Box Control

4.4.2.7 File Upload Control:

If we want to allow a user to upload a file to our web site from his/her computer, we will need to use a file upload box, also known as a file select box. To create this control, we use **<input>** tag with *type="file"* attribute. Consider the following basic example of file upload control:

```
<input type="file" name="fileupload" accept="image/*">
```

Here, *name* attribute is required for the server-side scripting such as JSP, ASP, PHP etc. to get the uploaded file and the *accept* attribute is used to specify the types of files that the server accepts. The **accept="image/*"** specifies that server will accept only image type files:

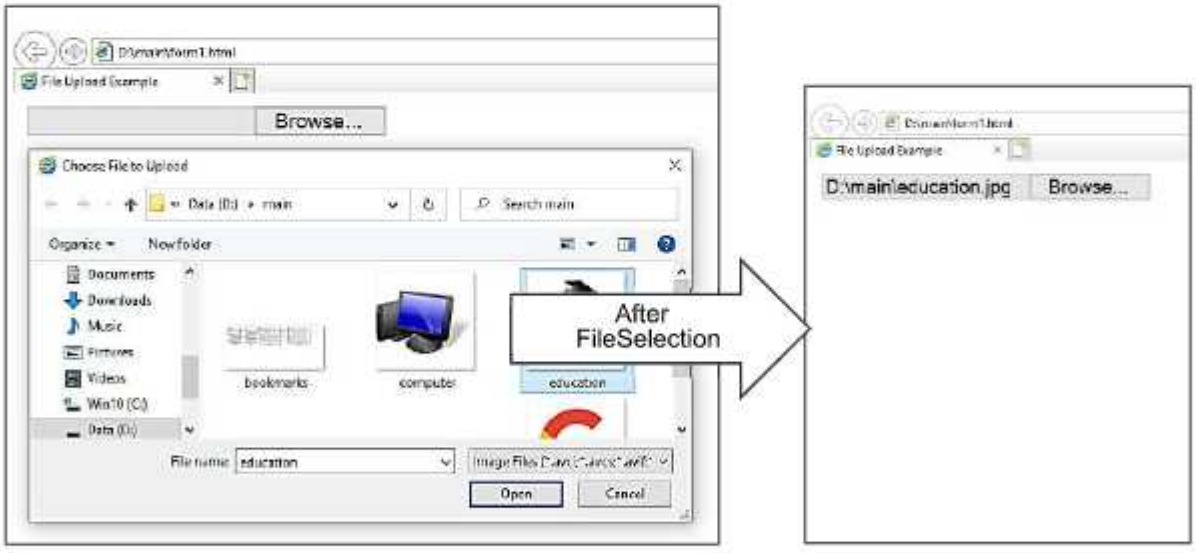


Fig:4.21 Example of File-Upload Control

When we click on the Browse… button, it will display a dialog box "Choose File to Upload". After selecting a file, click on the Open button of the dialog box. The selected filename with the full path will appear in the read-only textbox adjacent to the Browse… button, as shown in the figure above.

4.4.2.8 Creating Buttons:

Different types of buttons can be created for different tasks in HTML. We can create clickable buttons using <input> tag by setting the *type* attribute. The type attribute can take the following values to create different types of buttons in the HTML documents:

- **submit:** It is used to create a submit button. When this button is clicked, the browser will automatically send all the form-data to the web server.
- **reset:** It is used to create a reset button. When this button is clicked, the browser will automatically reset all form-controls to their initial values.
- **button:** It is used to create a button that is used to call/run a function/code written in client-side scripting languages (such as: JavaScript).
- **Image:** It is used to create a clickable button with image background.

Consider the following basic example for creating commonly used buttons on forms:

```
<input type="submit" value="Submit Data">
<input type="reset" value="Reset Form">
```

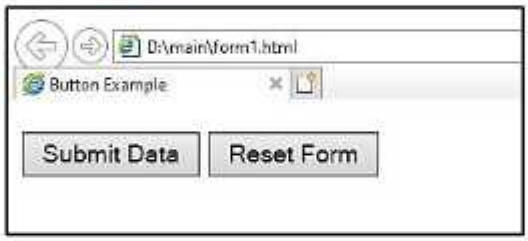


Fig:4.22 Example of Button Controls (Submit & Reset Buttons)

Here, we create two buttons- one for submitting form data and other for resetting form values. When we click on the submit button, it will send form's data to web server and if we click on reset button, it will clear all filled values in the form and reset the form controls to their initial values. Now, we will create a complete basic example program for just creating form and various form-controls:

```
<html>
    <head>
       <title>Admission Form</title>
    </head>
    <body>
    <h1 align="center">Admission Form</h1>
    <hr>
    <form action="#" method="post">
    Enter Student Name: <input type="text"> <br><br>
    Enter Father Name: <input type="text"> <br><br>
    Select Gender:  <input type="radio" name="gender" value="Male">Male
                    <input type="radio" name="gender" value="Female">Female <br><br>
    Enter Address: <textarea rows="2" cols="20"></textarea><br><br>
    Enter Contact Number: <input type="text"> <br><br>
        Select Class: <select name="class">
                    <option value="6th">6th</option>
                    <option value="7th">7th</option>
                    <option value="8th">8th</option>
                    <option value="9th">9th</option>
                    <option value="10th">10th</option>
                    </select> <br><br>
    Elective Subject: <input type="checkbox" name="subject" value="sanskrit">Sanskrit
                <input type="checkbox" name="subject" value="agriculture">Agriculture
                <input type="checkbox" name="subject" value="drawing">Drawing
                <input type="checkbox" name="subject" value="physcial">Physical Education <br><br>
    <input type="submit" value="Submit Data">
    <input type="reset" value="Reset Form">
    </form>
    </body>
</html>
```

Program 4.8: HTML Program (form1.html) for Creating a form along with its various elements

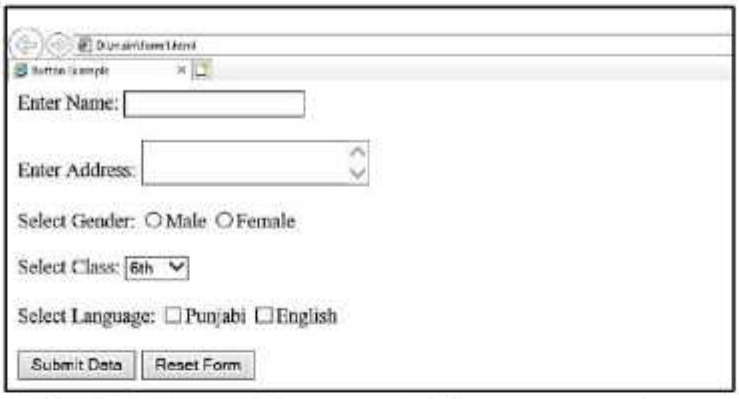


Fig:4.23 Output of Program 4.8 in Internet Explorer

Here, user can fill the form and send data to server where a script file handles the form data to process it. In our example, we have not mentioned any script file in the action attribute of form tag, because it is beyond the scope of our syllabus. So you are only given information on how to create a simple form.

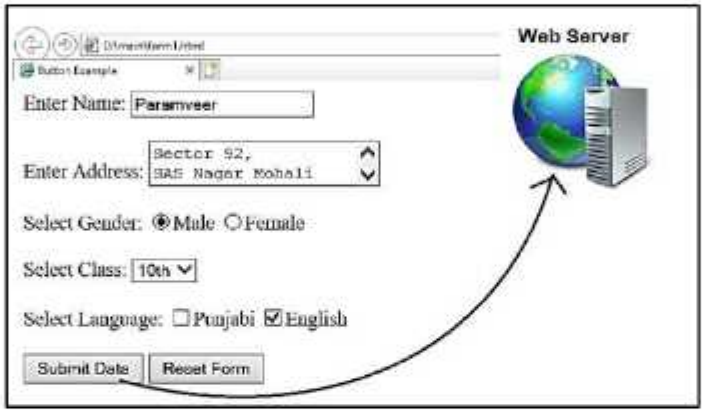


Fig:4.24 Output of Program 4.8 with form data filled and submitted by user

4.5 PHASES OF WEB DEVELOPMENT

Web development refers to building, creating, and maintaining websites. It includes aspects such as web design, web publishing, web programming, and database management. In a broader sense, web development encompasses all the actions, updates, and operations required to build, maintain and manage a website to ensure its performance, user experience, and speed are optimal.

Web development is also known as website development, while the professionals that maintain a website are called web developers (also known as Web Devs). Most web developers use Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), Client-Side Scripting Language such as JavaScript and Server-Side Scripting Language, such as PHP, ASP etc. to develop websites. Web development skills are in high demand worldwide and well paid too – making development a great career option. It is one of the easiest accessible higher paid fields as you do not need a traditional university degree to become qualified.Good knowledge in this field can shape your career.

The web development process requires a team of experts responsible for implementing the

different tasks needed to create a website. The various phases that are needed in order to develop a web project in web development are as following:

Fig: 4.25 Various Phases for Website Development

Phase 1: Information Gathering

This is the most important phase of **website development**. It involves understanding the client's requirements, identify their needs and helps them in providing the perfect solution. Following are some of the very important points that should be considered in this phase:

- What is the purpose of creating a website?
- What is the main goal of the building a website?
- Which target audience we want to get targeted?
- Which type of contents our target audience will look for?

Every website is different from the other, so gathering relevant information regarding the project is very important. So, it is vital to get insights so that an appealing website is created.

Phase 2: Planning

Good website is the result of good planning. Planning is nothing but prioritizing tasks for website completion. All the planning process should have the involvement of the client. So, the client has an idea about the blueprint of the project. The important task to be performed in this phase are given below:

- Develop the sitemap of the website.
- Think of the best user interface that can be created for easy navigation.
- Decide the menus, contents & navigational system for the website.
- Prepare a detailed list of all the areas of the website and the sub-topics

Phase 3: Design& Layout

This is the creative phase of website design. In this phase, look and feel of the website is determined. The designer needs to understand each & every aspect of the client expectation & try to sketch it. The designer gives life to the graphics, typography, colors, animations, buttons, drop-down and pop-up menus, and more as per the project requirement. From logo design to selecting templates, everything is discovered in this phase.

Phase 4: Development

After designing, there is a development phase. The development phase is also a very crucial phase for the website design. This is the phase where actual website starts its implementation. All the elements are used to generate a functional website. The development process begins with first developing the home page followed by the interior pages. Here, we integrate all the information that we had collected from initial phases. Creating Database, logic & actual programming is done here. At this stage, web developers develop/build websites using a variety of programming languages, such as - Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), Client-Side Scripting Languages (for example: JavaScript) and Server-Side Scripting Languages (for example: PHP, ASP, etc.).

Phase 5: Testing &Launch

After the completion of web development, the functionality of the website is tested along with the device compatibility. The tester validates the codes written for the website. The following are the types of website testing:

- Content Testing
- Functional Testing
- Design Testing

All these types of testing are done offline. After offline testing of the website, we upload the files to the server. Now again we test it, but this test is performed online. In this testing we should check whether all the files are uploaded properly or not and also assures that the website is working properly. After Testing is finalized, the site is launched for public view.

Phase 6: Maintenance

The last phase of website development is Maintenance. In this stage, some elements are changed as per the user's feedback, support, and maintenance. Maintenance means updating the contents & design of the website. Website maintenance is an on-going process. One good way to attract potential visitors and repeat their visits is to keep updating the content and adding new contents on a regular basis.

POINTS TO REMEMBER

1. Any internet location available on server is called a **web URL** or a web address.
2. An absolute URL gives complete location to a resource (file).
3. A Relative URL describes the path of the file relative to the location of the current web page file.
4. To add an image to HTML page, we use ***<imgsrc="image_url">*** tag in the HTML document
5. Hyperlinks allow visitors to navigate between Web sites by clicking on words, phrases, and images.
6. In HTML documents, a link is specified using ***<ahref="link_url">*** tag. This tag is called **anchor tag.**
7. A named anchor is a label assigned to part of an html document. **Named anchors** are also called **Bookmarks**.
8. HTML Forms provide interactivity between user and website.
9. Method attribute of form is used to specify HTTP method for sending form-data to web server. There are two kinds of HTTP methods, which are **GET** and **POST**
10. While using GET HTTP method, Form values will be visible in the address bar of the web browser after submitting the form-data.
11. Textarea control is used to accept multiple lines of text from the user.
12. Checkboxes allows a user to select zero or more options from a limited set of choices.
13. Radio Buttons are used for a single selection from a given group of options.
14. Selection Box control is also known as Drop Down Box which is used to select one or more options from the huge list of options.
15. Submit button is used to automatically submits form-data to web server
16. Web development refers to building, creating, and maintaining websites.
17. Planning is nothing but prioritizing tasks for website completion.
18. The development process begins with first developing the home page followed by the interior pages.
19. After the completion of web development, the functionality of the website is tested along with the device compatibility.
20. Maintenance means updating the contents & design of the website.

EXERCISE

Que:1 Multiple Choice Questions:

I. _____ URL gives complete location to a resource (file).

a. Relative
b. Absolute
c. Internal
d. External

II. Which tag is used to add an image in HTML document?

a. <picture>
b. <pic>
c. <image>
d. <img>

III. Which of the following attribute is not used by anchor tag in HTML?

a. href
b. src
c. target
d. title

IV. A _____ link is underlined and shown in purple color by default.

a. Unvisited Link
b. Visited Link
c. Active Link
d. None of these

V. Which HTTP method is used to send form-data to web server?

a. GET and SET
b. GET and POST
c. POST and SEND
d. GET and SEND

VI. Which of the following form control is used to accept multiple lines of text in the web page?

a. Textbox
b. Dropdown Box
c. Password Field
d. TextArea

Que:2 Fill in the Blanks:

I. In relative paths, _____ delimiter points to the parent folder of the current working file.

II. Every image tag has a _____- attribute which tells the browser where to find the image that we want to display.

III. Named anchors are also called _____.

IV. Form submission with _____ HTTP method cannot be bookmarked

V. _____ is nothing but prioritizing tasks for website completion.

Que:3 Write the full forms of the following:

I.	URL	V.	HREF
II.	GIF	VI.	SRC
III.	PNG	VII.	<A>
IV.	JPEG	VIII.	<IMG>

Que:4 Short Answer Type Questions:

I. How will you insert an image in the HTML document?

II. What is Hyperlink?

III. What are Forms?

IV. Write the name of various controls used in the web forms.

V. What are the different types of buttons used in the HTML forms?

Que:5 Long Answer Type Questions:

I. What is URL? Explain different types of URL.

II. Explain the various text input controls used in web forms.

III. What are the various phases of web development?

Lab Activities

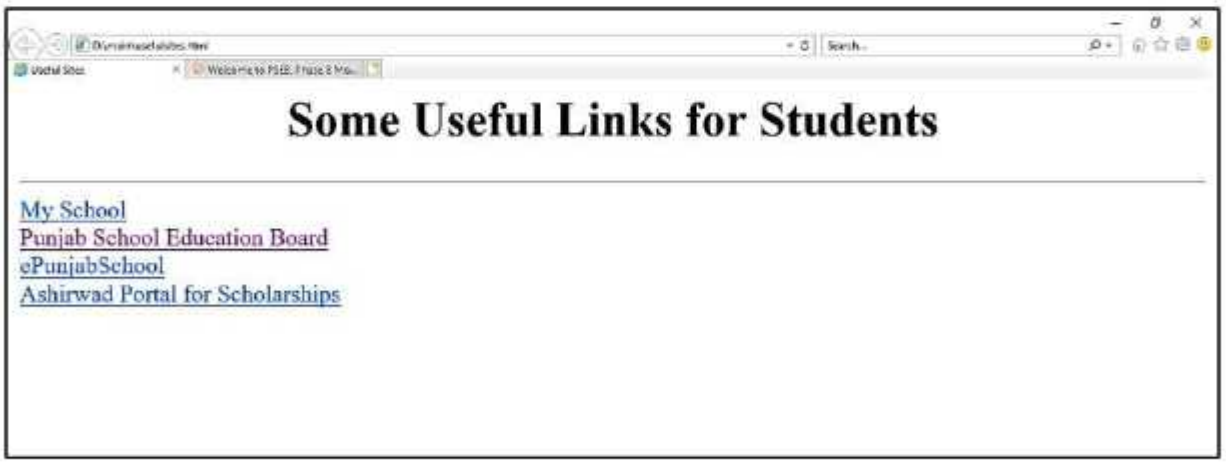
Activity 4.1:

Create a web page for your school as shown below and save it using "myschool.html".

In this web page, you can use any descriptive image of school building. Use the relative address for inserting an image in the web page by placing both the html document (myschool.html) and image files (school.jpg) at the same location.

Activity 4.2:

Create a web page showing some useful links with local and global resources as shown below:



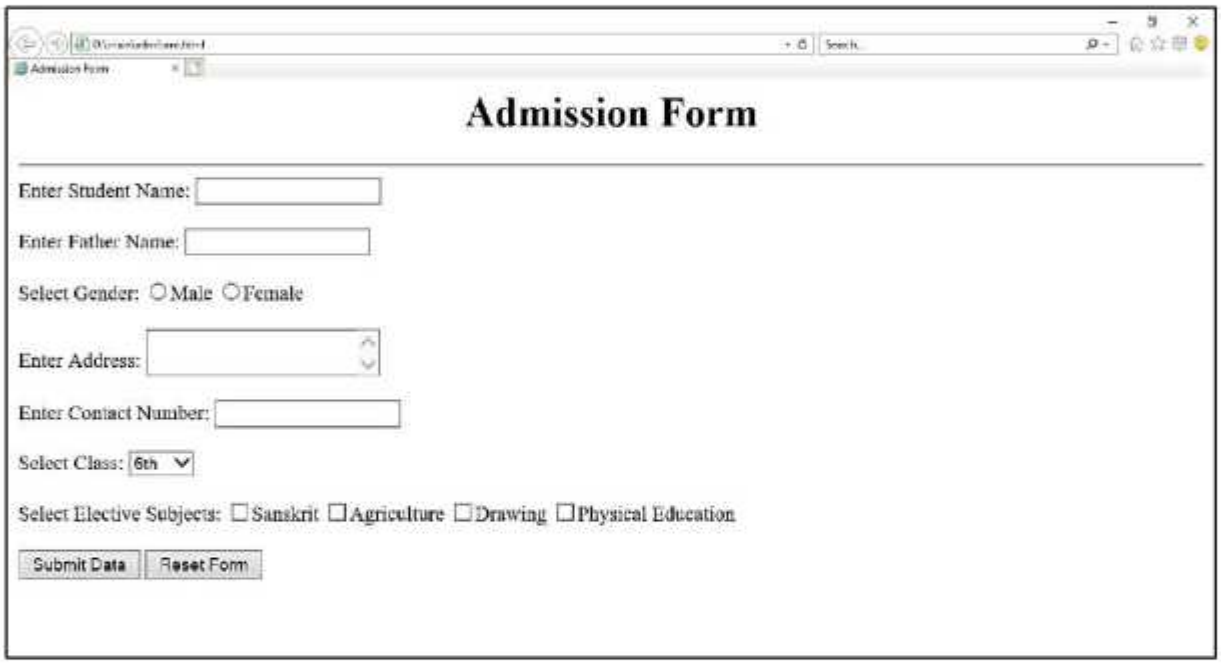
Here, create the links as follows:

- Link **My School** to the local web page that we created in activity 4.1 ("./myschool.html")
- Link **Punjab School Education Board** to its official web site "http://www.pseb.ac.in/"
- Link **ePunjabSchool** to its official web site "https://www.epunjabschool.gov.in/"
- Link **Ashirwad Portal for Scholarships** to its official web site "http://scholarships.punjab.gov.in/"

All these links should be opened in the new tab window of the web-browser. Save the HTML document for above activity (Activity 4.2) with the name "**usefulsites.html**" at the same location where we saved "**myschool.html**" document.

Activity 4.3:

Create an "Admission Form" using HTML-Form as shown below:



***Note:** **HTML Coding for these activities has been given for assistance in the Appendix III of this book**

Chapter-5th

OPERATING SYSTEM

Objectives of this Chapter:

5.1 Operating System
5.2 Types of Operating Systems
5.3 Single-User and Multi-User Operating Systems
5.4 Computer Security

INTRODUCTION:

Operating system is a System Software. It is used to operate or run computer. It also helps the user to interact with the parts of the computer, i.e., the hardware. It provides an environment in which the users can work efficiently on the computer system. An operating system is a software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers. Operating system is needed to manage computer resources efficiently. Some popular Operating Systems include Windows, DOS, Unix, Linux, Mac OS etc.

5.1 OPERATING SYSTEM

An operating system is a program that acts as an interface between the user and the computer hardware, and controls the execution of all kinds of programs, as shown below in the figure 5.1

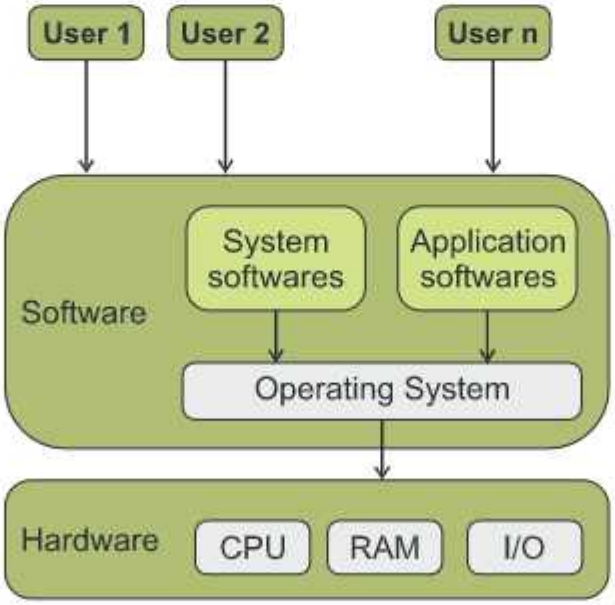


Fig 5.1 Operating System

5.1.1Services provided by operating System

Operating system provides certain services to programs and to the users. It provides an environment for the execution of programs. It provides users the services to execute the programs in a convenient manner. These services also provide convenience to the programmer. The basic services or functions provided by the operating system are as follows:

- User Interface
- Program execution
- I/O operations
- File System manipulation
- Communication
- Error Detection
- Resource Allocation
- Protection

5.1.1.1 User interface:

Almost all operating systems have a user interface (UI). This interface is used to interact with the computer system. This interface can be Batch Interface, or CUI (Character User Interface) or GUI (Graphics User Interface):

- **In Batch Interface** commands and directives are entered into files, and then these files are executed. Batch Operating System is best example of such user interface.
- **CUI** uses text commands to perform any operation. DOS is the best example for such type of user interface.
- **GUI** is the most common user interface. It provides a graphical way to interact with the computer system. Windows is the best example of such user interface.

5.1.1.2 Program execution

Operating systems handle many kinds of activities from user programs to system programs like prints pooler, name servers, file server, etc. Each of these activities is encapsulated as a process. A process is a program in execution and includes the complete execution context (code to execute, data to manipulate, registers, OS resources in use). Following are the major activities of an operating system with respect to program management –

- Loads a program into memory.
- Executes the program.
- Handles program's execution.
- Provides a mechanism for process synchronization.
- Provides a mechanism for process communication.
- Provides a mechanism for deadlock handling.
-

5.1.1.3 I/O Operation:

A running program may require I/O, which may involves a file or an I/O device. Users usually cannot control I/O devices directly. Therefore, the operating system must provide a means to do I/O. An I/O subsystem comprises of I/O devices and their corresponding driver software. Drivers hide the internal functioning of specific hardware devices from the users. An Operating System manages the communication between user and device drivers.

- I/O operation means read or write operation with any file or any specific I/O device.
- Operating system provides the access to the required I/O device when required.

5.1.1.4 File System Manipulation:

As we know a file represents a collection of related information. Computers can store files on the disk (secondary storage). File manipulation refers to a wide variety of operations. Create, delete, copy, move, search are the common operations that can be performed on the files and folders. A file system is normally organized into directories for easy navigation and usage. These directories may contain files and other directories. Following are the major activities of an operating system with respect to file management −

- Program needs to read a file or write a file.
- The operating system gives the permission to the program for performing operations on files.
- Permission varies from read-only, read-write, denied and so on.
- Operating System provides an interface to the user to create/delete files.
- Operating System provides an interface to the user to create/delete directories.

5.1.1.5 Communication:

Sometimes one process needs to exchange information with another process. Such communication may occur between processes on the same computer or on different computer systems using a network. This communication may be implemented via shared memory or through message passing. All such communications between processes are performed with the help of operating system.

In case of distributed systems, which are a collection of processors that do not share memory, peripheral devices, or a clock, the operating system manages communications between processes in a network. Multiple processes communicate with one another through communication lines in the network.

Following are the major activities of an operating system with respect to communication:

- Two processes often require data to be transferred between them
- Both the processes can be on one computer or on different computers, but are connected through a computer network.

5.1.1.6 Error Detection:

Errors can occur anytime and anywhere. Errors may occur in the CPU and memory hardware (e.g. due to power failure), in I/O devices (e.g. lack of paper in the printer), and in the user program (e.g. an arithmetic overflow). For each type of error, the operating system should take the appropriate action. Following are the major activities of an operating system with respect to error Detection:

- The OS constantly checks for possible errors.
- The OS takes an appropriate action to ensure correct and consistent computing.

5.1.1.7 Resource Management:

When there are multiple users or multiple jobs running at the same time, resources, such as main memory, CPU cycles and files storage, must be allocated to each of them. Many different types of resources (CPU, Memory etc.) are managed by the operating system. So, operating system should allocate the resources to multiple jobs in an efficient way. Following are the major activities of an operating system with respect to resource management −

- It acts as a resource manager.
- Operating System manages all kinds of resources using schedulers.
- CPU scheduling algorithms are used for better utilization of CPU.

5.1.1.8 Protection:

Protection refers to a mechanism or a way to control the access of programs, processes, or users to the resources defined by a computer system. Considering a computer system having multiple users and concurrent execution of multiple processes. In such a system, the various processes must be protected from each other's activities. Following are the major activities of an operating system with respect to protection:

- The OS ensures that any access to system resources is controlled.
- The OS ensures that external I/O devices are protected from invalid access attempts.
- The OS provides authentication features for each user by means of passwords.

5.2 TYPES OF OPERATING SYSTEMS

In this topic, we will discuss some of the important types of operating systems, which are most commonly used.

5.2.1 Batch Operating System:

The users of a batch operating system do not interact with the computer directly. Each user prepares his job on an off-line device like punch cards and submits it to the computer operator. The operator sorts jobs into batches. To speed up processing, jobs with similar needs are batched together. This batch is then entered into the system and the operating system executes these jobs one by one. When the job is completed, its output is sent back to the appropriate user.

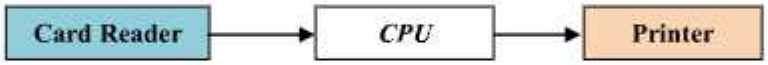


Fig:5.2 Batch Processing System

In batch system, major task of operating system is to transfer control automatically from one job to the next. In this system, output is usually printed on a line printer. The problems with Batch Systems are as follows:

- Lack of interaction between the user and the job.
- CPU is often idle, because the speed of the mechanical I/O devices is slower than the CPU.
- Difficult to provide the desired priority.

In this execution environment, the CPU is often idle during the I/O operations. It is because speed of I/O devices is slower than CPU. Even a slow CPU can work in this system. The introduction of disk technology has helped in this regard. Cards are read directly from card reader and stored on the disk. When a job is executed, operating system provides the input from the disk, which was stored from punch cards. Similarly, when the job requests the printer, the output is written into the disk. When the job is completed, output is actually printed. This form of processing is called **Spooling** (Simultaneous Peripheral Operation Online)

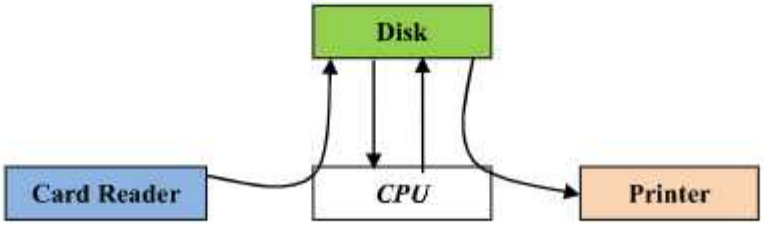


Fig: 5.3 Spooling in Batch Processing System

Thus, spooling technique overcome the problems in simple batch processing; because the speed of disk is faster than the input/output devices. In spooling after completion of execution of one program, CPU has not to wait for the slow speed input device to feed next job.

5.2.2 Multi-Programming Operating System:

Multiprogramming refers to keeping several programs in different parts of the main memory at the same time and executing them concurrently. The CPU switches from one program to another program instantaneously. Since the speed of CPU is much faster than that of I/O operations. When one program is busy with I/O operations, CPU's time is allocated to another program instead of remaining idle. Hence, in multiprogramming system, when one program is waiting for I/O transfer, there is another program ready to use the CPU. A simple example of multiprogramming is given in the following figure:

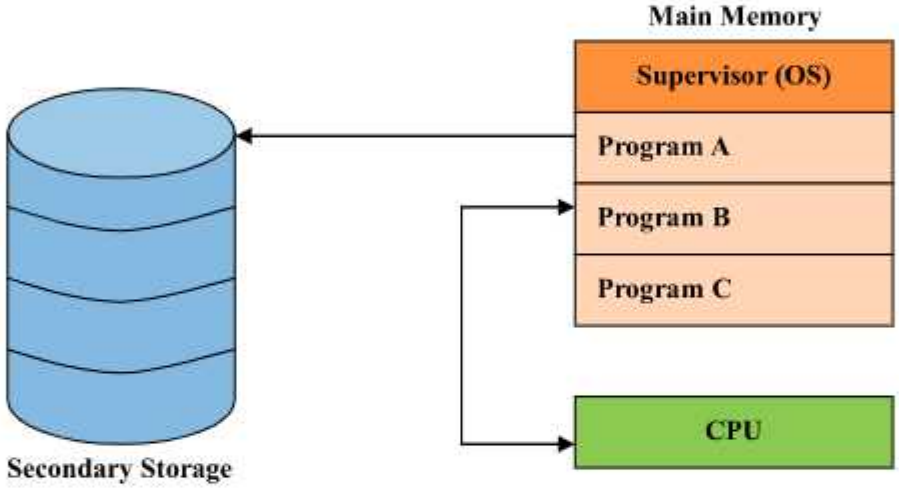


Fig:5.4 Multi-Programming System

In the fig:5.4, After using CPU, Program A is busy in writing its output on the secondary storage, while at the same time, program B is utilizing the CPU, and program C is waiting for CPU to become free. Thus, in multi-programming system, CPU switches from one program to another program that resides in the main memory. In this system, the idle time of CPU is less than the non-multiprogramming systems. Multiprogramming systems also provide the facility for setting priorities for the programs residing in main memory.

