

# Web Technology I

## Introduction to Web Development

- It refers to building web applications and deploying on the web.
- It requires scripting languages both at the server end as well as at the client end.
- It is also known as web programming, is the creation of static or dynamic web application.

## Client-side language

- Client-side programming involves writing program that is interpreted by a browser such as internet explorer or Mozilla firefox or google chromo.
  - HTML
  - Javascript
  - Dynamic HTML
  - Ajax
  - jQuery
  - Microsoft Silverlight

## Server-side language

- Server side programming involves writing program code that connects web pages with databases, XML pages, email servers, file system, and other system and software accessible from the web server.
  - ColdFusion
  - Java EE
  - ASP.Net
  - Python
  - PHP
  - Node.js
  - Cgi Script
  - Ruby

## Web Browser

- An application software or program designed to enable users to access, retrieve and view documents and other resources on the internet.
- For example: Mozilla Firefox, Google Chrome, Internet Explorer, Opera, and Safari etc.

## Web Page

- A document on the World Wide Web, consisting of an HTML file and any related files for scripts and graphics, and often hyperlinked to other documents on the web is called web page.
- Web pages can be either static or dynamic. Static web pages show the same content each time they are viewed. Dynamic web pages have content that can be change each time they are accessed. These pages are typically written in scripting languages such as PHP, ASP etc.

## Search Engine

- People can get a lot of benefits from a search engine.
- Through search engine, the users can provide a topic about which they want to find out.
- The search engine shows the websites in which the related information can be found. Example: Google, Yahoo, Alta Vista, ASK, etc.

## Introduction of Internet

- The internet is a global system of interconnected computer networks that use the standard Internet Protocol suite to serve billions of users worldwide.
- The Internet facility is a service provided by an ISP (Internet Service Provider).

## Uses of Internet

- Online Banking
- Email
- Downloading
- Ecommerce
- Entertainment
- Job search
- Information

## Misuse of the Internet

- **Personal Information**
- If we use the internet, our personal information such as our name, address, contact numbers etc can be accessed by other people who may cause us badly. If we use a credit card for online shopping, our credit card information can also be stolen which is like similar to give someone a blank cheque.
- **Pornography**
- This is a very serious issue concerning the internet, especially when it comes to young children. There are thousands of pornographic sites on the internet that can be easily found and can be harm to letting children use the internet.
- **Spamming**
- This refers to sending unwanted emails in bulk, which serve no purpose and unnecessarily obstructs the entire system. We may face this kind of problem frequently nowadays in email by sending us fake information.

# Concept of Protocol

- A set of rules which is used by computers to communicate with each other across the network is called protocol.
- Protocol specifies the format of message and the rules for exchanging the message.
- The TCP/IP internet protocols, a common examples, consists of transmission Control Protocol (TCP), which uses a set of rules to exchange messages with other Internet points at the information packet level.
- Internet protocol (IP), which uses a set of rules to send and receive messages at the internet address level.
- Additional protocols that include the Hyper Text Transfer Protocol (HTTP) and File Transfer Protocol (FTP), each with defined sets of rules to use with corresponding programs elsewhere on the internet.
- 

## INTRODUCTION

- HTML (Hyper Text Markup Language) is text markup language used to create HTML documents (Web Pages) for The Internet.
- HTML is a set of logical codes or tags (markup) that are used to define the Web browser how to present the information in the Web page.
- It can be applied and embedded in the text to add formatting, linking that constitute the appearance of the Web documents and the information.
- It is interpreted by the Web browser.
- The Web browser is software that runs on the Web client (user computer ) and it interprets HTML tags to display the contents of the Web page.
- HTML is platform independent language. It is not a programming language like C, C++, java and BASIC.
- Basically, it is a set of markup tags that tells the browser how to display the Web page content.

## Why HTML is called markup language?

- HTML is called markup language because it specifies how to incorporate text, graphics and also visual element such as fonts, font size and paragraph spacing, markup is what HTML tags do to the text inside them. They markup it as a certain type of font.

