

CHAPTER- 9 WEB APPLICATION DEVELOPMENT

WEB BROWSER

A web browser is a WWW client that navigates through the World Wide Web and displays web pages.

OR

A browser is a software program that allows users to access and navigate the World Wide Web. Some most popular open source web browsers are Mozilla Firefox, Google Chrome, Opera etc.



WEB SERVER

Web Documents that you view on the Internet are stored on different Web servers. Web servers are computers on which web documents reside.

OR

A web server is a WWW server that stores web documents and responds to the requests made by web browsers. Some most popular web servers are: Apache web server, Microsoft Internet Information server etc.

WEB ADDRESS

Each web site has a unique address called URL (Uniform Resource Locator). e.g., the web site of Microsoft has an address or URL called <http://www.microsoft.com>

The format of writing URL is :

type://address/path

where

type: specifies the type of sever in which the file is located.

address: is the address of server.

path: tells the location of file on the server.

e.g.

in URL <http://gmail.com/home>

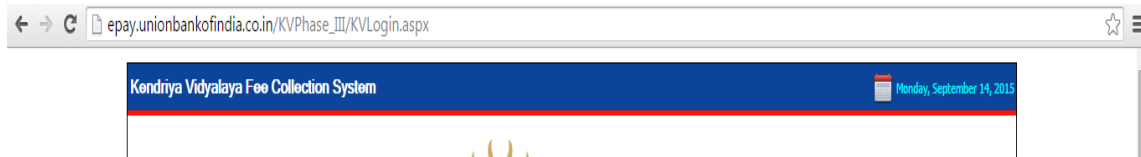
http: specifies the type of sever or protocol

gmail.com : name/address of the server on the Internet (domain name).

home : location of the file on the server.

COMMUNICATING WITH WEB SERVER

What happens when you type URL in the address box of your browser?



The browser (client) sends the request in form of the URL to the server. The server interprets this request and gives an answer.

PROTOCOLS

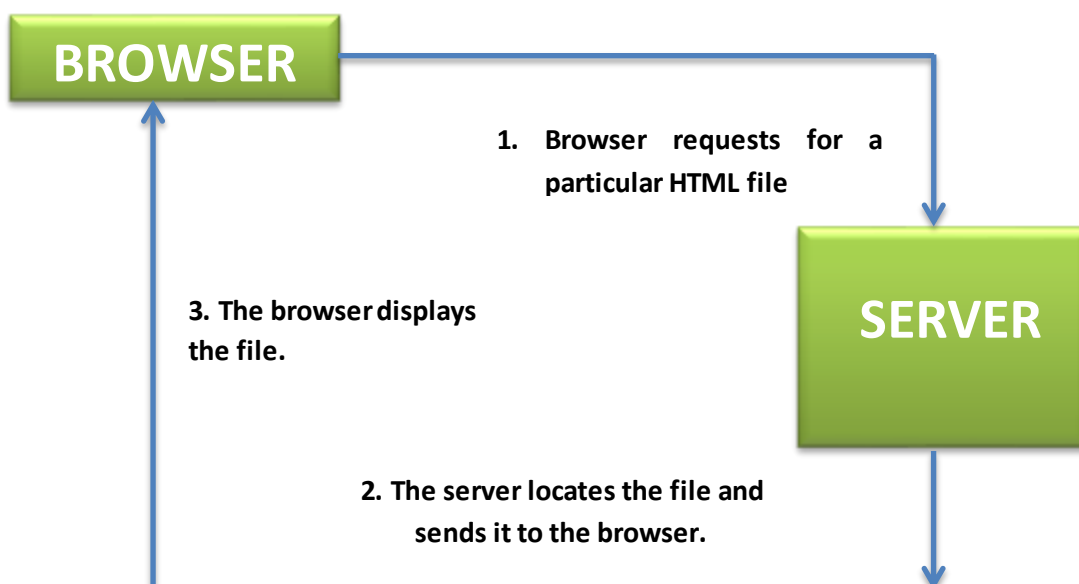
- Browsers interact with the server using a set of instructions called protocols.
- These Protocols help in the accurate transfer of data through request from a browser and responses from the server.
- Some common Internet Protocols are:
 1. **HTTP (HyperText Transfer Protocol)** used on World Wide Web(WWW) for transferring web pages and files contained in web server such as images.
 2. **FTP (File Transfer Protocol)** employed for transferring files from one machine to the other.
 3. **SMTP (Simple Mail Transport Protocol)** used for email.
 4. **Telnet Protocol** used to open remote- machine access sessions.

CLIENT SERVER COMMUNICATION MODELS

1. For accessing static HTML Pages.
2. For accessing dynamic web pages.

MODEL 1 OF THE CLIENT SERVER COMMUNICATION – STATIC HTML PAGES

1. The client(browser) requests for an HTML (HyperText Markup Language) file stored on the remote machine through the server software.
2. The server locates this file and passes it to the client.
3. The client then displays this file on your machine.



