Web Technology – I

Unit-2

Hypertext Markup Language (HTML)

- Introduction to HTML
- Basic Structure of HTML (HTML, HEAD, TITLE, BODY)
- BODY Attributes (Forecolor: TEXT and Background color: BGCOLOR,
- Background Image, Background Sound)
- HTML Elements
- HTML TAGS and Attributes
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- character formatting
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    - horizontal rule (hr) and attribute (align, size, width, noshade)
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    - definition list: dl, dt, dd
- inserting images and objects
    - images: img; attributes (align, src, width, height, alt, border)
    - objects: object; attributes (data, width, height)
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- hyperlink and anchor tag
    - creating internal links: links to other places in the same html documents
    - creating local links: link to other html documents or data objects
    - creating global links: links to places in other html documents
    - anchor tag and hyperlink <a href target> and <a name>
    - creating image links
- table tag
    - creating table, tr, th and td and attributes (align, cellspacing, cellpadding, border, width, bgcolor, colspan, rowspan, caption, center)

- frame and frameset tags
  - frameset tag and attributes (rows, cols and absolute dimensions, percentage dimensions, relative dimensions)
  - frame tag and attributes (src, name, margin height, margin width, scrolling auto, noresize)
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- HTML form
  - form tag and attributes (method, action, target)
  - input element and attributes (type – text, password, checkbox, hidden, image, file, range, radio, reset, submit, button; value, src, checked, size, maxlength, align)
- select & option tag and attributes (name, size, multiple/single, selected)
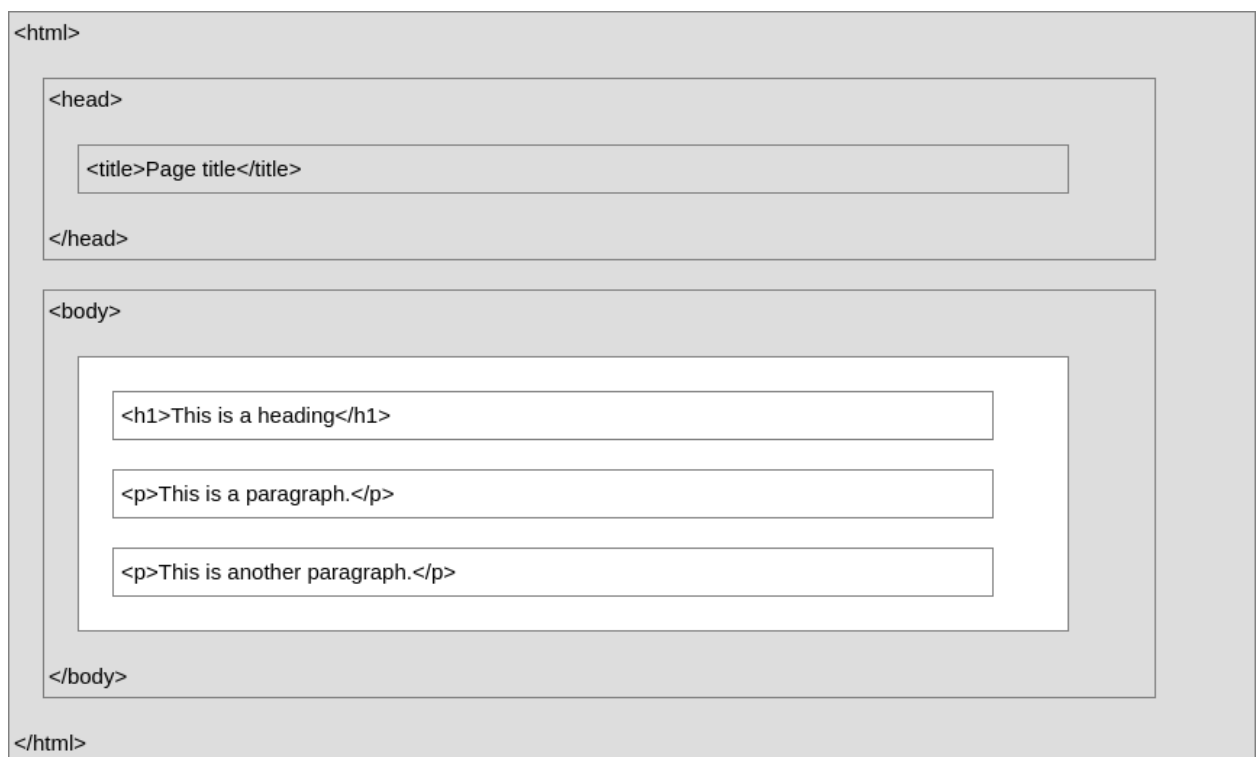- textarea tag and attributes (rows, cols, readonly, disabled)