5.2.3 Time-Sharing Operating Systems:

The principal method of a time-sharing system is to provide direct access to the computer to a large number of users. This is accomplished by providing a separate terminal to each user. A terminal is an access point to a remote machine which usually consists of I/O Devices without having its own CPU. All these terminals are connected to the main computer system. Thus, a time-sharing system has many terminals linked to the same computer at the same time.

Each user has at least one separate program in memory. A time-sharing operating system uses

CPU scheduling and multiprogramming techniques. A little time of CPU is given to each user's program in this system in a circular way. This little CPU time given to each user is known as Time Slice or Time Quantum, which ranges between 10 to 20 milliseconds.

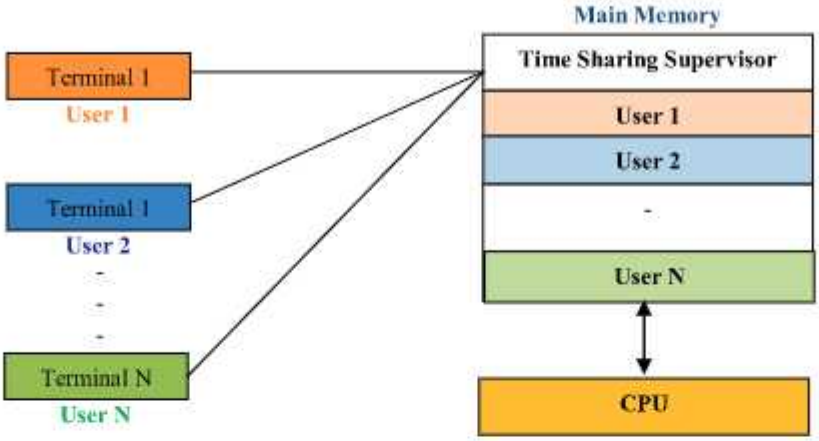


Fig: 5.5 Time - Sharing System

As the system switches rapidly from one user to the next user, each user in multiprogramming system feels as if he is working on his own computer but actually one computer is shared by many users.

Advantages of Time-Sharing System:

1. Reduces CPU idle time.
2. Reduces the output of paper.
3. Avoids duplication of software.
4. Quick Response, i.e. turnaround & response time is negligible.

Disadvantages of Time-Sharing System:

1. Large main memory is required for user programs.
2. It requires CPU scheduling techniques.
3. Memory management is required.
4. Question of security and Integrity of user programs and data.

5.2.4 Multi-Processing Operating System:

Multiprocessing system is used to describe interconnected computers, with two or more CPUs. These systems have the ability to simultaneously execute several programs. In such a system, instructions from different and independent programs can be processed simultaneously by different CPUs, or the CPUs may simultaneously execute different instructions from the same program. The basic organization of a typical multiprocessing system is shown below:

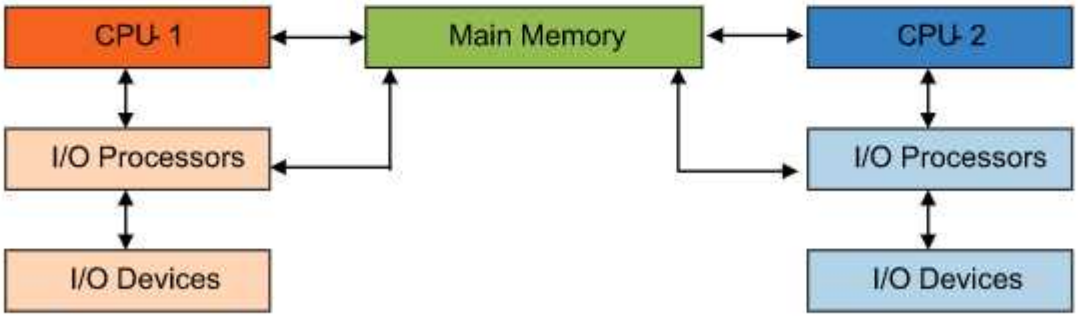


Fig: 5.6 Basic Organization of Multiprocessing System

Multiprocessing system are of two types-**Tightly Coupled Systems** and **Loosely Coupled Systems**. In tightly coupled systems, there is a single primary memory, which is shared by all the processors. On the other hand, in loosely coupled systems, each processor has its own local memory. Tightly coupled systems are known as **Parallel Processing Operating Systems**while loosely coupled operating systems are known as **Distributed Operating Systems**.

Advantages of Multiprocessing:

1. It improves the performance of computer systems by allowing parallel processing of programs.
2. It provides a built-in backup. If one CPU breaks down, the other CPU automatically takes over the complete workload until repairs are made.

Disadvantages of Multiprocessing:

1. A large main memory is required.
2. A very sophisticated operating system is required to schedule balance.
3. Such systems are very expensive.

5.2.5Network Operating System:

A Network Operating System runs on a server. This Operating System provides the capability to manage data, users, groups, security, applications, and other networking functions. The primary purpose of the network operating system is to allow file sharing and printer access among multiple computers in a network. Examples of network operating systems are: Microsoft Windows Server 2003, Microsoft Windows Server 2008, UNIX, Linux, Mac OS X, Novell NetWare etc.

Advantages of Network Operating Systems:

- Centralized servers are highly stable
- Security is managed by server
- Remote access to servers is possible from different locations and types of systems.

Disadvantages of Network Operating Systems:

- High cost of buying and running a server.
- Dependency on a central location(server) for most operations.
- Regular maintenance and updates are required.

5.2.6 Real Time Operating System:

A real-time system is defined as a data processing system in which the time interval required to process and respond to inputs is so small. The time taken by the system to respond to an input and display of required updated information is termed as the **response time**. So, in this method, the response time is very less as compared to online processing.

Real-time systems are used when there are rigid time requirements on the operation of a

processor or the flow of data. A real-time operating system must have well-defined, fixed time constraints, otherwise the system will fail. Real-time operating systems are used to control machinery, scientific instruments, medical imaging systems, industrial control systems, weapon systems, robots, air traffic control systems etc.

5.3 SINGLE USER AND MULTIUSER OPERATING SYSTEMS

A **Single-User Operating System** is a system in which only one user can access the computer system at a time. In other words, it supports one user at a time. However, it may support more than one user-profiles. Single keyboard and single monitor are used for the purpose of interaction. The most common example of a single user operating system is a system that is found in a typical home computer. Examples of Single User Operating Systems are – MS DOS, Windows 95, Windows NT, Windows 2000, etc.

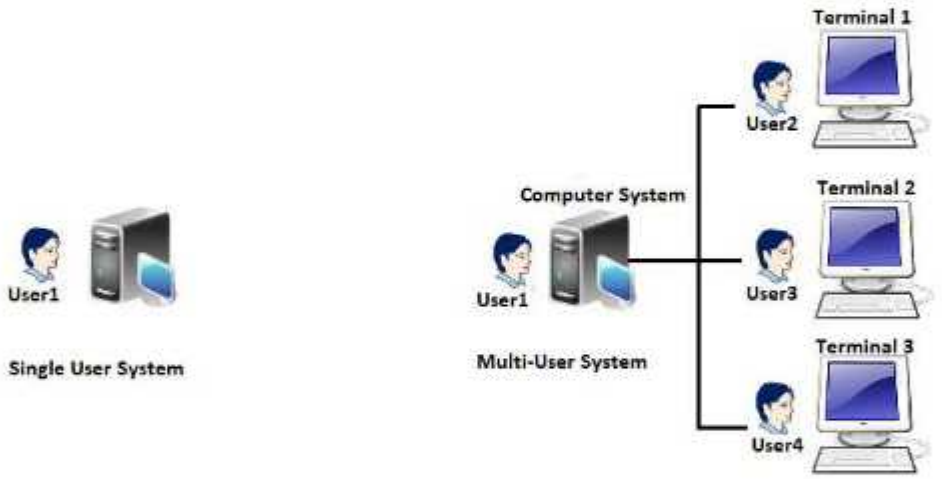


Fig: 5.7 Single-User and Multi-User Systems

On the other hand, A **Multi-User Operating System** is a system that allows more than one user to access a computer system at one time. Generally, a network is laid down, so that a computer can be remotely used. Mainframes and minicomputers work on multi-user operating systems. These operating systems are complex in comparison to single user operating systems. Each user is provided with a terminal and all these terminals are connected to the main computer. Examples of Multi User Operating Systems are Mainframes such as IBM AS400, Linux & Unix Distributed OS, etc.

Following table shows the major differences between these two systems:

Single-User Operating System	Multi-User Operating System
1. In these Systems, only one user can access the computer at the same time.	1. In these System, more than one user can access a computer at the same time.
2. A Single User is allocated all the resources of the computer system.	2. All the resources are allocated among multiple users of the system.
3. As all the resources are dedicated to a single user, therefore, processing of system is faster.	3. The resources are divided among multiple users therefore the processing of system is slower.
4. The Single User Operating systems are simplistic and easy to design.	4. The Multi User Operating systems are complicated and difficult to design
5. Types of Single User Operating systems are: • Single-User Single-Task systems • Single-User Multi-Task systems.	5. The types of Multi-User Operating System are: • Time Sharing Operating System • Distributed Operating System
6. Examples of Single User Operating Systems are: MS DOS, Windows 95, Windows NT, Windows 2000, Personal Computers, etc.	6. Examples of Multi User Operating Systems are: Mainframes such as IBM AS400, Linux & Unix Distributed OS, etc.

Table 5.1 Single User and Multi User Operating Systems

5.4 COMPUTER SECURITY

Computer Security is also known as Cyber Security or IT Security. It is the protection of computer systems and information from harm, theft, and unauthorized use. So, if we have a computer, the main objective of computer security is to protect the system's information from any external or internal harms.

Under computer security, we have various types of attacks like malware attack, denial of service, man in the middle, phishing, and so on. There can be multiple motives for these attacks, such as information theft, disrupting business, demanding ransom, etc.

Computer security is mainly concerned with three main areas, also known as CIA triads:

- **Confidentiality** ensures that data exchanged is not accessible to unauthorized users.
- **Integrity** means that data is protected from unauthorized changes to ensure that it is reliable and correct.
- **Availability** means authorized users have access to the systems and the resources they need.

In simple language, computer security is making sure information and computer components are usable but still protected from people or software that shouldn't access it or modify it.

5.4.1 Computer Security Threats:

A computer security threat refers to any possible malicious attack. These threats can affect the smooth functioning of our PC. In the present age, computer security threats are constantly increasing as the world is going digital. The most harmful types of computer security threats are

mentioned below:

- **Malware**: Malware is malicious software such as viruses, spyware, worms, ransomware and trojan horses etc. Malware is activated when a user clicks on a malicious link or attachment, which leads to installing dangerous software. Computer Viruses replicate itself and infects the files and programs of our PC and can make them non-functional. Spyware collects sensitive information like user id, passwords, credit card information stored in the computer system etc. from a computer system without user's consent. Worms are malicious programs that make copies of itself to use up our computer hard-disk space.
- **Phishing**: Phishing is a technique used by cyber criminals to steal login credentials & financial information of users. Phishing in unfortunately very easy to execute. Attackers may target victim via phishing emails. These mails show fake offers to lure users & encourage them to submit their financial & personal information, which can be misused by the attacker.

- **Rootkit**: A Rootkit is defined as a malicious computer software hidden deep inside a PC and remains undetectable. Attackers can have 'root or administrative' access to the user's computer using rootkit softwares. Hence, it is considered extremely dangerous for user's privacy and PC users need an anti-rootkit software.

- **Keylogger**: Also known as a keystroke logger, keyloggers can track the real-time activity of a user on his computer. Keylogger runs in the background and records all keystrokes made by a user and passes the information to the hacker. It is also a very powerful threat to steal people's login credential such as username and password.

These are perhaps the most common security threats that we come across. Apart from these, there are others like adware, botnet, scarewareand many more. Fortunately, there are ways to protect ourselves against these attacks.

5.4.2 How Do We Secure Our Computer?

Computer security threats are becoming relentlessly inventive these days. Internet Security is the most important aspect that everyone using the internet should understand. For best computer security, we must follow certain guidelines, which are also called **Computer Best Practices**.

Following are some important tips that can help us to secure and protect our Information from various Security threats:

- **Latest Anti-Malware software:** Anti-malware is a computer program used to prevent, detect, and remove malware. An anti-malware software protects the computer from malware such as viruses, spyware, adware, and worms etc. It scans the system for all types of malicious software that manage to reach the computer. An anti-malware program is one of the best tools to keep the computer and personal information protected. To make Anti-malware software more effective, we need to update it with latest updates available. Examples of anti-malware software include: Norton, Quickheal, Kaspersky, Bitdefender and McAfee etc.
- **Password protection:** Passwords are the most important aspect of various online accounts. They provide access to online accounts and enable us to perform various activities linked with account like shopping, emailing, online transactions etc. Keeping our password secure is like keeping money secure. Never keep same passwords for different accounts. Never keep password's that can be guessed. Change passwords regularly, using a unique combination of numbers, letters and case types.
- **Apply Latest Updates & Patches:** No software installed on our system is perfect for life. Apply the latest updates & patches to the software. These updates and patches are made available from time to time by the software manufacturer.
- **Firewall:** A firewall acts as a security guard between the internet and our local area network. It prevents hackers from attacking our system. Firewall blocks unauthorized access to our PC.
- Avoid clicking on email attachments unless we know the source.
- Use the internet with caution and ignore pop-ups, drive-by downloads while surfing
- Create a periodic system backup schedule to ensure your data is retrievable should something happen to your computer.
- Perform daily full system scans with various types of anti-malwares

Apart from these, there are many other ways we can protect files and our computer system. Aspects such as encryption and computer cleaners can assist in protecting our computers and its files.

POINTS TO REMEMBER

1. Operating system is a System Software which acts as an interface between the user and the computer hardware, and controls the execution of all kinds of programs.
2. An operating system interface is used to interact with the computer system. This interface can be Batch Interface, or CUI (Character User Interface) or GUI (Graphics User Interface).
3. Protection refers to a mechanism or a way to control the access of programs, processes, or users to the resources defined by a computer system.
4. The users of a batch operating system do not interact with the computer directly.
5. Multiprogramming refers to keeping several programs in different parts of the main memory at the same time and executing them concurrently.
6. A little time of CPU is given to each user's program in the Time-Sharing system in a circular way. This little CPU time given to each user is known as Time Slice or Time Quantum.
7. Multiprocessing system are of two types-Tightly Coupled Systems (Parallel Processing Operating Systems) and Loosely Coupled Systems (Distributed Operating Systems).
8. A real-time system is defined as a data processing system in which the time interval required to process and respond to inputs is so small.
9. The time taken by the system to respond to an input and display of required updated information, is termed as the response time.
10. A **Single-User Operating System** is a system in which only one user can access the computer system at a time.
11. A **Multi-User Operating System** is a system that allows more than one user to access a computer system at one time.
12. Computer Security is also known as Cyber Security or IT Security. It is the protection of computer systems and information from harm, theft, or unauthorized use.
13. A computer security threat refers to any possible malicious attack.
14. Malware is malicious software such as viruses, spyware, worms, ransomware and trojan horses etc.
15. For best computer security, we must follow certain guidelines, which are also called Computer Best Practices.
16. A firewall acts as a security guard between the internet and our local area network. It prevents hackers from attacking our system. Firewall blocks unauthorized access to our PC.

EXERCISE

Que:1 Multiple choice questions:

I. An operating system is a _____

a. Terminal
b. System Software
c. Application Software
d. Processor

II. _____ refers to keeping several programs in different parts of the main memory at the same time and executing them concurrently.

a. Multi-application
b. Multi-processing
c. Multi-programming
d. Multi timing

III. The users of _____does not interact with the computer directly.

a. Batch Processing System
b. Time Sharing System
c. Network Operating System
d. Distributed system

IV. A _____ acts as a security guard between the internet and our local area network.

a. Operating System
b. Processor
c. Firewall
d. Security Threat

V. GUI stands for _____

a. Graph User Interface
b. Graphics User Interface
c. Graphical User Interface
d. None of these

Que:2 Fill in the blanks:

I. The little CPU time given to each user in the Time Sharing operating system is known as _____.

II. _____ refers to a mechanism or a way to control the access of programs, processes, or users to the resources defined by a computer system.

III. _____ is a program that acts as an interface between the user and the computer hardware.

IV. _____replicate itself and infects the files and programs of our PC and can make them non-functional.

Que:3 Write True or False:

I. In tightly coupled systems, there is a single primary memory, which is shared by all the processors.

II. A **Multi-User Operating System** is a system that allows only one user to access a computer system at one time.

III. Confidentiality ensures that data exchanged is not accessible to unauthorized users.

IV. Firewall cannot block unauthorized access to our PC.

V. Anti-malware is a computer program used to prevent, detect and remove malware.

Que:4 Short answer type Questions:

I. What is an Operating System?

II. Write the name of types of operating systems.

III. Make a list of the common functions of operating system.

IV. What are Computer Security Threats? Write their names.

V. What is Firewall?

Que:5 Long Answer Type Questions:

I. Explain various functions of operating system.

II. Write the difference between the Single-user and Multi-user operating systems.

III. What is Time-Sharing Operating System? Write its advantages and disadvantages.

IV. What is Multi-Processing Operating Systems? Explain.

Chapter-6th

DESKTOP PUBLISHING

Objectives of this Chapter:

6.1 Desktop Publishing
6.2 Desktop Publishing software
6.3 Word Processing vs Desktop Publishing
6.4 WYSIWYG Feature
6.5 Graphics
6.6 Margins
6.7 Fonts
6.8 Frames and Layers
6.9 Printers

6.1 DESKTOP PUBLISHING

Desktop Publishing: In short DTP is the process of using a computer and specialised software to integrate and re-arrange text, images and artwork to produce documents in any language those are properly formatted for print or visual display. Desktop Publishing can be used to create books, magazines, newspapers, pamphlets and many other kinds of printed documents.

Fig 6.1 Desktop Publishing

Desktop Publishing involves the combination of typesetting (choosing fonts and the text layout), graphics design, page layout and printing the document. For Desktop Publishing, all we need is a computer system, printer and software that can create a printable document.

Desktop Publishing began in 1985 with the introduction of Aldus PageMaker software and the LaserWriter printer from Apple Computer for the Apple Macintosh computer. The founder of Aldus Corporation was Paul Brainerd. The ability to create WYSIWYG page layouts on screen and then print pages at 300 ppi(pixels per inch) resolution was revolutionary for both the typesetting industry as well as the personal computer industry.

6.1.1 Definition:

Desktop Publishing is the use of the computer and software to create visual displays of ideas and information. Desktop publishing documents may be used for personal or commercial printing or electronic distribution, including PDF, slideshows, email newsletters, electronic books and the Web.

6.1.2 Features of Desktop Publishing:

Following are some important features of Desktop Publishing:

1. Desktop Publishing enhances appearance for all produced documents.
2. It generally increases productivity.
3. It allows easy customisation of all kinds of projects.
4. It also minimized production costs.
5. It allows to manage presentation as well as contents.
6. It handles more graphical elements than a word processor.
7. It is a Frame-based application.
8. A DTP application can be set to automatically restructure other elements around a frame which has been moved.

6.2 DESKTOP-PUBLISHING SOFTWARE

Desktop Publishing software can turn simple contents into publishable layouts, for things such as newspapers, magazines, brochures, flyers and books. Finalised layouts can be uploaded onto a website, exported or printed onto paper. Users can use pre-packaged templates or build pages from scratch, and can edit individual pages to meet the needs of each project. Desktop publishing tools may integrate with drawing or photo editing tools and are commonly used by the user. The commonly used Desktop Publishing software's are as follows:

6.2.1 Microsoft Publisher: Microsoft Publisher is a desktop publishing application from Microsoft, different from Microsoft Word. In Microsoft Publisher, the emphasis is placed on page layout and design rather than text composition and proofing. Microsoft Publisher lets you work as easily as you do in Microsoft Word but instead of using tools for text, it is using tools for editing page layouts and visual contents. The first version of Microsoft was released in the year 1991 by Microsoft.

6.2.2 Adobe Photoshop: Adobe Photoshop is a desktop image editing software developed by Adobe Inc. It is widely considered as one of the most powerful image editors in the market. Adobe Photoshop is equipped with advanced features that can fulfil the requirements for a wide range of artistic professionals and hobbyists. It has amazing photo editing tools that can take a photographer's pictures to the next level. It uses range from the full-featured editing of large batches of photos to create digital paintings and drawings.

6.2.3 Corel Draw: Corel Draw is a vector graphics editing software that is developed by Corel Corporation. CorelDraw is designed to edit two-dimensional images such as logos and posters. It is available for both Windows and MacOS. The initial version of Corel Draw was released in the year 1989 and it was developed by Michel Bouillon and Pat Beirne. The latest version of Corel Draw is CorelDraw Graphics Suite 2021 and was released in March 2021.

6.2.4 QuarkXPress: QuarkXPress is used by individual designers and large publishing firms to produce a variety of layouts, from single-page flyers to the multimedia projects required for magazines, newspapers, catalogs and others. QuarkXPress is a desktop publishing software for creating and editing complex page layouts in a WYSIWYG (What You See Is What You Get) environment. It runs on both MacOS and Windows platforms. The initial version of QuarkXPress was released by Quark, Inc. in 1987 and after five years Microsoft Windows version was released in the year 1992. The most recent version is QuarkXPress 2019.

6.2.5 Adobe Dreamweaver: Adobe Dreamweaver is software for web development by Adobe Inc. Adobe Dreamweaver is an all-in-one visual development tool for creating, publishing and managing websites. It allows any type of users, from beginners to professionals, from designers to developers, to easily and conveniently create simple or complex dynamic websites. It was initially developed by Macromedia in the year 1997, but in the year 2005, Macromedia was acquired by Adobe Systems in the year 2005. Adobe Dreamweaver is available for both the platforms, macOS and Windows operating systems.

6.2.6 GIMP: GIMP stands for GNU Image Manipulation Program. It is a freely distributed program for image processing tasks like photo retouching and image composition. It has many capabilities. It can be used as a simple paint program, an expert quality photo retouching program, an image format converter etc. It is used for producing icons, graphical design elements etc.

6.3 WORD PROCESSING VS. DESKTOP PUBLISHING

Both word processing and desktop publishing are similar in many ways but differentiate each other in a number of areas of publication.

6.3.1 Similarities between Word Processing and Desktop Publishing

- Both deals with text that can be formatted.
- Both can work with tables and pictures.
- Both have many similar features like Word Art, Clip Art, and text styles.

6.3.2 Differences between Word Processing and Desktop Publishing

S.No	Word Processing	Desktop Publishing
1.	Word processing software, sometimes called a word processor, allows users to create and manipulate documents containing text mostly.	Desktop publishing (DTP) software enables professional designers to create sophisticated documents that contain text, graphics, and many colors.
2.	It is less expensive.	It is more expensive.
3.	A word processor is a Text based Editor.	DTP is a Graphics based Editor.
4.	Word processing is used for general purpose text editing.	Desktop Publishing can be a solution for all sorts of projects including text and graphics.
5.	Word processing documents are common for simple memos, letters, manuscripts, and resumes.	Desktop Publishing is used to work on things like newsletters, magazines, advertisements , and brochures where layout is important.
6.	In Word Processor, text can be directly entered into the blank page.	In Desktop publisher, the first page is blank and a text frame must be added to add text.
7.	It is a kind of software that focuses on the line-by-line creation of text documents.	It is a kind of software which allows the complex pages of the given text and graphics.
8.	It cannot handle more of the graphical elements into it as it has its own limits.	It handles both text and graphical elements.
9.	It helps in changing the shape and style of the characters of the paragraphs.	They are often used to produce physical media like publications such as books, newspapers, brochures and magazines, etc.
10.	The commonly used software for the purpose of Word Processing are Microsoft Word, Word Pro, Word Perfect.	The commonly used softwares for the purpose of Desktop Publishing are Adobe PageMaker, Microsoft Publisher, Adobe Photoshop.

6.4 WYSIWYG:

The WYSIWYG stands for *"What You See Is What You Get"*. In printing and computing, it is a system that shows you exactly what the document will look like when you print it. In computers, laptops, and tablets, the 'print preview' feature is a WYSIWYG application. A WYSIWYG is a feature in which content (text and graphics) can be edited in a form closely resembling its appearance when printed or displayed as a finished product, such as a printed document, web page, or slide presentation.

A WYSIWYG editor or program is one that allows a developer to see what the end result will look like while the interface or document is being created. The first WYSIWYG editor was a word processing program called Bravo that was invented by Charles Simonyi at the Xerox Palo Alto Research Center in the 1970s. WYSIWYG is especially popular for desktop publishing. Before printing something, looking at what it will look like is useful if you want to determine what parts of the document need to be changed. It also helps you determine whether you need to add anything.

6.5 GRAPHICS

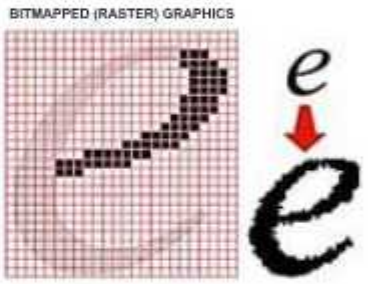
A graphic is an image or visual representation of an object. Therefore, computer graphics are simply images displayed on a computer screen. Graphics are often contrasted with text, which is comprised of characters, such as numbers and letters, rather than images.
Computer graphics can be either two or three-dimensional.

6.5.1 2D Graphics:

Earlier computers supported only 2D monochrome graphics; those were supported by only black and white color. Eventually, computers began to support color images. While the first machines supported only 16 or 256 colors, most computers can now display graphics in millions of colors. 2D computer graphics is the computer-based generation of digital images of two dimensional. 2D computer graphics started in the 1950s.
2D graphics are widely used in animation and videos. They provide a realistic, but flat, view of movement on the screen. There are two main types of 2D graphics:

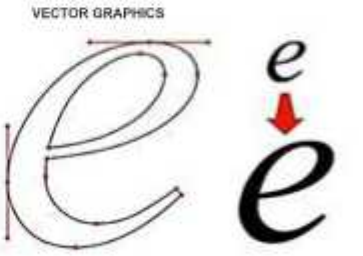
- Raster or Bitmap graphics
- Vector graphics

6.5.1.1 Raster or Bitmap Graphics:



Raster graphics, also called bitmap graphics, is a type of digital image that uses tiny rectangular pixels, or picture elements, arranged in a grid formation to represent an image. Bitmap graphics consist of many tiny dots called pixels. It is possible to edit each individual pixel by using bitmap graphics software like Adobe Photoshop. The amount of detail we can draw depends on the number of pixels per square inch (PSI). Since the computer has to store information about every single pixel in the image, the file size of a bitmap graphics is often quite large. When we resize a bitmap graphic, it tends to lose its quality.
Digital Photographs or Scanned Images are examples of Raster or Bitmap Graphics. The file formats such as JPEG, PNG, GIF, BMP and MPEG4 are commonly used Raster Graphics images.

6.5.1.2 Vector Graphics:



Vector Graphics are computer graphics images that are based on points, which are connected by lines and curves to form polygons and other shapes. Vector graphics can be resized to any resolution without losing the quality. The points determine the direction of the vector path; each path may have various properties including values for stroke color, shape, curve, thickness and fill. It is possible to edit each shape object separately, i.e.we can change the shape, outline type (stroke), fill, size or position of each object separately. Vector graphic displays were first used in 1958 by the US SAGE Air Defence System
Vector graphics are commonly found today in the SVG (Scalable Vector Graphics), PDF (Portable Document Format), CDR (CorelDraw File extension) or AI types of graphic file formats.

6.5.2 3D Graphics:

3D or Three-dimensional graphics provide realistic views by showing depth of objects that allows the viewer to see objects into spaces. We can notice the movement of light and shadows in 3D Graphics. This technique helps create 3D objects using shapes and colors. 3D graphics appears more realistic as they are seen in the real-world (e.g., a building, a person, a car etc.).

3D graphics started to become popular in the 1990s, along with 3D rendering software such as CAD and 3D animation programs. By the year 2000, many video games had begun incorporating 3D graphics, since computers had enough processing power to support them.

Fig:6.2 Use of 3D Modeling in Virtual Reality

3D modelling is used in Virtual Reality environments to produce realistic scenes. There are many varieties of files supporting 3D graphics, for example, Wavefront .obj files and .x DirectX files. Each file type generally tends to have its own unique data structure.

6.6 MARGINS

A margin is the space between the main content of a page and its edges. The margin helps to define where a line of text begins and ends. Depending on the requirement, the margin size can be adjusted. These margins create a frame around the content of the page so that the text does not run all the way to the edges. The white space along the edges of the document makes the page look cleaner and the text becomes easier to read. Following figure shows the different types of margins:

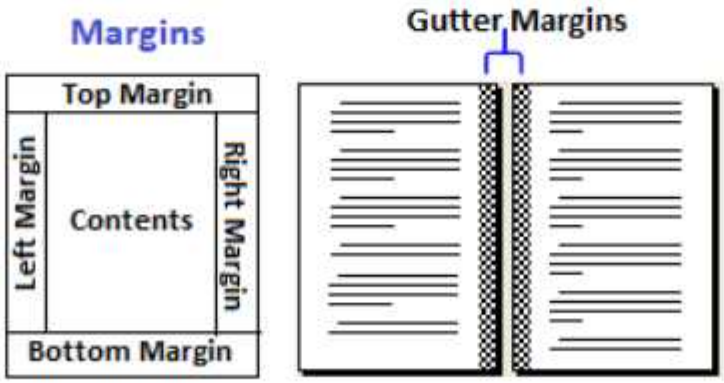


Fig 6.3 Margins

6.6.1 Gutter Margin

Gutter margin is the margin that is added to the binding side of the page when printing. It is an additional margin added to a page layout for the binding purpose. A gutter margin ensures that contents of text are not hidden while binding the book. Word processors, like MS Word, typically allow you to choose whether to position the gutter margin of your document at the top or left of the page.