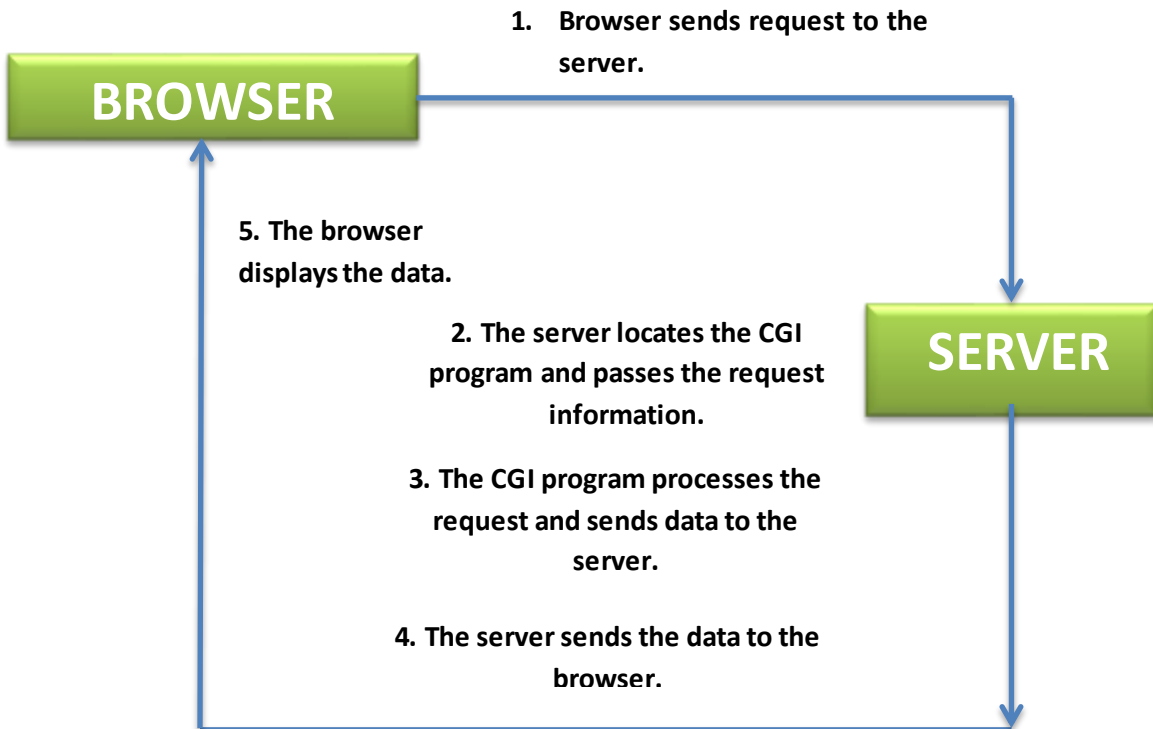
MODEL 2 OF THE CLIENT SERVER COMMUNICATION – DYNAMIC WEB PAGES

- The dynamic web pages are different from static web pages as they can have different content depending upon the result of script executed.
- e.g., a dynamic web page can show different weather report when opened at different location e.g. if you open it in USA or in India, you'll find that it is different weather report as per local conditions.

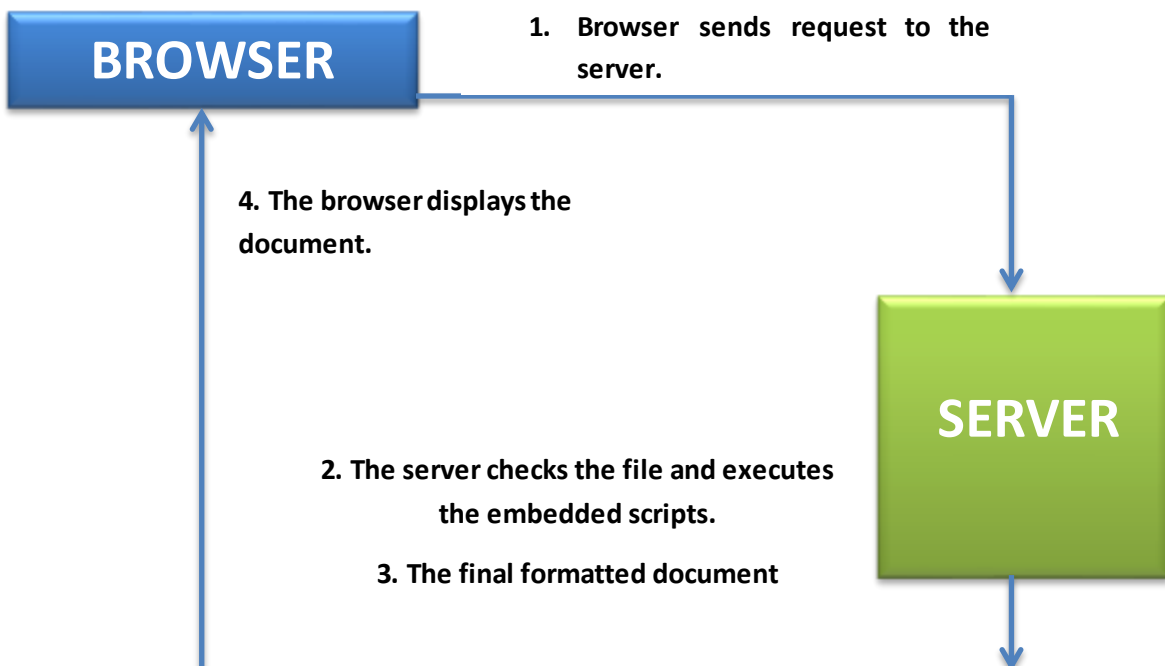
Dynamic web pages are generated via two different technologies:

1. CGI (common gateway interface) scripts
2. Server side scripts

1. CLIENT SERVER COMMUNICATION WITH CGI SCRIPTS



2. CLIENT-SERVER COMMUNICATION WITH SERVER SIDE SCRIPTING



CBSE BOARD/PRE-BOARD QUESTIONS

Q1. Kristen has typed the following text in the address bar:

http:// www.cbse-international.com/help.htm

Explain to her the main concept of URL and Domain name with reference to the example given above.

Q2. Given below are two addresses:

(i) <http://www.abc.com/index.htm>

(ii) 182.68.9.165

Identify which one of the above is an IP address and which one is a URL.

Q3. Write the name of a web server and a web browser.

Q4. Mr. Gupta wants to transfer hypertext, i.e. combination of text, audio/video, graphics, animation, images, etc. on the web page. Write the name of the protocol which will let him to do the same.

Q5. Tara Naithani wants to upload and download files from/to a remote Internet server, write the name of the relevant communication protocol, which will let her do the same.

SOLUTIONS

1. URL(Uniform Resource Locator) is the complete address of a document on the web, whereas a domain name specifies the location of document's web server. A domain name is a component of the URL used to access web sites.

http:// www.cbse-international.com/help.htm is a URL and www.cbse-international.com is the domain name.

2. (i) <http://www.abc.com/index.htm> - URL

(ii) 182.68.9.165 – IP address

3. Web server – Apache web server, Microsoft Internet information server.

Web browser – Mozilla Firefox, Google Chrome.

4. HTTP(HyperText Transfer Protocol)

5. FTP(File Transfer Protocol)

CHAPTER 10 HTML-I BASIC HTML ELEMENTS

- HTML (Hyper Text Markup Language) is a document-layout and hyperlink-specification language i.e., a language used to design the layout of a document and to specify the hyperlink.
- HTML tells the browser how to display the contents of a hypertext document i.e., a document including text, images and other support media.

HTML : What it is	HTML: What it is not
Web Page Layout Language	Word Processing Tool
Hyperlink Specification Language	Programming Language

WRITING HTML DOCUMENTS

HTML is made up of **Tag** and **Attribute**.