## Document Structure elements

- **The HTML element**
- The HTML element identifies the document as one containing all other html elements. The html element is not visible on the html document when displayed by the browser. HTML element contain the HEAD and BODY element.
- 
- **The HEAD element**
- The HEAD element contains an ordered collection of information about the html document. The <TITLE>.....</TITLE> tags are used <HEAD>.....</HEAD> tags to provide title of document.
- 
- **The BODY element**
- The BODY element contains all the text and image that make up the page together with all the html elements that provide the control and formatting of the page. The body element contains the <BODY>.....</BODY> tags.

The attribute of BODY element are:

- **background**- This attribute provides background image that will be tiled across the browser.
- Syntax:
- `<body background="url or filename.extension">`
- `<body background ="download.jpg" style="background-repeat:no repeat;background-size:100%100%">`
- `</body>`
- **bgcolor**- This attribute is used to change background color of browser.
- Syntax:
- `<body bgcolor="color_name or rgbvalue">`
- `</body>`
- `<body leftmargin/ right margin ="100">`

## Block Formatting Elements

- The ADDRESS element
- The FONT element (depreciated)
- The HEADING element
- The CENTER element
- The COMMENT element
- The HORIZONTAL element
- The LISTING element
- The MARQUEE element
- The PARAGRAPH element
- The PLAINTEXT element
- The PRE-FORMATTED text element



element	Meaning	Purpose
<b>&lt;b&gt;</b>	Bold	Highlight important information
<b>&lt;strong&gt;</b>	Strong	Similarly to bold, to highlight key text
<b>&lt;i&gt;</b>	Italic	To denote text
<b>&lt;em&gt;</b>	Emphasised Text	Usually used as image captions
<b>&lt;mark&gt;</b>	Marked Text	Highlight the background of the text
<b>&lt;small&gt;</b>	Small Text	To shrink the text
<b>&lt;strike&gt;</b>	Striked Out Text	To place a horizontal line across the text
<b>&lt;u&gt;</b>	Underlined Text	Used for links or text highlights
<b>&lt;ins&gt;</b>	Inserted Text	Displayed with an underline to show an inserted text
<b>&lt;sub&gt;</b>	Subscript Text	Typographical stylistic choice
<b>&lt;sup&gt;</b>	Superscript Text	Another typographical presentation style

## Address

- <html>
- <head>
- <title> HTML</title>
- </head>
- <body>
- <address>
- Nagarjuna College<br>
- Lalitpur<br>
- Phone:014453556
- </address>
  
- </body>
- </html>

## The ADDRESS element

- This element essentially formats an address section. Typically an address is shown in italic typeface and may be indented.

- Example:

- `<address>`

- Nagarjuna College`<br>`

- Lalitpur`<br>`

- Phone:014453556

- `</address>`

Output

*Nagarjuna College*

*Lalitpur*

*Phone: 01445356*

## 2. The FONT element (deprecated)

The FONT element is used to specify various font styles. This element has following attributes:

- size**-This attribute specifies size of font. Its value can be from 1 to 7.
- color**-This attribute specifies color of value. Value can be color name or value.
- face**-This attribute specifies the typeface that will be used to display the text on the screen provided that the typeface is already installed on the users machine. You can specify more than one comma separated typeface.

Example:

```
<font size="1" color="#ff0000" face="Arial Black">
```

Some text

```
</font>
```

## The HEADING element

- HTML provide 6 levels of heading from h1 to h6. Heading element can be used to specify all the font change, paragraph breaks before and after and whitespace necessary to show the heading.

- Example:

- `<body>`
- `<h1>This is heading 1</h1>`
- `<h2>This is heading 2</h2>`
- `<h3>This is heading 3</h3>`
- `<h4>This is heading 4</h4>`
- `<h5>This is heading 5</h5>`
- `<h6>This is heading 6</h6>`
- `</body>`

**This is heading 1**

**This is heading 2**

**This is heading 3**

**This is heading 4**

**This is heading 5**

**This is heading 6**

## The CENTER element

- All lines of text between `<center>.....</center>` tags are centered between the left and right margin.

- Example:

- `<body>`
- `<center>`
- `Web Designing`
- `</center>`
- `</body>`

Web Designing

## The Blockquote element

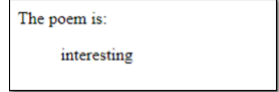
The BLOCKQUOTE causes a paragraph break and provides space above and below the quote. It also provides margins.