6.7 FONTS

A **font** is a graphical representation of text that may include a different typeface, point size, weight, color, or design. A **typeface** is a set of characters of the same design. These characters include letters, numbers, punctuation marks and symbols. While most computers come with a few dozen typefaces installed, there are thousands of typefaces available. The term "typeface" is often confused with "font," rather it is a specific size and style of a typeface. Arial, Helvetica, Cambria, Times New Roman, Anmolipi, Asces and Verdana are examples of fonts.

Fig 6.4 Typeface (ARIAL) and its Fonts

6.8 FRAMES & LAYERS

Frames are rectangular areas meant for inserting graphics and text. They allow users to place objects wherever they want on the page. Because text and images are handled in DTP as separate units, they are placed on the page as frames surrounded by bounding boxes. These frames can then be changed in size or position using the bounding boxes. Frames allow for complete control of the page design. Text frames can also be linked to allow text to flow from one column to another or one page to another. Frames can be a rectangle, an oval, or a polygon. Polygon frames can be changed to any shape. Frames can contain text, graphics or be empty.

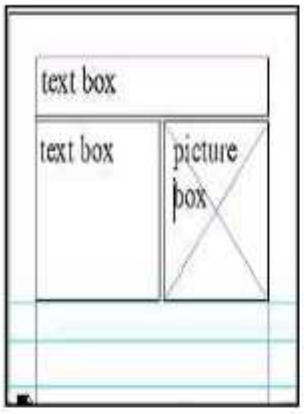


Fig 6.5 Frames

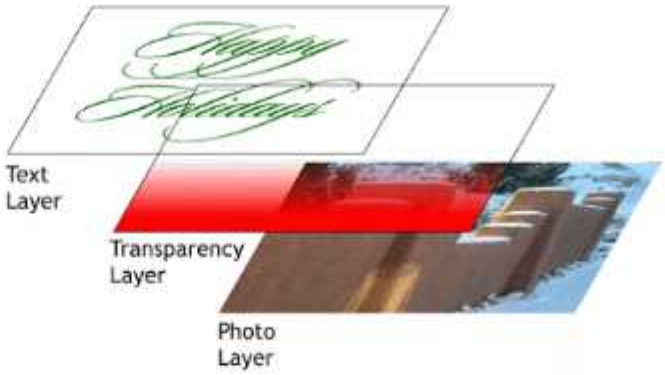


Fig: 6.6 Layers

In Graphics software, **Layers** are the different levels at which one can place an object or image file. Layers can be stacked, merged or defined when creating a digital image. Layers can also be used to combine two or more images into a single digital image. In some graphic applications, such as Adobe Photoshop, GIMP etc. we use layers to work on multiple objects in the image.

6.9 PRINTER

A printer is an external output device that is used to print documents which may include text documents, images or a combination of both. A printer is a peripheral machine that takes data from a computer and generates output on a paper in the form of graphics or text.

There are two types of printers:

- Impact Printers (Daisy Wheel Printer, Dot Matrix Printer and Line printer)
- Non-Impact Printers (Inkjet Printer, Laser Printer)

6.9.1 Impact printers

These are those printers in which characters or graphics are printed by striking print-head on the paper. Impact printers have mechanical moving parts to conduct printing. They work by creating a direct contact between ink ribbon and paper. It usually forms the print image by striking its pins on an inked ribbon against the paper. These printers are noisy and yet popular.

The various types of Impact Printers are as follows:

6.9.1.1 Dot-Matrix Printers:

A dot matrix printer (DMP) is a type of printer which uses pins impacting an ink ribbon to print. These printers are generally considered out-dated, as they cannot create high-quality prints. However, they have a certain specialty that other printers like inkjet and laser printers do not have, as they use impact for printing, they can be used to print multiple copies of text at the same time with the help of carbon copying. Therefore, they are mostly used in places where multipart forms are required.

Fig: 6.7 Dot Matrix Printer (DMP) with sample output

The dot-matrix printer uses print heads containing from 9 to 24 pins. These pins produce patterns of dots on the paper to form the individual characters. The 24 pin dot-matrix printer produces more dots than a 9 pin dot-matrix printer, which results in much better quality and clear text. The general rule is: more the pins, clear the characters on the paper. The pins strike the ribbon individually as the print mechanism moves across the entire print line in both directions, i.e, from left to right, then right to left and so on. Dot-matrix printers are inexpensive and typically print at speeds of 100-600 characters per second.

A dot matrix printer is also known as an impact matrix printer.

6.9.1.2 Daisy-wheel Printers:

In order to get the quality of type found on typewriters, a daisy-wheel impact printer can be used. The daisy-wheel printer appeared in 1972. It is called a daisy-wheel printer because the print mechanism looks like a daisy; at the end of each "Petal" is a fully formed character which produces a solid-line print. A hammer strikes a "petal" containing a character against the ribbon and the character prints on the paper. Its speed is slow, typically 25-55 characters per second.

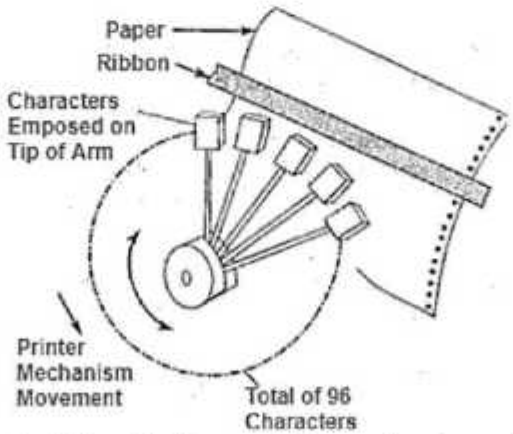


Fig: 6.8 Daisy Wheel Printer and Its mechanism of Printing

Note: Dot Matrix Printers and Daisy Wheel Printers come under the category of Character Printers, because these printers print one character at a time.

6.9.1.3 Line Printers:

Line printers or line-at-a-time printers, use a special mechanism that can print a whole line at once; it can typically print the range of 1,200 to 6,000 lines per minute. In business, where large amount of material is printed, the character-at-a-time printers are too slow; therefore these users need line-at-a-time printers to serve the purpose of the business firm. Drum Printer, Chain Printer, and band printers are examples of line-at-a-time printers.

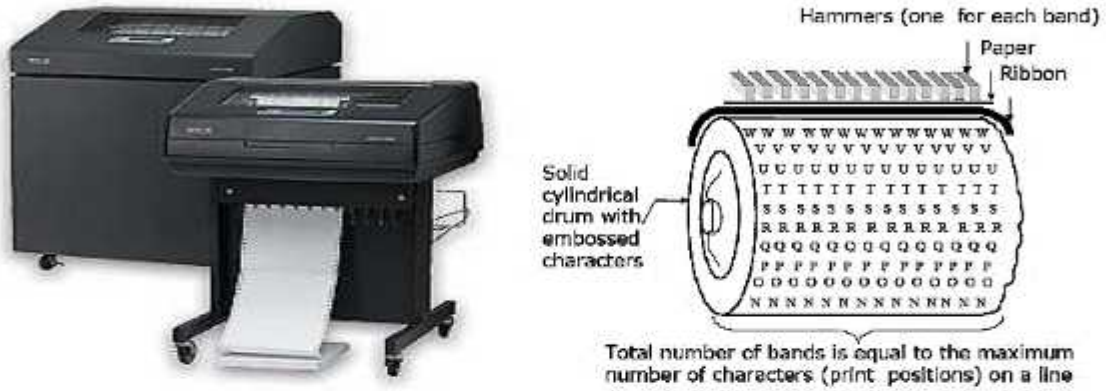


Fig: 6.9 Line Printer and its Printing Mechanism

6.9.2 Non-Impact Printers:

These are those printers in which characters or graphics are printed without striking print-head on the paper. Non-impact printers use a cartridge filled with toner or liquid ink, which allows them to produce fine-quality images quickly and quietly. The printer cartridges are easily recyclable, resulting in environmental benefits as well. It is a type of printer that does not hit or impact a ribbon to print. The various types of Non-Impact Printers are as follows:

6.9.2.1 Ink-jet printers

Ink-jet printers work in the same manner as dot-matrix printers in the form of images or characters with little dots. However, the dots are formed by tiny droplets of ink. Ink-jet printers form characters on paper by spraying ink from tiny nozzles through an electrical field that arranges the charged ink particles into characters at the rate of approximately 250 characters per second. The ink is absorbed into the paper and dries instantly. Various colors of ink can also be used.

Fig: 6.10 Inkjet Printer

One or more nozzles in the print head emit a steady stream of ink drops. Droplets of ink are electrically charged after leaving the nozzle. The droplets are then guided to the paper by electrically charged deflecting plates [one plate has positive charge (upper plate) and the other has negative charge (lower plate)]. A nozzle for black ink may be all that is needed to print text, but full-color printing is also possible with an addition of the requirement to print text, three extra nozzles for the cyan, magenta, and yellow primary colors. If a droplet isn't needed for the character or image being formed, it is recycled back to its input nozzle. These printers produce less noise and print in better quality with greater speed.

6.9.2.2 Laser printers:

Fig 6.11: Laser Printer

A laser printer works like a photocopy machine. Laser printers produce images on paper by directing a laser beam at a mirror which again directs the beam onto a drum. The drum has a special coating on it to which toner (an ink powder) sticks. Using patterns of small dots, a laser beam conveys information from the computer to a positively charged drum to become neutralized. From all those areas of drum which become neutralized, the toner detaches. As the paper rolls by the drum, the toner is transferred to the paper printing the letters or other graphics on the paper. A hot roller bonds the toner to the paper.

Laser printers use buffers that store an entire page at a time. When a whole page is loaded, it will be printed. The speed of laser printers is high and it prints quietly without producing much noise. Many home-use laser printers can print eight pages per minute, but faster and print approximately 21,000 lines per minute, or 437 pages per minute (if each page contains 48 lines). When high speed laser printers were introduced they were expensive. Developments in the last few years have provided relatively low-cost laser printers for use in small businesses.

6.9.3 Difference between Impact Printer and Non-Impact Printer:

Following are the common differences between the Impact and Non-Impact Printers:

Impact Printer	Non-Impact Printer
1. Characters, graphics are printed on paper by striking.	1. Characters, graphics are printed on paper without striking.
2. Printing is done by hammering a metal pin or character dye.	2. Printing is done by spraying ink on paper in any form.
3. In Impact Printers, Electro-mechanical devices are used for printing.	3. No electre mechanical device is used for printing in case of Non-Impact Printer.
4. Impact Printers are slow in speed.	4. Non Impacts are faster in speed in comparison to Impact Printer.
5. Impact Printers are very noisy as compared to Non-Impact Printers	5. Non-Impact Printers are silent as compared to Impact Printers.
6. Examples of Impact Printers can be Dot-matrix printers, Daisy-wheel printers and line printers.	6. Examples of Non-Impact Printer can be Inkjet printers and Laser printers.

6.9.4 Difference between Inkjet Printer and Laser Printer

Following are some common differences between Inkjet and Laser Printers:

Inkjet Printer	Laser Printer
1. An Inkjet printer uses ink to print documents.	1. Laser printers uses electromagnetic powder to print documents
2. Inkjet Printers are compact in size.	2. These printers are large and heavy.
3. Inkjet Printers print on a wide variety of paper types.	3. Laser printers cannot print on paper that's are heat-sensitive, which limits the types of papers you can use for printing.
4. Inkjet Printers are slow in speed as compared to Laser Printers.	4. Laser Printers are faster in speed.
5. Inkjet Printers have smaller paper trays as compared to Laser printers so they may hold less number of papers.	5. Laser printers have bigger paper trays so they may hold more papers.
6. Inkjet Printers are suitable for printing for home purposes.	6. Laser Printers are suitable for offices.
7. Inkjet Printers used for color and black & white document printing.	7. Laser Printers usually print high volumes of black and white documents.

POINTS TO REMEMBER

1. Desktop Publishing is the use of the computer and software to create visual displays of ideas and information.
2. For Desktop Publishing; all we need is a computer system, printer, and specialised software that can create a printable document.
3. Desktop Publishing can be used to create books, magazines, newspapers, pamphlets and many other kinds of printable documents.
4. The commonly used Desktop Publishing softwares are: Microsoft Publisher, Adobe Photoshop, Corel Draw, Adobe Dreamweaver and GIMP etc.
5. Word processing software, sometimes called a word processor, that allows users to create and manipulate documents containing mostly text.
6. A graphic is an image or visual representation of an object.
7. A margin is the space between the main content of a page and its edges.
8. In printing and computing, WYSIWYG is a system that shows you exactly what the document will look like when you print it.
9. A font is a graphical representation of text that may include a different type face, point size, weight, color or design.
10. Frames are rectangular areas meant for inserting graphics and text.
11. In Graphics software, layers are the different levels at which one can place an object or image file.
12. A printer is an external output device that takes data from a computer and generates output in the form of graphics / text on a paper.
13. In Impact Printers, characters or graphics are printed by striking print-head on the paper whereas in Non-Impact Printers, printing is performed without striking print-head on the paper.
14. 3D or Three-Dimensional graphics provide realistic views by showing depth of objects that allows the viewer to see objects into spaces.

EXERCISE

Que:1 Multiple Choice Questions:

I. Programs that can be used to create books, magazines, newspapers, flyers, pamphlets, and many other kinds of printed documents are called?

a. Desk Publishing
b. Desktop Publishing
c. Top Publishing
d. Publishing

II. _____enables us to see on the display screen exactly what will appear when the document is printed.

a. WYSWJKI
b. WKSWUG
c. WUSIWUG
d. WYSIWYG

III. _____ are external output devices that take data from a computer and generate output in the form of graphics / text on a paper.

a. Frames b. Printers
c. Fonts d. Plotters

IV. _____ are rectangular areas which are meant for inserting graphics and text.

a. Rectangles b. Frames
c. Structure d. Fonts

V. _____ is a visual representation of objects

a. Charts b. Graphics
c. Frames d. Fonts

VI. Which of the following is not an example of Desktop Publishing Software

a. Corel Draw b. Word Processor
c. GIMP d. Adobe Photoshop

Que: 2 Fill in the banks

I. _____ is the use of the computer and software to create visual displays of ideas and information.

II. A _____ is the space between the main content of a page and its edges.

III. A _____ is a graphical representation of text that may include a different typeface, point size, weight, colour, or design.

IV. In Graphics software, _____ are the different levels at which one can place an object or image file.

V. In _____ Printers, characters or graphics are printed by striking print-head on the paper.

Que: 3 Write the Full Forms:

I. DTP
II. WYSIWYG
III. 3D
IV. GIMP
V. DMP

Que: 4 Short Answer type Questions

I. What is Desktop Publishing?
II. Write the name of various types of printers?
III. What are Margins?
IV. Define Graphics?
V. What do you mean by the term "WYSIWYG"?

Que: 5 Long Answer type questions

I. Explain Vector Graphics and Bitmap Graphics?
II. What is Desktop Publishing Software? Write about any two Desktop Publishing Softwares.
III. What is the difference between Impact and Non-Impact printers?
IV. Give any six difference between Desktop Publishing and Word Processing Software.

Chapter-7th

MICROSOFT PUBLISHER

Objectives of this Chapter:

7.1 WHAT IS PUBLISHER?

Publisher is an application used to design and produce attractive advertising and promotional material like pamphlets, letter heads, banners, posters, calendars, invitations and newsletters and so on. This advertising and promotional material is called a publication.

Publisher enables us to produce quick publications by using wizards and design gallery. A template is the predefined model of publication. We can view the publication on the monitor exactly the way it would appear when printed. Publisher also helps us keeping track of the colors used in publications to produce high-quality color output. With the help of publisher, we can create quick web sites at a minimum cost.

Publisher is a program that helps us to design professional publications such as newsletters, websites, brochures, catalogues, flyers, signs, postcards, invitations, greeting and business cards, letterheads, envelopes, business forms, banners, calendars, certificates, and more. Microsoft Publisher 2010 helps us to create professional-looking publications quickly and easily. With Publisher, we can create, design and publish professional marketing and communication materials for print and e-mail. Publisher 2010 allows us to apply built-in templates, our own custom templates, and to search from a variety of templates available on Office.com. Office.com provides us a wide selection of popular Publisher templates, including newsletters and flyers.

7.2 HOW TO START PUBLISHER?

1. Click on the Start button.
2. Type "Publisher" or "Pub" in search bar
3. Press Enter key from keyboard.

Or

1. Press Window Key + R from the keyboard, it will open Run Command box.
2. Type MSPUB in it.

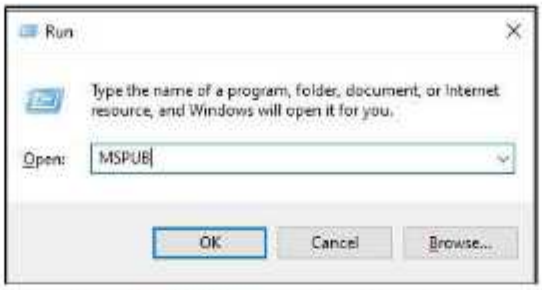


Fig: 7.1 Starting Publisher using Run Command Box

3. Press Enter Key from the keyboard or Click on OK button of Run Command Box.

Now, The Microsoft Publisher window will appears as shown below in the figure.

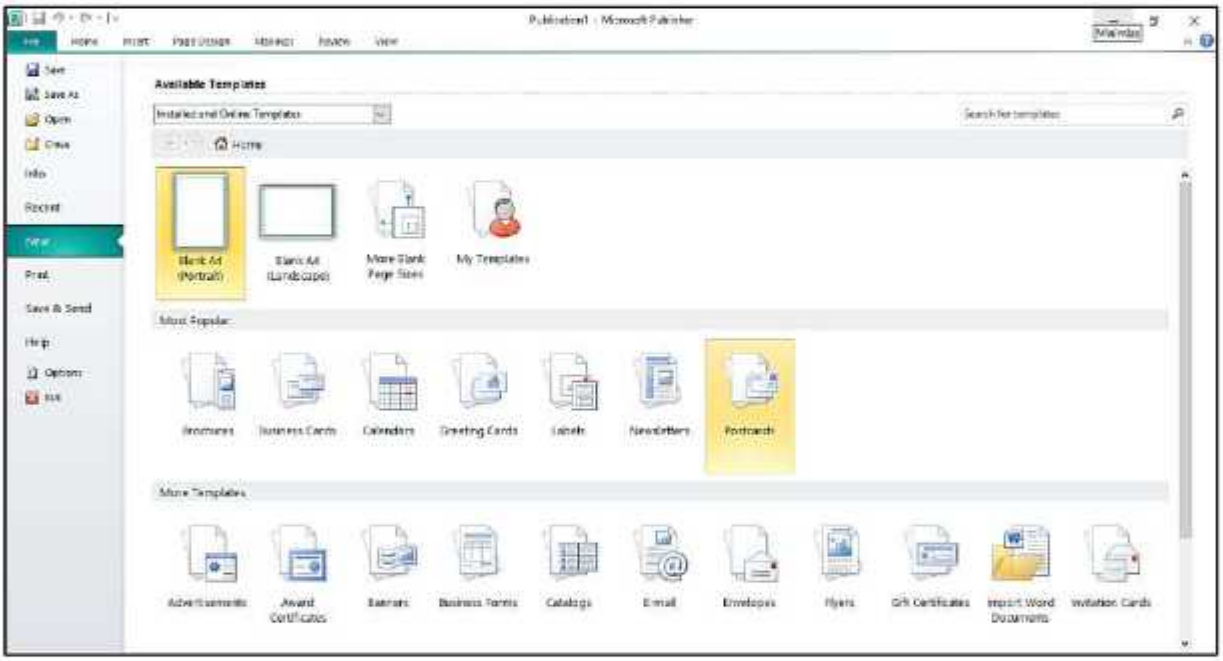


Fig 7.2 Publisher opening window

7.3 COMPONENTS OF PUBLISHER WINDOW

There are three most important components that we should remember as we work within Publisher 2010. These are:

- The Quick Access Toolbar
- The Ribbon
- The File Window

7.3.1 Quick Access Toolbar

The **Quick Access Toolbar** is a customizable toolbar that contains those commands which we may want to use frequently. We can place the quick access toolbar above or below the ribbon. To change the location of the quick access toolbar, click on the arrow at the end of the toolbar and click **Show Below the Ribbon**. We can also add items to the quick access toolbar, simply click on any item and it will be added to our toolbar.

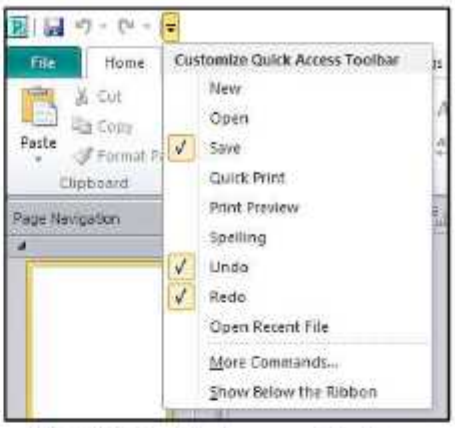


Fig 7.3 Quick Access Toolbar

7.3.2 Ribbon

The ribbon is the panel at the top portion of the document it has six tabs: **Home, Insert, Page Design, Mailings, Review** and **View**. Each tab is divided into groups.

Fig 7.4 Ribbon of Publisher

7.3.2.1 Tabs:

There are 6 tabs in Publisher, in which many options are available. These options are categorized into different Groups in each tab. To view options of any tab, just click on the tab name. Here is the list of groups within each tab:

- **Home**: Clipboard, Font, Paragraph, Styles, Objects, Arrange, Editing
- **Insert**: Pages, Tables, Illustrations, Building Blocks, Text, Links, Header & Footer
- **Page Design**: Template, Page Setup, Page Layout, Schemes, Page Background
- **Mailing**: Start, Write & Insert Fields, Preview Results, Finish
- **Review**: Proofing, Language
- **View**: Views, Layout, Show, Zoom, Window

Note: To view additional options within each Group, click the dialog box launcher (arrow) at the bottom right corner of each Group.

7.3.3 File Window:

When we click on the **File Menu**, File Window appears on the screen. As we click on the options in the **File Menu**, the screen will change accordingly.

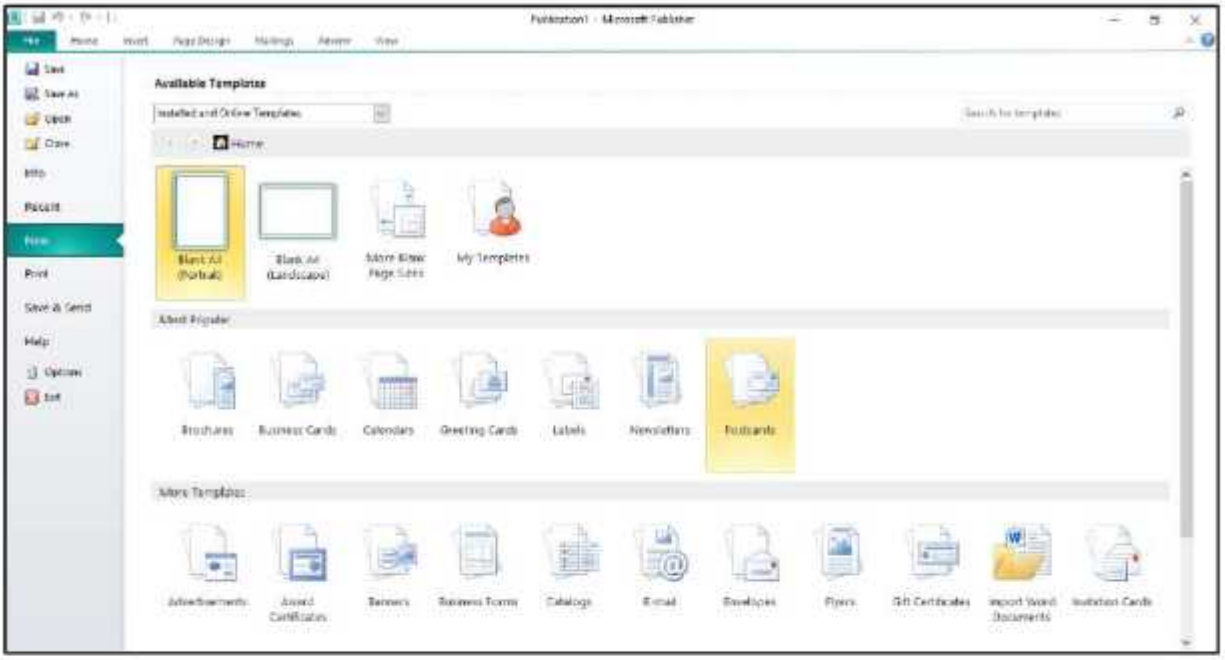


Fig 7.5 File Folder

Following is the list of available options in the File Menu:

- **Save**: To Save the file
- **Save As**: Allows us to choose a different file type (i.e. PDF, Word)
- **Open**: To browse and open a Publisher file
- **Close**: Closes the file, but keeps Publisher running
- **Info**: Edit Business Information, Run Design Checker, and set Commercial Print Settings
- **Recent**: Shows the List of our recently used Publisher files
- **New:** To create aNew Publisher File
- **Print**: Print Option
- **Save & Send**: Options for saving and e-mailing the file
- **Help**: Opens the Microsoft Help
- **Options**: Set default options
- **Exit**: Closes Publisher (file and program)

On the bottom right corner of the Publisher Window, we can change our View as well as zoom in and zoom out using the slider.

Fig 7.6 Zoom in Zoom out slider

7.4CREATING A PUBLICATION

A publication can be created in many ways. Following are the commonly used methods to create a new Publication in MS Publisher:

1. By using Blank layout
2. By using Templates

7.4.1Creating a publication using Blank Layout:

Following are the steps to start with a Blank publication:

1. Click the **File** Menu, and then click **New**.
2. Click on the**Blank**layout publication.

Fig 7.7 Blank layout publication

Note: We can choose the desired size of Blank publication by clicking **More Blank Page Sizes** from the New Publication screen or even we can also customize the size as per our requirement.

Now, we can create a publication with our own specifications. We can also add the objects to the blank Layout like text, picture, word art and auto shapes etc. The blank layout window is shown as below:

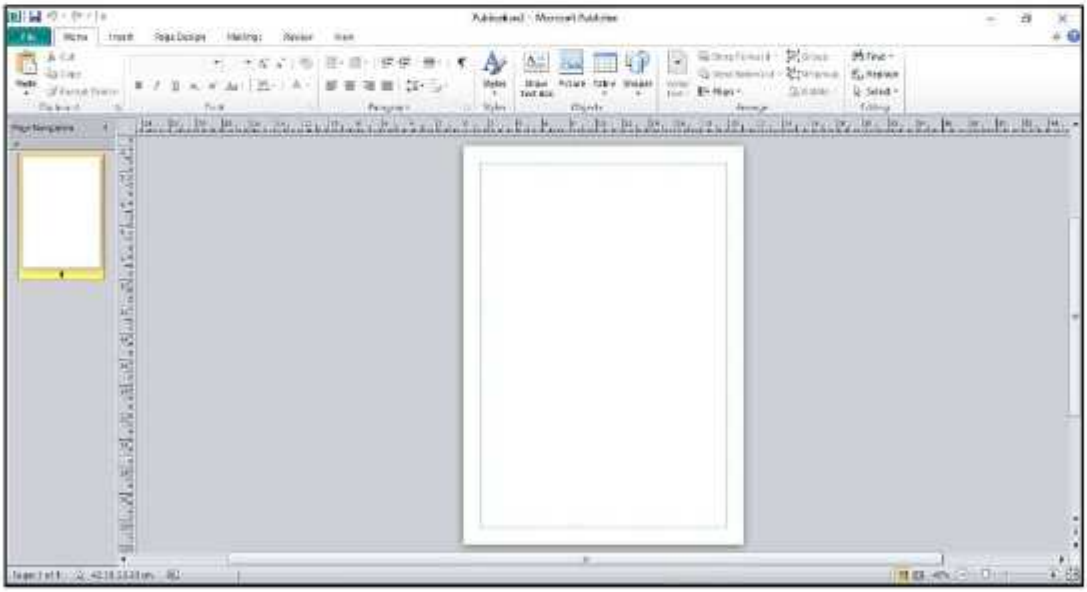


Fig 7.8 Blank Publication window

After creating a publication, save the publication by clicking on **Save**option in the**File** Menu. The **Save As** dialog box appears. Type the name for our publication, select the folder in which we want to save it, and then click on**Save**button. The publication will be saved with a **.pub** extension.

Close the publication by clicking on**Close**option in **File** menu. A dialog box appears, if we want to save the changes, then click on**Yes**button, otherwise click on**No**.

Before exiting Publisher, we should close all the publications, then Click **Exit** in the**File** Menu or click cross button on the title bar.

7.4.2 Creating a Publication using Templates:

A Template helps us to create a basic publication very easily. The template has a set of pre-defined design styles that we can use as it is or customize it as per our requirement.

To create a publication using Templates, Select a publication templates under **New** option of **File** Menu. Publisher provides us the following methods to create a publication using templates:

- **InstalledTemplates**: These are the built-inor pre-installed templates
- **Online Templates**: These templates are available online at Office.com. Office.com provides a wide range of popular Publisher templates. We have to download these templates to use them, and it requires Internet.
- **My Templates**: These are our own custom templates that we have already created.

We can create any publication easily with the help of the installed templates available in Publisher. We can create so many different types of publications like Brochures, Business Cards, Calendars, Greeting Cards, Labels, Newsletters, Advertisements, Award Certificates, Banners, Envelops, Flyers, Invitation cards, Letterhead, menus and resumes etc. To create a publication using pre-installed templates in Publisher 2010, do the following:

1. On the **File** tab, click **New** option.
2. Under **Available Templates**, scroll and find **Most Popular** or **More Templates**

3. Click the Publication template category that we want to create
4. Select the template design as per choice
5. Click **Create** button.