TAG

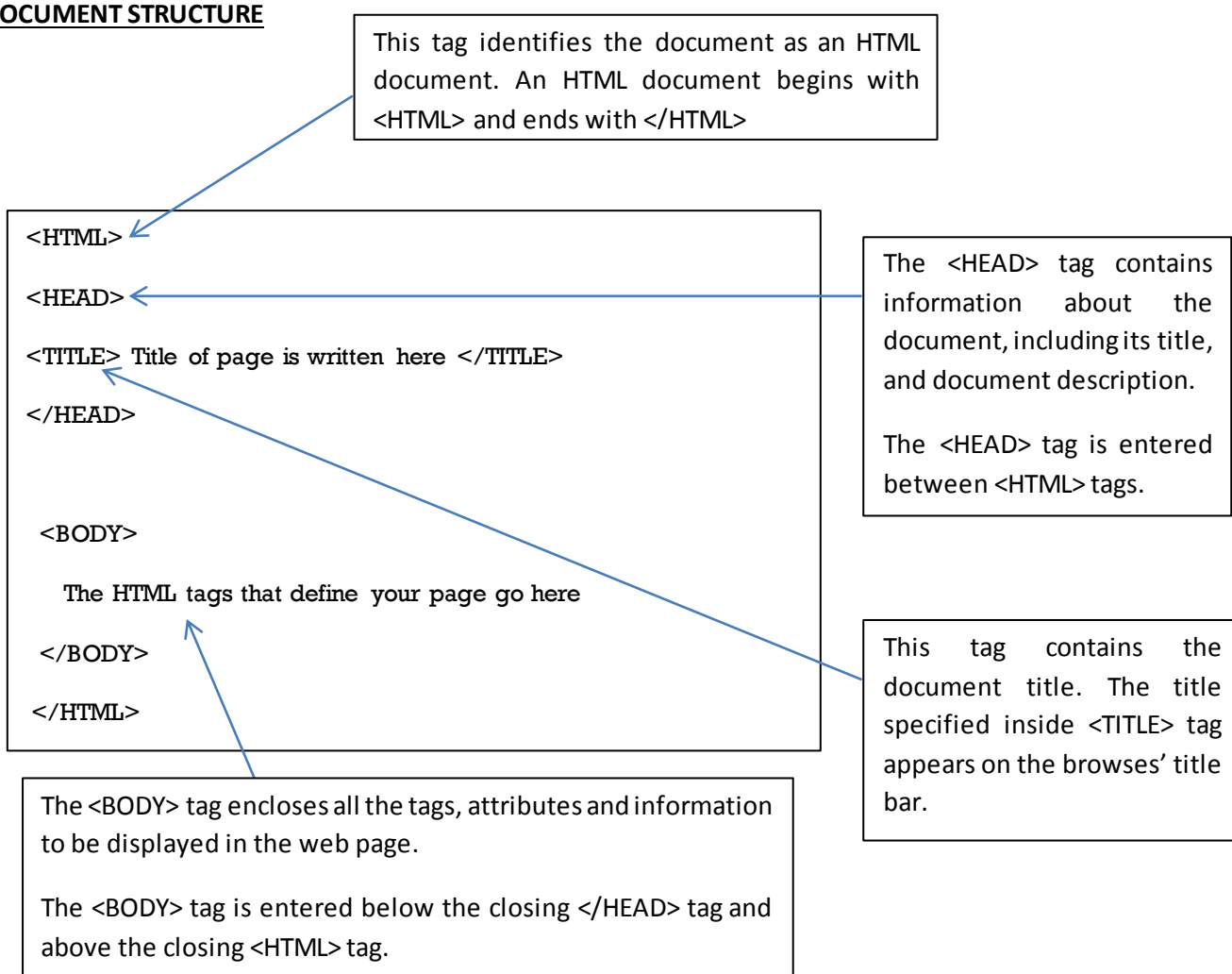
A Tag is a coded HTML command that indicates how part of web page should be displayed. All HTML tags are contained with angle brackets (<>) e.g., <HEAD> is a tag. Similarly <H1> is a tag.

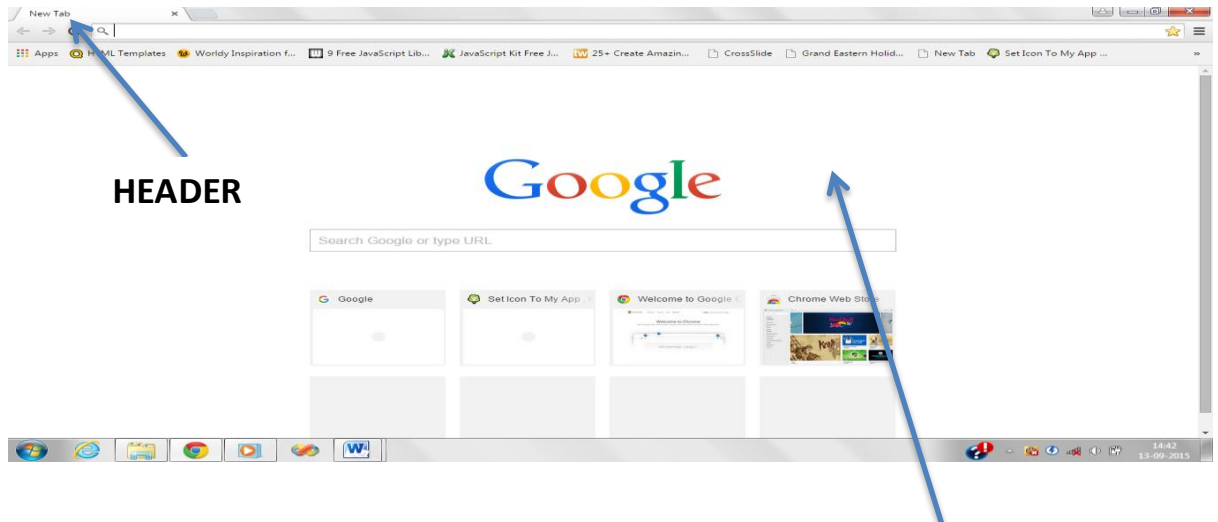
ATTRIBUTE

An Attribute is a special word used inside tag to specify additional information to tag such as color, alignment etc.

You can type HTML in capital letters as well as in small letters.

HTML DOCUMENT STRUCTURE





WHERE TO WRITE HTML CODE

1. Open Text Editor, (Notepad in case of Windows Operating System).
2. Type the HTML code in it.
3. Save the file with extension .html/.htm
4. To view the created HTML file in browser, double click on the file.

CONTAINER ELEMENTS

HTML container elements require a starting as well as an ending tag. Some examples of container elements are:

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

EMPTY ELEMENTS

HTML Empty elements require just a starting tag and not an ending tag. Some examples of Empty Container are:

```
<br>
<hr>
<img>
```

HTML TAG STRUCTURE

1. Every HTML tag consists of a tag name, sometimes followed by an optional list of attributes, all placed between opening and closing angle brackets (< and >).
 2. A tag attribute's value, if any, is given after the equal sign (=) in quotes generally after the attribute name.
- For example,

```
<A href = http://www.netscape.com/yellowpages>
```

Some examples of HTML tags with attributes are:

```
<body bgcolor = "red">
```



BASIC HTML TAGS

1. The HTML Tag

- The <HTML> and </HTML> tags are used to mark the beginning and end of an HTML document.
- This tag does not have any effect on appearance of document.
- This tag is used to make browsers and other programs know that this is an HTML document.

Attributes of HTML tag

(i) The DIR attribute

This attribute can have values either ltr(left-to-right) or rtl(right-to-left).

e.g. <HTML dir = ltr>

(ii) The LANG attribute

This attribute of <HTML> tag specifies the language you've generally used within the document.

To specify base language of web page, the LANG attribute is used. e.g. "en" is used to specify English Language and "fr" is used to specify French language.

e.g. <HTML lang = en>

HTML Tag	
Type	Container Element
Function	Delimits a complete HTML document
Attributes	DIR, LANG
Contains	Head-tag, body-tag

2. The HEAD Tag

The HEAD tag is used to define the document header.

