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## **Unit II- Markup Languages**

## **Introduction to HTML**

- **HTML stands for Hyper Text Markup Language**
- **HTML is the standard markup language for creating Web pages**
- **HTML is used to create web pages and web applications.**
- **HTML is widely used language on the web.**
- **We can create a static website by HTML only.**
- **Technically, HTML is a Markup language rather than a programming language.**

### **Basic HTML Structure**

The entire web page is enclosed within `<HTML>`  
`</HTML>` tag.

Within this two separate section are created.

**1) Document Head**

**2) Document Body**

### ***1) Document Head :***

**Specifies by <HEAD> </HEAD> tag. *All information contained within the head tag is not displayed in browser.***

**The <title> </title> tag is used to indicate start and end of head section.**

**<head>**

**<title> .....</title>**

**</head>**

### ***2) Document Body :***

**Specifies by <body> </body> tag. *Page default properties like background color, text color, text color, font size, font style etc can be specified as an attribute of body tag.***

**<head>**

**<title> .....</title>**

**</head>**

**<HTML>**

**Header**

**Body**

**</HTML>**

## Structure of HTML Document



### Basic Structure

**<html>**

**<head>**

**<title> My First Web Page </title>**

**</head>**

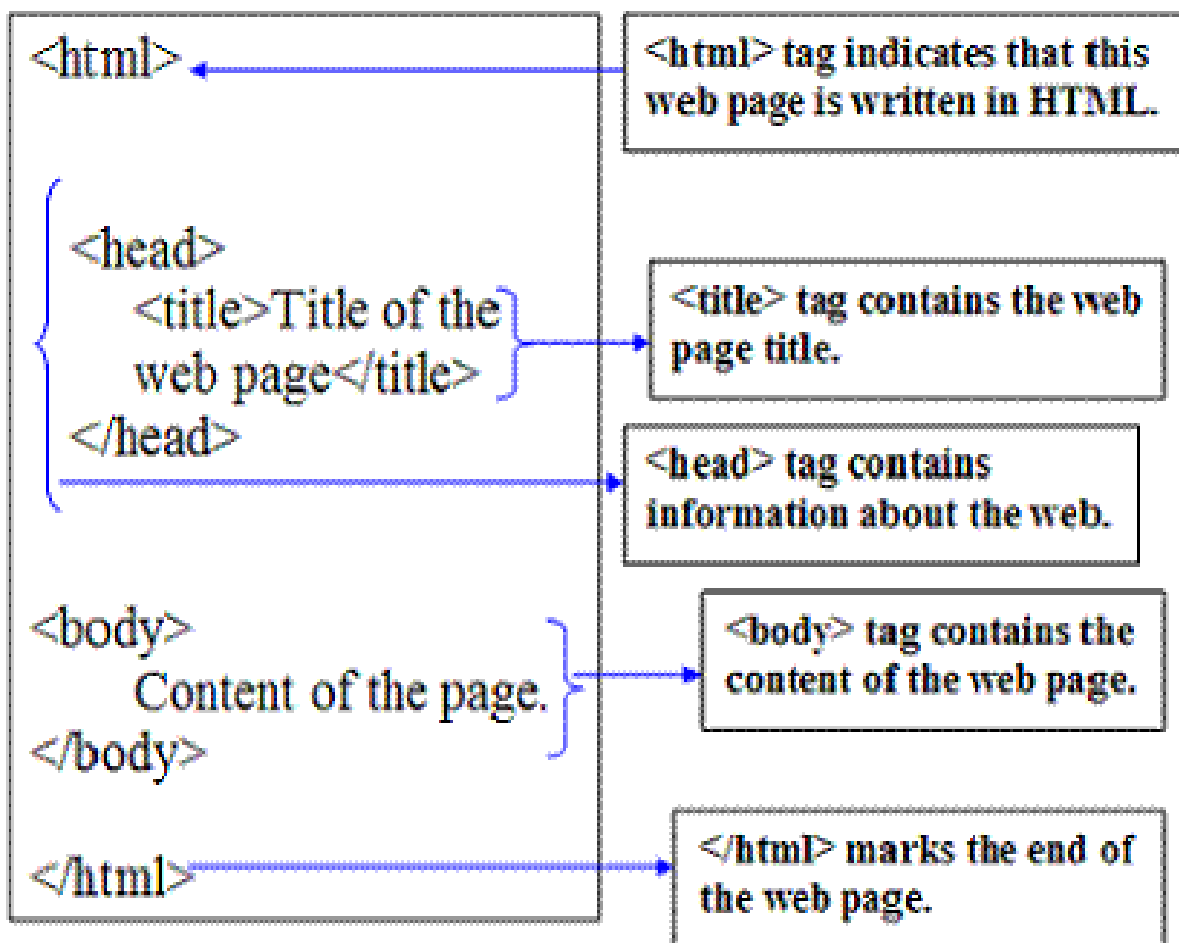
**<body>**

**<! – your web page content and markup -- >**

**</body>**

**</html>**

- 1) The text between `<html>` and `</html>` describe the web page.
- 2) The text between `<body>` and `</body>` is the visible page content.
- 3) The text between `<title>` and `</title>` is displayed as title of document.



## *How to Run the HTML Document*

1. Open (Notepad , Notepad ++, Sublime Text, Brackets ) any text editor

```
<html>
  <head>
<title> My First Web Page </title>
  </head>
<body>
  <b> Welcome </b> <b> TY BBA(CA) </b>
</body>
</html>
```

2. Save the document with any file name for ex (first.html)

3. Open the Browser

4. Open the data.html file in browser

### *Common HTML Tags*

- HTML markup tags are usually called HTML tags.
- HTML tags are keyword surrounded by angle brackets like <html>.
- HTML tags normally come in pairs like <b> </b>.
- The first tag in pair is the start tag, the second tag is the end tag.
- Start and end tag are also called opening tags and closing tags.

## HTML tags are of two Types

- Paired Tag
- Singular Tag

### Paired Tag :

A paired tag is a tag which comes along with its companion tag.

Example : **<b>** tag

**<b>** : Opening / start Tag

**</b>** : Closing / End Tag

### Singular Tag :

This is stand alone tag. It does not have companion tag

Example : **<br>**

Use : insert a line break.