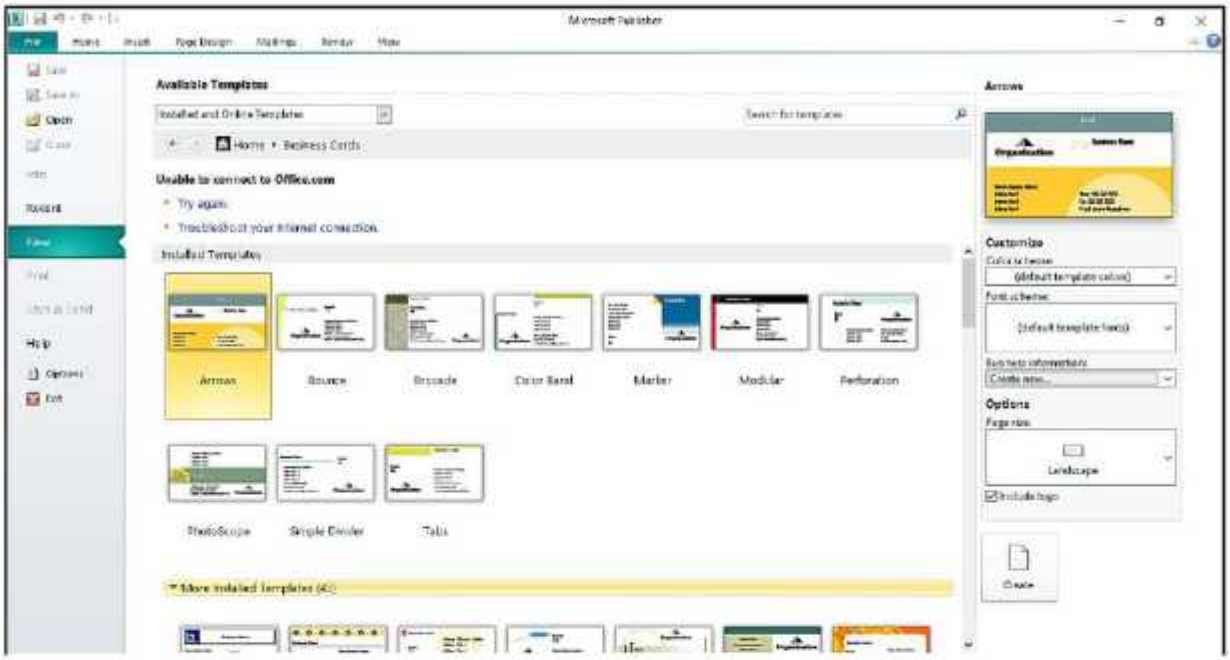


Fig 7.9 Templates

NOTE: We can also search for installed and online templates in Publisher. In the **Search for templates** box, type one or more search terms, and then click the arrow button to search

Customizing the Template: Each template is customizable. Click on a template from the middle of publisher window. We can change the template colors, fonts and more from the right side of the publisher window. When we complete customization of selected template, click on **Create** button. Our selected publication will get opened and now we can edit the text boxes, images, and shapes, that have been set up by the template, as needed.

Now we will discuss some of the common publication types:

7.5 ADVERTISEMENTS:

Advertising means how a company encourages people to buy their products, services or ideas. An advertisement or "ad" for short is anything that draws good attention towards these things. It is usually designed by an advertising agency. Ads appear on television, as well as radio, newspapers, magazines etc. Advertising is an audio or visual form of marketing communication that employs an openly sponsored, non-personal message to promote or sell a product, service or idea. Sponsors of advertising are often businesses who wish to promote their products or services.

Advertising is communicated through various mass media, including old media such as newspapers, magazines, Television, Radio, outdoor advertising or direct mail; or new mediasuchassearch results, blogs, websites or text messages. The actual presentation of the message is referred to as an advertisement or "ad". Non-commercial advertisers include political parties, interest groups, religious organizations and governmental

agencies. The following figure shows an example of an advertisement.

Fig 7.10 Advertisement

MS – Publisher offers templates and other tools that help us to create a variety of advertising publications, including **brochures**, **newsletters**, **business cards**, and **menus**.

Various print media used for advertisement are:

- Brochures
- News letters
- Banners
- Business cards

7.5.1 Brochures:

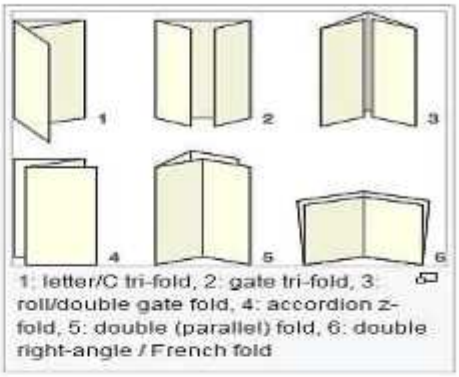
A brochure is an informative paper document often used for advertising that can be folded into a pamphlet or leaflet. Brochures are promotional documents, primarily used to introduce a company, organization, products or services to the public. Brochures are distributed inside newspapers, handed out personally or placed in brochure racks in high traffic locations. They may be considered as grey literature.

Now-a-days, brochures are also available in electronic format and are called *e-brochures*.

They have added benefits of having unlimited distribution and cost savings when compared to the traditional paper brochures.

The most common types of single-sheet brochures are:

- The ***bi-fold:*** It is a single sheet printed on both sides and folded into halves. A bi-fold brochure results in four panels (two panels on each side)
- The ***tri-fold:*** It is also a single sheet printed on both sides, but folded into thirds. A tri-fold results in six panels (three panels on each side).



1: letter/C tri-fold, 2: gate tri-fold, 3: roll/double gate fold, 4: accordion z-fold, 5: double (parallel) fold, 6: double right-angle / French fold

Other brochure fold arrangements are also possible:
the accordion or "Z-fold" method, the "C-fold" method, etc. Larger sheets, such as those with detailed maps or expansive photo spreads, are folded into four, five, or six panels.

Booklet brochures are made of multiple sheets most often saddle stitched stapled on the creased edge, or perfect bound like a paperback book, and result in eight or more panels.

Fig 7.11Brochure (tri fold)

7.5.1.1 Creating Brochures using MS-Publisher:

Steps to create Brochures in Publisher:

1. Click on **File** Tab,
2. Click on **New** option
3. Now, click on **Brochures** template category under More Popular templates. Many pre-installed brochures templates are available in Publisher. Select any one according to the choice.

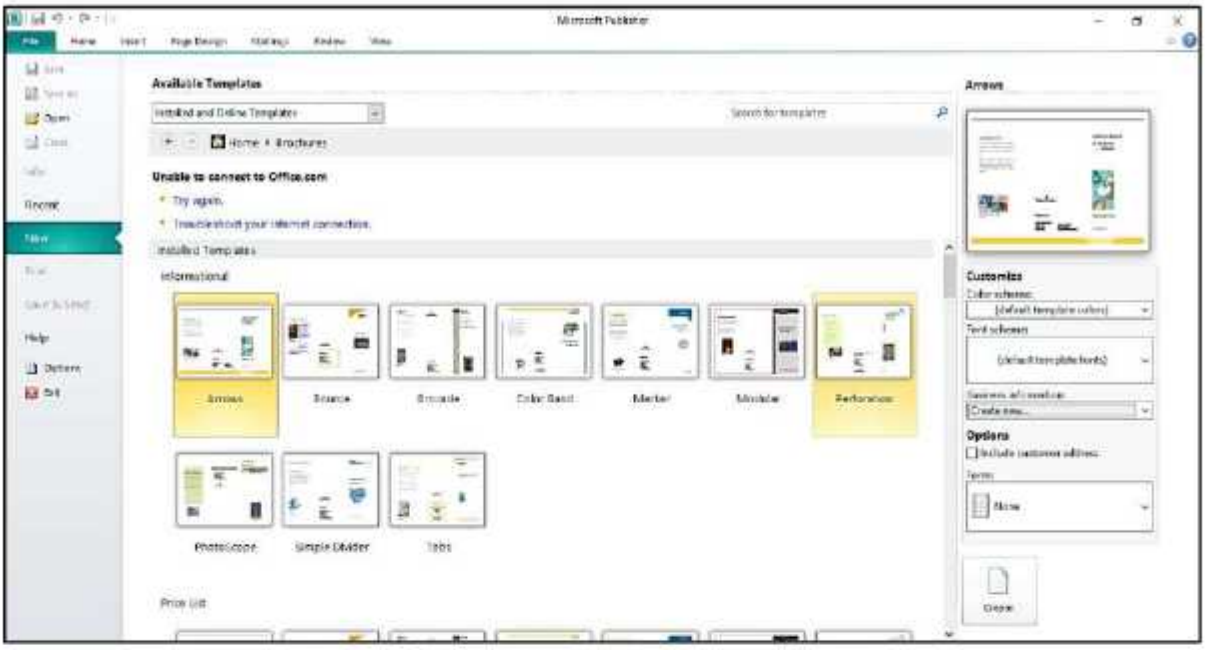
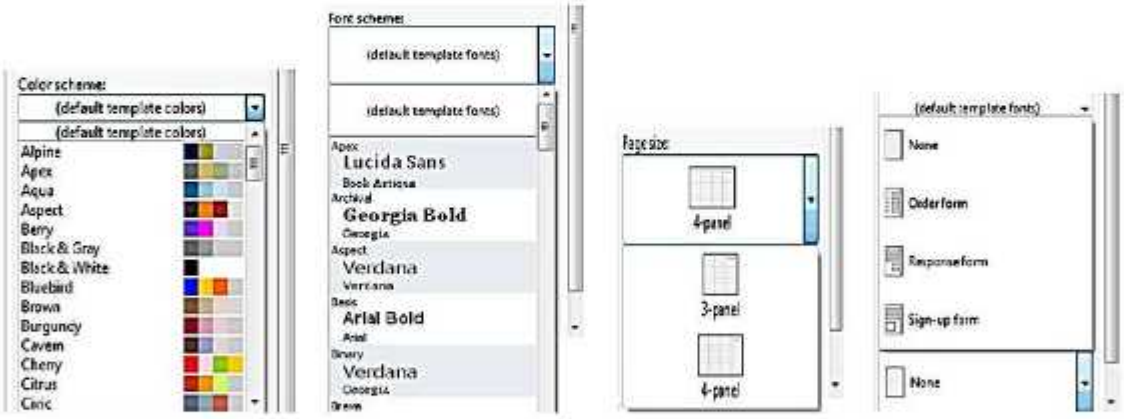


Fig 7.12 Brochures templates

4. Now, we can see many options are available at right side of the Publisher window for customizing the selected template. Now, **customize** our brochure with the help of color scheme, font scheme, page size options and forms.



Color Scheme Font Scheme Page Size Form

Fig 7.13 Customizing Options for Brochures Templates

5. After changing of color, fonts, size and forms of brochure, click on **Create** button.

We will see the brochure as shown in figure below.

Fig 7.14: BrochuresTemplate

Now, we can edit our brochure's details and save it as publication.

7.5.2 Newsletters:

A newsletter is a printed report containing news or information of the activities of a business or an organization that is sent by mail regularly to all its members, customers, employees or people, who are interested in. Newsletters generally contain one main topic of interest to its recipients. A newsletter may be considered as grey literature.

E-Newsletters delivered electronically via e-mail and can be viewed as spamming if sent unsolicited.

7.5.2.1 Creating Newsletters using MS-Publisher:

Steps to create Newsletters in Publisher

1. Click on the **File** Tab, then **New**, and then **News letters** template category.

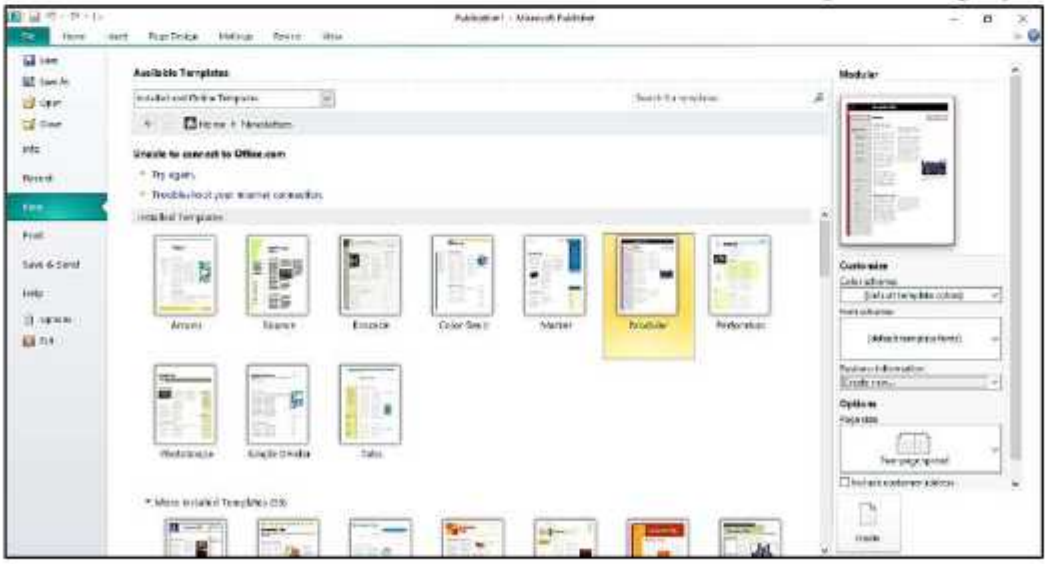


Fig 7.15 Newsletters Templates

2. Select newsletter design from available templates as per choice and click on **Create** button.

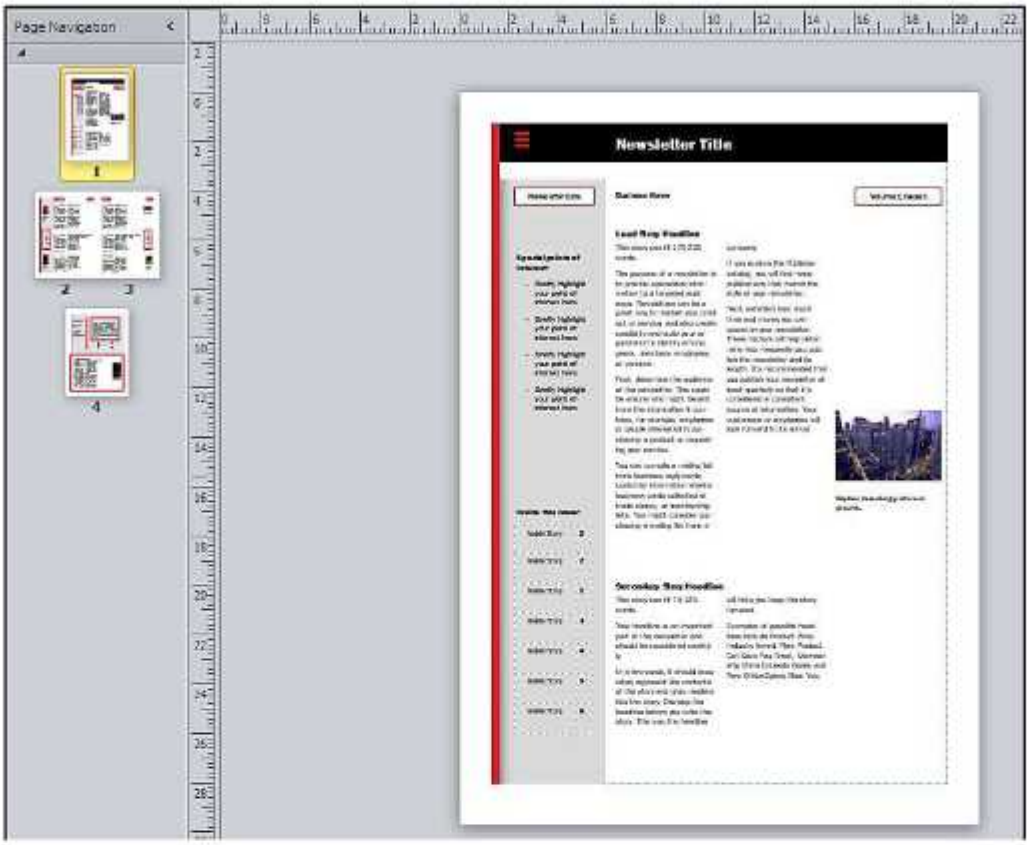


Fig 7.16 Newsletter

Now we can edit our newsletter's details and save it as a publication.

7.5.3 Banners:

A banner is a long strip of cloth bearing a slogan or design carried in a demonstration, procession or hang in a public place. Depending on how it is used, a banner can be a flag or other piece of cloth bearing a symbol, logo, slogan or other marketing message.

An online banner is a graphic image that announces the name or identity of a site. An online banner is typically a rectangular advertisement placed on a Web site's main content and is linked to the advertiser's own Web site.

7.5.3.1 Creating Banners using MS-Publisher:

Steps to create Banner in Publisher:

1. Click on the **File** Tab, then **New**, and then **Banners** template category.

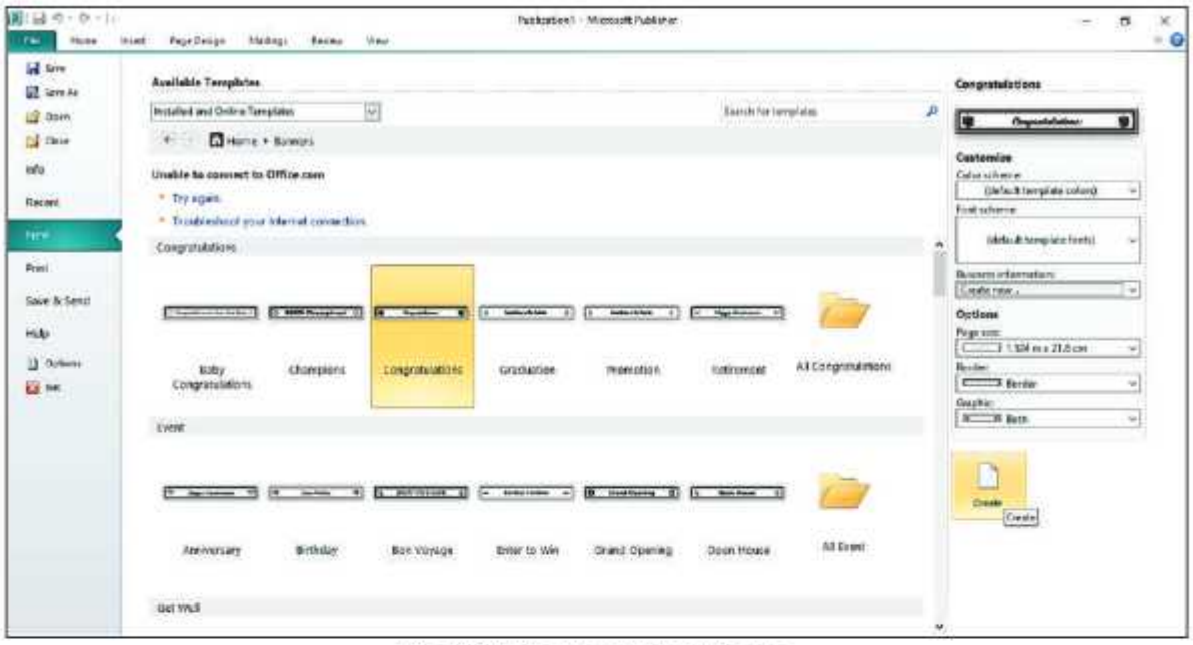


Fig 7.17 Banners Templates

2. Here, we have many categories of banners such as: Congratulations, Event, Get well etc. Select Banners design from available templates as per requirement.
3. Click on **Create** button.

Banner will be shown as given in figure below:

Fig 7.18 Congratulations Banner

Now we can edit the banner and save it.

7.5.4 Business Cards:

A small card printed with one's name, occupation, business address, etc. is called a business card.They are shared during formal introductions. A business card typically includes the giver's name, company or business affiliation (usually with a logo) and contact information such as street addresses, telephone number (s), fax number, e-mail addresses and website. In these days, business cards may also include social media addresses such as Facebook and Twitter. Traditionally many cards were simple black text on white stock; today a professional business card will sometimes include one or more visual design.

7.5.4.1 Creating Business Card in Publisher:

1. Click on the **File** Tab, then **New**
2. Now click on the **Business Cards** template category. Select any one template according to our choice. We can customize the selected Business Card using the options, such as: color scheme, font scheme, business information, page size options and logo, available at the right side of Publisher window.
3. After setting the required options, click on **Create** button.

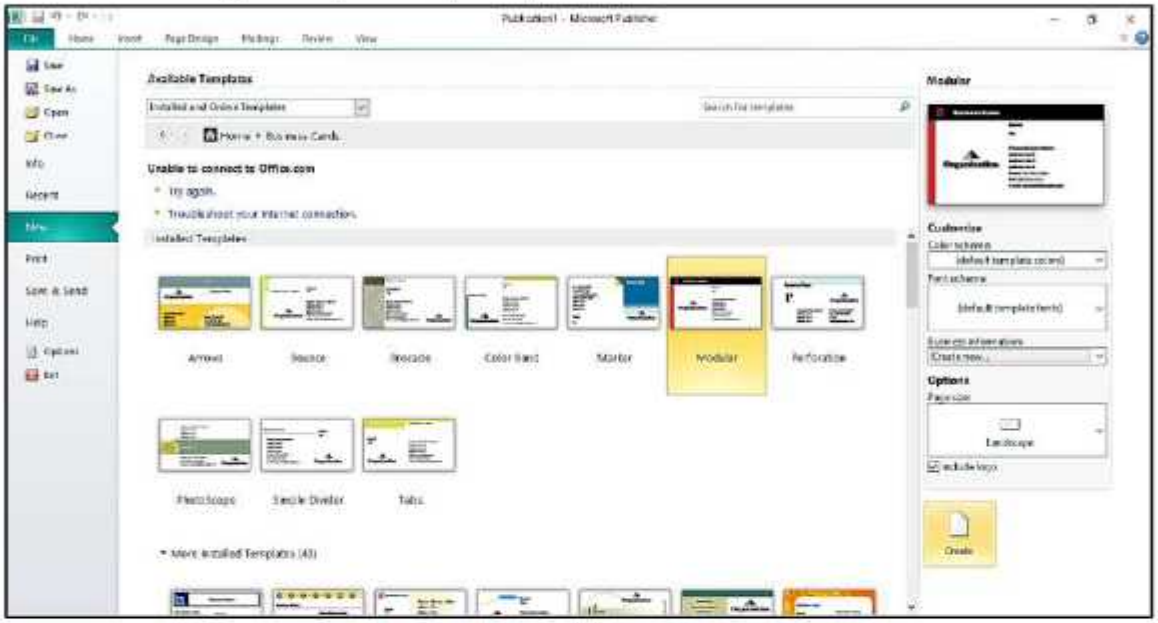


Fig 7.19 Business Card Templates

4. We will see the Business Card as shown below in the figure. Now, we can change Business Name or Individual name, Address, Contacts information etc. in the business card template.

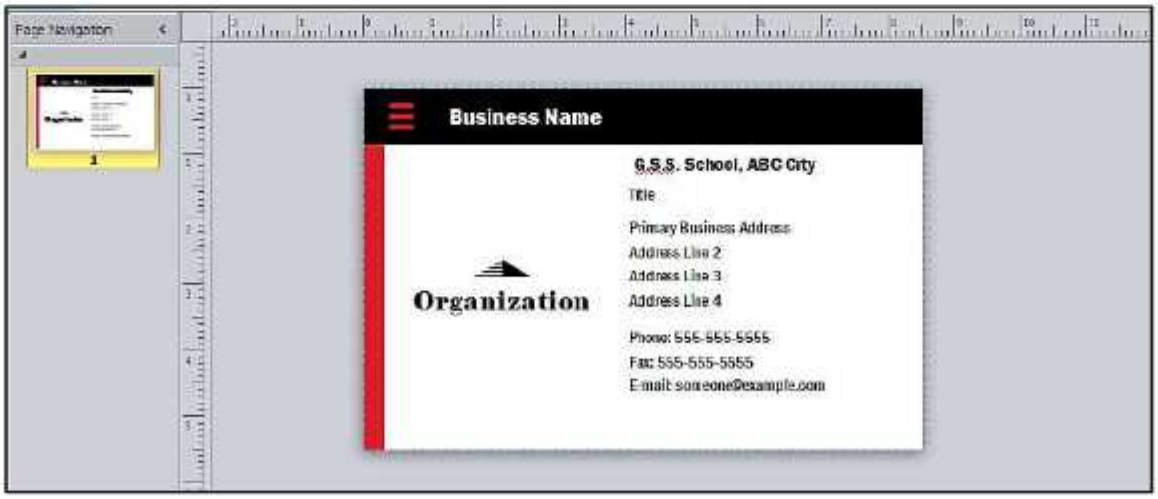


Fig 7.20 Business Card

7.6 AWARD CERTIFICATES:

An **award** is something given to a person, a group of people, or an organization in recognition of their excellence in a certain field. An award may be accompanied by trophy, title, certificate, medal, badge, pin or ribbon.

Certification refers to the confirmation of certain characteristics of an object, person or organization. This confirmation is often, but not always, provided by some form of external review, education, assessment or audit.

Certificates of achievement, merit, and honour given to a person can be proved powerful tools for him when given at the right time and presented in the right way. Receiving an award certificate gives a person the warm glow of knowing someone took the time to acknowledge them. And being the person who motivates others can be rewarding, too.

Award certificates may include: Community Service Award, Great Job, Good Behaviour or Course Completion. MS Publisher provides many templates for creating Award Certificates. Figure shown below is an example of certificate of Appreciation created using MS publisher.

Fig 7.21 Certificate of Appreciation

Various Templates in MS publisher can be used to create this certificate, as shown below:

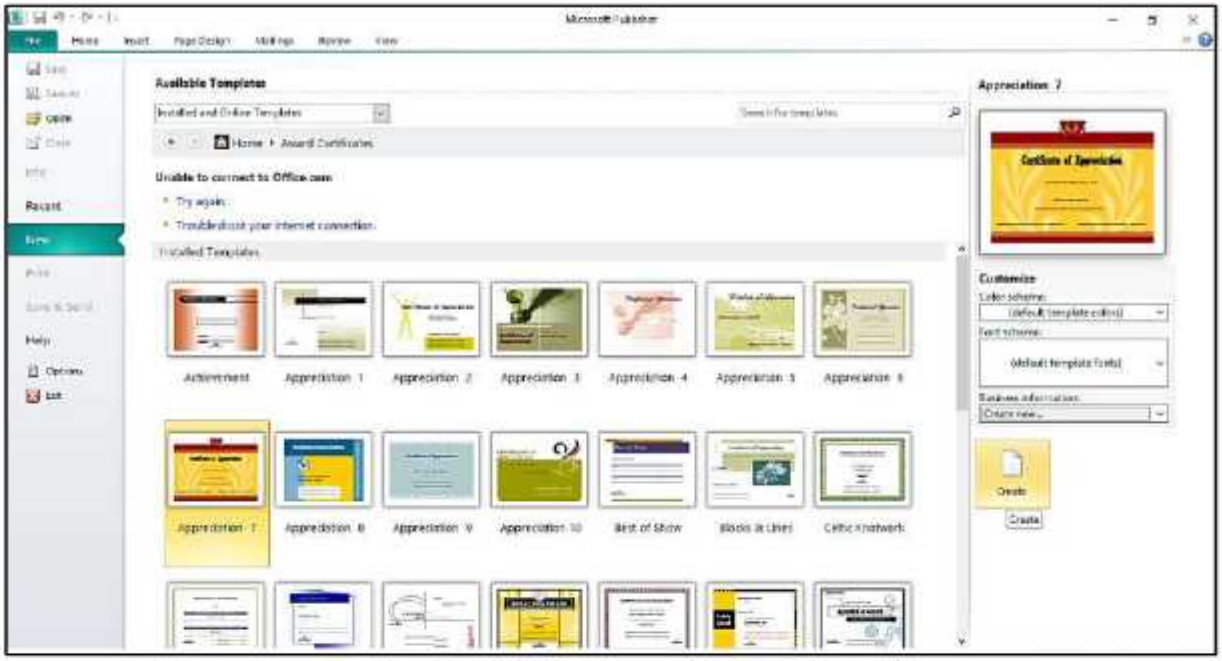


Fig 7.22 Award Certificate Templates

After selecting the required certificate design, edit the color scheme and click on **Create** button. Now we can edit the certificate information and save it as a publication.

7.7 GREETING CARD/INVITATION CARD/COMPLIMENT CARDS:

A Greeting Card/ Invitation Card/ Compliment Card is a piece of card or high-quality paper expressing friendship or any other sentiment. Although these cards are usually given on special occasions such as Birthdays, Anniversary, Christmas, Diwali or other holidays, they are also sent to convey thanks or express other feelings. These cards are usually packaged with an envelope, come in a variety of styles. There are both mass-produced as well as handmade versions that are distributed by hundreds of companies.

Greeting Card Invitation Cards Compliment Cards

Fig 7.23 Different types of Cards

These can also be designed with the help of MS Publisher.

7.8 ENVELOPES:

An envelope is a common packaging item. It is a flat paper container with a sealable flap designed to enclose a flat object, such as a letter, card or document. Traditional envelopes are made from sheets of paper. They are most commonly used for enclosing and sending mail (letters) through a prepaid-postage postal system.

Envelope with mailer's address and recipient's address may look like the figure shown below.

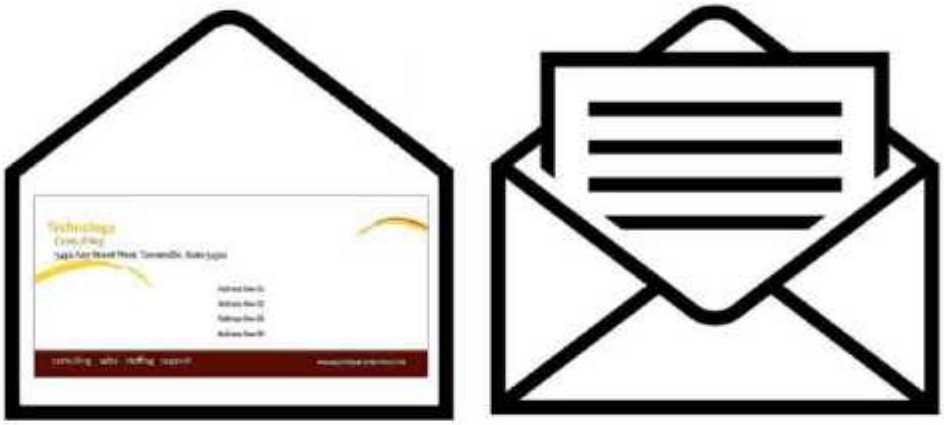


Fig 7.24 Envelop

We can create envelope with Various Templates in MS publisher. After selecting the required envelope design, edit the color scheme and click on **Create** button. After that we can edit the envelope information and save it as a publication.