<HEAD> tag contains information about the document, including its title and document description.

HEAD Tag	
Type	Container Element
Function	It defines the document header.
Attributes	-
Contains	<Title>tag

3. The TITLE Tag

TITLE Tag	
Type	Container Element
Function	Define the document title.
Attributes	-
Used Inside	<HEAD>....</HEAD> tags

Problem: To display the web page title as 'My First HTML Page'.

```
<HTML>
  <HEAD>
    <TITLE> My First Page </TITLE>
  </HEAD>
  <BODY>

  </BODY>
</HTML>
```

4. The Body Tag

The body tag defines the document's body. It contains all the contents of an HTML document, such as text, images, lists, table, etc.

Attribute of Body Tag

1. **Background attribute** : This attribute allow you to include a background image.

```
<BODY background = "Pic.jpg">
```

This above statement will set pic.jpg image as background of the body of web page.

2. **Background color, Text Color, Link Color**

By default browsers display text in black.

If you want to change the color or text (by TEXT attribute), color of links (by LINK attribute), color of active links (by ALINK attribute) and background color (by BGCOLOR attribute).

Consider the following:

```
<BODY bgcolor = "teal" text = "magenta" link = "yellow" alink = "red">
```

- The background color is teal. (bgcolor = "teal")
- Text color is magenta.
- Links that have not been visited recently are made yellow(link = "yellow")
- Links that are currently being clicked on (alink = "lime")

Problem: To make the background appear black, text lime , links yellow and recently visited links red.

```
<HTML>
<HEAD>
<TITLE>Attributes of Body Tag </TITLE>
</HEAD>

<BODY bgcolor="black" text= "white" link="red" alink="yellow">
Informatics practices Class XII
<a href="https://www.google.com">Click here to access google search engine</a>
</BODY>
</HTML>
```

Setting Left and Top Margins

- The margin refer to the blank area left from the edge of page.
- If you want to leave some blank area in the left side, you can use LEFTMARGIN attribute as follows:
<BODY leftmargin =value>
The value is the number of pixels (72 pixels make an inch) to be left blank.
e.g. <BODY leftmargin = "60">
- If you want to set the top margin i.e. distance from the top edge, you can use TOPMARGIN attribute.

e.g. <BODY topmargin = "70">

This will make the body-text appear 70 pixels away from top edge of the page.

Problem: To make body text appear 60 pixels away from the top edge of page and 75 pixels away from left edge of page.

```
<HTML>
<HEAD>
  <TITLE>Usage of Margins </TITLE>
</HEAD>
<BODY topmargin = "60" leftmargin = "75">
Information Technology is an important subject of Engineering.
</BODY>
</HTML>
```

5. Heading in HTML (H1 H6 Tags)

- HTML has six levels of headings, numbered 1 through 6, with 1 being the largest.
- Headings are typically displayed in larger or bolder fonts than normal body text.

Attribute of Heading tag

1. ALIGN - used to set the alignment of heading. It can take either LEFT, RIGHT or CENTER as its value.

Problem: To display multiple headings in multiple forms using H1 H6 tags.

```
<HTML>
<HEAD>
  <TITLE> Headings in HTML </TITLE>
</HEAD>
<BODY>
<H1> Level 1 Heading </H1>
<H2 align = "center"> Level 2 Heading </H2>
<H3> Level 3 Heading </H3>
<H4 align = "right"> Level 4 Heading </H4>
<H5> Level 5 Heading </H5>
<H6 align = "left"> Level 6 Heading </H6>
</BODY>
</HTML>
```

6. <P> (Paragraph) Tag

- To start a new paragraph, <P> tag is used. It is a container tag.

Attribute of <P> tag

1. ALIGN - used to set the alignment of paragraph. It can take either LEFT, RIGHT or CENTER as its value.

Problem: To display text with line and paragraph breaks.

```
<html>
<head>
  <title> Paragraph</title>
</head>
<body>
  <p> This will start a new paragraph</p>
  <p align="center"> Again starting of new paragraph </p>
</body>
<html>
```

7.
 tag

- To end one line , and to jump to the next
 tag is used.

```
<html>
<head>
  <title> Paragraph</title>
</head>
<body>
  Writing a line. I want to write in next line.<br/>
  I am in a new line.
</body>
</html>
```

8. <CENTER> Tag

- To centralize a segment of text, just type the text between <CENTER> and </CENTER>.

For example, the code

```
<CENTER> This is centralized </CENTER>
```

Will make text – This is centralized – appear centralized on browser window.

9. Horizontal Rules - <HR> - Tag

- The <HR> tag produces a horizontal line spread across the width of the browser window.

Attributes of <HR> tag

(i) Size

- This attribute allows you to set the size of the horizontal rule.

Problem: To display horizontal rules of various sizes.

```
<HTML>
<HEAD>
  <TITLE> Various Horizontal Rule </TITLE>
</HEAD>
<BODY>
  <P> This is conventional document text. </P>
  <HR>
  The next three horizontal rules are of different sizes.
  <HR size=12>
  <HR size =36>
  <HR size =72>
</BODY>
</HTML>
```

(ii) width Attribute of <HR>

- The length of horizontal rules can be controlled with **width** attribute.

Problem: To display horizontal rules of different widths.

```
<HTML>
<HEAD>
  <TITLE>Width of Horizontal Rule</TITLE>
</HEAD>
<BODY>
  <P> The following two rules have widths of 100 and 200 pixels respectively</P>
```

```
<HR width=100><br><br>
<HR width=200>
</BODY>
</HTML>
```

10. tag

➤ It lets you change the size, style and color of the text – It is generally used for changing the appearance of a short segment of text.

Attributes of tag

- (i) **size**: used to specify the size of the text.
- (ii) **color** : used to change the color of text.
- (iii) **face** : used to change the way of displaying text.

Problem : To display a paragraph on red color in size 4 but its first letter should be of size 7 and of blue color.

```
<HTML>
<HEAD>
  <TITLE>Base Font</TITLE>
</HEAD>
<BODY>
<FONT size=7 color="blue"> U </FONT>
<FONT size=4 color="red"> sing the largest font </FONT>
</BODY>
</HTML>
```

Problem: To display text in a particular font-type.

```
<HTML>
<HEAD>
  <TITLE>Font Faces</TITLE>
</HEAD>
<BODY>
<FONT size=7 color="blue" face="Broadway,Arial, Albertus">
The font are displaying .
</FONT><br>
This is the text without any specific font.
</BODY>
</HTML>
```

11. <BASEFONT> tag

- This tag lets you define the basic size for the font, the browser will use to render normal document text.

Attribute of <BASEFONT> tag

- **size** – its value determines the document's base font size. It have value between 1 and 7.

Problem: To display text by changing base font sizes.

<HTML>

<HEAD>

<TITLE> Base Font </TITLE>

</HEAD>

<BODY>

This text is being displayed in default font size as no basefont size has been set as yet.