HTML:

- HTML stands for **HyperText Markup Language**.
- HTML is the standard language for creating Web pages.
- HTML describes the structure of a Web page.
- HTML consists of a series of elements.
- HTML elements tell the browser how to display the content.
- HTML was created by Tim Berners-Lee in the late 1990s.
- The latest version of HTML is HTML-5 which was published in 2012.
- HTML5 provides a faster and more robust approach to web development.
- Technically, HTML is a Markup language, not a programming language.

- "<u>Hypertext</u>" refers to text links that connect web pages to one another.
- Links are a fundamental aspect of the Web.
- In HTML, hypertext is used to create links between web pages and other resources.

- <u>Markup</u> refers to the way text is marked up with tags to create structure and meaning.
- HTML uses "markup" to annotate text, images, and other content for display in a Web browser.

- Markup language gives instructions to the web browsers on how the document should appear.
- HTML markup includes special elements such as <head>, <title>, <body> etc.
- Example:

```
<!DOCTYPE html>
<html>
<head>
    <title>HTML Program</title>
</head>
<body>
    <p>Hello world.</p>
</body>
</html>
```

Basic Structure of HTML (html, head, title, body)

```
<html>
    <head>
        <title>Page title</title>
    </head>
    <body>
        <h1>This is a heading</h1>
        <p>This is a paragraph.</p>
        <p>This is another paragraph.</p>
    </body>
</html>
```

The basic structure of an HTML document consists of the following sections or elements:
1. The **!DOCTYPE** declaration.
2. The main container (**html** element).
3. The head section (**head** element).
4. The body section (**body** element).

1. The !DOCTYPE declaration:
- The <!DOCTYPE html> declaration defines that this document is an HTML5 document.

2. The main container (html element):
- This is called HTML root element and used to wrap all the code.
- It always contains one **<head>** element and one **<body>** element.
- All the elements are enclosed with in **<html> </html>** tag.

3. The head section:
- The head section is a container for metadata about the document.
- Head tag contains metadata, title, CSS etc. enclosed with in the **<head> </head>** tag.
- This metadata can be classified into five categories according to the element used.
    - **The document's title:** describes briefly the subject in the document. This is a required item and is inserted with the title element.
    - **Style declarations:** defines CSS declaration. It's declared within the style element.
    - **Client-side scripts:** inserts programs that provide functionality and interactivity. It's declared with the script element.
    - **Meta statements:** define custom attributes and values. They're inserted with the meta element.
    - **Relational information:** indicates resources that are somehow related to the document. It's inserted with the link element.

4. The body section:
- The <body> element defines the document's body.
- All the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc are placed inside body & displayed on the browser. Eg.
    - The <h1> element defines a large heading.
    - The <p> element defines a paragraph.

<body> Attributes

Here are some attributes of the <body> tag and their explanations:

- **bgcolor**: sets the background color of the webpage
- **text**: sets the color of text on the webpage
- **background**: sets an image as a background for the webpage

Example:

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

  <body background="cat.jpg" bgcolor="white" text="black">
    <h1>Welcome to Example Page</h1>
    <p>This is an example of a web page with some text.</p>
    <audio src="sound.mp3" autoplay loop controls>
      Your browser does not support HTML5 audio.
    </audio>
  </body>
</html>
```

HTML Elements

- An HTML element is a part of an HTML document that defines its structure and content.
- An HTML element consists of **start tag**, an **end tag**, **content** and **attributes**.
- Here is an example of an HTML element with some attributes:
  - o   <p class="intro" id="first">This is a paragraph</p>
  - o   This defines a paragraph element with a class name "intro" and an id "first".
- There are many different types of HTML elements that serve different purposes, such as:
  - o   <body>: contains the main content of the document
  - o   <h1> to <h6>: define headings of different levels
  - o   <a>: define hyperlinks to other pages or resources
  - o   <img>: display images on the webpage.

HTML TAGS and Attributes

- An HTML tag is a way of representing an HTML element in the program.
- Most tags have an opening tag (**<tagname>**) and a closing tag (**</tagname>**).

- Some tags are self-closing, e.g. **<img src="image.jpg">**.
- Here is an example of an HTML tag:
  - **<p> This is a paragraph </p>**
  - This defines a paragraph element with a start tag <p> and an end tag </p>.

- HTML attributes provide additional information about an element.
- Attributes are specified within the opening tag, after the tag name, using the format attribute="value".
- Here is an example of an HTML attribute:
  - **<p class="intro" id="first">This is a paragraph</p>**
  - This defines a paragraph element with two attributes: class and id.
  - The class attribute has a value "intro" and the id attribute has a value "first".

- An HTML **tag** is used to define an element, but the **element** itself includes the tags and content.

Types of HTML tags

1. Singular tags

- A singular tag is a self-closing tag.
- Singular tags are used to define elements that do not have any content.
- For example, the <br>, <hr>, <img> tags are singular tags.

2. Paired tags

- A paired tag requires both an opening tag and a closing tag.
- Paired tags are used to define elements that contain content.
- For example, the <p> tag is a paired tag that defines a paragraph.

Character formatting

Heading tag

- Heading tags are used for displaying headings on a web page.
- Heading tags are of 6 types (h1 to h6) and the size of the heading decreases from h1 to h6.

- Align attributes are used to adjust the alignment of the content.
- Commonly they are aligned in 3 ways.

1. Left align
2. Right align
3. Center align

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Heading Tags</title>
  </head>

  <body>
    <h1 align="center">This is heading 1 </h1>
    <h2 align="right">This is heading 2</h2>
    <h3 align="left">This is heading 3</h3>
    <h4>This is heading 4</h4>
    <h5>This is heading 5</h5>
    <h6>This is heading 6</h6>
  </body>
</html>
```

Paragraph tag

- In HTML, the <p> tag is used to define a paragraph.
- Any text or content between the opening and closing tags is considered to be part of the paragraph.
- Here's an example of how to use the <p> tag in HTML:
  - <p>This is a paragraph. </p>
- We can also include other HTML tags within a paragraph, such as links, images, and lists.
- Similar to heading tag we can also align paragraphs.

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Heading Tags</title>
```

```
  </head>
  <body>
    <p align="center">This is paragraph text. </p>
    <p align="right">This is another text.</p>
    <p align="left">This is left aligned text. </p>
  </body>
</html>
```

Line break (br)

- The HTML <br> tag is used to insert a line break or a blank line in an HTML document.
- It is a self-closing tag.
- Example:

```
<p>This is the first line. <br>
This is the second line. </p>
```

Horizontal rule

- The HTML <hr> tag is used to insert a horizontal line.
- It is a self-closing element.
- It can be used to visually separate sections of content on a webpage.

```
<p>This is some text.</p>
<hr>
<p>This is some more text.</p>
```

The HTML <hr> tag has the following attributes:

- **align**: alignment of horizontal line. i.e. left, right & center.
- **color**: sets the color of the line.
- **size**: sets the thickness of the line.
- **width**: sets the width of the line.
- **noshade**: shows the line without the shadow.

Example:

```
<hr align="center" color="red" width="500px" size="2" noshade >
```

Comment in html (<!>)

- Comments are hints or information which we can write on HTML.
- Comments are not displayed on web pages.
- Comments are written inside comment tag. <!-- -->

```html
<!DOCTYPE html>
<html>
  <head>
    <title>HTML Comments</title>
  </head>

  <body>
    <!-- This is the html comment -->
    <h1>This is heading tag.</h1>
    <p>This is paragraph tag.</p>
  </body>
</html>
```

Text formatting

- The HTML text We can use various tags for text formatting.
- The followings are the different tags to format text:
  1. <b>   : This tag makes the text bold.
  2. <strong> : This tag makes the text bold.
  3. <i>   : This tag makes the text italic.
  4. <em>   : This tag makes the text italic.
  5. <u>   : This tag is used for underlining text.
  6. <strike> : This tag is used for striking text.
  7. <big>   : Makes the text bigger.
  8. <small> : Makes the text smaller.
  9. <sub>   : Used for making Subscript text
  10. <sup>   : Used for making superscript text.
  11. <blockquote> : Indents the text.
  12. <pre>   : The <pre> tag defines preformatted text. The text will be displayed exactly as written in the HTML source code.

13. <q> : Puts the quotation on text.

14. <center> : Aligns the text or other contents to the center.

Example:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Formatting Text</title>
  </head>

  <body>
    <b>This is bold text.</b>                          <br />
    <strong> This is strong tag.</strong>              <br />
    <i>This is italic text.</i>                        <br />
    <em>This is em tag.</em>                            <br />
    <u>This is underlined text.</u>                     <br />
    <strike>This is striked text</strike>              <br />
    <big>This is big tag.</big>                         <br />
    <small>This is small tag.</small>                   <br />
    <p>log <sub>10</sub></p>                            <br />
    <p>10 <sup>2</sup></p>                              <br />
    <blockquote>This is indented text.</blockquote> <br />
    <q>This is quoted text.</q>                         <br>
    <center>This is centered text.</center>            <br>
    <pre>
        The preformatted
        displays the text
        exactly as written
        in the HTML code.
    </pre>
  </body>
</html>
```