7.9 LETTERHEAD:

It is stationery with a printed heading. The heading usually consists of a name and an address, a logo or corporate design, and sometimes a background pattern. The term "letterhead" is often used to refer to the whole sheet imprinted with such a heading. Many companies and individuals prefer to create a letterhead template in a word processor or other software application due to lower cost. Such type of Letterhead can then be printed on stationery or plain paper as needed or it can also be sent electronically.

7.9.1 Creating Letterhead in Publisher:

Here we are creating a **Letterhead** for an organization using MS publisher. Follow the steps written below:

1. Click on the **File** Tab, then **New**, and then **Letterhead** template category. Select any one template design according to our choice.

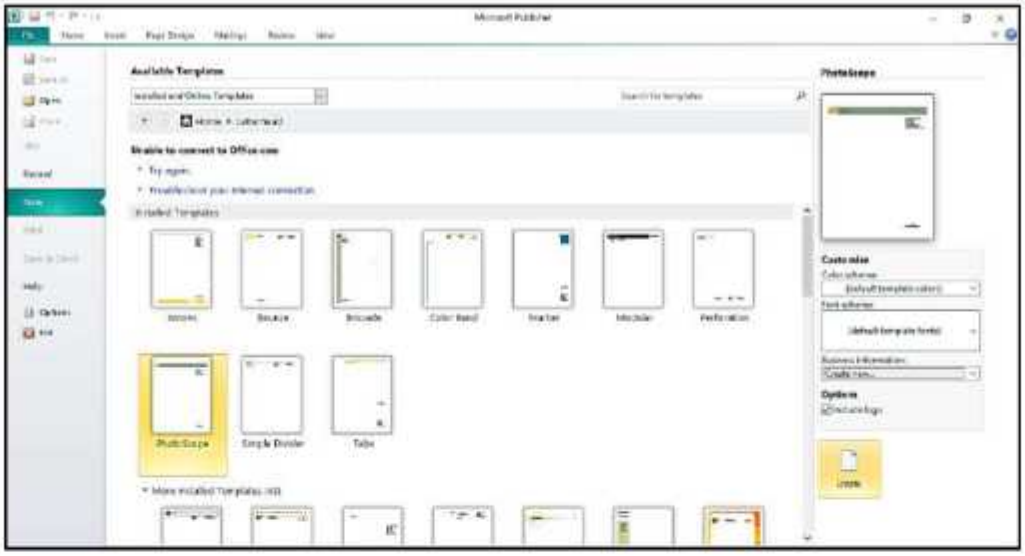


Fig 7.25 Letterhead Templates

2. We can customize the selected Letterhead template using the options, such as: color scheme, font scheme, business information, and logo, available at the right side of Publisher window. After changing color, fonts, size and other information, click on **Create** option. The letterhead will be shown.
3. Now edit the necessary information as we can see in the figure below and save the changes.

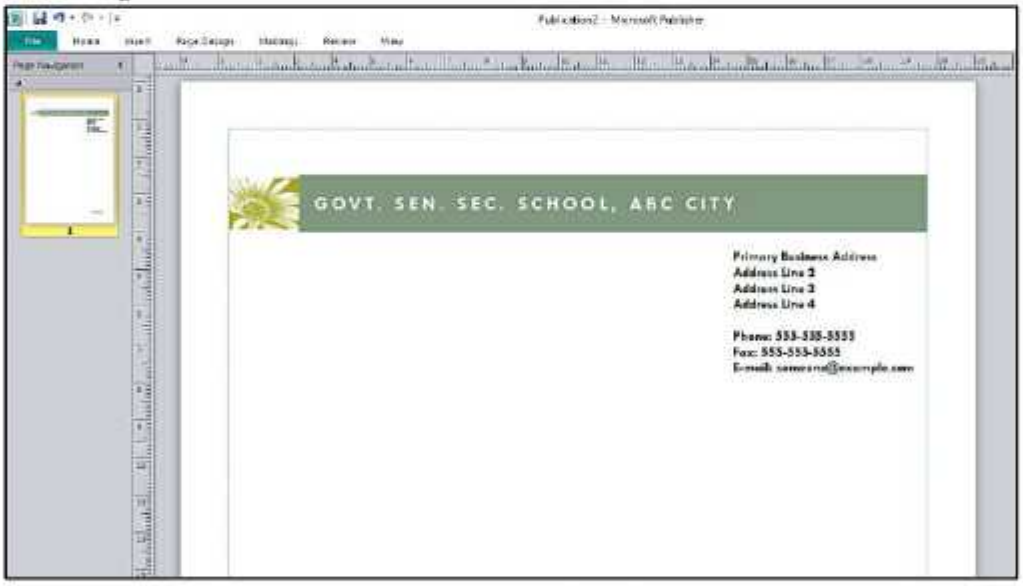


Fig 7.26 Letterhead

7.10 RESUMES:

A **resume** provides a summary of our education, work history, credentials and other accomplishments and skills. There are also optional sections, including a resume objective and career summary statement. Resumes are the most common document requested of applicants in job applications. A resume should be as concise as possible. Typically, a resume is one page long, although sometimes it can be as long as two pages. Often resumes include bulleted lists to keep information concise.

7.10.1 Creating Resumes in MS Publisher:

To create Resumes in Publisher, follow these steps:

1. Click on the **File** Tab, then **New**, and then **Resumes** template category. Now, Select any one template according to our choice. We can customize the selected Resumes using the options available at the right side of Publisher window. After customizing the selected Resume click on **Create** button.

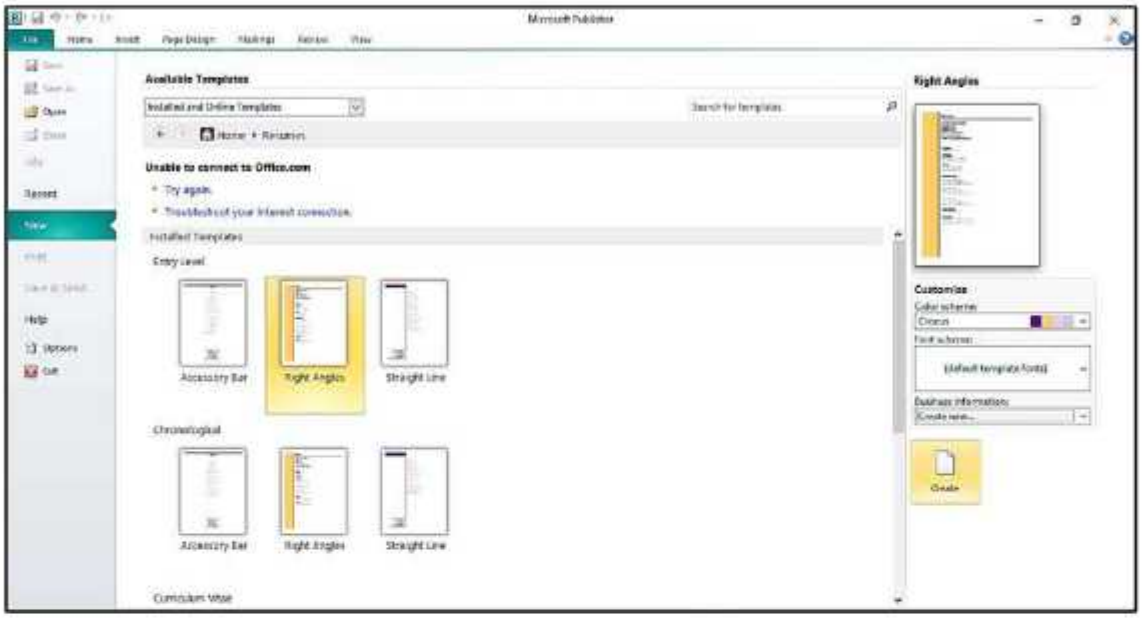


Fig 7.27 Resumes Templates

2. Now edit the necessary information in our resume and save the changes. The resume will be shown as below.

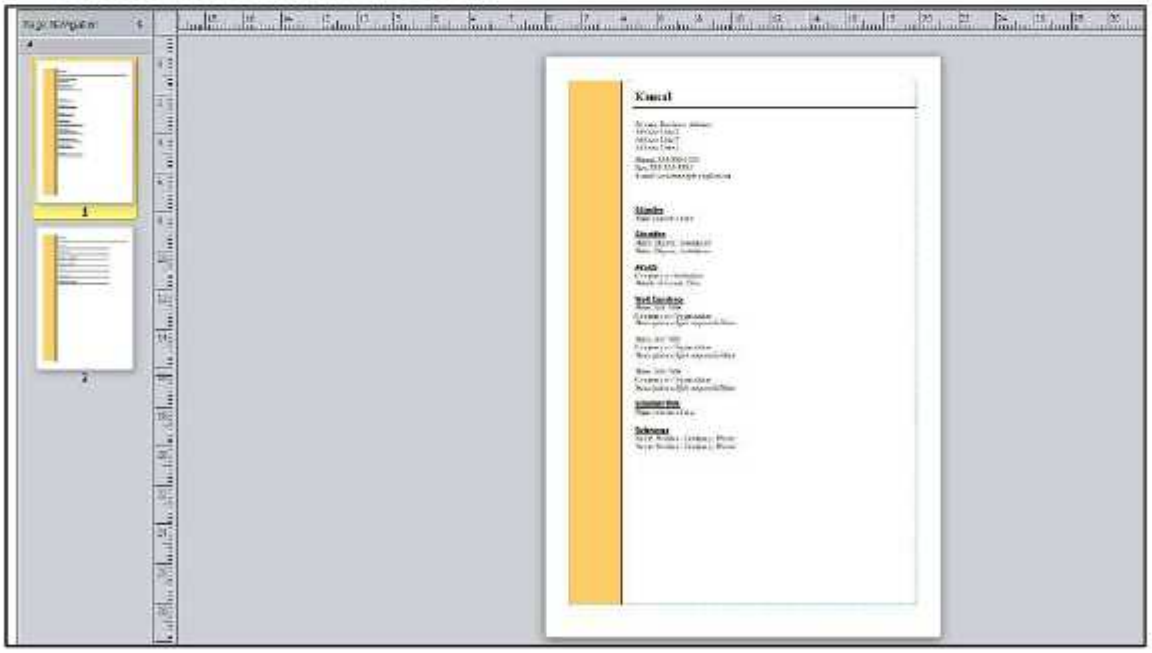


Fig 7.28 Resume

7.10.2 Curriculum Vitae(CV):

Like resume, a Curriculum Vitae (CV) provides a summary of one's experience and skills. Typically, CVs are longer than resumes – at least two or three pages. CVs include information on one's academic background, including work experiences, degrees, research, awards, publications, presentations, and other achievements. CVs are thus much longer than resumes, and include more information, particularly related to academic background.

> **NOTE:** We can create CVs with the help of MS Publisher in same way we have created Resumes above.

7.11 SIGNS:

A sign is a piece of paper, cloth, wood or any other material which is painted with pictures or words and which gives some information about a particular place, product, or event. MS Publisher provides us many types of signs as shown in figure below. We can create any of these sign using publisher.

Fig 7.29 Signs Templates

7.12 SAVING PUBLICATION:

There are two basic ways to save our publication:

Use Shortcut Key **Ctrl+S** to save the publication

OR

Follow these steps:

1. Click on the File Menu Save
2. If we are saving our new file for the first time, Save As Dialogue Box will appear. Choose folder location where we want to save our file.

3. Type the name of our publication file in the **File Name** field.
4. Click on the **Save** button.

7.13 PRINTING PUBLICATION:

There are two basic ways to print your publication.

Use Shortcut Key **Ctrl + P** to print the publication

OR

Follow these steps:

1. Click on the **File** Menu **Print**
2. Print window will appear, set the desired **number of copies**.
3. Choose any other **Print Settings**
4. Click **Print**.

POINTS TO REMEMBER

1. Publisher is an application used to design and produce attractive advertising and promotional material
2. A template is the pre-defined model of publication.
3. To open the Microsoft publisher, Type "Publisher" or "Pub" in search bar and press enter button
4. Advertising means how a company encourages people to buy their products, services or ideas.
5. Brochures are promotional documents, primarily used to introduce a company, organization, products or services to the public.
6. Now day's brochures are also available in electronic format and are called *e-brochures*
7. A newsletter is a printed report containing news or information of the activities of a business or an organization.
8. Business Card is a small card printed with one's name, occupation, business address etc.
9. A greeting card/Invitation card/compliment card is a piece of card or high-quality paper expressing friendship or any other sentiment.
10. An **award** is something given to a person, a group of people, or an organization in recognition of their excellence in a certain field. An award may be accompanied by trophy, title, certificate, medal, badge, pin or ribbon.
11. Certificates of achievement, merit and honour given to a person can be proved powerful tools for him when given at the right time and presented in the right way.
12. A **resume** provides a summary of our education, work history, credentials, and other accomplishments and skills. There are also optional sections, including a resume objective and career summary statement.
13. Resumes are the most common document requested of applicants in job applications.
14. A curriculum vita (CV) provides a summary of one's experience and skills. Typically, CVs are longer than resumes – at least two or three pages. CVs include information on one's academic background, including teaching experience, degrees, research, awards, publications, presentations, and other achievements.
15. A sign is a piece of paper, cloth, wood or any other material which is painted with pictures or words and which gives some information about a particular place, product, or event.

EXERCISE

Que:1 Multiple Choice Questions:

I. **Choose an application used to design and produce attractive advertising and promotional material.**

a) Word Processor
b) Spreadsheet
c) Publisher
d) Presentation

II. **_____ is the predefined model of publication?**

a) Template b) ClipArt

c) Object d) Style

III. **Now-a-days, brochures are also available in electronic format and are called_____**

a) e-brochures b) m-brochures

c) t-brochures d) k-brochures

IV. **_____ is stationery with a printed heading. The heading usually consists of a name, an address and a logo.**

a) Letterhead b) Program

c) Invitation Card d) Catalogue

V. **What are longer than resumes – at least two or three pages?**

a) Curriculum vitae (CV) b) Banner

c) Invitation Card d) Catalogue

Que:2 Fill in the Blanks:

I. Advertising means how a company encourages people to buy their _____, services or ideas.

II. A _____ is a printed report containing news or information of the activities of a business or an organization.

III. Business cards are cards bearing business information about a _____or _____.

IV. A resume provides a summary of our _____, work history, credentials and other accomplishmentsand skills.

V. _____is the most common document requested of applicants in job applications.

Que:3 Write True or False:

I. A Template is a tool used in Publisher to help us easily create basic publication.

II. Before exiting Publisher, we should not close all the publications.

III. A compliment card is a piece of card or high-quality paper used for promotional purpose .

IV. Certificates of achievement, merit, and honour given to a person can be proved powerful tools for him when given at the right time and presented in the right way

V. Brochures are promotional documents, primarily used to introduce a company, organization, products or services to the public.

Que:4 Short Answer type Questions:

I. What is Publisher?

II. How to start publisher using Run command?

III. Define Templates.

IV. Which type of publications can be used for advertisements?

V. What is Banner?

Que:5 Long Answer type Questions:

I. Write about the main components of publisher window.

II. How to Print Publication? Write its steps.

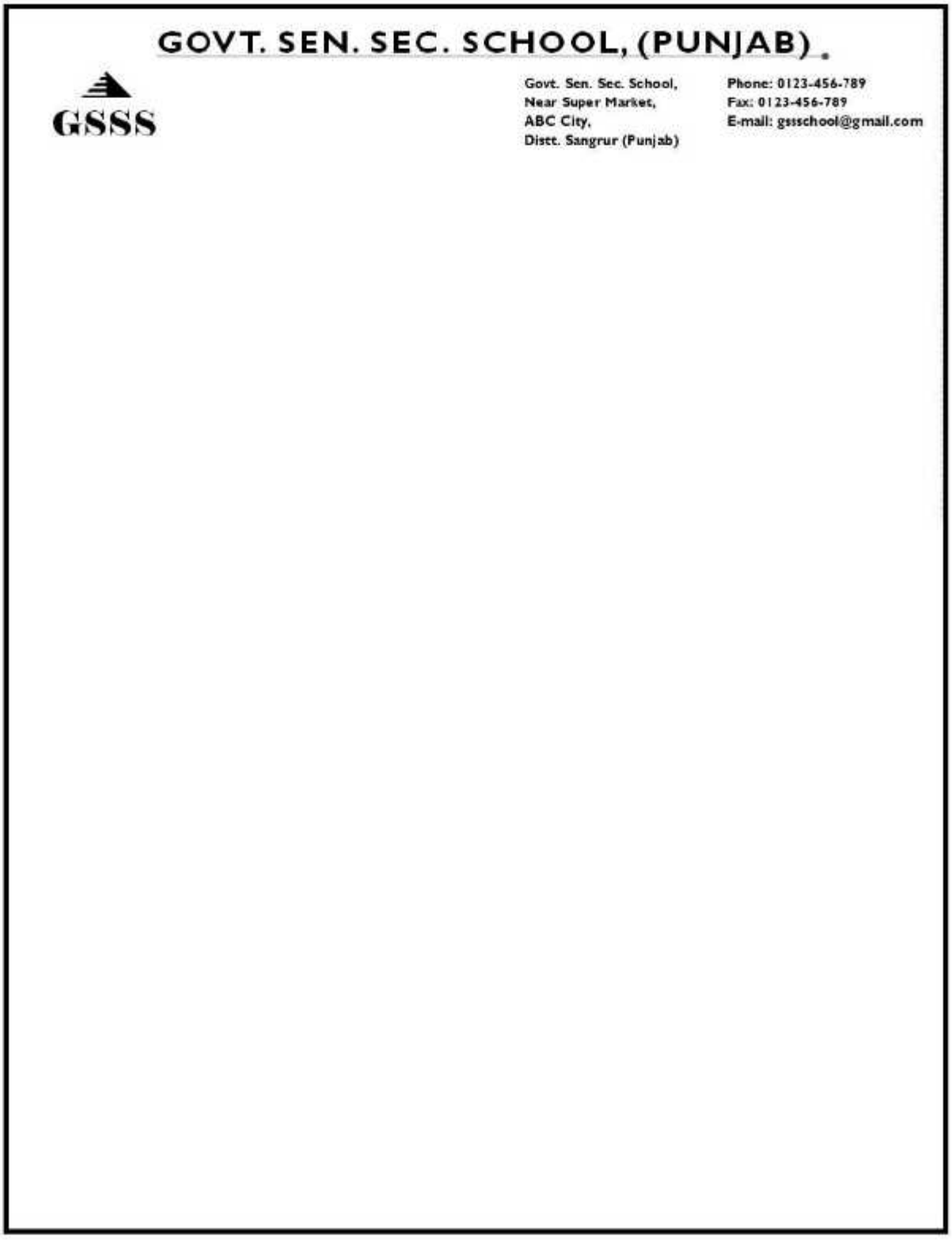
III. What are Advertisements? Explain various print media used for advertisements.

Lab Activity

Activity 7.1: Prepare "No Smoking" Sign using MS Publisher Application

Activity 7.2: **Prepare a Business Card as shown below:**

Activity 7.3: **Prepare a letterhead for your school as shown below:**



HOW TO DO HTML PROGRAMMING ONLINE?

We can prepare and execute any HTML program online using our favourite browser, without having any setup on our local machine. There are many websites that provide the online editor for HTML programming. Following are some of the popular online HTML Editors:

- https://www.w3schools.com/tryit/
- https://liveweave.com/
- https://html.house/
- https://htmlg.com/html-editor/
- http://jsbin.com/?html,output
- https://jsfiddle.net/
- https://codepen.io/pen/
- https://html-online.com/editor/

If we are using any of the Online HTML Editors for creating and editing web pages, then they implicitly too provide the option to view the output of created/edited HTML document. Following figure shows the Homepage of **w3schools.com** with a "**Try it Yourself**" button. "Try it Yourself" opens the HTML Editor and Viewer of w3schools:

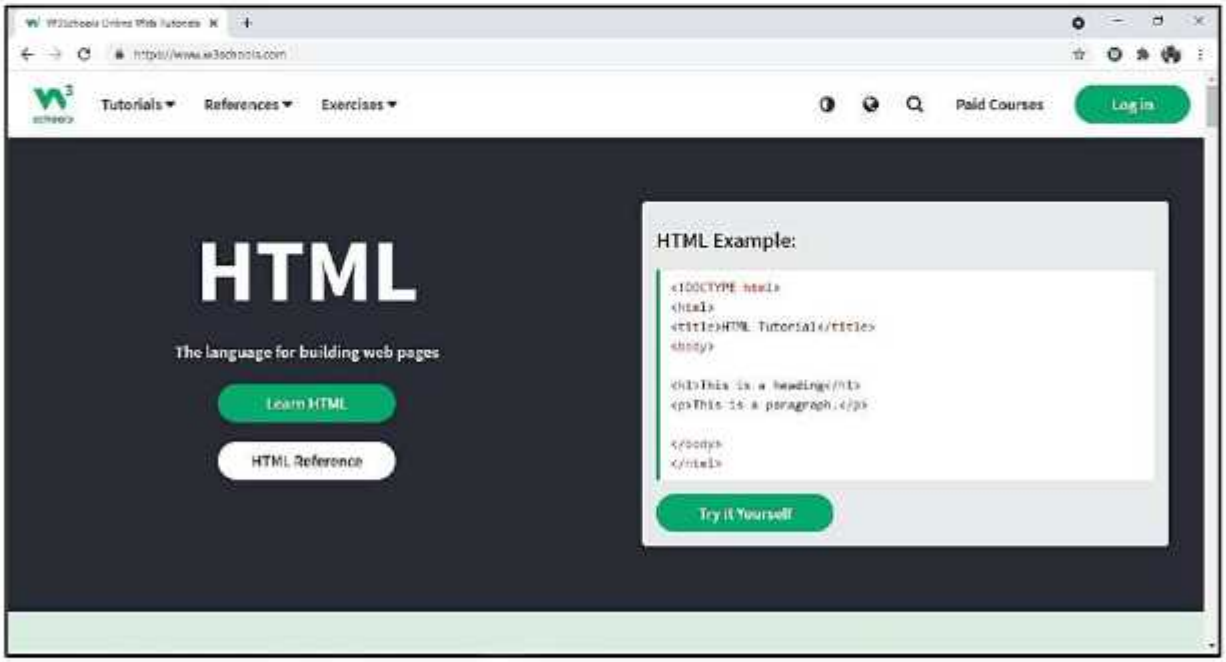


Fig: A(I) Homepage of w3schools.com with a button "Try it Yourself"

HOW TO DO HTML PROGRAMMING ONLINE?

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- https://www.w3schools.com/tryit/
- https://liveweave.com/
- https://html.house/
- https://htmlg.com/html-editor/
- http://jsbin.com/?html,output
- https://jsfiddle.net/
- https://codepen.io/pen/
- https://html-online.com/editor/

If we are using any of the Online HTML Editors for creating and editing web pages, then they implicitly too provide the option to view the output of created/edited HTML document. Following figure shows the Homepage of **w3schools.com** with a "**Try it Yourself**" button. "Try it Yourself" opens the HTML Editor and Viewer of w3schools:

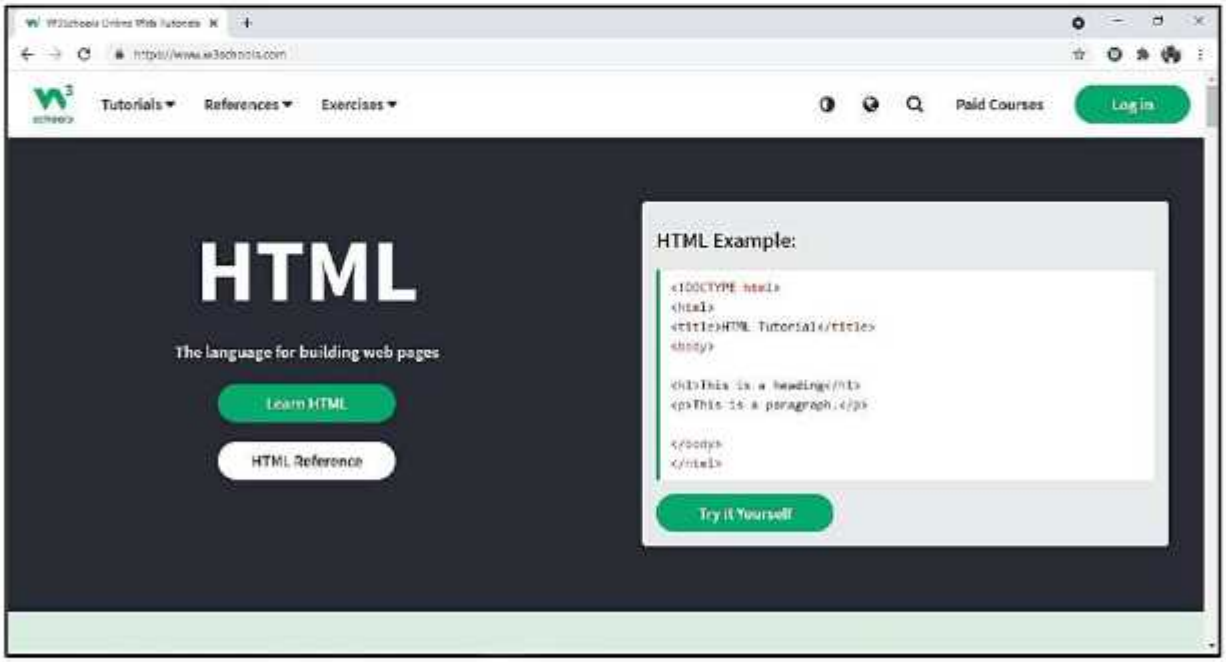


Fig: A(I) Homepage of w3schools.com with a button "Try it Yourself"

By clicking on the "Try it Yourself" button, we can open the online editor and viewer for HTML coding as shown in the following figure:

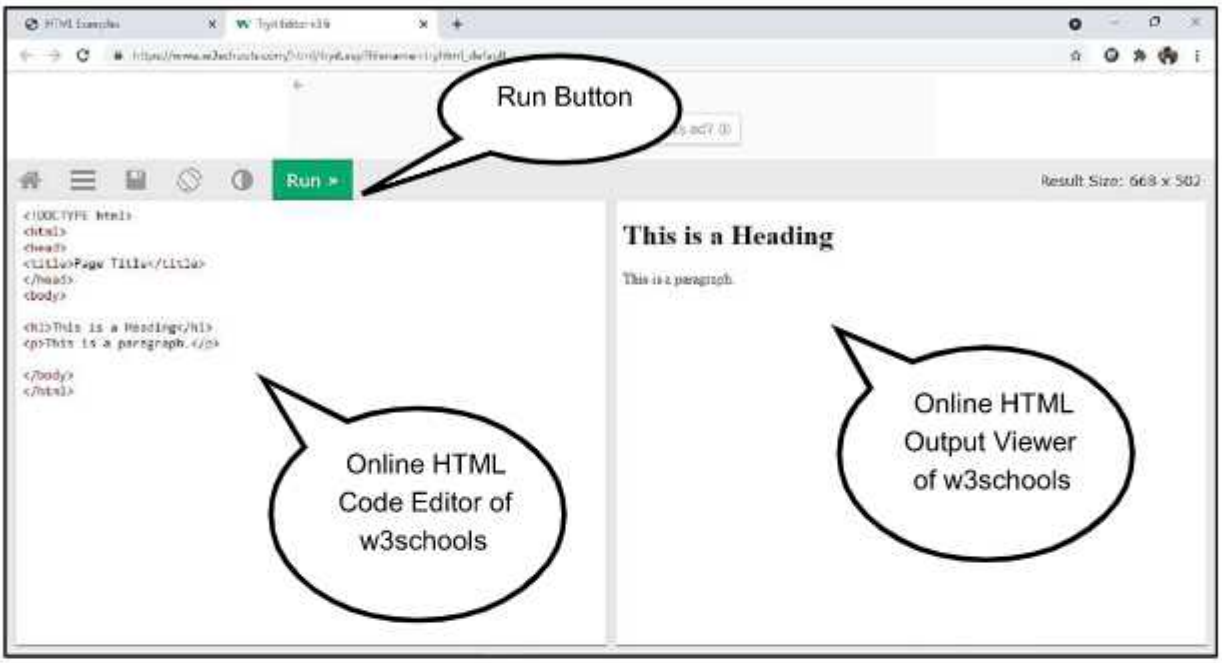


Fig: A(ii) "Try it Yourself" Editor with Output Viewer of w3schools.com

In the left part of the above window, we can write/edit our HTML code. After writing or editing the HTML code, we have to click on the 'Run' button to view the output of the HTML code. The output of HTML code will be shown on the right side of the window as shown in the above figure.