<BASEFONT size =5>

This text has base font size =5.

</BODY>

</HTML>

Comments <!.... and>

- Comment are one type of textual content which appear in your HTML code, but are not rendered by user's browser.
- Comments are given between special <!-- and --> characters.
- Browsers ignore the text between comment characters.

LOGICAL AND PHYSICAL TEXT STYLES

HTML has two types of styles for individual words or sentences:

- (i) Logical and
- (ii) Physical styles

LOGICAL TEXT STYLES

- Logical styles render the text according to its meaning e.g. is for emphasizing something and is for strongly emphasizing some thing.
- **Various logical styles are:**
 - <DFN> - for a word being defined. Typically displayed in italics.
 - - for emphasis. Typically displayed in italics.
 - <CITE> - for titles of books, films, etc. Typically displayed in italics.
 - - for strong emphasis. Typically displayed in bold.

(all above mentioned tags are container elements)

PHYSICAL TEXT STYLES

- It indicate the specific type of appearance for a section e.g. bold, italics etc.
- Various physical text styles are;
 - - bold text
 - <I> - italic text
 - <U> - underlined text

(all above mentioned tags are container elements)

SUBSCRIPT AND SUPERScript

- To write something like H₂O, you can write it as H ₂O.
- Similarly, to write something like X², you can write it as X².

SPECIAL CHARACTERS

- The left angle bracket (<), the right angle bracket (>) and the ampersand (&) have special meaning in HTML and therefore cannot be used in normal text.
- To use one of the three characters in an HTML document, you must enter its escape sequence instead as illustrated below:
 - < - the escape sequence for <
 - > - the escape sequence for >
 - & - the escape sequence for &

Problem: To display special characters.

```
<HTML>
<HEAD>
  <TITLE> Special characters </TITLE>
</HEAD>

<BODY>
  <P> &lt; and &gt; and &amp; are special characters that are displayed
  Using escape sequence. </P>
</BODY>
</HTML>
```

MCQ's

1. With which HTML tag do you apply attributes that modify text sizes, font-face, and color ?
 - (a)
 - (b) <mod>
 - (c) <f>
 - (d) <text>
2. Which HTML tag would you apply the bgcolor attribute to in order to change the background color of the web page ?
 - (a) <html>
 - (b) <head>
 - (c) <body>
 - (d) <p>
3. In which section of an HTML document do you enter the <title> element?
 - (a) The body section
 - (b) The footer section
 - (c) The style section
 - (d) The head section
4. In which HTML element do you apply attributes that modify the background image?
 - (a) The <html> element.
 - (b) The <head> element.
 - (c) The <background> element
 - (d) The <body> element
5. Which of the following heading tags will cause a browser to render text at the largest default size?
 - (a) <h3>
 - (b) <h2>
 - (c) <h5>
 - (d) <h4>
6. Which of the following is the proper syntax to start an HTML comment?
 - (a) <!--
 - (b) <!>
 - (c) <comment>
 - (d) <notate>

7. Which one of the following is the HTML tag used to insert a horizontal rule?
- (a) <h1>
 - (b) <hr>
 - (c) <rule>
 - (d)

8. What HTML container tags do you apply to text to format the text as a paragraph?
- (a) <para></para>
 - (b) <text></text>
 - (c) <p></p>
 - (d) <style></style>
9. Which HTML tags cause browsers to render text as italics?
- (a) <italics></italics>
 - (b) <ital></ital.>
 - (c) <i></i>
 - (d)
10. Interpret this statement: Michelle
- (a) It makes Michelle strong.
 - (b) It highlights Michelle as being strong.
 - (c) It will print out Michelle in bold font.
 - (d) It will print strong Michelle.
11. HTML tags are case sensitive. (a) True (b) False
12. The page title is inside the _____ tag.
- (a) Body
 - (b) Head
 - (c) Division
 - (d) Table
13. <H1> is the smallest header tag. (a) True (b) False

LISTS IN HTML

There are three basic types of lists in HTML: **unnumbered**, **numbered** and **definition**.

Unnumbered or unordered Lists

- Unordered (or Unnumbered) lists are indented lists with a special bullet symbol in front of each of them.

- E.g.

- Apple
 - Orange
 - Grapes

- In order to make above list tag is used in HTML.

```
<UL>
```

```
<LI>Apple</LI>
```

```
<LI>Orange</LI>
```

```
<LI>Grapes</LI>
```

```
</UL>
```

- The items can contain multiple paragraphs also.

Attributes of (unordered list) tag

1. The type attribute

- By default, a solid circle is used for the bullets. However, you can change the bullet style using type attribute.
- The attribute may have a value of either disc, circle or square.

Problem: To display various bullet types.

```
<HTML>
<HEAD>
  <TITLE>Various Bullet Styles</TITLE>
</HEAD>
```

```
<BODY>
  <UL>
    <LI> One</LI>
    <LI>Two </LI>
    <LI>Three </LI>
  </UL>
```

```
<UL type="circle">
  <LI> One</LI>
  <LI>Two </LI>
  <LI>Three </LI>
</UL>
```

```
<UL type="square">
  <LI> One</LI>
  <LI>Two </LI>
  <LI>Three </LI>
</UL>
```

```
</BODY>
</HTML>
```

Numbered Lists or Ordered Lists

- Ordered (or Numbered) lists are indented lists that have numbers or letters in front of each of them.
- A numbered list is identical to an unnumbered list, except it uses instead of .
- The items that are tagged with appear numbered e.g. 1,2,3 etc. on the browser window.

e.g. consider the following HTML code :

```
<OL>
  <LI>Oranges</LI>
  <LI>peaches</LI>
  <LI>grapes</LI>
</OL>
```

And the output produced is:

1. Oranges
2. peaches
3. grapes

Attributes of (ordered list) tag

1. The start attribute

- Normally, browsers automatically number ordered list items beginning with the Arabic numeral 1.
- The start attribute for the tag lets you change that beginning value. To start numbering a list at 5, for example, you may write:

```
<OL start =5>
  <LI> This is item number 5.</LI>
  <LI> This is item number 6.</LI>
  <LI> And so forth.....</LI>
</OL>
```

2. The type attribute

- By default, browsers number ordered list items with a sequence of Arabic numerals.
- Besides being able to start the sequence at some number other than 1, you can use the type attribute with the tag to change the numbering style itself.