Example:

The poem is:<blockquote>

interesting

</blockquote>



The poem is:  
interesting

## The COMMENT element

- The COMMENT element is used when the author adds statement that will not appear in the output but are put in the document to make it more understandable for another author.
- Example:
- <!This content is not visible in browser>

## The HORIZONTAL rule element

- The <HR> tag of horizontal rule element creates a divider between section of text such as a full width horizontal rule.
- Its attributes are:
  - **size**- determines thickness of horizontal rule.
  - **width**- determines width of horizontal rule. Its value can be given in percentage or pixels.
  - **color**- determines color of horizontal rule.
  - **align**- aligns horizontal rule to left, right or center.
- Example:
  - `<HR size="10" width="50%" align="left" color="#008000">`

## The marquee element

Tag	Description
width	provides the width or breadth of a marquee. For example width="10" or width="20%"
height	provides the height or length of a marquee. For example height="20" or height="30%"
direction	provides the direction or way in which your marquee will allow you to scroll. The value of this attribute can be: left, right, up or down
Scroll delay	provides a feature whose value will be used for delaying among each jump.
scroll amount	provides value for speeding the marquee feature
bgcolor	provides a background color where the value will be either the name of the color or the hexadecimal color-code.

## Example

- `<marquee width="60%" direction="up" height="100px"> This is a sample scrolling text that has scrolls in the upper direction. </marquee>`
- `<marquee behavior="scroll" direction="up" scrollamount="1">Slow Scrolling</marquee>`
- `<marquee behavior="scroll" direction="right" scrollamount="12">Little Fast Scrolling</marquee>`
- `<marquee behavior="scroll" direction="left" scrollamount="20">Fast Scrolling</marquee>`
- `<marquee behavior="scroll" direction="right" scrollamount="50">Very Fast Scrolling</marquee>`

## The LISTING element

- The LISTING element can be used to present blocks of text in a fixed width font and so it is suitable for text, that has to be formatted on screen. The text will be displayed as fixed-width font with white space separating it from other text.

- Syntax:

- `<listing>.....</listing>`

- Example:

- So many people `<listing>` intends to play with fire `</listing>` inspite of being warned.

```
So many people
intends to play with fire
inspite of being warned.
```

## The PARAGRAPH element

- This element uses `<p>.....</p>` tags to indicate a paragraph. The paragraph can be aligned left, right or center using `align` attribute.
- Example:
- `<p>` You can easily change the formatting of selected text in the document text by choosing a look for the selected text from the Quick Styles gallery on the Home tab.`</p>`

## The LINE BREAK element

- The line break element specifies that a new line should start at the point. Line break element makes use of an empty tag and given at the end of the line after which a new line is desired.
- Syntax:
- `<br>`
- Example:
- HTML stands for Hypertext markup language. `<br>` It is the standard markup language for creating web pages.

## Character Formatting Elements

- **Bold face**

- This element specifies that the text should be displayed in bold font face.

- Example:

- `<b>This text is bold</b>`

- **Big**

- The big element specifies that the enclosed text should be displayed in bigger font as compared to the current font.

- Syntax:

- `<big>.....</big>`

- **Italics**

- This element specifies that the enclosed text should be displayed in italics font style.

- Syntax:

- `<i>.....</i>`

- **Small**

- The small element specifies that the element text should be displayed in smaller font as compared to the current font.

- Syntax:

- `<small>.....</small>`



- **Strike**

- This element specifies that the text should be displayed with a horizontal line striking through the text.

- Syntax:

- `<s>.....</s>`

- **Subscript**

- This element specifies that the text within it is displayed in subscripted form.

- Syntax:

- `<sub>.....</sub>`

- 

- Example:

- `H<sub>2</sub>O`

- **Superscript**

- This element specifies that the text within it is displayed in superscripted form.

- Syntax:

- `<sup>.....</sup>`

- Example:

- `(a+b)<sup>2</sup>`

- 

- **Underline**

- This element specifies that text within it should be displayed as underlined.

- Syntax:

- `<u>.....</u>`

- Example:

- `<u>This text is underline</u>`

- **Typewriter type**

- The <tt>.....</tt> tag are used for displaying text in a fixed width font similar to that of typewriter.