Appendix – II

List of Common HTML Tags:

Tag	Description
<!-- -->	For commenting out sections of HTML or placing comments within HTML.
<!DOCTYPE html>	Basically, DOCTYPE tells the browser what kind of document we're loading. This tag tells the web browser that we are using Version 5 of HTML
<a>	It is anchor tag which is used to create hyperlinks in HTML.
<abbr>	It is an abbreviation tag. It is used to define abbreviations. For example: <abbr title="Cascading Style Sheets">CSS</abbr>
<address>	It is generally used to include Contact information for the author.
<area>	This tag establishes areas in an image map. <area> is always used inside of <map>
<article>	The <article> tag is new in HTML5. This tag can be used to contain blog entries, forum posts, etc.
<aside>	New in HTML5. The <aside> element is for making sidebars that are placed next to the main content
<audio>	New in HTML5. The <audio> tag can be used to place an audio stream within an HTML document
<b>	It is used to bold the text
<base>	It is used to set a base URL
<blockquote>	It is used for quoting text from an external source. Typically rendered as indented text
<body>	It is used to define the body of the HTML document
 	It is used to insert a Single line break
<button>	It specifies button that can be clicked. Commonly used with forms
<caption>	It is used to define the caption of table
<code>	It is used to show the program code examples in the HTML document
<datalist>	New in HTML5. Specifies predefined data for an <input>
<dd>	For description lists. Use with <dt> and <dl>
<del>	Mark text as deleted without actually deleting it. This will typically be rendered as a strikethrough

Tag	Description
	Division or divider tag which is a kind of generic container
<dl>	Definition or description list used with <dd> and <dt>
<dt>	Definition or description Title used in the<dl> list
	It is emphasis tag which is used to emphasize text in bold format
<embed>	New in HTML5. It is a container for external content
<fieldset>	It is used for Group related items in a form
<footer>	The footer of a document, below the main content
<form>	Forms for user input
<h1>	Level 1 heading, the headline or title of a page
<h2>	Level 2 heading, the subtitles of a page
<h3>	Level 3 heading
<h4>	Level 4 heading
<h5>	Level 5 heading
<h6>	Level 6 heading
<head>	The head section. Used mostly for metadata
<header>	Not to be confused with <head>, <header> typically contains introductory content and layout that goes above the body
<hr>	It renders as a horizontal line running across the page. This can be used for separating text.
<html>	The root level tag of an HTML document. All other HTML tags go inside the HTML tag.
<i>	It is used to make text italicized
<iframe>	It is inline frame which makes it possible to embed another page within a page. In HTML5 this is known as nested browsing.
<img>	For displaying images on a webpage.
<input>	Input is used with various attributes to create form input elements.
<ins>	Useful for denoting text that has been added to an HTML file since the original version. Updates to a blog post for example.
<kbd>	Used for keyboard input.
<label>	For assigning labels to interface elements such as forms.
<legend>	Useful for making forms easier to understand.
	This represents a list item with an (ordered list) or (unordered list).

Tag	Description
<link>	Used for linking to external resources. Typically seen in <head> referring to an external style sheet.
<main>	New to HTML5. These tags enclose the main content of an HTML document.
<map>	Used when defining an image map.
<mark>	This is essentially used for highlighting.
<menu>	Used for creating various kinds of menus. This is new to HTML 5.1
<menuitem>	Specifies actions that can be taken with a menu.
<meta>	Used for specifying various meta information about the document. Meta tags are used within the document <head>.
<nav>	Used for specifying a navigational region within a document.
<object>	For embedding objects within a document.
** **	Ordered list (1. 2. 3.). Used with list item .
<option>	Used within the <select> tag to specify an option
<p>	It is used to define paragraphs
<pre>	For preformatted text. This can be useful for demonstrating code, especially if there are multiple lines.
<q>	Quote from some source.
<s>	For marking up text that is no longer relevant, applicable, or accurate.
<samp>	Sample output one might get from a particular computer program.
<script>	Scripts inside of an HTML document are enclosed in the script tags.
<section>	A nonspecific means of breaking up content within a webpage into sections.
<select>	Used with <option> for selecting a particular option.
<small>	Typically used for small print. Useful for comments within the main content.
<source>	Used with <audio> and <video> for specifying media source.
****	Useful for applying styles to or around text, especially inline.
****	The enclosed text is of strong importance
<style>	For declaring style sheets within a document
<sub>	For displaying subscript. Useful for math, especially in conjunction with <sup> (superscript).
<sup>	For displaying superscript. Useful for math, especially in conjunction with

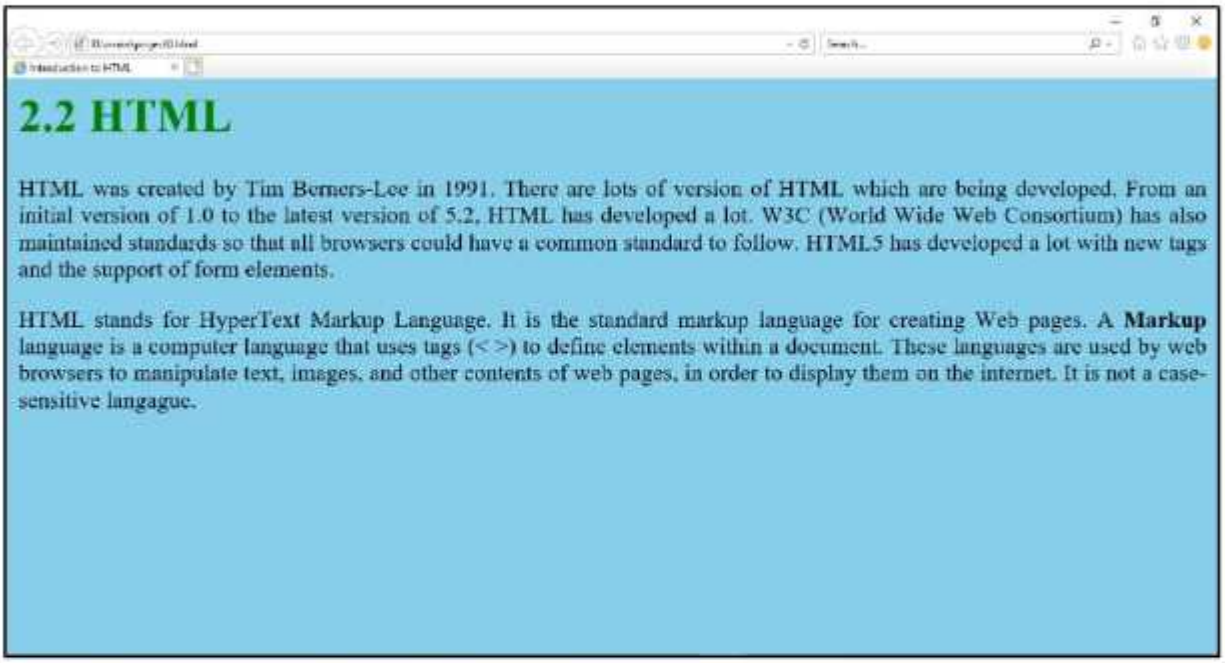
Tag	Description
	<sub> (subscript).
<table>	For making tables in an HTML page.
<tbody>	Groups table rows.
<td>	Table data; this represe nts a data cell within a table
<template>	Declares HTML snippets that can be used later.
<textarea>	For multi-line text entry.
<tfoot>	Table footer.
<th>	Table header cell.
<thead>	Table header row
<time>	Specifies the date/time within a document
<title>	The title of an HTML document
<tr>	A row within a table.
<track>	Used to specify text tracks with <audio> and <video>.
<u>	It is used to make text underline
** **	Unordered list. Use with (list item) to make unordered lists
<var>	Defines a variable within the content of an HTML page.
<video>	For embedding video within an HTML page.

Appendix-III

HTML Coding Solutions for Lab Activities

Activity 2.1:

1. Make a web page which represents the Introduction to HTML (Given under Title 2.2 HTML of this chapter)
2. Set the background color to **skyblue** for the entire body of web page.
3. Save the file with "**project0.html**" and view the output of webpage in the web browser.



HTML Coding for Activity 2.1:

```
<html>
    <head>
        <title>Introduction to HTML</title>
    </head>
    <body bgcolor="skyblue">
    <h1><font color="green">2.2 HTML</font></h1>
    <p align="justify">HTML was created by Tim Berners-Lee in 1991. There are lots of
    version of HTML which are being developed. From an initial version of 1.0 to the
    latest version of 5.2, HTML has developed a lot. W3C (World Wide Web Consortium) has
    also maintained standards so that all browsers could have a common standard to
    follow. HTML5 has developed a lot with new tags and the support of form elements.</p>
    <p align="justify">HTML stands for HyperText Markup Language. It is the standard
    markup language for creating Web pages. A <b>Markup</b> language is a computer
    language that uses tags (< >) to define elements within a document. These languages
    are used by web browsers to manipulate text, images, and other contents of web pages,
    in order to display them on the internet. It is not a case-sensitive langague.</p>
    </body>
</html>
```

Activity 2.2:

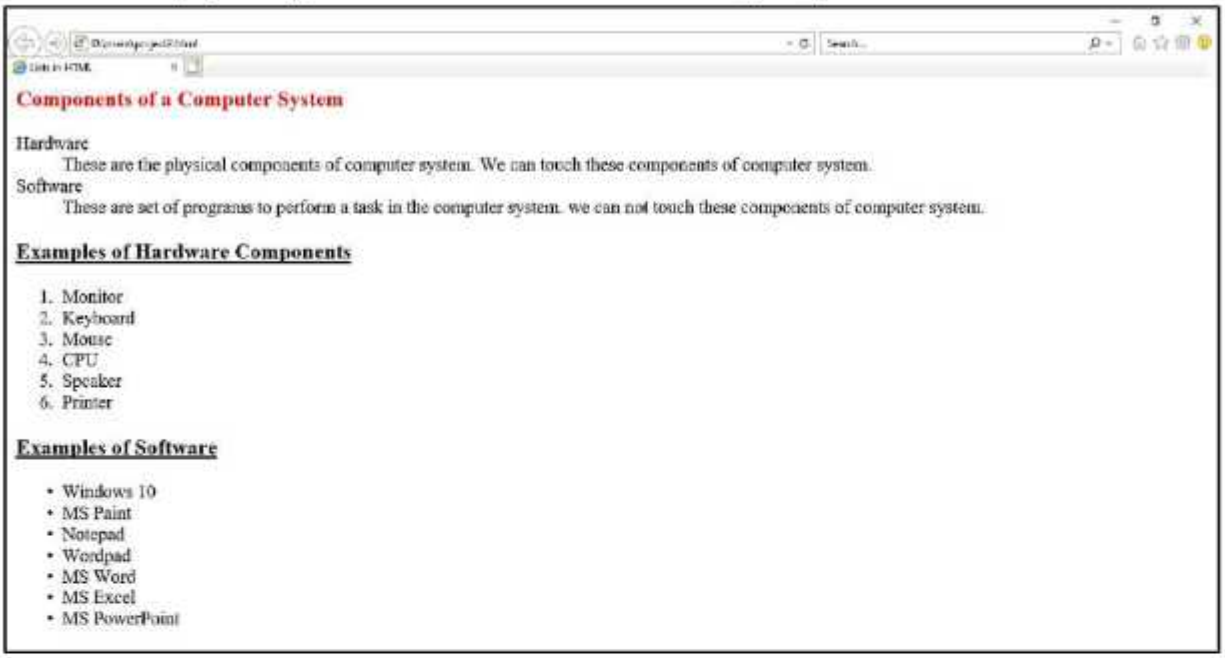
Make the following webpage using basic tags of HTML that we have discussed in this chapter:

HTML Coding for Activity 2.2:

```
<html>
    <head> <title>HTML Project 1</title> </head>

    <body bgcolor="pink">
    <h1 align="center">Govt. Sen. Sec. School</h1>
    <hr><marquee>Welcome to my school..</marquee> <hr>
    <b><i>Hello Everyone</i></b>,<br>
    <p align="justify">I am a student of <b>10th class</b>. I am studying in the <font
    face="Arial" color="maroon"><mark>Govt. Sen. Sec. School</mark></font>. My School
    is the <u>most prestigious school in the city</u>. My School is a <u>two-storey
    clean and beautiful building</u>. With Studies, other <u>social and cultural
    activities</u> also happen in my school. There is also a <big>big playground</big>
    in which we play everyday. The <u>clean and positive atmosphere</u> of our school
    inspires us to study.</p>
    <p><tt>School is the place where we learn to read and write. It is the most crucial
    place for a student, and it helps us to learn new things. The teachers are always
    helpflul and teach us important things in life. We must always be regular to school
    as missing classes can lead to problems during exams. Schools teach us how to be
    consistent and punctual</tt></p>
    </body>
</html>
```

Activity 3.1:

Create a webpage using HTML which shows the following output in the web browser:



Components of a Computer System

Hardware
These are the physical components of computer system. We can touch these components of computer system.
Software
These are set of programs to perform a task in the computer system. we can not touch these components of computer system.

Examples of Hardware Components

1. Monitor
2. Keyboard
3. Mouse
4. CPU
5. Speaker
6. Printer

Examples of Software

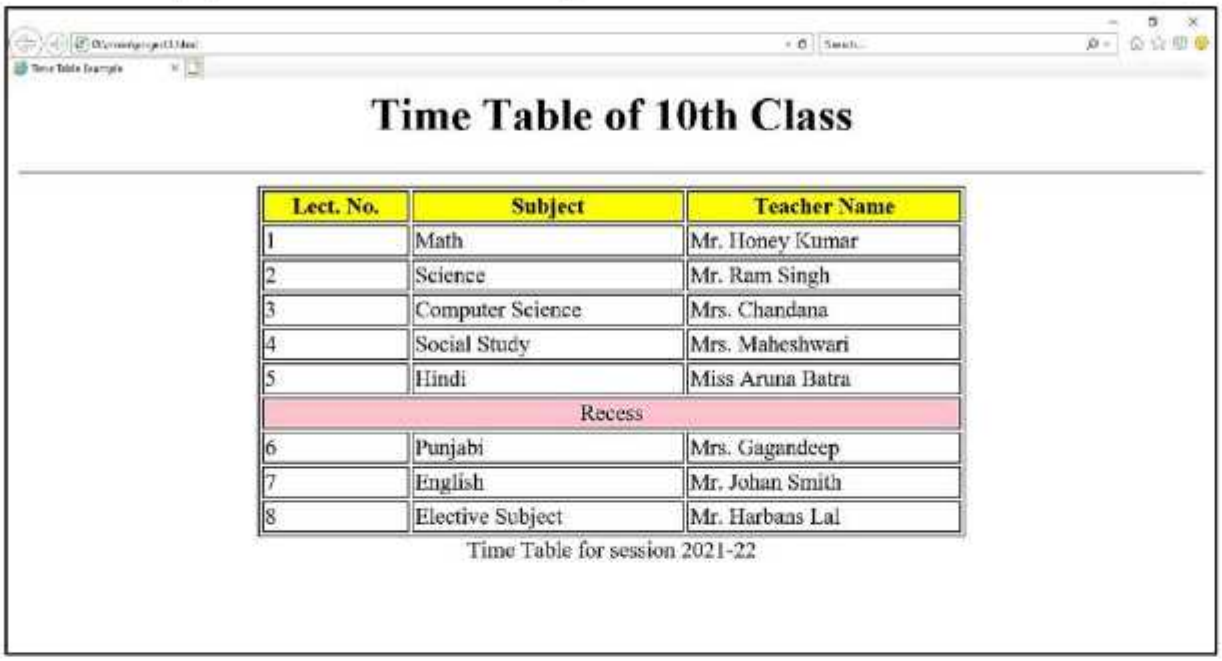
- Windows 10
- MS Paint
- Notepad
- Wordpad
- MS Word
- MS Excel
- MS PowerPoint

HTML Coding for Activity 3.1:

```
<html>
    <head>
       <title>Lists in HTML</title>
    </head>
    <body>
    <h3><font color="red">Components of a Computer System</font></h3>
    <dl>
    <dt>Hardware</dt>
        <dd>These are the physical components of computer system. We can touch these
        components of computer system.</dd>
    <dt>Software</dt>
        <dd>These are set of programs to perform a task in the computer system. we can
        not touch these components of computer system.</dd>
    </dl>
    <h3><u>Examples of Hardware Components</u></h3>
    <ol>
        <li>Monitor</li>
        <li>Keyboard</li>
        <li>Mouse</li>
        <li>CPU</li>
        <li>Speaker</li>
        <li>Printer</li>
    </ol>
    <h3><u>Examples of Software</u></h3>
    <ul>
        <li>Windows 10</li>
        <li>MS Paint</li>
        <li>Notepad</li>
        <li>Wordpad</li>
        <li>MS Word</li>
        <li>MS Excel</li>
        <li>MS PowerPoint</li>
    </ul>
    </body>
</html>
```

Activity 3.2:

Create a webpage to show the time table of your class as shown below:



Time Table of 10th Class

Lect. No.	Subject	Teacher Name
1	Math	Mr. Honey Kumar
2	Science	Mr. Ram Singh
3	Computer Science	Mrs. Chandana
4	Social Study	Mrs. Maheshwari
5	Hindi	Miss Aruna Batra
Recess		
6	Punjabi	Mrs. Gagandeep
7	English	Mr. Johan Smith
8	Elective Subject	Mr. Harbans Lal

Time Table for session 2021-22

HTML Coding for Activity 3.2:

```
<html>
    <head>
       <title>Time Table Example</title>
    </head>
    <body>
    <h1 align="center">Time Table of 10th Class</h1>
    <hr>
    <table align="center" border="1" width="500">
        <caption align="bottom">Time Table for session 2021-22</caption>
        <tr bgcolor="yellow"><th>Lect. No.</th><th>Subject</th><th>Teacher Name</th></tr>
        <tr><td>1</td><td>Math</td><td>Mr. Honey Kumar</td></tr>
        <tr><td>2</td><td>Science</td><td>Mr. Ram Singh</td></tr>
        <tr><td>3</td><td>Computer Science</td><td>Mrs. Chandana</td></tr>
        <tr><td>4</td><td>Social Study</td><td>Mrs. Maheshwari</td></tr>
        <tr><td>5</td><td>Hindi</td><td>Miss Aruna Batra</td></tr>
        <tr bgcolor="pink"><td align="center" colspan="3">Recess</td></tr>
        <tr><td>6</td><td>Punjabi</td><td>Mrs. Gagandeep</td></tr>
        <tr><td>7</td><td>English</td><td>Mr. Johan Smith</td></tr>
        <tr><td>8</td><td>Elective Subject</td><td>Mr. Harbans Lal</td></tr>
    </table>
    </body>
</html>
```

Activity 4.1:

Create a web page for your school as shown below and save it using "myschool.html".

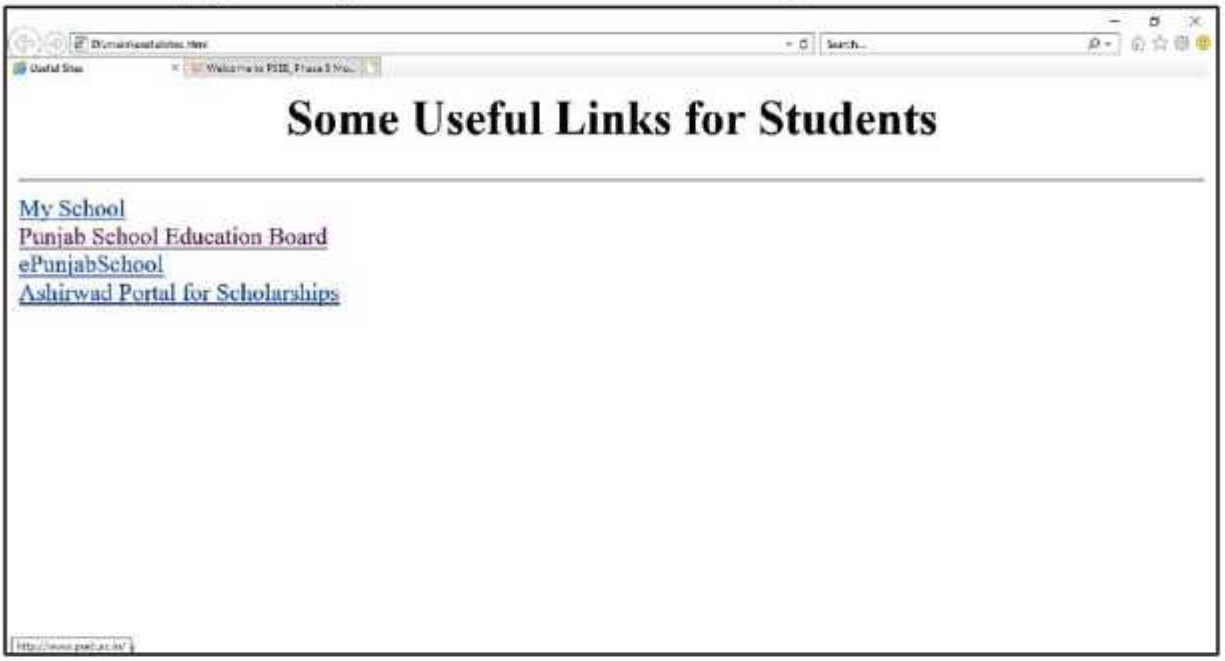
In this web page, you can use any descriptive image of school building. Use the relative address for inserting image in the web page by placing both the html document (myschool.html) and image files (school.jpg) at the same location.

HTML Coding for Activity 4.1:

```
<html>
    <head> <title>My School</title> </head>

    <body>
    <h1 align="center">Govt. Sen. Sec. School</h1>
    <hr><marquee>Welcome to My School..</marquee> <hr>

    <p align="justify">School is the place where we learn to read and write. It is the
    most crucial place for a student, and it helps us to learn new things. The teachers
    are always helpflul and teach us important things in life. We must always be
    regular to school as missing classes can lead to problems during exams. Schools
    teach us how to be consistent and punctual</p>
    <center><img border="1" src="./school.jpg"></center>
    <p align="justify">My School is the most prestigious school in the city. My School
    is a two-storey clean and beautiful building. With Studies, other social and
    cultural activities also happen in my school. There is also a big playground in
    which we play everyday. The clean and positive atmosphere of our school inspires us
    to study.</p>

    </body>
</html>
```

Activity 4.2:

Create a web page showing some useful links with local and global resources as shown below:



Here, create the links as follow:

- Link **My School** to the local web page that we created in activity 4.1 ("./myschool.html")
- Link **Punjab School Education Board** to its official web site "http://www.pseb.ac.in/"
- Link **ePunjabSchool** to its official web site "https://www.epunjabschool.gov.in/"
- Link **Ashirwad Portal for Scholarships** to its official web site "http://scholarships.punjab.gov.in/"

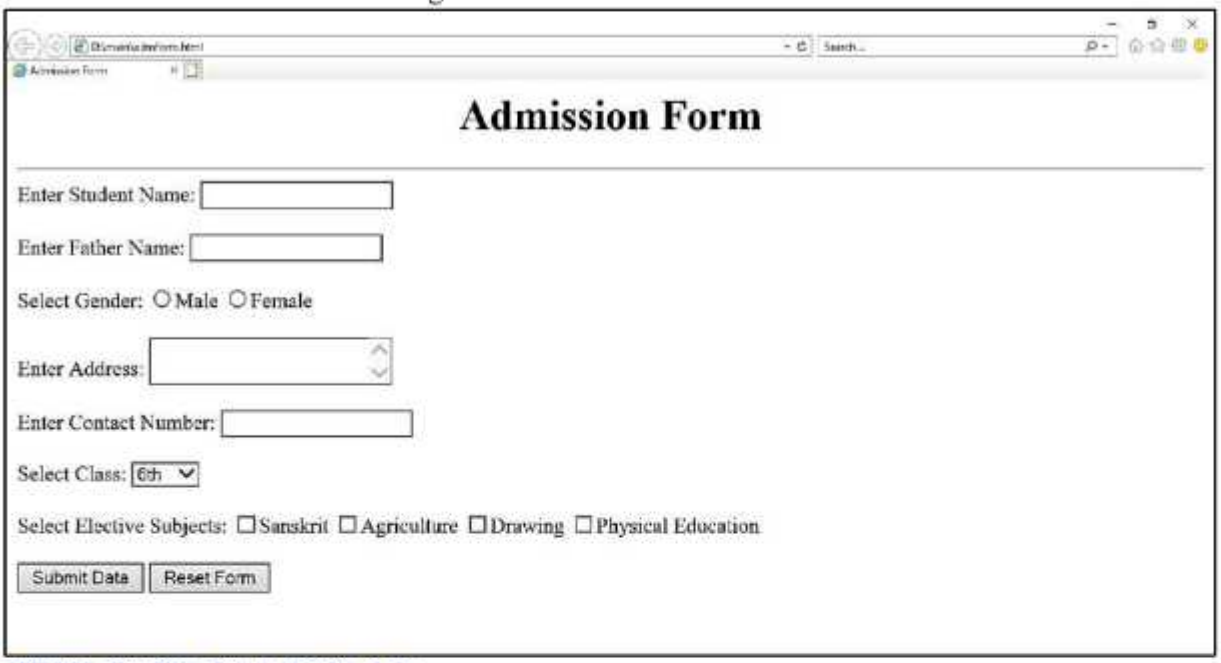
All these links should be opened in the new tab window of the web-browser. Save the HTML document for above activity (Activity 4.2) with the name "**usefulsites.html**" at the same location where we saved "**myschool.html**" document.

HTML Coding for Activity 4.2:

```
<html>
    <head> <title>Useful Sites</title> </head>

    <body>
    <h1 align="center">Some Useful Links for Students</h1>
    <hr>
    <a href="./myschool.html" target="_blank">My School</a> <br>
    <a href="http://www.pseb.ac.in/" target="_blank">Punjab School Education
    Board</a><br>
    <a href="https://www.epunjabschool.gov.in/" target="_blank">ePunjabSchool
    </a><br>
    <a href="http://scholarships.punjab.gov.in/" target="_blank">Ashirwad
    Portal for Scholarships</a><br>
    </body>
</html>
```

Activity 4.3:

Create an "Admission Form" using HTML-Form as shown below:

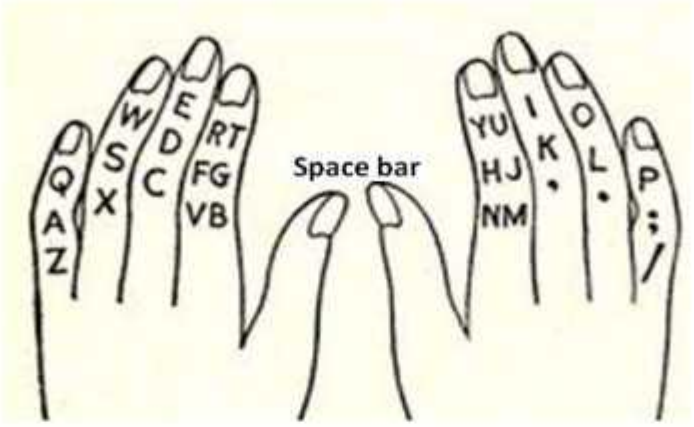


HTML Coding for Activity 4.3:

```
<html>
    <head>
       <title>Admission Form</title>
    </head>
    <body>
    <h1 align="center">Admission Form</h1>
    <hr>
    <form action="#" method="post">
    Enter Student Name: <input type="text"> <br><br>
    Enter Father Name: <input type="text"> <br><br>
    Select Gender:  <input type="radio" name="gender">Male
                    <input type="radio" name="gender">Female <br><br>
    Enter Address: <textarea rows="2" cols="20"></textarea><br><br>
    Enter Contact Number: <input type="text"> <br><br>

    Select Class: <select name="class">
                    <option value="6th">6th</option>
                    <option value="7th">7th</option>
                    <option value="8th">8th</option>
                    <option value="9th">9th</option>
                    <option value="10th">10th</option>
                    </select> <br><br>
    Select Elective Subjects: <input type="checkbox" name="subject">Sanskrit
                    <input type="checkbox" name="subject">Agriculture
                    <input type="checkbox" name="subject">Drawing
                    <input type="checkbox" name="subject">Physical Education
                    <br><br>
    <input type="submit" value="Submit Data">
    <input type="reset" value="Reset Form">
    </form>
    </body>
</html>
```

Appendix – IV

Lab Activity for Typing Practice in English



Exercise I

asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg
asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg
asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg
asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg
asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg

Exercise II

Ask	Fad	Alsas	Shad	Lads	Flags	Flask
Jag	Fag	Fall	Hash	Glad	Galls	Salad
Jak	Had	Gaff	Dash	Gall	Flash	Slash
Sad	Lad	Adds	Lash	Hall	Lakhs	Dhalls
Dad	Asks	Alas	Dall	Fall	Glass	Shall

Exercise III

qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert
poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy
qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert
poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy
qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert
poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy

Exercise IV

awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;
awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;
awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;
awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;
awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;

Exercise V

Fish	Dirks	Oldest	Apple	Grade	Falls	Kodak
Rails	Jaded	Dead	Usual	Sales	Filed	Legal
Lease	Lakes	Agile	Isles	Ahead	Larks	Roses
Forks	Hedge	Skill	Rupee	Grass	Would	Alpine
Jaded	Liked	Equip	Quail	Jokes	Asked	Walks
Fiddle	Saddle	Dead	Filed	Lakes	Lease	Legal

Exercise VI

azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj
azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj
azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj
azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj
azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj

Exercise VII

Cat	Jack	Colour	Neither	Enemy	Boat	Calcutta
Not	Have	Joints	Calling	Voted	Very	Vineyard
Met	Wind	Nerves	Enlarge	Money	Move	Material
Men	Verb	Verbal	Someone	Marry	Give	Sterling
Bent	Joint	Jackets	Examine	Thousand	Cylinder	Assessment
King	Carry	Jumbled	Examined	Struggle	Possible	Beginning
Zeal	Night	Booklet	Gracious	Grizzled	Frequent	Meanings
Zero	Tonic	Cutting	Becoming	Zodiacal	Exponent	Doubtless

Exercise VIII

12345	098767	12345	098767	12345	098767
12345	098767	12345	098767	12345	098767
12345	098767	12345	098767	12345	098767
12345	098767	12345	098767	12345	098767
12345	098767	12345	098767	12345	098767

Exercise IX

Type the following sentences 5 times:

1. Lost time is never regained
2. Get-up early and do your work
3. Today's youth and tomorrow's old
4. Age is a virtue when wisdom is with it.
5. Measure your word before it goes out of you
6. My steps are measured
7. A friend in need is a friend indeed
8. Children are innocent and should be guided rightly.
9. Our Land has great sages who knew the eternal truth.
10. Truth never fails
11. The Quick Brown Fox Jumps Over A Lazy Dog

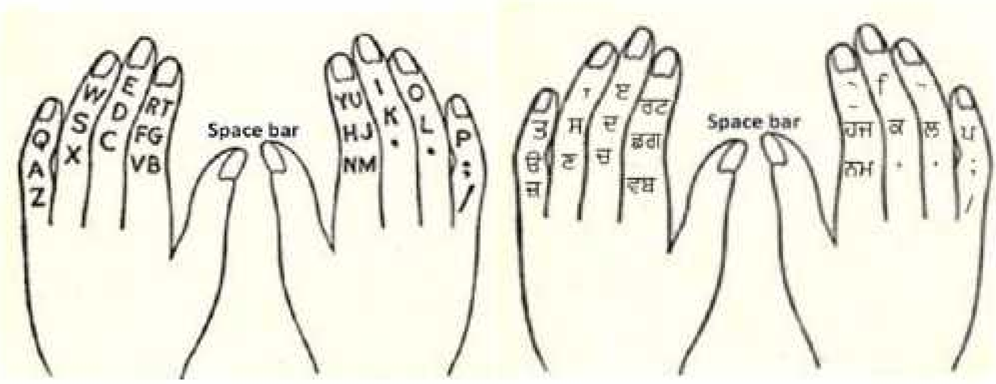
Exercise X

Type the following paragraph 10 times:

Our flag is tri-colour. SAFFRON is the symbol of sacrifice and a string mind. WHITE is the symbol of purity, love and peace. GREEN is the symbol of plenty and joy. We hoist and salute our flag. We are ready to make sacrifices for our country. We want peace and progress. We want to be pure.