Type Value	Generated style	Sample sequence
A	Capital letters	A, B, C, D
a	Lowercase Letters	a, b, c, d
I	Capital roman numerals	I, II , III, IV
i	Lowercase roman numerals	i, ii, iii, iv
1	Arabic numerals	1, 2, 3, 4

Problem: To display many ordered lists.

```
<HTML>
<HEAD>
<TITLE>Many Ordered Lists</TITLE>
</HEAD>
<BODY>
<H4> Numbered List: </H4>
<OL>
  <LI>Apples</LI>
  <LI>Oranges</LI>
  <LI>Peaches</LI>
</OL>

<H4>Letters list:</H4>
<OL type="A">
  <LI>Apples</LI>
  <LI>Oranges</LI>
  <LI>Peaches</LI>
</OL>
<OL type="a" start= 5>
  <LI>Apples</LI>
  <LI>Oranges</LI>
  <LI>Peaches</LI>
</OL>
</BODY>
</HTML>
```

Definition Lists

- Definition lists are indented lists without any bullet symbol or any number in front of each item.
- The following is an example of a definition list:

```
<DL>
```

```
<DT> NCSA
```

```
<DD> NCSA, the National center for supercomputing Applications, is located on the campus of
      University of Illinois.
```

```
<DT> Cornell Theory Center
```

```
<DD> CTC is located on the campus of Cornell University in Ithaca, New York.
```

```
</DL>
```

The output looks like:

NCSA

NCSA, the National center for supercomputing Applications, is located on the campus of
University of Illinois.

Cornell Theory Center

CTC is located on the campus of Cornell University in Ithaca, New York.

TABLES

- HTML tables allow you to arrange data into rows and columns of cells.

VARIOUS TABLE TAGS

1. <table> - wraps up a table and its elements.
2. <tr> - which defines a table row.
3. <th> - which defines table header.
4. <td> - which defines data cells.
5. <caption> - which defined title for the table.

CREATING SIMPLE TABLE

```
<HTML>
<HEAD>
  <TITLE>CREATING TABLE</TITLE>
</HEAD>
<BODY>
  <TABLE>
    <CAPTION>A SIMPLE TABLE</CAPTION>
    <TR>
      <TD>ONE</TD>
      <TD> TWO</TD>
      <TD>THREE </TD>
    </TR>
    <TR>
      <TD>FOUR </TD>
      <TD> FIVE</TD>
      <TD> SIX</TD>
    </TR>
  </TABLE>
</BODY>
</HTML>
```

<TABLE> starts and ends the entire thing.

<CAPTION>and </CAPTION> places a caption over your table.

<TR> is used when you want a new table row to begin.

<TD> denotes Table Data.

<TABLE> tag

- The table tag begins the process of building a table.
- Its attributes are:
 - BORDER
 - BORDERCOLOR
 - FRAME
 - RULES
 - CELSPACING & CELLPADDING
 - ALIGN
 - BACKGROUND
 - BGCOLOR
 - HEIGHT AND WIDTH

- **BORDER attribute**

- A table's border is specified through BORDER attribute.

```
<HTML>
  <HEAD>
    <TITLE></TITLE>
  </HEAD>
  <BODY>
    <TABLE border= "1">
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
    <TABLE>
  </BODY>
</HTML>
```

- **BORDERCOLOR attribute**

- Used to specify the color of table's border.

```
<HTML>
  <HEAD>
    <TITLE></TITLE>
  </HEAD>
  <BODY>
    <TABLE border= "1" bordercolor="red">
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
    <TABLE>
  </BODY>
</HTML>
```

- **Displaying select border sides – FRAME attribute**

- Allows you to state which portion of the border will render (display).
- **Values that can be specified for FRAME attribute are:**
 - above - displays top edge only
 - below – displays bottom edge only
 - border – displays all four sides

box – display all four sides(like border)
hsides – displays top and bottom edges
lhs – displays left edge only
rhs – displays right edge only
void – displays no border
vsides – displays left and right sides

```
<HTML>
<HEAD>
<TITLE></TITLE>
</HEAD>
<BODY>
<TABLE border="1" bordercolor="red" frame ="above">
  <TR>
    <TD>Cell Data</TD>
    <TD>Cell Data</TD>
    <TD>Cell Data</TD>
  </TR>
<TR>
  <TD>Cell Data</TD>
  <TD>Cell Data</TD>
  <TD>Cell Data</TD>
</TR>
<TABLE>
</BODY>
</HTML>
```

- **RULES attribute**

- The RULES attribute like FRAME, also works with the BORDER attribute, except RULES deals with the inside border edges.
- Values that can be specified for RULES attribute are:
 - all – displays all borders
 - cols – displays border between cells.
 - groups – displays borders between all cell group
 - none – hides all interior borders
 - rows – displays borders between rows only

```
<HTML>
<HEAD>
<TITLE></TITLE>
</HEAD>
<BODY>
<TABLE border="1" bordercolor="red" rules ="rows">
  <TR>
    <TD>Cell Data</TD>
    <TD>Cell Data</TD>
    <TD>Cell Data</TD>
  </TR>
```

```

<TR>
  <TD>Cell Data</TD>
  <TD>Cell Data</TD>
  <TD>Cell Data</TD>
</TR>
<TABLE>
</BODY></HTML>

```

- **Cellspacing & cellpadding attributes**

CELLSPACING – gives the amount of space between cells.

CELLPADDING – gives the amount of space between the cell border and the cell contents.

```

<TABLE border="3" cellspacing="1" cellpadding="1">
<TR>
  <TD>A</TD>
<TD>B</TD>
<TD>C</TD>
</TR>
<TR>
  <TD>A</TD>
<TD>B</TD>
<TD>C</TD>
</TR>
</TABLE>

```

- **ALIGN attribute**

- To align table in center, right or on left side, ALIGN attribute is used.

e.g.

```

<HTML>
  <HEAD>
    <TITLE></TITLE>
  </HEAD>
  <BODY>
    <TABLE align="center">
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
    </TABLE>

```

```
</BODY>
</HTML>
```

- **BACKGROUND attribute**

- Used to set an image as background of a table.

e.g.

```
<HTML>
  <HEAD>
    <TITLE></TITLE>
  </HEAD>
  <BODY>
    <TABLE align="center" background="flower.jpg">
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
    </TABLE>
  </BODY>
</HTML>
```

- **BGCOLOR attribute**

- Used to add a color in table's background.

e.g.

```
<HTML>
  <HEAD>
    <TITLE></TITLE>
  </HEAD>
  <BODY>
    <TABLE bgcolor="red">
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
    </TABLE>
  </BODY>
</HTML>
```

```
</TR>
<TABLE>
</BODY>
</HTML>
```

- **HEIGHT AND WIDTH attributes**

- Use to specify the height and width of the table.

e.g.

```
<HTML>
<HEAD>
<TITLE></TITLE>
</HEAD>
<BODY>
<TABLE height="100px" width="40px">
<TR>
<TD>Cell Data</TD>
<TD>Cell Data</TD>
<TD>Cell Data</TD>
</TR>
<TR>
<TD>Cell Data</TD>
<TD>Cell Data</TD>
<TD>Cell Data</TD>
</TR>
<TABLE>
</BODY>
</HTML>
```

<TD> tag

- It denotes the table data.