- 

- **Strong**

- The <strong>.....</strong> tags are used for displaying text similar to bold font face.

- 

- **Emphasis(Italic)**

- This text within <em>.....</em> tags are emphasized.

- 

- **Division**

- The <div>.....</div> tags are used to create division or selections on browser.

- 

- **Quotation**

- The text written in <q>.....</q> are displayed in double quotes.

- **Unordered list**

The unordered list element is used to present a list of item which is marked by bullets. An unordered list starts with <ul> tag followed by <li> list item.

Example:

```
<ul type="square">
<li>football</li>
<li>basketball</li>
<li>volleyball</li>
<li>handball</li>
</ul>
```

Output:

Value	Description
disc	Sets the list item marker to a bullet (default)
circle	Sets the list item marker to a circle
square	Sets the list item marker to a square
none	The list items will not be marked

## Ordered list

- An ordered list starts with the <ol> tag. Each list item starts with the <li> tag. The list items will be marked with number by default. The type attribute of the <ol> tag defines the type of the list item marker.

- Example:

- <ol type="a">
- <li>football</li>
- <li>basketball</li>
- <li>volleyball</li>
- <li>handball</li>
- </ol>

## Description list

- HTML also supports description of each term. The <dl> tag defines the description list. The <dt> tag defines the term <name> and the <dd> tag describes each term.

- Example:
- <dl>
- <dt>Tiger:<dd>It is Wild animal.
- <dt>Cow:<dd>It is Domestic animal.
- </dl>

```
Tiger:  
  It is Wild animal.  
Cow:  
  It is Domestic animal.
```

## The href attribute

- If the href attribute is present, the text between anchor tags becomes hyperlink. If the user selects this hyperlink, the control moves to the document specified by the value of the attribute.

- Example:
- <a href=<https://www.google.com>>Click me</a>
-

## Table

- Cell spacing
- Cell padding

## Graphics in HTML

- An image element is used to incorporate in line graphics into an html document. This element cannot be used for embedding other html text. It is an empty or singular element and is written as:
- ``
- ``

# HTML Tables

- 
- **The table element**
- HTML table element is the basic table element which wraps all the other table elements. If this element is omitted, then the rest of the elements will be ignored.
- 
- The table element has following attributes
- **border**- specifies border of the table. Value is given in pixels.
- **cellspacing**- controls the space between the cells in a table.
- **cellpadding**- controls the space between the cell wall and cell data.
- **width**- specifies width of table. Value is given in pixels or percentage.
- **height**- specifies height of the table.
- **align**- this attribute aligns table to left, right or center.
- **valign**- this attribute aligns table to top or bottom.
- **bgcolor**- specifies background color of the table.
- **bordercolor**- specifies border color.

## The <tr>.....</tr> tags

- This tag specifies a table row. It contains <tr>.....</tr> tags. The number of rows depends upon how many <tr>.....</tr> tags contained within table. The <tr> tag can have the following attributes:
- **align**- left, center or right.
- **valign**- controls whether the text within the cells in aligned to the top, bottom or centered vertically.
- **bgcolor**- specifies background color of table row

## The <td>.....</td> tags

- The tag stands for table data and it specifies table data cell. A table data cell must only appear within table row tags. A cell may contain any of the html element that is the part of html document. The <td>.....</td> tags has the following attributes:
- **align**- left, center or right.
- **valign**- controls whether the text within the cells in aligned to the top, bottom or centered vertically.
- **width**- specifies width of table. Value is given in pixels or percentage.
- **height**- specifies height of the table.
- **background**- specifies background image to table cell.
- **colspan**- it is used when we have to manage more than two columns.
- **rowspan**- it is used when we have to merge more than two rows.

## The <th>.....</th> tags

- The tag is identical to <td>.....</td> tags. It specifies table header. Header cells are identical to table data cells in all respects except that header cells are in bold font and are center aligned by default. It have same attributes as it was for <td>.....</td> tags.

```
<html>
• <head>
• <title>Example</title>
• </head>
• <body>
• <table width="50%" border="1px" align="center">
• <tr>
• <th colspan="3">This is table heading</th>
• </tr>
• <tr>
• <td rowspan="2">cell 4 is merged with cell 7</td>
• <td>5</td>
• <td rowspan="2">6 is merged with 9</td>
• </tr>
• <tr>
• <td>8</td>
• </tr>
• </table>
• </body>
• </html>
```

## Working with forms

- A very popular way to make a website interactive is using html based forms by the site.
- Using HTML forms, a website can interact with a visitor and obtain registration information prior access to different site offerings.
- It permits a visitor to submit information to the website. It also allows a visitor to upload files to the website.



