

UNIT 6

WEB TECHNOLOGY I

6.1 Introduction to Web Development

Web development broadly refers to the tasks associated with development websites for hosting via intranet or the internet. The web development can range from developing a static page to a complex web-based application e-commerce, and social network services. The web development process includes we design, web content development, web engineering, client liaison, client-side/server-side scripting, web server network, security configuration, and among other tasks.

There are some different types of web developers, each of which focuses on a different aspect of the creation of a website. To understand what a web developer is it is crucial to know that the three main types of developers are:

1. Front-End Developer
2. Back-End Developer
3. Full -Stack Developer

Front-End Developer:

A front-end developer is someone who takes a client or design team's website design and writes the code needed to implement it on the web. Front-end web development, also known as client-side development is the practice of producing HTML, CSS and JavaScript for a website or Web Application so that a user can see and interact with them directly. The challenge associated with front end development is that the tools and techniques used to create the front end of a website change constantly and so the developer needs to constantly be aware of how the field is developing.

The objective of designing a site is to ensure that when the users open up the site, they see the information in a format that is easy to read and relevant. This is further complicated by the fact that users now use a large variety of devices with varying screen sizes and resolutions thus forcing the designer to take into consideration these aspects when designing the site. They need to ensure that their site comes up correctly in different browsers (cross-browser), different operating systems (cross-platform) and different devices (cross-device), which requires careful planning on the side of the developer.

Back-End Developer:

A back-end developer is someone who is responsible for server-side programming, it includes developing server-side application logic as well as its integration with the front-end. Back-end developers usually write web services and APIs used by front-end developers and mobile application developers.

Full-Stake Developer

Full Stack Developer is an engineer who works on both client-side and server-side of the software application. This type of developer works on the Full Stack of a software application meaning Front end development, Back-end development, Database, Server, API, and version controlling systems. Hence, the name "Full Stack" Developer.

Full stack developer translates user requirements into the overall architecture and implement the new systems. A Full-Stack Developer doesn't necessarily master all technologies. However, the professional is expected to work on the client as well as server sides and understand what is going on when developing an application. He or she should have a genuine interest in all software technologies.

Introduction of the Internet

The Internet is a network of networks. Millions of computers all over the world are connected through the Internet. Computer users on the Internet can connect with one another anywhere in the world. If the computer is connected to the Internet, one can connect to millions of computers.

On the Internet a huge resource of information is accessible to people across the world. Information in every field starting from education, science, health, medicine, history geography to business, news can be retrieved through the Internet. Once can also download programs and software packages from the Internet. Due to the tremendous information resources the Internet can provide, It is indispensable to every organization and personal activity.

Some of the popular services of the Internet are:

E-mail: Sending and receiving mail electronically.

File Transfer: Transferring files from one computer to another.

WWW (World Wide Web): Retrieving information residing on the Internet servers in the form of websites.

The development of the Internet started, when the US defense department set up the ARPANET (Advanced Research Project Agency Network) to have a failure proof communication network for the defense department of the US. This architecture was later adopted by the educational institutes for exchange of views among research scholars and then it was thrown open to the public. Since, 1994, the Internet has grown by leaps and bounds, driven by cheaper cost, easier to use and increase in information.

Uses of the Internet

Web page:

Web page is the collection of information that is stored in the websites. The WWW consists of a huge collection of documents with related web site called web page. Web page provide large amount of information of related website. Simply saying, the web page is the electronic document or softcopy that contains a collection of related information found on the internet.

A web page is developed by using HTML (Hypertext Markup Language). It enables us to embed a hyperlink in the document. Using this hyperlink, the user can jump from one web page to another.

Web site:

Web site is the collection of web page created by organization, universities, government agencies, and person to provide information regarding them like: www.ekantipur.com. Each and every web site has its own web address called internet address (Web site address). After connecting to the internet, we have to search any information by using related website address.

6.2 Web Browsers and Search Engines

Web Browser

Web browser is an application software used to view HTML document with in WWW and browsers are stored in the user's computer. It is use to send and receive data from server that provides webpage. It enables a computer to download and search documents containing text, picture, audio, video etc. located on the computer network. When the web browsers request to the web server then the server provides the proper response to the client in their computer's. Some of the popular browsers are Google Chrome, Internet Explorer, Mozilla Firefox, safari, Netscape Navigator, Opera mini and Lynx.

Browsers are two types:

- Graphical Browser
- Text Browser

Search Engines

A search engine is a web-based tool design to search for information on the WWW. The search results are usually presented in a list and are commonly called bits. The information may consist of web page image and other type of file. Some search engine also be available in the database or open directories unlike web directories which are maintain by human editors. Search engine operate automatically when the user give input. It collects and organizes content from all over the Internet.

Some of the popular search engines used are google.com, yahoo.com, webcrawler.com, altavista.com, excite.com, bring.com.

6.3 Overview of Various Internet & Web Technologies

Internet technology refers to devices, software, hardware and protocols used to connect computers in order to send and receive data and information from one computer to another. It widely includes LANs, WANs, bridges, switches, routers, networks and so on. There are number of career option in this field. Some of the career options are: Computer Networks Architect, Network/System Administrator, IT manager, Network Support Specialist and Web Developer. Today almost 1.5 billion people use the internet, so knowledge of internet and web technologies helps you to grow in this competitive world.

Web Services is a new model for e-business that is expected to change the way business applications are developed and interoperate. A Web Service is a self-describing, self-contained, modular application accessible over the web. The web experience is run by three main technologies. The three listed technologies are the most popular technologies:

HTML: It stands for Hypertext Markup Language. This is used to view the text, images, video etc. on the page.

CSS: It stands for the Cascading Style Sheet. This is used to give the style to the HTML pages. This is also used to make the website responsive.

Java script: This is scripting language and used to validate the user inputs. It is also used to create animation on the page.

6.4 Content Management System (CMS)

A content management system (CMS) is an interface that allows users to publish content directly to the Web. A content management system provides a simple, accessible website interface that can be used to add content to a page in a highly structured manner. CMS allows users to create, edit and publish content from anywhere and at any time. Because content is added to the CMS server, the operational aspects of the CMS are not installed on user's personal computers.