Attributes of <TD> tag

- ALIGN
- WIDTH
- BACKGROUND
- BGCOLOR
- ROWSPAN
- COLSPAN
- VALIGN

- **ALIGN attribute**

- This attribute is used to control the horizontal alignment of the contents of a cell.

e.g.

```
<HTML>
<HEAD>
<TITLE></TITLE>
</HEAD>
```

```

<BODY>
  <TABLE WIDTH="320PX">
    <TR>
      <TD ALIGN="center">Cell Data</TD>
      <TD>Cell Data</TD>
      <TD>Cell Data</TD>
    </TR>
    <TR>
      <TD>Cell Data</TD>
      <TD>Cell Data</TD>
      <TD>Cell Data</TD>
    </TR>
  </TABLE></BODY></HTML>

```

- **WIDTH attribute**

- Used to define width of cells.

e.g.

```

<HTML>
  <HEAD>
    <TITLE></TITLE>
  </HEAD>
  <BODY>
    <TABLE>
      <TR>
        <TD width="100px">Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
      <TR>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
        <TD>Cell Data</TD>
      </TR>
    </TABLE>
  </BODY>
</HTML>

```

- **BACKGROUND and BGCOLOR attribute**

- Background attribute is used to set an image as background in a data cell.
- BGCOLOR attribute is used to change background color of data cells.

e.g.

```

<html>
<head>
<title>Table</title>
</head>

<body>

```



```

<table border="3">

  <tr>
    <td background="pearls.jpg"></td>
    <td></td>
    <td></td>
  </tr>

  <tr>
    <td bgcolor="red"></td>
    <td></td>
    <td></td>
  </tr>

</table></body>
</html>

```

- **ROWSPAN and COLSPAN attribute**
 - The rowspan and colspan attributes are used to specify the span of a cell.

TABLE 1

ITEM 1	ITEM 2	ITEM 3
ITEM 4		ITEM 5

In this table, cell 2 of first row, has a span of two rows.

TABLE 2

ITEM 1	ITEM 2	
ITEM 3	ITEM 4	ITEM 5

Cell 2 of first row, has a span of two columns.

Such type of cells can be created with the help of ROWSPAN and COLSPAN attributes of <TD> tag.

For TABLE 1 shown above, the code is

```

<table border="2">
  <tr>
    <td> ITEM 1</td>
    <td rowspan=2>ITEM 2</td>
    <td>ITEM 3</td>
  </tr>

```

```

<tr>
  <td>ITEM 4</td>
  <td>ITEM 5</td>
</tr>
</table>

```

For TABLE 2 shown above, the code is

```

<table border="2">
  <tr>
    <td> ITEM 1</td>
    <td colspan=2>ITEM 2</td>

  </tr>

  <tr>
    <td>ITEM 3</td>
    <td>ITEM 4</td>
    <td>ITEM 5</td>
  </tr>
</table>

```

Q: write HTML code to create the following table:

A	1	2
	3	4
C	D	

Sol:

```

<html>
<head>
<title>Table</title>
</head>

<body>
  <table border="2">
    <tr>
      <td rowspan=2 > A </td>
      <td> 1 </td>
      <td> 2 </td>
    </tr>
    <tr>
      <td> 3 </td>
      <td> 4 </td>
    </tr>

    <tr>
      <td> C </td>
      <td colspan=2> 4 </td>
    </tr>
  </table>
</body>
</html>

```

- **VALIGN attribute**

- In cells that have span of more than one rows, data can also be vertically aligned using VALIGN attribute.
- The possible values that a VALIGN attribute may take are: top, middle and bottom.

```
<html>
<head>
<title>Table</title>
</head>

<body>
<table border="2">
<tr>
<td valign="bottom" rowspan=2 > A </td>
<td> 1 </td>
<td> 2 </td>
</tr>
<tr>
<td> 3 </td>
<td> 4 </td>
</tr>

<tr>
<td> C </td>
<td colspan=2> 4 </td>
</tr>
</table>
</body>
</html>
```

<TH> Tag

- It stands for table header. The contents declared as header are displayed in a distinctive style i.e. bold.

e.g.

```
<html>
<head>
<title>Header Tag</title>
</head>

<body>

<table border="2">

<tr>
<th>Head1</th>
<th>Head2</th>
<th>Head3</th>
</tr>

<tr>
<td>ONE</td>
<td>TWO</td>
<td>THREE</td>
</tr>

</table>
</body>
</html>
```

- **<TR> tag**
 - It stands for table row.
 - Used to start a new row in a table.

- **<THEAD> tag**
 - It is used to define a set of header rows.
 - It can be used only one time in a table.

- **<TFOOT> tag**
 - It is used to define a set of footer rows.
 - Like <thead>, it can be used only one time in a table.

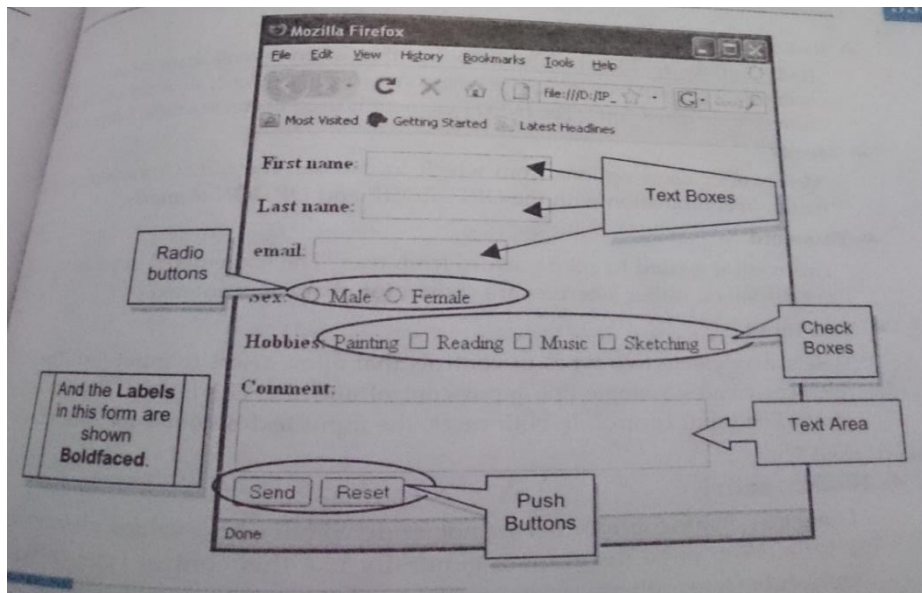
- **<TBODY> tag**
 - It is used to define the table body.
 - It can be used only one time in a table.

HTML FORMS

HTML forms are means to collect information/data from the site-visitor. It is done with the help of controls that collect the information and send it over.

CONTROLS

Users interact with forms through named controls. A control's "control name" is given by its **name** attribute.



CREATING FORMS

- To create or use a form in your web page, you need to make use of <form> tag of HTML. A simple syntax of using <form> is as follows:

<FORM action="back-end-script" method="posting method">

Define here the form elements like input, textarea etc.