This is a table heading		
Cell 4 is merged with cell 7	5	6 is merged with 9
	8	

TABLE TITLE					
Column A	Column B				
This Cell contains a list <ul style="list-style-type: none"> <li>• apples</li> <li>• bananas</li> <li>• pineapples</li> </ul>	This cell contains another table <table border="1"> <tr> <td>A</td> <td>B</td> </tr> <tr> <td>C</td> <td>D</td> </tr> </table>	A	B	C	D
	A	B			
	C	D			

SN	Subject	Marks	
		Theory	Practical
1	C.English	100	0
2	Computer	75	25
3	Physics	75	25
4	Chemistry	75	25
5	C. Maths	100	0

## Introducing HTML form tags and its elements

- **The main form tag**
- The `<form>.....</form>` tags indicate the boundaries of a form on the html page. `<form>` indicates where the form starts and `</form>` indicates where the form ends. All other form elements must be enclosed between `<form>.....</form>` tags.

## Text Box-

- This is used for a single line text field.
- Syntax:
- `<input type="text" name="text box name" size="?" maxlength="?"`
- 
- `<body>`
- `<form>`
- Name:`<input type="text" name="tbName" size="60" maxlength="10">`
- `</form>`
- `</body>`

## Radio Button

- This is used when we have to choose a single value from a set of alternatives. Each radio button field in the group should be given the same name. only the selected radio button in the group generates a name-value pair in the submitted form.
- Syntax:
- `<input type="radio" name="Gender"/>Male`
- `<input type="radio" name="Gender"/>Female`

## Password

- This is same as text attribute, except the text is not displayed when it is entered.
- `<input type="password" size="?" name="?">`

## Checkbox

- This is used when we have to choose multiple values at the same time. The html object placed on the page is a square. The square holds a tick mark in it when selected.
- Syntax:
  - `<input type="checkbox" name="?" >`
- Example:
  - `<input type="checkbox" name="chksubject">Structured programming<br/>`
  - `<input type="checkbox" name="chksubject">Discrete Mathematics<br/>`
  - `<input type="checkbox" name="chksubject">Digital Logic<br/>`
  - `<input type="checkbox" name="chksubject">Economics<br/>`

## Combo box or dropdown list box

- The combo box or dropdown list box displays multiple options available. The combo box of dropdown list box initially displays one item. When clicked on it drops down to display a list of items to select from.
- Syntax:
  - `<select name="?" size="?" tabindex="?">`
  - `<option>option1</option>`
  - `<option>option2</option>`
  - `<option>option3</option>`
  - `<option>option4</option>`
  - `<option selected>option5</option>`
  - `</select>`
- Example:
  - `<select>`
  - `<option>Nepal</option>`
  - `<option>India</option>`
  - `</select>`

## Submit and Reset button

- After placing all the form elements required on html page within the `<form>.....</form>` tags. There should be some way to have the contents of these elements returned to a particular destination (i.e. web server). No form is complete unless the user has a way to submit the data it captures back to web server from where it originated. This functioning is brought to a form by a submit button.
- Syntax:
  - `<input type="submit" name="?" value="Label_of_button">`
- Example:
  - `<input type="submit" value="click">`

## Reset

- The reset button resets all form elements to their default value.
- Syntax:
  - `<input type="reset" name="?" value="?">`
- Example:
  - `<input type="reset" name="btnreset" value="clear">`

## Frames

- HTML frames are used to divide your browser window into multiple sections where each section can load a separate HTML document.
- A collection of frames in the browser window is known as a frameset.
- The window is divided into frames in a similar way the tables are organized: into rows and columns

# Frameset

- `<html>`
- `<frameset rows=.... Or cols=.....>`
- Frames and other html tags
- `</frameset>`
- `</html>`