Content management systems (CMS) allow multiple users to share information. Generally, a CMS system allows users to create, modify, archive, search, and remove data from an organized database. The data objects managed by CMS may include documents, spreadsheets, database records, digital images and digital video sequences. A CMS typically includes tools for format management, revision and/or access control, along with tools for document indexing searching and retrieval.

Advantages of CMS

- It is simple to use & customizable.
- It supports advance data management.
- Modification, updating and maintenance can be easily done.
- There are various free templates to choose and very easy to customize.
- You can create a website within an hour.
- You can build a blog, informational sites, or online store site quickly and easily.
- You don't need to code much more so non-technical user can easily use it.

6.5 HTML

HTML is a scripting language used to create hypertext documents. **Hypertext** is simply a piece of text that works as a link. **Markup Language** is a way of writing layout information within documents. Before HTML, it was SGML (Standard Generalized Markup Language). HTML is a collection of platform-independent styles (indicated by markup Tags) that defines the various components of a worldwide web documents. We can use any type of text editors (like Notepad, Edit pad...) for [HTML](#) coding. Tim Berner Lee White invented HTML for practical physics at European Laboratory, Switzerland in 1990.

Use of HTML: - HTML is used for web designing. A web page is a text file that contains HTML codes (tags). HTML documents are saved with .htm or .html extensions. It has various versions like HTML 2.0, HTML 3.0, HTML 3.2, HTML 4.0, HTML 4.01, HTML5.0 etc.

1. It is used for basic layout creating or designing the web page.
2. Without HTML, the World Wide Web will not exit.
3. It allows embedding text, image, multimedia (audio/video) and links to other documents and the web pages.

4. It provides a means to create structured document by using paragraph, character formatting, links and lists.
5. It embeds scripts such as CSS, JavaScript, which affect the behavior and design of the web page.

STEPS FOR DEVELOPING WEB PAGE

- * Write HTML codes by using any text editor such as notepad.
- * Save the file using extension .html or .htm
- * Open the html file in web browser such as MS Internet Explorer.

Advantages of using HTML

1. It is highly flexible and user friendly.
2. It is an open technology that supports on almost all the Web browsers and platforms like MS-Windows, Macintosh, and UNIX etc.
3. It is efficient and reliable. You can create the Web page in order to advertise and promote products and services.
4. It is easily understandable and does not require long time training.
5. Free online tutorials are available to learn HTML.
6. It is designed with a feature of interaction between the Web pages, which makes it effective.
7. It provides a search engine compatible with the Web pages.
8. It is easier to maintain and update any websites.
9. It does not involve overhead on the servers.
10. For HTML Web pages, it takes less time to load the web pages.
11. HTML validation is another important key factor, which increases web accessibility.
12. There are new features added in HTML 5.0 such as local storage, offline database, and caching geo-location-integration.

Disadvantages of HTML

1. It is complex to design an attractive Web page only by using HTML. So, additional programming and scripting languages are used, such as JavaScript, PHP, C#, CSS.
2. It is difficult to design a complete Web site by using only HTML. Web development tools like Dreamweaver, Frontpage, Foundation are used.
3. It cannot be used to a develop dynamic Web page.
4. It only defines page layout and makes possible easy browsing through hyperlinks.
5. It only a scripting language, it cannot be used as a programing language.
6. There is no complete acceptable standard for HTML.
7. There are many incompatibilities of HTML.

Objectives:

The learning objectives of HTML are:

- Learn the language of web: HTML and CSS.
- Develop skills in analyzing the usability of web sites.
- Create a web page and publish it.
- Create a table with in a web page.
- Create a link within a web page.
- Understanding the proper use of formatting tags.
- Insert an image within a web page.
- Insert ordered and unordered lists within a web page.
- Effective use of CSS.
- Learn how to use HTML to create a form.

TYPES OF TAGS

In HTML, all commands (code) are called Tags. Tags are not case, sensitive. Tag consists of three parts.

1. Element (identification of tag)
2. Attribute (property of tag)
3. Value (value assigned for Attribute)

For Example;

<BODY BGCOLOR = “RED”>

Where:

BODY=Element,
BGCOLOR=Attribute,
“RED” =Attribute Value

Note: We only have to close the element tags. Tags are always enclosed in <and> (angular brackets).

There are two types of tags which are:

- Empty (Single tag):
- Container tag (Pair tag):

A tag is said to be empty tag which does not have ending tag. For example:
, <HR>, <!-- >, etc.

A tag is said to be container or pair tag which have both starting and ending tags. An ending tag begins with slash (/). For example: <BODY>, , , <I>, <U>, etc.

BASIC STRUCTURE OF HTML

```
<HTML>
<HEAD><TITLE>.....</TITLE></HEAD>
<BODY>
    .....
    .....
</BODY>
</HTML>
```

Example:

```
<HTML>
<Head>
<Title>First page of HTML</Title>
</Head>
<Body>
    This is my first page of HTML. We can further explore many more!.....
</Body>
</HTML>
```

6.5.3 Published and Hosting

Web Publishing

The web publishing refers to the process in which the content is published on the Internet. It generally includes the creation of websites, which are later uploaded using a web server. It may include many processes like developing a website, hosting it, and even maintaining it. The term can also be used in the context of blogging or creating a profile on social platforms like Facebook.

Steps of web publishing are:

- Securing a domain name
- Acquiring we hosting services
- Website testing
- Uploading the web pages
- Updating the information
- Validating the links
- Promoting the site through various methods
- Address issues and concerns related to web publishing

Web Hosting

Web hosting refers to a service that is associated with Internet hosting. The companies that offer this service, provide their server computers to store the websites. It includes the acquisition of space in the server to store the web pages so that the website can be accessed through the internet.

Steps of web hosting are:

- Selecting the way to host the website: own web server, or get a web hosting from our website.
- Connectivity to the host (Server).
- Testing the website after uploading.

BGCOLOR: This attribute specifies the background color of the webpage. This can be specifying into two ways:

- First way is use one of the permitted color namely aqua, blue, gray, green, yellow, purple etc.
- Second way is to specify the color by RBG format. RBG stands for Red-Green-Blue. The number specified with BGCOLOR attribute has six digits i.e. RRBBGG (Two digits for Red, two for Green and remaining for Blue).