****

Lab Activity for Typing Practice in Punjabi (AnmolLipi)



Home Row Exercise - I

ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ
ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ
ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ
ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ
ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ ;ਲਕਜਹ ੳਸਦਡਗ

Home Row Exercise - II

ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ
ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ
ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ
ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ
ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ ;ਲ਼ਖਝ ਅਸ਼ਧਢਘ

Second Row Exercise-III

ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ
ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ
ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ
ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ
ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ ਤ ਾ ੲ ਰ ਟ ਪ ੋ ਿ ੁ ੇ

Second Row Exercise-IV

ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ
ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ
ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ
ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ
ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ ਥ ਾਂ ਓ ਠ ਫ ੌ ੀ ੂ ੈ

Home Row and Second Row Exercise-V

ੳ ਾ ੲ ਰ ਤ ਡ ੳ ; ੇ ਿ ੁ ਪ ਜ ; ਅ ੰ ੳ ਥ ਢ ਅ ; ੈ ੀ ੂ ਫ ਝ ;
ੳ ਾ ੲ ਰ ਤ ਡ ੳ ; ੇ ਿ ੁ ਪ ਜ ; ਅ ੰ ੳ ਥ ਢ ਅ ; ੈ ੀ ੂ ਫ ਝ ;
ੳ ਾ ੲ ਰ ਤ ਡ ੳ ; ੇ ਿ ੁ ਪ ਜ ; ਅ ੰ ੳ ਥ ਢ ਅ ; ੈ ੀ ੂ ਫ ਝ ;
ੳ ਾ ੲ ਰ ਤ ਡ ੳ ; ੇ ਿ ੁ ਪ ਜ ; ਅ ੰ ੳ ਥ ਢ ਅ ; ੈ ੀ ੂ ਫ ਝ ;
ੳ ਾ ੲ ਰ ਤ ਡ ੳ ; ੇ ਿ ੁ ਪ ਜ ; ਅ ੰ ੳ ਥ ਢ ਅ ; ੈ ੀ ੂ ਫ ਝ ;

Home Row and Second Row Exercise-VI

ਢਸਿਹ ਧਰਿਕਸ ੈਲਦੲਸਟ ਅਪਪਲੲ ਘਰੳਦੲ ਢੳਲਲਸ ਖੋਦੳਕ
ੳਲਿਸ ਝੳਦੲਦ ਧੲੳਦ ਸੁੳਲ ਸ਼ੳਲੲਸ ਢਲਿੲਦ ਲ਼ੲਗੳਲ
ਲ਼ੲੳਸੲ ਲ਼ੳਕੲਸ ਅਗਲਿੲ ੀਸਲੲਸ ਅਹੲੳਦ ਲ਼ੳਰਕਸ ਸੲਸ
ਢੋਰਕਸ ੲਦਗੲ ਸ਼ਕਲਿਲ ਪੲੲ ਘਰੳਸਸ ੰ ੇ ਲਦ ਅਲਪਨਿੲ
ਝੳਦੲਦ ਲ਼ਕਿੲਦ ੳਤੁਪਿ ਥੁੳਲਿ ਝੋਕੲਸ ਅਸਕੲਦ ੰੳਲਕਸ
ਢਦਿਦਲੲ ਸ਼ੳਦਦਲੲ ਧੲੳਦ ਢਲਿੲਦ ਲ਼ੳਕੲਸ ਲ਼ੲੳਸੲ ਲ਼ੲਗੳਲ

Home/Second/Third Row Exercise -VII

ੳ ਜ਼ ਣ ਚ ਵ ਡ ਲ ਕ ਮ ਨ ਬ ਜ ਅ ਗ਼ ਯ ਛ ੜ ਢ ਲ਼ ਖ ੱ ਃ ਭ ਝ
ੳ ਜ਼ ਣ ਚ ਵ ਡ ਲ ਕ ਮ ਨ ਬ ਜ ਅ ਗ਼ ਯ ਛ ੜ ਢ ਲ਼ ਖ ੱ ਃ ਭ ਝ
ੳ ਜ਼ ਣ ਚ ਵ ਡ ਲ ਕ ਮ ਨ ਬ ਜ ਅ ਗ਼ ਯ ਛ ੜ ਢ ਲ਼ ਖ ੱ ਃ ਭ ਝ
ੳ ਜ਼ ਣ ਚ ਵ ਡ ਲ ਕ ਮ ਨ ਬ ਜ ਅ ਗ਼ ਯ ਛ ੜ ਢ ਲ਼ ਖ ੱ ਃ ਭ ਝ
ੳ ਜ਼ ਣ ਚ ਵ ਡ ਲ ਕ ਮ ਨ ਬ ਜ ਅ ਗ਼ ਯ ਛ ੜ ਢ ਲ਼ ਖ ੱ ਃ ਭ ਝ

Fourth Row Exercise-VIII

ੌ 1 2 3 4 5 0 9 8 7 6 7 ੋ ! ੍ # 4 % ਖ਼ ਫ਼ * ( )
ੌ 1 2 3 4 5 0 9 8 7 6 7 ੋ ! ੍ # 4 % ਖ਼ ਫ਼ * ( )
ੌ 1 2 3 4 5 0 9 8 7 6 7 ੋ ! ੍ # 4 % ਖ਼ ਫ਼ * ( )
ੌ 1 2 3 4 5 0 9 8 7 6 7 ੋ ! ੍ # 4 % ਖ਼ ਫ਼ * ( )
ੌ 1 2 3 4 5 0 9 8 7 6 7 ੋ ! ੍ # 4 % ਖ਼ ਫ਼ * ( )

Exercise - IX

ਸਾਇੰਸ	ਲੇਖਕ	ਘਰ	ਛੱਤ	ਇਨਾਮ
ਕੰਪਿਊਟਰ	ਕਿਤਾਬ	ਸਕੂਲ	ਅਧਿਆਪਕ	ਪੈਂਸਿਲ
ਰਸਤਾ	ਜਹਾਜ਼	ਪੰਨ੍ਹਾ	ਮੁਰੰਮਤ	ਜ਼ਿਲ੍ਹਾ
ਸੁਨਾਮ	ਮੋਹਾਲੀ	ਚੰਡੀਗੜ੍ਹ	ਇੰਡੀਆ	ਹਿਮਾਲਿਆ
ਭੂਗੋਲ	ਇਤਿਹਾਸ	ਗਣਿਤ	ਵਿਕਾਸ	ਪੰਜਾਬੀ
ਹਿੰਦੀ	ਪ੍ਰਧਾਨ	ਮੰਤਰੀ	ਮੁੱਖ	ਰੋਜ਼ਗਾਰ
ਯੂਨੀਵਰਸਿਟੀ	ਸੀ.ਪੀ.ਯੂ.	ਮਾਊਸ	ਕੀਅਬੋਰਡ	ਮੋਨੀਟਰ
ਮੈਮਰੀ	ਜੈਨਰੇਸ਼ਨ	ਪ੍ਰੈਜ਼ਨਟੇਸ਼ਨ	ਐਕਸਲ	ਸਪ੍ਰੈਡਸ਼ੀਟ
ਪ੍ਰੋਸੈਸਰ	ਓਪਰੇਟਿੰਗ	ਸਿਸਟਮ	ਵਿੰਡੋ	ਸ਼ਹਿਦ
ਰਾਜਨੀਤੀ	ਅਮੇਰੀਕਾ	ਡਾਟਾ	ਖੁਸ਼ੀ	ਮੱਖਣ
ਰੰਗ	ਉੱਠ	ਅੱਖ	ਸਾਂਹ	ਖਿਡਾਰੀ
ਪ੍ਰਿੰਸੀਪਲ	ਪ੍ਰੀਖਿਆ	ਵਿਭਾਗ	ਦਫ਼ਤਰ	ਨਿਰਦੇਸ਼
ਵਿਲੱਖਣ	ਵਿਸ਼ੇਸ਼	ਪੰਜਾਬ	ਸੰਗਰੂਰ	ਅਭਿਆਸ

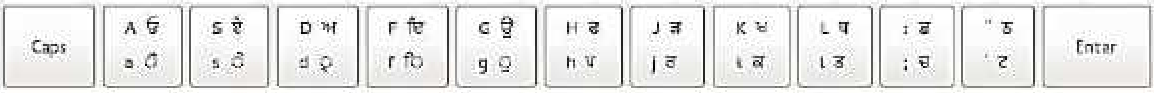
Exercise – X

ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ਪਟਿਆਲਾ ਦੇ ਵਾਈਸ ਚਾਂਸਲਰ ਡਾ. ਜਸਪਾਲ ਸਿੰਘ ਦੇ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਤੇ ਪੰਜਾਬੀ ਵਿਭਾਸ ਦੇ ਮੁਖੀ ਪ੍ਰੋ. ਲਖਵੀਰ ਸਿੰਘ, ਪ੍ਰੋ. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਡਾ. ਦੇਵਿੰਦਰ ਸਿੰਘ ਦੀ ਅਗਵਾਈ ਵਿੱਚ ਚਲਦਿਆਂ ਡਾ. ਰਾਜਵਿੰਦਰ ਸਿੰਘ ਅਤੇ ਸ. ਚਰਨਜੀਵ ਸਿੰਘ ਨੇ ਜੀ-ਲਿਪੀਕਾ ਨਾਮ ਦਾ ਅਜਿਹਾ ਸਾਫ਼ਟਵੇਅਰ ਤਿਆਰ ਕੀਤਾ ਹੈ ਜਿਸ ਰਾਹੀਂ ਦਫ਼ਤਰੀ ਕੰਮਕਾਜ ਤੋਂ ਇਲਾਵਾ ਫੇਸਬੁੱਕ ਸਮੇਤ ਇੰਟਰਨੈੱਟ ਤੇ ਹੋਰ ਕਿਤੇ ਵੀ ਪੰਜਾਬੀ ਵਿੱਚ ਲਿਖਣਾ ਬਹੁਤ ਸੌਖਾ ਹੋ ਗਿਆ ਹੈ। ਇੱਥੋਂ ਤੱਕ ਕਿ ਤੁਸੀਂ ਆਪਣੀ ਈ-ਮੇਲ ਵੀ ਆਪਣੇ ਕਿਸੇ ਮਿੱਤਰ ਜਾਂ ਕੰਮ ਦੇ ਸਥਾਨ ਤੋਂ ਪੰਜਾਬੀ ਵਿੱਚ ਭੇਜ ਸਕਦੇ ਹੋ। ਕਿਉਂਕਿ ਇਹ ਸਾਫ਼ਟਵੇਅਰ ਤੁਹਾਨੂੰ ਪੰਜਾਬੀ ਯੂਨੀਕੋਡ ਫੌਂਟ (ਰਾਵੀ) ਵਿੱਚ ਕੰਮ ਕਰਨ ਦੀ ਸਹੀਲਤ ਉਪਲਬਧ ਕਰਵਾਉਂਦਾ ਹੈ।

3.0 Lab Activity for Typing Practice in Punjabi Using Raavi Unicode Font

Unicode Font – Raavi Key Map

Home Row Lesson without Using Shift Key



ੋ ਿ ਤ ਿ ਟ ਕ ਰ ਿ ੋ ਚ ੍ ੍ ਕ ਟ ਚ ੁ ੋ ਚ ਟ ਿ ੁ ਿ ਰ ਚ ਟ ਟ ੋ
ਕ ੇ ਰ ੍ ਚ ੇ ਟ ਿ ੁ ਿ ਚ ਤ ੋ ੁ ਟ ੋ ਕ ਰ ੋ ਰ ਪ ਟ ੁ ਰ ਕ ਚ ਚ ਕ
ਟ ਕ ੋ ਟ ੁ ੋ ਿ ਿ ਰ ਰ ੋ ਕ ਟ ਟ ਕ ੁ ਕ ੁ ਰ ਕ ਰ ੁ ਕ ਰ ਪ ੁ ਤ ਟ
ਕ ਕ ਰ ਚ ਤ ਚ ਚ ਚ ਰ ਿ ਿ ਿ ੍ ੁ ੁ ੁ ੍ ਚ ਚ ੋ ਿ ੋ ਟ ਰ ੋ ਪ ਿ
ਟ ਰ ਿ ਪ ੁ ਕ ਤ ਿ ਿ ਰ ੋ ਿ ਿ ੁ ਟ ਿ ਟ ਕ ਚ ਚ ੁ ਪ ੁ ੋ ੁ ਚ ਤ
ਿ ੍ ਤ ੋ ਿ ਕ ੍ ਕ ਰ ੍ ਚ ੍ ੋ ਿ ੍ ਟ ੍ ਤ ਚ ੁ ੁ ੋ ਪ ੍ ਕ ੋ ੋ ਚ

ਰ੍ ਤੇ ਰੇ ਰੁ ਪੇ ਟੇ ਰਿ ਪੋ ਟੇ ਚੋ ਟੇ ਪਰ ਕਰ ਪਰ ਕੁ ਪੁ ਟਿ ਚੁ ਪੋ ਟੇ ਟਰ ਰ੍ ਟਤ ਰ੍ ਚਕ
ਤਿ ਟਪ ਕ੍ ਟਤ ਟਪ ਤਕ ਕੇ ਤੋ ਕੇ ਤੁ ਤੇ ਕਟ ਤਿ ਰੇ ਟੇ ਟਿ ਰੇ ਕਟ ਪੇ ਰਿ ਕੇ ਚੋ ਚੁ ਤੋ
ਕਟ ਚਿ ਟਤ ਰੇ ਟੇ ਕਰ ਟੇ ਕੇ ਤੇ ਪਿ ਰੁ ਟਚ ਤਿ ਪੋ ਟੁ ਟੇ ਪੇ ਪਰ ਰਿ ਚਕ ਰਿ ਟੇ ਤੇ ਕੋ
ਪੇ ਰੇ ਪਰ ਟਤ ਕੇ ਚੋ ਪੁ ਪ੍ ਤ੍ ਤ੍ ਰਿ ਤੁ ਟਤ ਚੋ ਰਿ ਪਰ ਟੁ ਟ੍ ਚਤ ਰੇ ਪਿ ਕ੍ ਰੁ ਤ੍ ਚੋ
ਟਰ ਪਰ ਕਰ ਟ੍ ਪੇ ਟਤ ਚਤ ਟੇ ਚਰ ਕੁ ਚਕ ਚੁ ਟੇ ਚੋ ਰਿ ਰ੍ ਰਿ ਤੇ ਕੇ ਕੋ ਕਰ ਕੇ ਤਕ
ਕਿ ਰਿ ਚੇ ਕ੍ ਚੁ ਪੇ ਕ੍ ਟਚ ਤੇ ਕੁ ਟਚ ਪਰ ਤ੍ ਪਰ ਟਪ ਤੇ ਚਤ ਚਤ ਚਰ ਕਰ ਰੁ ਪੇ ਟ੍ ਟੇ
ਟੇਪ ਪਿਟ ਪਿਤਰ ਟੇਪ ਟਕਰ ਕਿਟ ਟਤੁਕ ਕਿਰਤ ਤਿਪ ਚੁਕਕਰ ਤੋਪ ਕਰਤ ਚਿਚਿ ਕਿਰਤ ਤਿਪ ਪਿਟ
ਪੇਟ ਤੁਰਤ ਚਿਟ ਰੇਤ ਚਿਟ ਚੇਕਪੁ ਤਿਤਰ ਕਿਰਕ੍ ਤੁਰਤ ਤ੍ਰਿਪਤ ਤੁਰਤ ਪਰਕ ਕੋਕਰ ਕਿਕਰ ਚਿਟ ਕਿਕਰ
ਰੇਤ ਚਿਟ ਤੋਪ ਕੋਕਰ ਚਿਟ ਟਚਿਟ੍ ਕਰਕ ਕਰਤ ਕੋਕਰ ਤੋਪ ਤੁਕ ਕੋਕ ਰੇਤ ਚਿਤ੍ ਕਿਟ ਰੇਤਕ ਪਿਕ
ਟਿਟ ਰੇਤ ਤਿਤਰ ਰੁਕ ਚੁਕਕਰ ਚੇਕਪੁ ਪੁਟ ਰੇਤ ਕਿਟ ਰੇਤਕ ਚਿਟ ਰਿਚ ਕਚਕ ਕਿਰਤ ਚਿਤ੍ ਕੋਕਰ
ਚਿਟ ਕਚਕ ਪੁਟ ਪਰਕ ਕਿਕ ਪੇਟ ਰਿਚ ਤੋਪ ਚੁਕਕਰ ਟਕਰ ਟੋਟਰ ਕੇਕ ਕਰਕ ਕੋਕ ਰੇਚਕ ਕਿਰਤ
ਕਿਰਕ੍ ਕਿਟ ਰੇਤ ਕੋਕ ਚਪਟ੍ ਕਿਰਤ ਤੁਰਤ ਪਿਟ ਕਚਕ ਟਿਟ ਚੇਤਕ ਤੁਰਤ ਤੁਰਤ ਚੇਕਪੁ ਪਰਿਚਤ ਟਿਟ
ਕਿਰਤ ਚਿਚਿ ਪਿਤਰ ਕਚਕ ਪਰਿਚਤ ਟਤੁਕ ਪਰਕ ਰੋਚਕ ਕਚਕ ਚਪਟ੍ ਚੁਕਕਰ ਚਿਤ੍ ਕਿਕ ਪਰਕ ਤਿਤਰ
ਕਿਟ ਕਰਕ ਚਪਟ੍ ਚਪਟ੍ ਤ੍ਰਿਪਤ ਤੁਰਤ ਚਪਟ੍ ਰਿਚ ਕਿਰਤ ਕੋਕ ਰਿਚ ਰੇਤਕ ਰੇਤਕ ਰੁਕ ਤਿਤਰ ਕਟਕ

Home Row Lesson Using Shift Key

ਫ਼ ੜ ੲ ਓ ੜ ਫ਼ ਧ ਧ ਇ ਫ਼ ਓ ੜ ਪ ੲ ਛ ੜ ਫ਼ ੜ ੜ ਨ ੲ ਫ਼ ਉ ਓ ਛ ਓ ਇ
ਠ ਅ ਫ ਓ ਛ ਓ ਇ ਛ ਖ ਉ ਖ ੜ ਇ ਫ ਉ ਮ ਖ ਇ ਛ ਖ ਖ ਥ ਖ ਇ ਥ ਅ ੲ
ਛ ਇ ਅ ਛ ਥ ਠ ਅ ਛ ਫ ਇ ੜ ਫ ਫ ਠ ਮ ਛ ਫ ਠ ਸ ੲ ਛ ਅ ਛ ਮ ੜ ਮ ੜ
ੲ ਖ ਅ ਓ ੜ ਅ ੜ ਥ ਅ ੜ ਫ ਉ ਥ ਅ ੜ ਫ ਇ ਠ ਖ ਓ ੜ ੜ ਇ ਛ ਥ ਇ ਓ
ੜ ੜ ਖ ਅ ਖ ੜ ਖ ਅ ਠ ਛ ੜ ੲ ੜ ਖ ਫ ਅ ਅ ਖ ਇ ਅ ੜ ਖ ਅ ਫ ਖ ੲ ਠ
ਖ ੜ ੲ ਉ ਖ ਅ ਖ ਅ ਫ ਉ ੲ ਓ ੜ ੲ ਛ ਛ ੜ ਅ ਉ ਓ ਉ ੜ ਅ ੜ ਠ ਅ ੜ
ੲ ੲ ਛ ੜ ੲ ਓ ਖ ਖ ਅ ੜ ਫ ਓ ਖ ਛ ਠ ਅ ੲ ੜ ਇ ਫ ਠ ਛ ਅ ਖ ੜ ੜ ਠ
ਅ ਅ ਥ ਖ ੜ ਛ ਓ ਫ ਠ ਠ ਠ ਛ ਥ ਇ ਅ ਫ ੜ ਓ ੲ ੜ ਖ ੲ ਥ ਓ ਖ ੜ ਖ

ਠਓਥ ਛਥਖੜ ਇਫ ਉੜ ਖੜਫਉ ਅਇੜ ਠਛਅਇ ਠਛਖਫ ਠਓਥ ਖੜਫ ਛਥਠ ਫੜ ਖੜਉ ਅਇਉ
ਛਛਠ ਛਥਠ ਖੜਫਉ ਖੜਉ ਖਫਉ ਠਛ ਖੜਉ ਖੜ ੲੇੜ ੲੇੜ ਠਓਥ ਇਫ ਠਓਥ ਖੜਫ ਉਠ ਉੜ
ਖੜਉ ੜਉ ਉਫ ਇਅਫਖ ਖੜਫ ਫਉ ਉਫ ਠਛਖਫ ਟੲਇਖ ਥਖਫ ਠਛਖਫ ਉਠ ਅਇੜ ਠਛਖਫ ਫੜ
ਖੜਫ ਖਫਉ ਅਇੜ ਖੜ ਅਇੜ ਅਇਉ ਖਫਉ ਫੜ ਫੜ ਉਫ ਛਥਖੜ ਓਛਠਥ ਖੜਫ ਠਛ ਠਛਅਇ
ਟੲਇਖ ਫਉ ਖੜਉ ਖੜਉ ਛਥਠ ਖੜਉ ਅਇਉ ਠਓਥ ਉਠ ੲਇਖ ਖਫਉ ਠਛ ਉੜ ਛਥਖੜ ਖੜ
ਛਥਠ ਅਇਉ ਠਛਖਫ ਥਖ ਇਅਫਖ ਅਇ ੲਇਖ ਅਇੜ ਖੜਫਉ ਥਖ ਉੜ ਇਫ ਠਛਅਇ ਥਖ ਥਖਫ
ਅਇਉ ਖੜ ਠਛਖਫ ਛਥਖੜ ਅਇਫ ਓਛਠਥ ੲਇਉਖ ਛਥਠ ਖਫਉ ਖੜ ਉਫ ਖੜਉ ਓਥ ਛਛਠ
ਅਇਫ ਠਛਖਫ ਖੜਫਉ ਅਇਉ ਖੜਫ ਉਫ ਅਇ ਛਥਠ ਫੜ ਖੜਫ ਠਛਖਫ ਅਇਉ ਇਫ ਖੜਫ ਠਓਥ
ਛਥਠ ਖੜ ਉੜ ਫੜ ਓਛਠਥ ੜਉਇ ਖੜ ੲੇਇਖ ੲੇੜ ਠਛਅਇ ਅਇਫ ਛਥਖੜ ਠਛਅਇ ਉੜ ਅਇਫ
ਖੜਉ ੲੇਇਉਖ ੲੇੜ ੲੇੜ ਖੜਉ ਓਛਠਥ ਠਛਖਫ ਇਫ ਠਛ ਅਇੜ ੲੇਇਖ ਫਉ ਓਛਠਥ ਅਇਫ ਖੜ
ਥਖ ਖੜਫਉ ਫਉ ਖਫਉ ਖੜਉ ਠਛ ਠਓਥ ਠਓਥ ਫਉ ਛਥਠ ਫੜ ਖੜਉ ਥਖਫ ਖੜਫ ਇਫ ਅਇਉ
ਠਓਥ ਅਇ ਛਥਠ ਠਛ ਖੜਫ ਅਇ ਠਛਅਇ ਠਛਅਇ ਛਛਠ ਉੜ ਠਛਖਫ ਛਥਠ ਠਓਥ ਖਫਉ ਖੜ
ਓਛਠਥ ਫਉ ਥਖਫ ਅਇੜ ਅਇੜ ਅਇੜ ਛਥਠ ਫਉ ਅਇ ਥਖ ਇਅਫਖ ਠਛਅਇ ਅਇ ਛਥਠ
ਠਛਖਫ ਠਛ ਅਇਉ ੜਉਇ ਥਖਫ ਥਖਫ ਅਇ ਅਇ ਅਇ ਉਫ ੲੇਇਉਖ ਛਥਠ ੲੇੜ ਖੜ ਠਛਖਫ ਖੜ
ਠਛ ਛਥਠ ਫੜ ਖੜਉ ੲੇੜ ਠਛ ਇਅਫਖ ਅਇਉ ਓਥ ਅਇ ਉਫ ਛਥਠ ਉੜ ਓਛਠਥ ਥਖ ੲੇਇਉਖ
ਫੜ ਅਇ ਅਇਉ ਓਥ ਓਛਠਥ ਉੜ ਥਖਫ ਉਰ ਖੜਉ ਖਰਉ ਖੜਫ ਖੜ ਅਇਉ ਫਉ ਉੜ ਠਛਖਫ
ਇਫ ੲੇਇਉਖ ਪੜ ਪੜ ਅਇੜ ੲੇਇਪ ਥਪ ਉਠ ਠਓਥ ਠਓਥ ਓਥ ੲੇਇਪ ਉਠ ਅਇਉ ਉਫ ਠਛਖਫ
ਠਛ ਉਫ ਛਛਠ ਓਛਠਥ ੲੇੜ ਛਛਠ ਓਖ ਠਛਖਫ ਠਛਅਇ ਛਥਠ ਖੜਫ ਓਥ ਫਉ ਓਛਠਥ ਛਥਠ

1st Row (Upper Row) – Practice Lesson without using Shift Key

ਡ ੁ ਥ ੈ ਾ ਗ ਦ ੀ ਦ ੇ ਾ ਦ ਗ ਜ ਥ ੍ ਗ ੈ ਡ ਦ ਜ ੁ ੍ ਹ ਗ ਡ ਾ
ਦ ੁ ਾ ਦ ਥ ਗ ੇ ੈ ੈ ਾ ੇ ੁ ਡ ਗ ਹ ਥ ਦ ੈ ੁ ੈ ਹ ਗ ਹ ਦ ਹ ਦ ਗ
ੁ ੍ ੍ ੁ ੇ ਥ ੍ ੀ ੇ ੈ ੍ ਗ ਾ ਦ ਜ ਗ ੇ ਾ ਾ ਗ ਹ ਹ ਹ ਜ ਥ ਥ ਡ
ਗ ਦ ੈ ਡ ਗ ੀ ਜ ੇ ੍ ਜ ਹ ਹ ਾ ੀ ੁ ੁ ਥ ਜ ੁ ਾ ੇ ਦ ਡ ਗ ੍ ੍ ਡ
ੈ ੁ ਾ ਹ ੇ ੈ ਗ ਾ ਹ ਹ ਹ ੁ ਜ ਦ ਥ ੈ ੇ ੈ ਾ ਦ ਥ ੍ ਗ ਡ ਥ ੇ ੇ
ਡ ੍ ੁ ਗ ਗ ੇ ਦ ਥ ਡ ਗ ਡ ਦ ਹ ੇ ਥ ੁ ਡ ੀ ਗ ਗ ਜ ੍ ੈ ੁ ੇ ਹ ਗ
ਥ ਗ ਦ ਜ ਗ ੇ ੁ ੁ ੍ ਹ ਥ ਦ ੇ ੈ ੁ ੀ ਥ ੈ ੁ ਦ ੀ ਡ ਦ ੈ ੁ ਾ ਥ
ਹ ਜ ਥ ੍ ਥ ਹ ੍ ਾ ੍ ੍ ਡ ੍ ਹ ੇ ੍ ੈ ੇ ਹ ੁ ਗ ੈ ੁ ਗ ੍ ਦ ਜ ਡ