</FORM>

Attributes of <FORM> tag

- name – This is the name of the form.
- action – here you will specify any script URL which will receive uploaded data.
- method – here you will specify method to be used to upload data. It

takes following values:

- GET
- POST

CREATING TEXT BOX

- The text boxes are single-line text input controls that are created using an <INPUT> element whose **type** attribute has a value as "text".

e.g.

```
<FORM action="mailto:abc.xyz@gmail.com" method="post">
First Name:
<INPUT type = "text" name="first_name" />
<br>
Second Name:
<INPUT type = "text" name="last_name" />
</FORM>
```

Attributes of <INPUT> tag

- value – Provides an initial value for the text input control that the user will see when the forms loads.
- size – Allow you to specify the width of the text-input control.
- maxsize – Allows you to specify the maximum number of characters into the text box.

CREATING PASSWORD BOX

- It hides the characters input in the text box and shows a dot or asterisk in place of every character entered.
- A password box is created as per following syntax:

```
<INPUT type ="password" name ="<name of password box> " / >
```

e.g.

```
<FORM>
Login:
<INPUT type = "text" name="login" />
<br>
Password:
<INPUT type = "password" name="pwd" />
</FORM>
```

CREATING TEXT AREA

- Multiple line text input control can be created using <TEXTAREA> tag.
- A text area can be created as per following syntax:

```
<TEXTAREA rows ="rows here" cols="columns here" name="name of text area">
</TEXTAREA>
```

e.g.

```
<FORM>
Description : <br/>
<TEXTAREA rows="5" cols="50" name="descrip">
Enter Description here .....
</TEXTAREA>
</FORM>
```

CREATING BUTTONS

There are two ways of creating the buttons:

1. Creating buttons with INPUT tag.
2. Creating buttons with BUTTON tag.

CREATING BUTTON WITH <INPUT> TAG

- While creating buttons with help of <INPUT> tag, type attribute can take three values:
 - submit : This creates a button that automatically submits a form.
 - reset : This creates a button that automatically resets form controls to their initial values.
 - button : This creates a simple button.

e.g.

```
<FORM>
```

```
<INPUT type="submit" name="Submit"/>
<br/><br/>
<INPUT type="reset" name="Reset"/>
<INPUT type="button" name="Button"/>
```

```
</FORM>
```

CREATING BUTTONS WITH <BUTTON> TAG

```
<Button type="button-type">name</Button>
```

e.g.

```
<FORM>
```

```
<BUTTON type="submit">SUBMIT</BUTTON>
<br/><br/>
<BUTTON type="reset">RESET</BUTTON>
<BUTTON type="button">Button</BUTTON>
```

```
</FORM>
```

CREATING CHECKBOXES

- Check boxes are created using the <INPUT> tag with type attribute set to "checkbox" as per the following syntax:
<INPUT type="checkbox" name="nameofcheckbox" value="valuetobeused"/>
- When a checkbox is selected, its **name-value** pair is sent for processing.

e.g.

```
<FORM>
```

```
<INPUT type="checkbox" name="s1" value="Maths"/>Maths
<INPUT type="checkbox" name="s2" value="Physics"/>Physics
<INPUT type="checkbox" name="s3" value="English"/>English
<INPUT type="checkbox" name="s4" value="B.Studies"/>Business Studies
<INPUT type="submit" value="Select Subject"/>
```

```
</FORM>
```

CREATING RADIOBOX

- Radio Buttons are used when only one option is required to be selected.
- Radio buttons are created using the <INPUT> tag with type attribute set to "radio" as per the following syntax:

```
<INPUT type="radio" name="nameofradiobutton" value="valuetobeused"/>
```

e.g.

```
<FORM>
  <INPUT type="radio" name="stream" value="Science"/>Science
  <INPUT type="radio" name="stream" value="Commerce"/>Commerce
  <INPUT type="radio" name="stream" value="Humanities"/>Humanities
  <INPUT type="submit" value="Select Stream"/>
</FORM>
```

SELECT BOX CONTROL

- Drop down box or select box is used to select one option at a time.
- A drop down box (select box) is created with SELECT and OPTION tag pair, as per the following syntax:

```
<SELECT name="name here">
  <OPTION value="value here">Item name</OPTION>
  .....
</SELECT>
```

e.g.

```
<FORM>
  <SELECT name="Stream">
    <OPTION value="Science">Science</OPTION>
    <OPTION value="Commerce">Commerce</OPTION>
    <OPTION value="Humanities">Humanities</OPTION>
  </SELECT></FORM>
```

CHAPTER 12 XML (extensible Markup Language)

XML	HTML
➤ HTML documents formats and displays web pages' data.	➤ XML documents carry data along with their description.
➤ HTML tags are predefined.	➤ XML tags are not predefined. You can create and define new tags as per your needs.
➤ HTML tags may not have closing tag.	➤ XML tags must have a closing tag.
➤ HTML tags are not case-sensitive.	➤ XML tags are case – sensitive.
➤ HTML documents are directly viewable in a browser.	➤ XML documents can be viewed only if proper stylesheet file is also available along with XML file.

XML

- XML is eXtensible Markup Language which allows to create application specific structured documents by allowing creation of new tags. These structured documents can later be rendered (i.e. presented in human understandable manner) in different ways.

FEATURES OF XML

1. XML was designed to carry data, not to display data.
2. XML is designed to be self-descriptive.
3. XML is free and extensible.
4. XML is platform independent – It can run on all platforms. It's created using standard text files. These files are compatible with all platforms such as Windows, Macintosh, and Unix etc.
5. XML can be used to create new Languages- It is a Meta language, which means it can be used to create new languages.

ADVANTAGES OF XML

1. It is as easy as HTML.
2. XML is fully compatible with applications like Java, and it can be combined with any application that is capable of processing XML irrespective of the platform it is being used on.
3. XML is an extendable language, meaning that you can create your own tags, or use the tags which have already been created.
4. It is Platform independent language.

STRUCTURE OF XML FILE/DOCUMENT

- Every XML document is a structured document. Every XML file or document has both:
 - a Logical structure
 - a Physical structure

LOGICAL STRUCTURE

- It tells about:
 - (i) what all elements are to be included in the document.
 - (ii) the order of elements.

PHYSICAL STRUCTURE

- It contains the actual data, i.e., the actual content. The storage units in physical structure terms are called entities. Entities can either be contained inside document, i.e. internal entities or can also exist outside the document i.e., external entities.

LOGICAL STRUCTURE OF XML DOCUMENT

- The logical structure of an XML document consists of mainly :
 - The prolog, and
 - The Data Instance

THE PROLOG

- It is a preface or introduction to the XML document.
- It can have up to five types of components:
 - An XML declaration
 - Processing Instructions
 - A document type declaration
 - Comments
 - White Space

XML Declaration

- It is a declaration that identifies following attributes :
 - (a) the XML version
 - (b) encoding
 - (c) stand-alone or not

`<?xml version = "1.0" encoding = "UTF-8" standalone ="no" ?>`

THE DATA INSTANCE- It is a part of XML document follows the prolog and consists of one or more elements i.e., it contains the real data.