RRGGBB	COLOR
000000	Black
FFFFFF	White
FF0000	Red
00FF00	Green
0000FF	Blue

Example 1 (BGCOLOR)

```
<HTML>
<Head>
<Title>Background color</Title>
</Head>
<Body bgcolor="skyblue">
    I am using skyblue color as a background.
</Body>
</HTML>
```

Example 2

```
<HTML>
<Head>
<Title>Background color 2 </Title>
</Head>
<Body bgcolor = "0000FF">
    This is my first page of HTML and using blue color as a background.
</Body>
</HTML>
```

TEXT: This attribute defines the color of the body text written in the page.

Example:

```
<HTML>
<Head>
<Title>using sky blue color as a background and yellow as a text color</Title>
</Head>
<Body BGCOLOR= "skyblue" text=yellow>
    I am using skyblue color as a background and yellow as a text.
    <p>This is the example of using color as a background and text color</p>
</Body>
</HTML>
```

BACKGROUND (Image as a background)

This attribute specifies the image file, which is used as a background picture. Its value will be the full path of an image file.

Example:

```

<HTML>
<Head>
<Title>Background Image</Title>
</Head>
<Body background= "Windows2000.jpg">
    I am trying to keep this image as a background.
</Body>
</HTML>

```

Note: *Don't forget to save the background image within the same location where you saved your html file.*

CHARACTER FORMATTING (Paragraph, Heading, Text formatting): -

There are a number of style tags, which alter the appearance or format of the text. The tags used for alter the format of the text are known as formatting tags. These tags make HTML document more attractive. Some of the tags used for formatting HTML documents are <p>, <center>,
, <HR>, , <I>, <U>, <SUB>, <SUP>, , etc.

Paragraph: Paragraphs are defined with the <p> tag. It denotes a paragraph. Paragraph allow adding text to a document in such a way that automatically adjust the end of the line to suit the window size of the browser in which it is being displayed. HTML automatically add an extra blank line before and after a paragraph.

```

<p>This is a paragraph</p>
<p>This is another paragraph</p>

```

Heading: The Heading tag is used to create heading in HTML document. HTML supports six different levels of headings. The highest-level heading format is <H1> and the lowest level is <H6>. These are generally used for major divisions or heading of the paragraph or document.

Example:

```

<HTML>
<Head>
<Title>using heading</Title>
</Head>
<Body bgcolor= "OOOOff" text=white>
<H1>Computer</H1>
<H2>Computer</H2>
<H3>Computer</H3>
<H4>Computer</H4>
<H5>Computer</H5>
<H6>Computer</H6>
</Body>
</HTML>

```

Line breaks: A tag
 can be used to end line. It forces a line break. It does not add an extra line spaces like <p>.
 is a singular tag.

Horizontal line: The <HR> tag allows adding horizontal line across webpage. It is also a singular tag.

Comment in HTML

The comment is used to insert a comment in the HTML source code. Browsers will not display the comment. We can use a comment to explain tag/code, which can help us when we edit the source code later.

```
<!--This is comment -->
```

Comment tag requires! After opening angular bracket, but not before the closing bracket.

```

<HTML>
<HEAD> <TITLE> Comments</TITLE></HEAD>
<BODY>
    <!--THIS COMMENT WILL NOT BE DISPLAY -->
    <H1> COMPUTER IS AN ELECTRONIC DEVICE. </H1>
</BODY>
</HTML>

```

Text Formatting: The process of changing the **appearance** of the HTML document is known as text formatting. It is implemented by various tags which is listed below:

Tags Description

	Defines bold text.
<BIG>	Defines big text.
	Defines emphasized text.
<I>	Defines italic text.
<U>	Defines underline text.
<SMALL>	Defines small text.
	Defines strong text.
<SUB>	Defines subscripted text.
<INS>	Defines inserted text.
	Defines deleted text.
<CODE>	Defines computer code.
<SAMP>	Defines sample computer code.
<TT>	Defines teletype text.
<VAR>	Defines a variable.
<SUP>	Defines superscripted text.
<STRIKE>	Defines strike through text. etc....

For Example,

```

<HTML>
<HEAD><TITLE> Demonstration of text formatting tags</TITLE></HEAD>
<BODY>
<hr>
<B> This text is bold </B>
<BR><STRONG> This text is strong </STRONG>
<BR><BIG>This text is big</BIG>
<BR><EM> This text is Emphasized </EM>
<BR><I> This text is italic </I>
<BR><SMALL> This text is small </SMALL>
<BR> subscript H <SUB> 2 </SUB> SO <SUB> 4 </SUB> = SULPHURIC ACID
<BR> Superscript (a+ b) <SUP> 2 </SUP> = a <SUP> 2 </SUP> + 2ab + b<SUP>2</SUP>
<BR><CODE> COMPUTER CODE</CODE>
<BR><kbd>Keyboard input</kbd>
<BR><TT> Teletype Text </TT>
<BR><SAMP> SAMPLE TEXT </SAMP>
<BR><VER> COMPUTER VARIABLE</VER>
<BR><STRIKE> Computer Technology</STRIKE>
</BODY>
</HTML>

```

FONT TAG: The tag is used to define different types of font, font size and font color for the web. The tag has different attributes like:

Size: - It can be used to set the size of the font. The font size can be set from 1 to 7.

FACE: - It is used to set different font type of the text. All browsers don't recognize all fonts.

COLOR: - It is used to specify the color of the font.

EXAMPLE:

```
<HTML>
<Head><Title>changing font and its attribute</Title></Head>
<Body>
  I am using different font with different size and color.
  <p><font size=1>world of the computer</font><BR>
  <font size=2>World of the computer</font><BR>
  <font size=3>World of the computer </font><BR>
  <font size=4>World of the computer </font><BR>
  <font size=5>World of the computer </font><BR>
  <font size=6>World of the computer </font><BR>
  <font size=7>World of the computer </font><BR>
  <p><font face = "comic scans ms">Nepal</font><BR>
  <font face=IMPACT>Nepal</font></p>
  <p><font color=RED>Danger!</font></p>
  <p>Now, I'm mixing all the attributes of the font</p>
  <p><font face= "ARIAL" Size=6 Color=Green>I am ARIAL font with 6 size and green
  color</font><BR>
  <Center><font face="preeti" size=6 color="aqua">wGojfb .</font></center><BR>
  Bye
</Body>
</HTML>
```

Create an ordered and unordered list

HTML supplies several list elements. Most list element are composed of one or more (List Item) elements.