ਬੇਥ ਗਹੁਥ ਜੈ ਡੋਜ ਡੈ ਹੈਦ ਹੈਦ ਦਾਡ ਦਾ ਜੋ ਜੁਹੁਦ ਥੁਡਾ ਹੀ ਥੀ ਦਾਗੀ ਡਾ ਥੇਥ ਡਥੈਦਾ ਦੁ
ਹੁਥੈਜਡ ਜੁਹੁਦ ਡਹਜਗ ਡੋਜ ਥਗਦਾਦੀ ਜੈਦਾਹੁ ਜੈਦਾਹੁ ਦਾਡ ਹੈਦ ਦਾ ਗੀਥ ਦੀ ਗੋ ਗੀਗਹੋ ਦਾ
ਜਦੋਂਦਾ ਦੁ ਹੀ ਜਦੈਥ ਡੈ ਗਹੁਥ ਦਾਡ ਡੋਜ ਦਾਡ ਡੋਜ ਗੋਂਡ ਡਾਗ ਡਹਗੀ ਜੋ ਜਦੋਂਦਾ ਬੇਥ ਜਾਦਾਹੈ ਡਾ
ਹੁ ਜੈਦਾਹੁ ਜੁਹੁਦ ਥੁਡਾ ਹੀ ਗੀਗਹੋ ਡਾਗ ਦੀ ਜੁ ਥੈ ਹੈਦ ਜੈ ਗੀ ਡਾ ਦਾਡ ਦੁ ਦਾ ਡੋਂਗ ਗੀਗਹੋ
ਥੁਡਾ ਹੁਥੈਜਡ ਡਾ ਦੁ ਗਹੁਥ ਡੈ ਦੁ ਦਾ ਦੁ ਡਾ ਜੁਹੁਦ ਥੁ ਦੀ ਡੈ ਦਾ ਡੋਂਗ ਥਗਦਾਦੀ ਗੀ ਹੁਥੈਜਡ
ਦਾਗੀ ਗੀਗਹੋ ਦਾਗੀ ਦਾਗੀ ਜਾਦਾਹੈ ਗਹੁਥ ਦਾਗੀ ਜਾਦਾਹੈ ਥੁਡਾ ਜੈਦਾਹੁ ਜਾ ਹੀਹ ਥੁ ਡਥੈਦਾ ਡੋਂਗ ਡੈ
ਡਾਗ ਜੁ ਹੁਥੈਜਡ ਜਾਦਾਹੈ ਡੋਂਗ ਹੀਹ ਗੋ ਜੁਹੁਦ ਥੁ ਜਦੈਥ ਡਾ ਦੀ ਡੋਜ ਥੀ ਥੈ ਗੈਗ ਜਾਗਾ ਦਾ ਡੋਂਗ
ਜੁ ਥੁ ਦੀ ਹੁਜੋ ਹੈਦ ਜਦੈਥ ਗੀ ਬੇਥ ਦੀ ਦੀ ਗਹੁਥ ਡੈ ਡਾ ਥੀ ਡੋਂਗ ਗੋਂਡ ਹੈਦ ਜੈਦਾਹੁ ਡਹਗੀ
ਗੀਹ ਗਹੁਥ ਗੀਹ ਹੈਦ ਦਾਗੀ ਥੁਡਾ ਗਹੁਥ ਗੋਂਡ ਥਗਦਾਦੀ ਥੁ ਥੈ ਗੀ ਗੀ ਜਾਦਾਹੈ ਜਾਗਾ ਡੈ ਜਾਗਾ ਡਾ
ਗੀਗਹੋ ਦਾਡ ਜਾਦਾਹੈ ਦੁ ਹੀ ਜਾ ਹੁਜੋ ਗੀ ਦਾਗੀ ਡਹਗੀ ਜੈ ਜੋ ਥਹਾਦਜੇ ਡੈ ਹੈਦ ਡੋਜ ਗੋ ਥੁਡਾ
ਹੁਜੋ ਡਹਜਗ ਗੀਗਹੋ ਥੈ ਜਾ ਗੀਹ ਬੇਥ ਜਦੈਥ ਥੀ ਡਾ ਡਾਗ ਦੀ ਗੈਗ ਗੈਗ ਥਗਦਾਦੀ ਹੀ ਜਦੋਂਦਾ
ਜਾਦਾਹੈ ਦੁ ਦੁ ਦੁ ਹੁਥੈਜਡ ਡੈ ਬੇਥ ਜਦੈਥ ਜਦੋਂਦਾ ਥੁਡਾ ਗੈਗ ਹੁ ਦੀ ਦੀ ਡੋਜ ਜੈਦਾਹੁ ਹੈ ਡੈ ਹੀ ਗੋ
ਜਾਗਾ ਜੈਦਾਹੁ ਹੁ ਗੋਂਡ ਜਦੈਥ ਬੇਥ ਗੀਗਹੋ ਜੋ ਦਾਡ ਥੀ ਗਹੁਥ ਥੁ ਜਦੈਥ ਜਾਦਾਹੈ ਦੀ ਡਾ ਹੀ ਗੋਂਡ
ਜਾ ਦਾਡ ਹੈਦ ਡਾ ਦਾ ਜਾਗਾ ਜੁ ਗੀਥ ਥਗਦਾਦੀ ਜੁ ਹੈ ਜੈਦਾਹੁ ਗੀਥ ਬੇਥ ਗੈਗ ਡਹਜਗ ਗੋਂਡ ਜੁਹੁਦ
ਹੈਦ ਗੀਥ ਜੋ ਜਦੈਥ ਥਗਦਾਦੀ ਥੀ ਬੇਥ ਹੁਥੈਜਡ ਗੀਗਹੋ ਥਗਦਾਦੀ ਡਹਜਗ ਗਹੁਥ ਜਗਥਹੀ ਜਾਗਾ ਥੁ
ਦਾਡ ਜੁ ਜਦੈਥ ਗੀਥ ਥੁ ਜਗਥਹੀ ਦਾ ਜਦੋਂਦਾ ਡੋਜ ਗੈਗ ਜੈ ਡਥੈਦਾ ਹੈਦ ਥੁ ਜਗਥਹੀ ਜੋ ਗੋ ਜਦੈਥ

1st Row (Upper Row) – Practice Lesson using Shift Key

ਊ ਸ ਆ ਐ ਢ ਧ ਸ ਧ ਦ ਫ਼ ਈ ਆ ਦ ਫ਼ ਭ ਦ ਈ ਊ ਸ ਘ ਦ ਐ ਭ ਘ ਸ ਧ ਸ
ਐ ਦ ਦ ਆ ਸ ਈ ਦ ਊ ਸ ਘ ਦ ਭ ਈ ਈ ਆ ਜ਼ ਘ ਈ ਦ ਸ ਔ ਦ ਭ ਊ ਭ ਦ
ਭ ਈ ਊ ਭ ਦ ਭ ਊ ਭ ਜ਼ ਧ ਸ ਫ਼ ਫ਼ ਸ ਧ ਫ਼ ਆ ਭ ਭ ਜ਼ ਭ ਦ ਧ ਪ ਭ ਦ ਫ਼
ਔ ਫ਼ ਊ ਫ਼ ਫ਼ ਭ ਆ ਈ ਈ ਧ ਫ਼ ਘ ਧ ਧ ਭ ਐ ਭ ਦ ਢ ਐ ਦ ਘ ਆ ਦ ਦ ਸ
ਐ ਆ ਘ ਢ ਭ ਢ ਊ ਸ ਘ ਆ ਭ ਢ ਧ ਸ ਈ ਸ ਊ ਧ ਔ ਈ ਘ ਈ ਢ ਧ ਆ ਔ
ਢ ਔ ਭ ਸ ਭ ਭ ਔ ਔ ਧ ਊ ਐ ਸ ਭ ਭ ਘ ਸ ਘ ਫ਼ ਈ ਊ ਦ ਸ ਐ ਈ ਧ ਆ
ਭ ਆ ਦ ਘ ਐ ਊ ਆ ਭ ਭ ਢ ਭ ਧ ਊ ਘ ਫ਼ ਸ ਊ ਧ ਢ ਫ਼ ਐ ਭ ਘ ਦ ਘ ਊ
ਔ ਢ ਈ ਭ ਆ ਭ ਔ ਦ ਧ ਊ ਸ ਈ ਧ ਆ ਸ ਔ ਸ ਭ ਔ ਊ ਫ਼ ਫ਼ ਭ ਢ ਸ ਈ

ਔਧ ਐਘਫ਼ ਘਫ਼ਉਈ ਫ਼ਉ ਐਦ ਘਫ਼ ਉਭਈ ਘਭਈ ਦਢਫ਼ ਆਉ ਦਢਝਧ ਦਢਝਧ ਝਦ ਔਭਧ ਦਢਫ਼
ਐਘਫ਼ ਝਦ ਘਫ਼ ਆਧ ਈਉਿਭ ਘਫ਼ਉਈ ਔਆਉ ਔਧ ਝਦ ਝਧਫ਼ ਐਘਫ਼ ਈਉਿਭ ਦਢਫ਼ ਝਧਫ਼ ਦਢਫ਼
ਈਉਿਭ ਐਝ ਢਉਿਦਘ ਉਿਭਧ ਢਝਧ ਆਈ ਉਭਈ ਭਝ ਆਧ ਧਫ਼ਐ ਔਆਉ ਦਢਫ਼ ਘਭਈ ਢਝਫ਼ ਉਭਈ
ਢਉਿਦਘ ਘਫ਼ਉਈ ਈਉਿਭ ਔਆਉ ਐਦ ਢਝਧ ਘਫ਼ ਢਉਿਦਘ ਆਈ ਉਭਈ ਘਫ਼ ਉਭਈ ਦਢਫ਼ ਝਦ
ਉਿਭਈ ਉਭਈ ਦਢਧਫ਼ਭ ਭਝ ਧਫ਼ਐ ਆਈ ਉਿਭਈਆਝ ਝਦ ਉਿਭਈਆਝ ਦਢਧਫ਼ਭ ਉਿਭਈਆਝ ਝਦ ਢਝਧ
ਝਦ ਢਉਿਦਘ ਉਿਭਧ ਐਝ ਝਦ ਔਆਉ ਦਢਫ਼ ਦਘਆ ਝਧਫ਼ ਝਦ ਘਭਈ ਉਿਭਧ ਔਭਧ ਧਫ਼ਐ ਝਦ
ਝਦ ਐਹ ਘਭਈ ਐਘਫ਼ ਆਈ ਝਧਫ਼ ਉਿਭਈਆਝ ਦਘਆ ਔਭਧ ਝਧਫ਼ ਫ਼ਉ ਔਭਧ ਔਢ ਦਘਆ ਔਆਉ
ਔਭਧ ਝਦ ਈਉਿਭ ਐਝ ਆਈ ਫ਼ਉ ਝਦ ਈਝ ਔਭਧ ਔਢ ਆਧ ਈਝ ਔਢ ਦਢਝਧ ਆਧ ਦਢਧਫ਼ਭ
ਆਈ ਈਝ ਔਭਧ ਧਫ਼ਐ ਆਉ ਘਭਈ ਝਦ ਘਭਈ ਆਉ ਈਝ ਈਉਿਭ ਆਧ ਔਭਧ ਢਝਧ ਝਧਫ਼ ਆਉ
ਉਿਭਧ ਈਹ ਘਭਈ ਦਘਆ ਐਢ ਉਿਭਧ ਫ਼ਝਫ਼ ਉਿਭਈ ਝਦ ਆਧ ਉਿਭਧ ਔਧ ਔਧ ਘਭਈ ਔਢ ਧਫ਼ਐ
ਢਉਿਦਘ ਔਆਉ ਢਉਿਦਘ ਆਈ ਐਘਫ਼ ਧਫ਼ਐ ਦਢਧਫ਼ਭ ਔਆਉ ਈਉਿਭ ਔਆਉ ਘਫ਼ਉਈ ਐਝ ਈਉਿਭ
ਆਧ ਦਢਫ਼ ਈਹ ਔਢ ਝਦ ਢਝਫ਼ ਢਝਫ਼ ਔਧ ਉਿਭਧ ਦਢਝਧ ਐਢ ਝਧਫ਼ ਈਉਿਭ ਈਉਿਭ ਈਉਿਭ
ਈਹ ਔਧ ਦਘਆ ਦਘਆ ਫ਼ਉ ਆਈ ਧਫ਼ਐ ਈਹ ਆਈ ਦਢਝਧ ਘਫ਼ਉਈ ਢਝਧ ਔਆਉ ਐਘਫ਼ ਔਆਉ
ਔਧ ਐਘਫ਼ ਉਭਈ ਦਢਧਫ਼ਭ ਦਘਆ ਦਢਫ਼ ਆਉ ਔਭਧ ਆਉ ਝਦ ਔਢ ਆਈ ਘਫ਼ ਉਿਭਧ ਢਝਧ ਘਫ਼
ਢਝਧ ਭਝ ਈਉਿਭ ਘਭਈ ਝਧਫ਼ ਈਉਿਭ ਝਧਫ਼ ਦਢਫ਼ ਆਧ ਦਢਫ਼ ਆਉ ਉਿਭਧ ਦਢਧਫ਼ਭ ਔਢ ਘਭਈ
ਘਫ਼ ਝਦ ਔਧ ਆਉ ਘਭਈ ਘਫ਼ਉਈ ਆਧ ਦਢਧਫ਼ਭ ਔਧ ਈਉਿਭ ਢਝਫ਼ ਦਢਝਧ ਦਢਫ਼ ਝਧਫ਼ ਢਝਫ਼
ਦਢਧਫ਼ਭ ਝਧਫ਼ ਦਢਧਫ਼ਭ ਔਭਧ ਈਉਿਭ ਈਹ ਘਭਈ ਭਝ ਭਝ ਝਦ ਘਫ਼ਉਈ ਘਭਈ ਝਦ ਔਆਉ ਝਦ
ਦਢਫ਼ ਉਭਈ ਘਫ਼ਉਈ ਝਧਫ਼ ਦਢਧਫ਼ਭ ਉਭਈਆਝ ਈਹ ਆਧ ਔਆਉ ਫ਼ਉ ਆਉ ਭਝ ਘਫ਼ ਔਢ ਦਘਆ

2nd Row (Bottom Row) – Practice Lesson without using Shift Key

ੰ ੰ ਨ ੰ ਯ . , ਲ , ਯ ਵ , ਵ ਯ ਨ ੰ ੰ ਲ ਮ ਸ ੰ ਨ ਸ
ਲ ਸ ਲ ਸ ਲ . ਨ ਵ ਸ ਯ ਵ ਮ ਸ ੰ ਸ . ਵ , ੰ ਮ ਲ ੰ ੰ
। , . ੰ , ਵ ਲ . ੰ , ਲ ਵ ਯ ੰ ਸ ੰ ਯ . ਲ ਨ ਮ . ਯ ਨ , ੰ ,
, ਯ ਵ . ਨ ਵ ੰ ਯ ਲ ਲ ਸ ੰ , ੰ ਲ ੰ ਯ ਵ ਵ ਮ . ਮ ਸ ਯ ਨ
ਲ ਮ , ੰ ਮ ਲ ਸ ਸ ਸ ਸ ਯ ੰ , ੰ ਸ ਮ , ੰ ਲ ਯ ਲ ੰ ਵ . ਲ
ਨ ੰ ਸ ਸ ੰ ਨ ਯ ਨ ਲ ਨ . ਵ , ਮ , ਲ ਵ . ਵ ੰ ੰ ਯ ੰ ਵ , ਨ
ਮ ਯ ੰ ਨ ਸ ਯ ਨ ਮ ੰ , ੰ ਵ ਨ ਮ ਲ ਮ , ਸ ਸ ਨ ਸ ਮ , , ੰ
ਮ ੰ ਨ ਸ ਵ ਮ ਯ ੰ ਵ ੰ ਵ ਵ ਵ ਲ ਨ ੰ ੰ ੰ . ਨ ੰ ਮ , ਲ ,

ਜਦੈਬ ਡੋਂਗ ਦਾਗੀ ਹੈ ਡਬੈਦਾ ਬੀ ਗੀਹ ਜਦੋਂਦਾ ਗੋਂਡ ਦਾਗੀ ਜਾਗਾ ਦਾਗੀ ਗੋਂਡ ਬੁ ਦੁ ਜੈ ਬੈ
ਜਗਬਹੀ ਗੀਗਹੋਂ ਦਾਡ ਗੀ ਜਾ ਗੋਂ ਜੈ ਬੈ ਜਾ ਡਹਗੀ ਜੈ ਡਬੈਦਾ ਬੀ ਗੀ ਜਾਦਾਹੈ ਡਹਜਗ
ਬੈ ਹੀ ਡੋਂਜ ਜਦੈਬ ਹੈਦ ਡੋਂਗ ਡਾਹ ਡੋਂਜ ਜੈਦਾਗੁ ਡੈ ਜਾਗਾ ਗੈਗ ਬਹਾਦਜੈ ਡਾ ਜਾ ਹੁਜੋਂ
ਗਗੁਬ ਗੀਬ ਡੈ ਹੁਬੈਜਡ ਬੈ ਜੁਗੁਦ ਗੋਂ ਗੀਹ ਹੁਜੋਂ ਗੈਗ ਬੁਡਾ ਜਦੋਂਦਾ ਗਗੁਬ ਬਗਦਾਦੀ ਡੋਂਗ
ਹੁਬੈਜਡ ਡੋਂਜ ਡਾ ਬੋਂਬ ਡੋਂਜ ਡਹਜਗ ਬੁਡਾ ਡਾ ਡਹਗੀ ਗੈਗ ਦਾ ਗੋਂ ਡਹਗੀ ਹੈ ਜਾਦਾਹੈ
ਗਗੁਬ ਜਾਗਾ ਬੁਡਾ ਜਦੋਂਦਾ ਜਾਗਾ ਹੈਗ ਡਬੈਦਾ ਡੋਂਗ ਜਾ ਹੀ ਜਾ ਹੈ ਜੋਂ ਜੈ ਬੋਂਬ ਡਾਗ ਹੀ
ਹੁਬੈਜਡ ਦਾ ਗੀ ਜੈ ਡਾ ਬੈ ਗੋਂ ਡਬੈਦਾ ਬੀ ਗੋਂ ਜੋਂ ਗੀਬ ਜਾਦਾਹੈ ਜਦੋਂਦਾ ਬੀ ਗਗੁਬ ਜਾਗਾ
ਹੈ ਹੈਦ ਜੋਂ ਜਾਦਾਹੈ ਗੈਗ ਜਦੋਂਦਾ ਗੋਂਡ ਦਾਗੀ ਜੁ ਦਾਗੀ ਗੀਬ ਜੁ ਗੀਗਹੋਂ ਬੀ ਗੀ ਦੁ ਜੈ
ਡਹਜਗ ਹੈਦ ਜਾਗਾ ਹੁਬੈਜਡ ਜੋਂ ਡਾਗ ਬਹਾਦਜੈ ਹੀ ਦਾਗੀ ਬੋਂਬ ਗਗੁਬ ਡਾ ਜਗਬਹੀ ਜਦੋਂਦਾ
ਹੈਦ ਜੁਗੁਦ ਜ ਜ ਹੁ ਡਹਜਗ ਜੈਦਾਗੁ ਦਾਡ ਜ ਡਬੈਦਾ ਜਦੋਂਦਾ ਬਗਦਾਦੀ ਬੈ ਡਬੈਦਾ ਹੈ ਬੈ
ਜੈ ਜੁ ਹੈ ਹੁਜੋਂ ਜੋਂ ਬੁ ਹੁਬੈਜਡ ਜਾ ਜੈ ਬੈ ਗੀਹ ਡਾ ਜੈਦਾਗੁ ਹੀ ਜੁ ਜਦੈਬ ਡਾਹ ਡੋਂਗ
ਦਾਗੀ ਡੋਂਗ ਬੀ ਗੀਗਹੋਂ ਬੁ ਜਾ ਜਾ ਬੁਡਾ ਗੋਂ ਗੀ ਜਾਗਾ ਜੈਦਾਗੁ ਦਾਡ ਜਾ ਹੁਜੋਂ ਬਹਾਦਜੈ
ਜੁਗੁਦ ਜੈਦਾਗੁ ਗਗੁਬ ਜਦੈਬ ਡਹਗੀ ਦਾ ਗੋਂਡ ਡਾ ਡਹਗੀ ਜੁਗੁਦ ਜਾਗਾ ਜੋਂ ਗੀਗਹੋਂ ਬੀ
ਜਾਗਾ ਹੁਜੋਂ ਜਗਬਹੀ ਗੋਂ ਦਾ ਗੋਂ ਗੈਗ ਜਾਗਾ ਡਹਜਗ ਬੀ ਜੈਦਾਗੁ ਦਾਗੀ ਗੀਬ ਹੁਬੈਜਡ ਡੋਂਗ
ਗਗੁਬ ਜੋਂ ਡਾਗ ਡਹਜਗ ਹੀਹ ਜੁ ਗਗੁਬ ਬੋਂਬ ਗੈਗ ਜਦੈਬ ਬਹਾਦਜੈ ਗੀਗਹੋਂ ਗੀ ਹੈਦ ਦੀ
ਬੋਂਬ ਬੁਡਾ ਡੋਂਜ ਡੋਂਗ ਹੀ ਬਹਾਦਜੈ ਡਹਜਗ ਹੈ ਗੀਬ ਡੈ ਹੁਜੋਂ ਹੁਬੈਜਡ ਹੀਹ ਜਦੋਂਦਾ ਡੋਂਜ
ਜਾ ਡਾ ਬਹਾਦਜੈ ਗੋਂਡ ਬੋਂਬ ਗੋਂਡ ਗਗੁਬ ਦੁ ਹੀਹ ਡਾਗ ਹੈਦ ਦਾਡ ਹੁਜੋਂ ਡੋਂਜ ਡੋਂਗ ਗੋਂਡ ਗੁ
ਹੁਬੈਜਡ ਜਗਬਹੀ ਡੋਂਗ ਹੈ ਡੋਂਗ ਡਹਜਗ ਜੁ ਗੋਂਡ ਡੈ ਦਾਗੀ ਦੀ ਡਬੈਦਾ ਦਾ ਗੀਗਹੋਂ ਬਹਾਦਜੈ

2nd Row (Bottom Row) – Practice Lesson using Shift Key

3rd Row (Numeric Row) – Practice Lesson using Shift Key

Characters with RIGHT ALT Key

Alt + b	Alt + h	Alt + k	Alt + i	Alt + p	Alt + [
ੳ	ਫ਼	ਖ਼	ਗ਼	ਜ਼	ੜ

Characters with LEFT ALT Key

Alt + 33	Alt + 34	Alt + 37	Alt + 39	Alt + 0145	Alt + 43	Alt + 47	Alt + 58	Alt + 59	Alt + 63	Alt + 92
!	"	%	'	‘	+	/	:	;	?	\

Appendix – V

COMMONLY USED FULL FORMS

Acronym		Full Form
	:	ARTIFICIAL INTELLIGENCE
ARPANET	:	ADVANCED RESEARCH PROJECT AGENCY NETWORK
BMP	:	BITMAP PICTURE
bpi	:	BITS PER INCH
CD	:	COMPACT DISK
CPU	:	CENTRAL PROCESSING UNIT
CSS	:	CASCADING STYLE SHEET
CUI	:	CHARACTER USER INTERFACE
DMP	:	DOT MATRIX PRINTER
DOS	:	DISK OPERATING SYSTEM
DRAM	:	DYNAMIC RANDOM ACCESS MEMORY
DSL	:	DIGITAL SUBSCRIBER LINE
DTP	:	DESKTOP PUBLISHING
DVD	:	DIGITAL VIDEO DISK
COMMERCE	:	ELECTRONIC COMMERCE
EEPROM	:	ELECTRONICALLY ERASABLE PROGRAMMABLE READ ONLY MEMROY
EMAIL	:	ELECTRONIC MAIL
EPROM	:	ERASABLE PROGRAMMABLE READ ONLY MEMROY
FTP	:	FILE TRANSFER PROTOCOL
GB	:	GIGABYTE
GIF	:	GRAPHICS INTERCHANGE FORMAT
GUI	:	GRAPHICAL USER INTERFACE
HTML	:	HYPER TEXT MARKUP LANGUAGE
IAP	:	INTERNET ACCESS PROVIDER
IBM	:	INTERNATIONAL BUSINESS MACHINE
	:	INTEGRATED CIRCUIT
ISDN	:	INTEGRATED SERVICE S DIGITAL NETWORK
ISP	:	INTERNET SERVICE PROVIDER
	:	INFORMATION TECHNOLOGY
JPEG	:	JOINT PHOTOGRAPHIC EXPERT S GROUP
KB	:	KILOBYTE
MB	:	MEGABYTE
MIDI	:	MUSICAL INSTRUMENT DIGITAL IDENTIFIER
MODEM	:	MODULAT O R DEMODULAT OR
MPEG	:	MOVING PICTURE EXPERT GROUP
MROM	:	MASKED READ ONLY MEMROY
NIC	:	NETWORK INTERFACE CARD
PB	:	PETABYTE
PC	:	PERSONAL COMPUTER
PNG	:	PORTABLE NETWORK GRAPHICS
POP	:	POST OFFICE PROTOCOL
PROM	:	PROGRAMMABLE READ ONLY MEMROY
RAM	:	RANDOM ACCESS MEMORY
ROM	:	READ ONLY MEMORY
RTF	:	RICH TEXT FORMAT
SERP	:	SEARCH ENGINE RESULT PAGE
SMTP	:	SIMPLE MAIL TRANSFER PROTOCOL
SRAM	:	STATIC RANDOM ACCESS MEMORY
TB	:	TERABYTE
TCP/IP	:	TRANSMISSION CONTROL PROTOCOL/INTERNET PROTOCOL
ULSI	:	ULTRA LARGE SCALE INTEGRATED CIRCUIT
UPS	:	UNINTERRUTIBLE POWER SUPPLY
URL	:	UNIFROM RESOURCE LOCATOR
USB	:	UNIVERSAL SERIAL BUS
VLSI	:	VERY LARGE SCALE INTEGRATED CIRCUIT
WWW	:	WORLD WIDE WEB
WYSIWYG	:	WHAT YOU SEE IS WHAT YOU GET

Appendix – VI
COMMONLY USED SHORTCUT KEYS
(MS WORD)

Shortcut Keys	Used for
Ctrl+A	Select All
Ctrl+B	Bold the selected text
Ctrl+C	Copy the selected contents
Ctrl+D	Opens the Font Dialog Box
Ctrl+E	Center Align text
Ctrl+F	Find text
Ctrl+G	Goto line/page no etc.
Ctrl+H	Replace text
Ctrl+I	Italic the selected text
Ctrl+J	Justify paragraph
Ctrl+K	Create Hyperlink for the selected text
Ctrl+L	Left Align the paragraph
Ctrl+M	Increase Indent
Ctrl+N	Create a New File
Ctrl+O	Open Existing File
Ctrl+P	Print File
Ctrl+Q	Clear Indents and Tabs
Ctrl+R	Right Align the text
Ctrl+S	Save File
Ctrl+T	Increase Hanging Indent
Ctrl+U	Underline the selected contents
Ctrl+V	Paste the contents from the clipboard
Ctrl+W	Close File
Ctrl+X	Cut the selected contents
Ctrl+Y	Redo the last action (if possible)
Ctrl+Z	Undo the last operation
Ctrl+1	Single Line Spacing
Ctrl+2	Double Line Spacing
Ctrl+5	1.5 Line Spacing
Ctrl+]	Increase Font Size
Ctrl+[	Decrease Font Size
Ctrl+Shift+C	Copy the Formats of selected text
Ctrl+Shift+V	Paste the copied Formats on selected text
F3	Change Case
F7	Spelling and Grammar Check
Alt+F4	Close Program

COMMONLY USED SHORTCUT KEYS
(MS POWERPOINT)

Shortcut Keys	Used For
Alt + A	Go to the Animations tab
Alt + F	Open the File tab menu
Alt + F2 or F12	Open the Save As dialog box
Alt + G	Open the Design tab
Alt + H	Go to the Home tab
Alt + K	Go to the Transitions tab
Alt + N	Open the Insert tab
Alt + Q	Directs to the "Tell me what you want to do" box
Alt + R	Go to the Review tab
Alt + S	Go to the Slide Show tab
Alt + W	Go to View tab
Alt + X	Go to the Add- ins tab
Alt + Y	Go to the Help tab
Alt or F10	Turn the key tips to 'on' or 'off'
Ctrl + A	Select all the objects on an active slide
Ctrl + Alt + V	Open the Paste Special dialog box
Ctrl + B	Toggle bold on the selected text
Ctrl + C	Copy the selected text, object, or selected slide
Ctrl + D	Duplicate the selected object or a slide
Ctrl + E	Center align the selected text
Ctrl + F	Search in a presentation or use Find and Replace
Ctrl + F1	Show or hide the ribbon
Ctrl + F2	Print Preview View
Ctrl + I	Toggle italics on the selected text
Ctrl + J	Justify the selected text
Ctrl + K	Insert a hyperlink
Ctrl + L	Left align the selected text
Ctrl + M	Insert a new slide
Ctrl + N	Create a new presentation document
Ctrl + O	Open an existing presentation document
Ctrl + P	Annotate using a Pen tool while playing the slideshow
Ctrl + Q	Save and close a presentation
Ctrl + R	Right align the selected text
Ctrl + S	Save a presentation
Ctrl + T	Display the Font dialog box after text or object is selected
Ctrl + U	Add or remove underline to selected text
Ctrl + V	Paste the selected text, object, or slide
Ctrl + W or Ctrl + F4	Close a presentation
Ctrl + X	Cut the selected text, object, or slide
Ctrl + Y	Redo an action
Ctrl + Z	Undo an action
Delete	Delete the selected text, object, or slide
Esc	End the slideshow
F5	Play the presentation from the start
F7	Check for spellings
Home	Go back to the beginning of the slide
N or Page Down	Move to the next slide while playing the slideshow
P or Page Up	Return to the previous slide while playing the slideshow
Shift + F5	Play the presentation from the current slide

COMMONLY USED SHORTCUT KEYS
(MS EXCEL)

Shortcut Keys	Used for
Ctrl + A	Select the entire worksheet. If the cursor is currently placed within a table, press once to select the table, press one more time to select the whole worksheet.
Ctrl + B	Bold Text of Selected Cell/Cells
Ctrl + C	Copy the contents of the selected cells to Clipboard.
Ctrl + D	Copy the contents and format of the first cell in the selected range into the cells below. If more than one column is selected, the contents of the topmost cell in each column will be copied downwards.
Ctrl + F	Display the "Find" dialog box.
Ctrl + F1	Show / hide the Excel Ribbon.
Ctrl + G	Open the "Go to" dialog. Pressing F5 displays the same dialog.
Ctrl + N	Create a new workbook.
Ctrl + O	Open an existing workbook.
Ctrl + P	Open the "Print" dialog.
Ctrl + S	Save the active workbook.
Ctrl + T	"Convert selected cells to a table.
Ctrl + V	Paste contents of the Clipboard into the selected cell(s).
Ctrl + W	Close the active workbook.
Ctrl + X	Cut the contents of the selected cells to Clipboard.
Ctrl + Y	Repeat (Redo) the last action, if possible.
Ctrl + Z	Undo last action.
Ctrl + 1	Open the "Format Cells" dialog.
Ctrl + `	Toggle between displaying cell values and formulas.
Ctrl + ;	Enter the current date.
Ctrl + Shift + ;	Enter the current time
F2	Edit the current cell.
F4	Cycle through various combinations of formula reference types. Place the cursor within a cell and hit F4 to get the needed reference type: absolute, relative or mixed
F12	Displays the Save as dialog box.
Home	Return to the 1st cell of the current row in a worksheet.
Tab	Autocomplete the function name.
Ctrl + End	Move to the last used cell of the current worksheet
Ctrl + Home	Move to the beginning of a worksheet
Ctrl + PgDown	Switch to the next worksheet
Ctrl + PgUp	Switch to the previous worksheet
Alt + Enter	In cell editing mode, enter a new line (carriage return) into a cell.
Ctrl + Space	Select the entire column.
Shift + Space	Select the entire row.