Font tag

- The font tag is used to change the color, size, and style of a text.
- The font tag has basically three attributes which are given below:
    - size
    - face/type
    - color

```html
<!DOCTYPE html>

<html>
  <head>
    <title>Font & Attributes</title>
  </head>

  <body>
   <font face="Times New Roman" color="Green">This is green text.</font><br/>
    <font color="Red" size="6">This is red text.</font> <br />
    <font face="Verdana" size="6">This is verdana font</font> <br />
   <font face="Comic sans MS" size=" 6">This is comic sans font</font> <br />
    <font face="monospace" size="6">This is monospace font </font> <br />
    <font face="sans-serif" size="6">This is sans serif font!!</font> <br />
  </body>
</html>
```

List tags

We can use different types of tags for describing different kinds of list items.
There are three types of lists:
1. Ordered List
2. Unordered List
3. Definition List

1. Ordered list

- The **<ol>** tag defines an ordered list.
- An ordered list can be numerical or alphabetical.
- The **<li>** tag inside the <ol> tag is used to define each list item.
- Example:

```
<!DOCTYPE html>
<html>
  <body>
    <h2>Ordered list</h2>
    <ol>
      <li>Coffee</li>
      <li>Tea</li>
      <li>Milk</li>
    </ol>
  </body>
</html>
```

OL 'type' attributes:
- We can use type attribute to specify the type of order.
- By default, it is number.
- The various possible options are:

```
<ol type="1"></ol>  default numerals
<ol type="I"></ol>  Upper Roman letters
<ol type="i"></ol>  Lower Roman letters
<ol type="A"></ol> Uppercase alphabets
<ol type="a"></ol> Lowercase alphabets
```

Start attribute:
We can use **start** attribute for <ol> tag to specify the starting point of the numbering we need. Following are the possible options.

```
<ol type="1" start = "4"></ol> List starts with 4
<ol type="I" start = "4"></ol> List starts with IV
<ol type="i" start = "4"></ol> List starts with iv
<ol type="A" start = "4"></ol> List starts with D
<ol type="a" start = "4"></ol> List starts with d
```

Value Attribute:
- The value attribute sets the value of a list item.
- The following list items will increment from that number.
- Example:

```
<ol>
    <li value="99">Coffee</li>
    <li>Tea</li>
    <li>Milk</li>
    <li>Water</li>
    <li>Juice</li>
</ol>
```

2. Unordered list

- An unordered list starts with the **<ul>** tag. Each list item starts with the **<li>** tag.
- The list items will be marked with bullets (small black circles) by default:
- **Example:**

```
<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
  <li>Juice</li>
</ul>
```

ul type attribute:

- The **type** attribute is used to define the style of the list item marker.
- It can have one of the following values:

```
<ul>
  <li type="disc">Milk</li>
  <li type="circle">Coffee</li>
  <li type="square">Juice</li>
  <li type="none">Tea</li>
</ul>
```

3. Definition list

- In HTML, a definition list is used to define a list of terms and their corresponding definitions.
- It is created using the **<dl>** (definition list) element
- The **<dl>** contains one or more **<dt>** (definition term) and **<dd>** (definition description) elements.

Example:

```
<dl>
  <dt>HTML</dt>
  <dd>HyperText Markup Language, used to create web pages.</dd>

  <dt>CSS</dt>
  <dd>Cascading Style Sheets, used to style web pages.</dd>

  <dt>JavaScript</dt>
  <dd>A programming language used to add interactivity to web pages.</dd>
</dl>
```