Ordered List: An ordered list start with the tag and end with . Each list items start with the tag and ends with tag items in this list are numbered automatically by the browser.

One has the choice of setting the TYPE attribute to one of the five numbered styles.

Type	Numbering Style	Example
1	Arabic numbering	1, 2, 3,.....
a	lower alpha	a, b, c,...
A	upper alpha	A, B, C,....
i	lower roman	i, ii, iii,..
I	upper roman	I, II, III,...

Example 1:

```
<HTML> <Head> <Title> using ordered list
</Title> </Head>
<Body bgcolor= "green" text=white>
<OL>
<LI>Mouse
<LI>Keyboard
<LI>HDD
<OL>
<LI>Screen/Monitor
<LI>Printer
<LI>Optical Memory
<OL type="a">
<LI>CD-ROM
<LI>CD-R
<LI>CD-R/W
<LI>DVD-ROM</ol>
<LI>FDD
</OL>
</Body>
```

Example:2

```
<HTML> <Head> <Title> Using ordered list
</Title> </Head>
<Body bgcolor = "skyblue" text=red>
<H1>Some beautiful place of Pokhara</H1>
<OL Type= "I">
<LI>Lakeside
<LI>Sarangkot
<LI>Bindabasini Temple
<LI>Mahendra Cave
</OL>
<OL Type= "A">
<LI>A for Apple
<LI>B for
<OL>
<LI>Ball
<LI>Box
</OL>
</Body>
</HTML>
```

</HTML>

UNORDERED LIST: The simplest type of list is an unordered list. The elements of an unordered list are usually displayed as a series of bullet points. An unordered list start with and ends with tags. Each element in the list starts with tag. It does not have an ending tag.

Using TYPE attribute with can set different type of bullets. The values specified with TYPE attribute can be square, disc and circle.

EXAMPLE 1 (UNORDERED LIST)

```
<HTML> <Head> <Title> Using Unordered list
</Title> </Head>
<Body bgcolor= "black" text=white>
<UL>
<LI>Mouse
<LI>Keyboard
<UL>
<LI>Screen/Monitor
<LI>Printer
</UL>
</Body>
</HTML>
```

EXAMPLE 2

```
<HTML>
<Head><Title>Using unordered
list</Title></Head>
<Body bgcolor= "skyblue" text=RED>
<H1>Some beautiful place of pokhara</H1>
<UL Type= "square">
<LI>Lakeside
<LI>Sarangkot
<LI>Bindabasini Temple
<LI>Mahendra Cave
</UL>
</Body>
</HTML>
```

Extra Question:

Write HTML code for creating order list for the following:

1: Central Development Region

Janakpur

Narayani

a) Chitwan

b) Makwanpur

<HTML>

<Head><Title>Order
List</Title></Head>

<Body>

Central Development Region

<OL Type= "i">

Janakpur

Narayani

<OL Type= "a">

Chitwan

Makwanpur

</Body>

</HTML>

Write the HTML code to display the following :
Hardcopy Output Devices.

Printer

Plotter

Softcopy Output Devices

Monitor

CRT

LCD

Speaker

<HTML>

<Head><Title>Order List</Title></Head>

<Body>

<hr>

<h1>Output Devices </h1>

<HR>

<OL type = "i">

Hardcopy Output Devices.

<OL type = "a">

Printer

 Plotter

 Softcopy Output Devices.

<OL type = "a">

Monitor

<OL type = "i">

CRT

LCD

Speaker

<HR>

	different types of printer </Body> </HTML>

Marquee tag:

The HTML <marquee> tag is used for scrolling piece of text or image displayed either horizontally across or vertically down your web site page depending on the settings.

This tag supports all the global attributes:

Direction: To Specify the direction of the scrolling of the marquee. The values are: LEFT and RIGHT.

Behavior: To specify the scrolling effects. The values are: SCROLL, SLIDE or ALTERNATE.

Scroll delay: To specify the scrolling speed.

For Example:

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>HTML Marquee </title>
```

```
</head>
```

```
<body>
```

```
<marquee>This is basic example of marquee</marquee>
```

```
<marquee direction = "up">The direction of text will be from bottom to top. </marquee>
```

```
<marquee direction = "down">The direction of text will be from top to bottom. </marquee>
```

```
<marquee behavior = "alternate">I am taking HTML class in M8</marquee>
```

```
</body>
```

```
</html>
```

INSERTING AN IMAGE

Different images can be placed in the documents with the help of tag.

 tag: - This tag is used to insert an image in the document. It does not have ending tag but have a different-attributes for setting title, source, size (width and height), alignments, horizontal and vertical spaces, borders, etc.

SRC: - This attribute defines the named path (location) of the image the double quotes.

Example: -

```
<HTML>
```

```
<Head><Title> INSERTING AN IMAGE</Title></Head>
```

```
<Body>
```

```
<IMG SRC= "D:\img001.jpg" height= "200" width= "200" border= "2" alt= "Picture of Mount Machhapuchhre seen from Ghandruk">
```

```
</Body>
```

```
</HTML>
```

Address Tag

The <address> tag defines the contact information for the author of a document. The contact information can be phone number, email address, physical address or URL. The contact information written between <address> and </address> tags mostly render in the italic form on the [browser](#).

Example:

```
<Html>
```

```
<head><title>Using address Tag</title></head>
```

```
<body>
```

```

<address>
    Contact me at <a href = dgkhanal2013@gmail.com> Dipak Khanal
</a><br>
    Ratnanagar-9, Sisai, Chitwan, Nepal<br>
    Phone: 9845091806
</address>
</body>
</html>

```

CREATING HYPERLINK

Hyperlink means it creates link whenever you click on the link, then you will reach where it is linked. There are two types of links.

1. Internal
2. External

You can use any [types](#) of Text, images, syntax or any part of an image for hyperlink. Internal links only work inside the single page and external links connect more than one individual page.

The Anchor text or image

<A NAME> tag: - This tag is used to define marking for hyperlinks within a single page. We can define any text within double quote ("...") for book marking.

<A HREF>: - This tag (Anchor Hyperlink REFERENCE) is used to create required internal and external hyperlinks. In case of internal link, you have to define Anchor name at first.

Example1 (INTERNAL LINK and External link)

```

<html>
<head><Title>Using Hyperlink</Title></head>
<body bgcolor="skyblue">
Local Hyperlink<br>
<A Name="Top"></A><br>
<A Name="Bottom"></A>
<A Href="#Bottom">Go to Bottom</A><br>
<A Href="#Top">Go to Top</A><br>
Internal Hyperlink
<A Href="Font.html">Computer</a><br>
External Hyperlink
<A href="Http://www.computeressentials.com.np">Computer Essentials</a>
</body>
</html>

```

CREATING TABLE

The table is used to set the data in the form of rows and columns. The <TABLE> and </TABLE> tags contain the whole features of the table.

The <Table> tag has the following features:

- ALIGN
- Width
- BORDER
- Cell spacing
- Cell padding
- BGcolor

S.N.	Name	Address	Phone	Class
1	Sujan Sharma	B.N.PA-4	056524150	XI (M8)

TABLE ROWS<TR>: - The<TR> tag is used to set up a row of the table. We can use this tag as per our requirement. It has its ending </TR>. This tag has the following attributes:

- ALIGN
- VALIGN (Vertical Alignment)
- BGcolor

TABLE HEADING<TH>: - This tag is used to specify the table heading of the table. Usually, it is displayed in bold face and centered aligned. It is ended with</TH> tag.

TABLE DATA<TD>: -This tag is used to place the required data inside the row cells. The <TH> and <TD> tags can have the following attributes:

- ALIGN
- VALIGN
- Row span (merging rows)
- COLSpan (merging columns)
- Width
- Height

Example of Creating table:

```
<html>
<head>
<title>create table</title>
</head>
<body bgcolor="green">
<h1>Simple Table </h1>
<table border = "2" align="center">
<tr>
    <th>S.N.</th>
    <th>Name</th>
    <th>Address</th>
</tr>
<tr>
    <td>1</td>
    <td>Riyan Bhatta</td>
    <td>Bharatpur,Chitwan</td>
</tr>
<tr>
    <td>2</td>
    <td>Umesh kisor</td>
    <td>Ratnanagar,Chitwan</td>
</tr>
<tr>
    <td>3</td>
    <td>Krista Chapagain</td>
    <td>Kawasoti,NP</td>
</tr>
</table>
</body>
</html>
```

Example of Table with Rowspan and Colspan

```
<html>
<head><title> An example of Table with Rowspan and Colspan </title></head>
```

```

<body>
<table bordercolor=red align=center bgcolor=blue border=3 width=600 cellpadding=5
cellspacing=0>
  <caption >
<strong style="font-size:20px; color:Blue;">An example of Table with Rowspan and
Colspan</strong>
</caption>
  <tr bgcolor=green>
    <th rowspan="2">SN</th>
    <th rowspan="2">Particular</th>
    <th colspan="2">Rate</th>
    <th rowspan="2">Quantity</th>
    <th colspan="2">Amount</th>
  </tr>
  <tr bgcolor=purple><th>Rs</th> <th>Paisa</th> <th>Rs</th> <th>Paisa</th>
</tr>
  <tr bgcolor=yellow>
    <td>1</td>
    <td>Sugar</td>
    <td>85</td>
    <td>00</td>
    <td>5</td>
    <td>425</td>
    <td>00</td>
  </tr>
  <tr bgcolor=gold>
    <td>2</td>
    <td>Milk</td>
    <td>70</td>
    <td>00</td>
    <td>5</td>
    <td>350</td>
    <td>00</td>
  </tr>
</table>
</body>
</html>

```

CREATING FORMS AND FRAMES

Creating Form: A form is an area that contain form elements. You must set up a form before adding in run to the form. To set up a form, you need to specify two information.

METHOD: Method property tells the form how to transfer the data to the form processor. The value for method can be “post” or “get”.

ACTION: Action property tells what action the form should take, when the user presses the SUBMIT button. ACTION is the URL to which you are posting the information.

<INPUT>tag: The most used form tag is <INPUT> tag. The type of INPUT is specified with the TYPE attribute. This tag does not have its ending tag. The most commonly used INPUT types are as:

- Text (Name, Value, Size, Max Length)
- RADIO (Name, Value, checked)
- CHECKBOX (Name, Value)
- IMAGE (SRC)
- RESET (Value)
- SUBMIT (Value)
- PASSWORD/HIDDEN (Name, Value, Size, Max Length) tag

<TEXTAREA> tag: this tag is used to specify the area of the text. This tag makes a two-dimensional text area, in which the viewer can type from a short sentence to many paragraphs. This tag has its ending tag. This tag has the following attributes:

- Name (Name of the tag)
- Value (editable information)
- COLS (Width of the text area)
- ROWS (Height of the text area)

<Select> tag: this tag is used to create a menu that offers visitors a list of option to choose from. This tag has its ending tag. This tag has the following attributes:

- Name (Name of the tag)
- Multiple (If more than one option shown at a time)
- Size (Number of options you want to display at a time)

<Option> tag: This is the mini tag of <select> tag. Normally, it comes with <select> tag. This tag is used to define the options to choose from the drop-down list. This tag mainly has one attribute: i.e., selected

Example:

```
<HTML>
<HEAD><TITLE> Form Elements </TITLE></HEAD>
<BODY bgcolor="skyblue">
<h2 align="Center">Creating Form using HTML</h2>
<H3> Text Box</H3>
<FORM>
    First Name: <input type = "text" name = "firstname"><br>
    Last Name: <input type = "text" name = "lastname">
</FORM>
<H3> Text Box for password</H3>
<FORM>
    Password: <input type = "password" name = "pwd">
</FORM>
<H3> Radio Button </H3>
<FORM>
    <input type = "radio" name = "sex" value = "male"> Male <br>
    <input type= "radio" name= "sex" value= "female"> Female
</FORM>
<H3> Checkbox </H3>
<FORM>
    <input type = "checkbox" name = "subject" value = "Computer"> Computer Science <br>
    <input type = "checkbox" name = "subject" value = "HotelManagement"> Hotel
Management<br>
    <input type = "checkbox" name = "subject" value = "BioScience"> Bio-Science<br>
    <input type = "checkbox" name = "subject" value = "Education">Education
</FORM>
<H3> Submit button </H3>
<FORM NAME = "input" action = "html_form_action.asp" method = "get">
    Username: <input type = "text" name = "user">
    <input type = "submit" value = "Submit">
</FORM>
<H3> Drop down Menu</H3>
<FORM action = " ">
    <select value = "Stream">
    <option value = "Science"> Science</option>
    <option value = "Management"> Management </option>
    <option value = "Humanities"> Humanities </option>
    <option value = "Education"> Education </option>
    </select>
```

</FORM>
</BODY>
</HTML>

CREATING A FRAMES

Normally, a browser will display a single HTML document in its window. Using the frames extension to HTML, we can divide the main browser window into a number of sub windows (referred to as frames). Each frame contains a different HTML document and can be linked to other frames. A frame and document is like any other HTML document but it has a <FRAMESET> tag instead of <BODY> tag.

THE <FRAMESET> tag: This is the main container of a frame document. We use only <FRAME> tag and <NOFRAME> tag between the <FRAMESET> tag. This tag has only two types of attributes:

-ROWS

-COLS

THE <FRAME> tag: This tag describes the individual frames within a <FRAMESET> tag. It is not a container so there is no its ending tag. The <FRAME> tag has the following attributes:

-SRC

-Name

-SCROLLING

-NO RESIZE

-MARGINWIDTH

-MARGINHEIGHT

-TARGET

How to Create Frames

1. Use the **frameset** element in place of the body element in an **HTML** document.
2. Use the **frame** element to **create frames** for the content of the web page.
3. Use the src attribute to identify the resource that should be loaded inside each **frame**.
4. **Create** a different file with the contents for each **frame**.

EXAMPLE:

```
<HTML>
<Head><Title>Valmiki College</Title></Head>
<frameset rows= "187,*" framespacing= "1" border= "1" frameborder= "1">
<frame name= "banner" scrolling= "no" no resize target= "contents" src= "Titlepage.html.htm">
<frameset cols= "194,*">
<frame name= "contents" target= "main" scrolling= "auto" no resize src= "LinkPage.htm">
<frame name= "main" src= "homepage.htm">
</frameset>
</frameset>
<no frames>
<Body>
<p>This page uses frames, but your browser doesn't support them.</p>
</Body>
</no frames>
</frameset>
</HTML>
```

Note: More details look at this site: https://www.tutorialspoint.com/html/html_frames.htm

--

6.5.17 Introduction of HTML 5 Elements including audio, embed, source, track and video attributes

Introduction: HTML stands for Hyper Text Markup Language. It is used to design web pages using markup language. HTML is the combination of Hypertext and Markup language. Hypertext defines the link between the web pages. Markup language is used to define the text document within tag which defines the structure of web pages. *HTML 5 is the fifth and current version of HTML. It has improved the markup available for documents and has introduced application programming interfaces (API) and Document Object Model (DOM).*

Features:

- It has introduced new multimedia features which supports audio and video controls by using <audio> and <video> tags.
- There are new graphics elements including vector graphics and tags.
- Enrich semantic content by including <header> <footer>, <article>, <section> and <figure> are added.
- Drag and Drop- The user can grab an object and drag it further dropping it on a new location.
- Geo-location services- It helps to locate the geographical location of a client.
- Web storage facility which provides web application methods to store data on web browser.
- Uses SQL database to store data offline.
- Allows to draw various shapes like triangle, rectangle, circle, etc.
- Capable of handling incorrect syntax.
- Easy DOCTYPE declaration i.e. <!doctype html>
- Easy character encoding i.e. <meta charset= "UTF-8">

New Added Elements in HTML 5:

- **<article>:** The <article> tag is used to represent an article. More specifically, the content within the <article> tag is independent from the other content of the site (even though it can be related).
- **<aside>:** The <aside> tag is used to describe the main object of the web page in a shorter way like a highlighter. It basically identifies the content that is related to the primary content of the web page but does not constitute the main intent of the primary page. The <aside> tag contains mainly author information, links, related content and so on.
- **<figure caption>:** The <figure caption> tag in HTML is used to set a caption to the figure element in a document.
- **<figure>:** The <figure> tag in HTML is used to add self-contained content like illustrations, diagrams, photos or codes listing in a document. It is related to main flow but it can be used in any position of a document and the figure goes with the flow of the document and if remove it then it should not affect the flow of the document.
- **<header>:** It contains the section heading as well as other content, such as a navigation links, table of contents, etc.
- **<footer>:** The <footer> tag in HTML is used to define a footer of HTML document. This section contains the footer information (author information, copyright information, carriers etc). The footer tag is used within body tag. The <footer> tag is new in the HTML 5. The footer elements require a start tag as well as an end tag.
- **<main>:** Delineates the main content of the body of a document or web app.
- **<mark>:** The <mark> tag in HTML is used to define the marked text. It is used to highlight the part of the text in the paragraph.
- **<nav>:** The <nav> tag is used to declaring the navigational section in HTML documents. Websites typically have sections dedicated to navigational links, which enables user to navigate the site. These links can be placed inside a nav tag.
- **<section>:** It demarcates a thematic grouping of content.
- **<details>:** The <details> tag is used for the content/information which is initially hidden but could be displayed if the user wishes to see it. This tag is used to create interactive widget

which user can open or close it. The content of details tag is visible when open the set attributes.

- **<summary>:** The <summary> tag in HTML is used to define a summary for the <details> element. The <summary> element is used along with the <details> element and provides a summary visible to the user. When the summary is clicked by the user, the content placed inside the <details> element becomes visible which was previously hidden. The <summary> tag was added in HTML 5. The <summary> tag requires both starting and ending tag.
- **<time>:** The <time> tag is used to display the human-readable data/time. It can also be used to encode dates and times in a machine-readable form. The main advantage for users is that they can offer to add birthday reminders or scheduled events in their calendar's and search engines can produce smarter search results.
- **<bdi>:** The <bdi> tag refers to the Bi-Directional Isolation. It differentiates a text from other text that may be formatted in different direction. This tag is used when a user generated text with an unknown direction.
- **<wbr>:** The <wbr> tag in HTML stands for word break opportunity and is used to define the position within the text which is treated as a line break by the browser. It is mostly used when the used word is too long and there are chances that the browser may break lines at the wrong place for fitting the text.
- **<datalist>:** The <datalist> tag is used to provide autocomplete feature in the HTML files. It can be used with input tag, so that users can easily fill the data in the forms using select the data.
- **<keygen>:** The <keygen> tag in HTML is used to specify a key-pair generator field in a form. The purpose of <keygen> element is to provide a secure way to authenticate users. When a form is submitted then two keys are generated, private key and public key. The private key stored locally, and the public key is sent to the server. The public key is used to generate client certificate to authenticate user for future.
- **<output>:** The <output> tag in HTML is used to represent the result of a calculation performed by the client-side script such as JavaScript.
- **<progress>:** It is used to represent the progress of a task. It is also defined that how much work is done and how much is left to download a thing. It is not used to represent the disk space or relevant query.
- **<svg>:** It is the Scalable Vector Graphics.
- **<canvas>:** The <canvas> tag in HTML is used to draw graphics on web page using JavaScript. It can be used to draw paths, boxes, texts, gradient and adding images. By default it does not contains border and text.
- **<audio>:** It defines the music or audio content.
- **<embed>:** Defines containers for external applications (usually a video player).
- **<source>:** It defines the sources for <video> and <audio>.
- **<track>:** It defines the tracks for <video> and <audio>.
- **<video>:** It defines the video content.

Advantages:

- All browsers supported.
- More device friendly.
- Easy to use and implement.
- HTML 5 in integration with CSS, JavaScript, etc can help build beautiful websites.

Disadvantages:

- Long codes have to be written which is time consuming.
- Only modern browsers support it.

Supported Browsers: It is supported by all modern browsers. Below examples illustrate the HTML 5 content.

Example 1:

```
<!DOCTYPE html>
<html>

<head>
  <title>HTML 5</title>
  <style>
    h1 {
      font-size:50px;
    }
  </style>
</head>

<body>
  <h1>GeeksforGeeks</h1>
</body>

</html>
```

Example 2:

```
<!DOCTYPE html>
<html>

<head>
  <title>HTML 5 Demo</title>

  <style>
    .GFG {
      font-size:40px;
      font-weight:bold;
      color:green;
    }
    body {
      text-align:center;
    }
  </style>
</head>

<body>
  <div class = "GFG">GeeksforGeeks</div>
  <aside>
    <div>A computer science portal for geeks</div>
  </aside>
</body>

</html>
```

Audio tag:

```
<html>
<head><title>using audio in web page</title></head>
<body>
  <audio controls autoplay>
```

```

        <source src = "C:\Users\user\Downloads\Yenti Yenti(Telugu4u.in).mp3">
        Your browser does not support the audio element.
    </audio>
</body>
</html>

```

Video tag:

```

<html>
<head>
    <title>HTML Video embed</title>
</head>
<body>
    <video width = "500" height = "300" controls autoplay>
    <source src = "C:\Dipak khalan\DK_documents\Unit-1\Videos\ABC.mp4">
    </video>

    </body>
</html>

```

Next Example of Video tag:

```

<html>
<head>
    <title>HTML Video embed</title>
</head>
<body>
    <p> Learn Eclipse</p>
    <br/>
    <iframe width= "560" height= "315"
    src = "https://www.youtube.com/embed/y881t8ilMyc"
    frameborder= "1" allowfullscreen> </iframe>
    </iframe>
    </body>
</html>

```

6.5.18 HTML 5 graphics using canvas and svg tags

CANVAS Tag:

The <canvas> tag is used to draw graphics through scripting languages (usually JavaScript). It is only a container for graphics so you have to use Scripting language to draw an actual graphics. Any text inside the <canvas> element will be displayed in browsers with JavaScript disabled and in browsers that do not support <canvas>.

For example:

```

<HTML>
<HEAD><TITLE>USING HTML 5 CANVAS</TITLE></HEAD>
<BODY>
    <h1> The canvas example</h1>
    <canvas id= "myCanvas">
    Your browser does not support the canvas tag.

```

```

</canvas>
<script>
var a = document.getElementById("myCanvas");
var abc = a.getContext("2d");
abc.fillStyle = "blue";
abc.fillRect (20, 20, 75, 50);
abc.fillStyle= "green";
abc.fillRect (80, 80, 75, 50);
</script>
</BODY>
</HTML>

```

SVG tag:

The <svg> tag (Scalable Vector Graphics) is based on XML, and it used to define different vector graphics (Drawing Based) such as circle, rectangle, polygon, etc. on webpage. It is also a container that defines elements such as <circle>, <rect>, <polygon>, etc to draw graphics. Example 30 shows how graphics such as circle, rectangle and polygon can be drawn by using <svg> tag.

Example 30:

```

<html>
<head><title>SVG</title></head>
<body>
<h3>Circle</h3>
  <svg width = 300 height= 300>
    <circle cx= 100 cy= 100 r= 100 stroke= "green" stroke-width= 5 fill= "white">
  </svg>

  <h3> Rectangle</h3>
  <svg width= 300 height= 300>
    <rect width=500 height= 50 stroke= "red" stroke-width= 1 fill= "purple">
  </svg>
  <h3>Polygon</h3>
  <svg width= 300 height= 300>
    <polygon points= "100,10 40, 198 190, 78 10, 78 160, 198" stroke-width= 5 stroke= "yellow"
fill= "skyblue">
  </svg>
  <h3> Ellipse</h3>
  <svg height="140" width="500">
    <ellipse cx="200" cy="80" rx="100" ry="50" stroke-width= 2 fill= "green"/>
  </svg>
</body>
</html>

```

Concept of Domain Name

Domain name is the unique name of website. A domain name is the address from where internet users can access your website. For example, www.google.com is the domain name of the Google. Each and every website has a domain name. The domain name must be registered before you can use it. In fact, domain name is a textual version of the IP address. You can visit websites by entering the IP address. It is very difficult to remember the IP address, however domain name is easy to remember.

Every domain name has a suffix that indicates which top-level domain (TLD), it belongs to some examples, of such domain are:

- gov- Government agencies.
- edu- Educational institutions.

- org- Organizations (non-profit)
- mil- Military
- com- Commercial business
- net- Network organizations
- ca- Canada
- th- Thailand
- np- Nepal

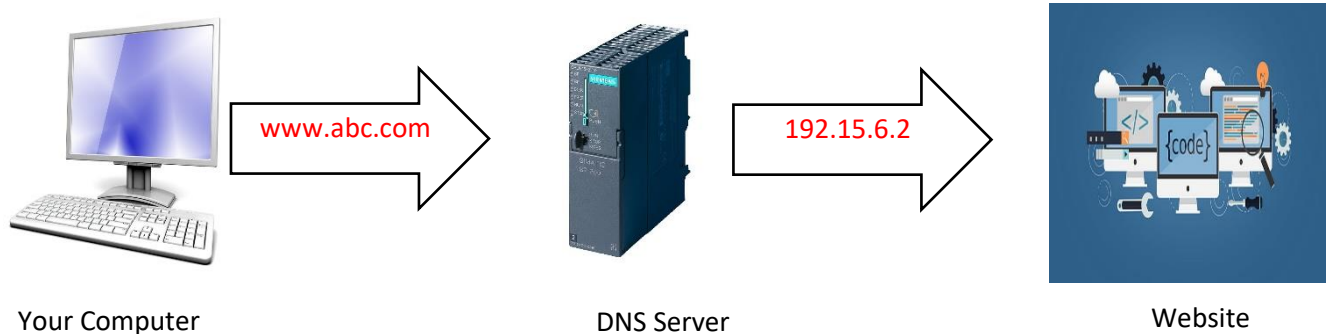


Figure: IP address and Domain name

Scripting Language: - A scripting language is a form of programming language that is usually interpreted rather than compiled. Scripting languages are often written to facilitate enhanced features of web sites. These features are processed on the server but the script in a specific page runs on the user's browser. Scripting language is used for creating the web pages whether it may be client or server or static or dynamic as their changes of contents on the pages. This scripting language can be written in any text editor and no need to compile. The examples of scripting languages are

1. JavaScript
2. VB script
3. PHP
4. Perl
5. ASP

JavaScript: JavaScript is a scripting language developed by Brendan Eich at Netscape Communication Corporation in 1995. At first it was called Live Script. It is used to embed procedural code into web pages. It is embedded within HTML. It allows for page verification, simple web application and calculation. It shares the syntax of C or Java. It can run inside web browser.

VB Script: -VB Script is developed by Microsoft Corporation that is modeled on Visual Basic. It is a client-side scripting language. It is designed as a "Light weight" language with a fast interpreter for use in a wide variety of Microsoft environments. VB Script uses the component object Model to access elements of the environment within which it is running, for example, the File System Object (FSO) is used to create, read, update and delete files. VB Script has been installed by default in every desktop release of Microsoft windows.

PHP: - PHP is a general purpose server side scripting language originally designed for web development to produce dynamic web Pages. It is one of the first developed server-side scripting language to be embedded into HTML source document rather than calling an external file to process data.

Perl: -Perl is an open UNIX/LINUX based web scripting language developed in 1987.

ASP: -Active server page is a Microsoft windows based popular server side web scripting language which is mainly used to access database from web application.

Cascading Style Sheet (CSS): - A cascading style sheet is a method that enhances the property of HTML tags so the web pages can be prepared in more attractive ways. It enables us to separate the contents of HTML documents from the presentation. The CSS also helps to make global changes to the contents of HTML documents from a single location. These styles added to HTML 4.0 to solve a problem because very tag cannot design the Web site is a very fascinating way.

Advantages of using CSS

1. Web pages will load faster.
2. Design consistency across all the pages of the Web site.
3. CSS allows for more interactive style elements, including font, font size, font color, which can make pages more usable for people with disabilities.
4. Future redesigns will be more efficient.
5. CSS can help to make Web pages available for different media (desktop PC, mobile phones with the same markup page presented in different viewing styles).
6. It makes Web page browser compatible with almost all the browsers.

CSS provides the following styles.

- A. Document wide style sheet.
- B. External style sheet.
- C. In-line style sheet.

[OR]

CSS (Cascading Style sheet)

It is the scripting language used with HTML tag. It provides some additional functions for HTML tags. There are three methods of writing CSS in webpage. They are:

1. Inline Style: It is the method of writing CSS within a HTML tag. E.g.:

```
<html>
<head><title>...</title></head>
<body>
<h1 style="color:green;font-size:100px;text-align:center;">Testing text</h1>
</body>
</html>
```

2. Internal Style: It is the method of writing CSS within a HTML page that effects in whole page.

E.g.:

```
<html>
<head><title>Internal Style</title>
<style>
p{
color:green;
font-size:20px;
}
</style>
</head>
<body>
<p>Testing text</p>
</body>
</html>
```

3. External Style: It is the method of writing CSS as a file with .CSS extension. It can be linked in any page of website for effect. E.g.:

mystyle.css

```
p{
color:blue;
font-size:25px;
}
```

Main.html

```
<html>
<head><title>...</title>
<link rel="stylesheet" type="text/css" href="mystyle.css">
```

```
</head>
<body>
<p> HTML stands for Hypertext Markup language. </p>
</body>
</html>
```

Web page designing and Editing tools: Web page designing and editing tools are the software which helps in designing the webpage directly or allows to design and edit the web pages as it is displayed in browser screen. Some of the common and popular web page designing and editing software are introduced here:

- a. Macromedia Dreamweaver.
- b. Microsoft FrontPage.
- c. Flash
- d. Coffee cup HTML Editor.
- e. Microsoft Expression web etc.