### Attribute:

Some **HTML** tag required an addition information. Additional information supplied to an **HTML** tag is known as Attribute of a tag. Multiple attribute can be specified separated by space.

**Example :**

**<html>**

**<head>**

**<title> Welcome.....! </title>**

**</head>**

**<body>**

```

```

```
</body>
```

```
</html>
```

### **Program:**

```
<html>
```

```
<head>
```

```
<title> TestMyPhoto </title>
```

```
<body>
```

```

```

```
</body>
```

```
</html>
```

## **Basic HTML Tags:**

### <p> Paragraph Tag :

The **<p>** tag defines a paragraph of text. It is a block-level element and always starts on a new line.

### <br> Line Break Tag :

The HTML **<br>** element produces a line break in text (carriage-return). It is useful for writing a poem or an address, where the division of lines is significant.

### <hr> Horizontal Tag :

The **<hr>** tag in HTML stands for horizontal rule and is used to insert a horizontal rule or a thematic break in an HTML page to divide or



separate document sections. The <hr> tag is an empty tag and it does not require an end tag.

### Headings Tag :

**HTML** defines six levels of headings. A heading element implies all the font changes, paragraph breaks before and after, and any white space necessary to render the heading. The heading elements are **H1**, **H2**, **H3**, **H4**, **H5**, and **H6** with **H1** being the highest (or most important) level and **H6** the least.

### Text Formatting Tag :

<b> - **Text Bold**

<i> - *Italic*

<u> - Underline

### Hyperlink / Anchors / Links Tag :

The <a> tag defines a hyperlink, which is used to link from one page to another.

The most important attribute of the <a> element is the href attribute, which indicates the link's destination.

*By default, links will appear as follows in all browsers:*

- An unvisited link is underlined and blue
- A visited link is underlined and purple
- An active link is underlined and red

## ***Physical and Logical HTML***

- ***Physical HTML*** refers to using HTML to make page look particular way.
- ***Logical HTML*** refers to the structure of document by using **CSS** (Cascading Style sheet ).
- HTML should be used as logical or generalized markup language that defines document structure not its appearance.
- In HTML, the browser or style sheet decides how the document looks.

***Following table shows the image type supported in most browser:***

Sr.No	File Type
1.	<b>GIF</b> – Graphics Interchange Format
2.	<b>JPEG</b> – Joint Photographic Expert Group
3.	<b>PNG</b> – Portable Network Graphics
4.	<b>XBMP</b> (X Bitmaps)
5.	<b>XPM</b> (X Pixelmaps)

### <img> Tag:

The <img> tag is used to embed an image in an HTML page.

Images are not technically inserted into a web page; images are linked to web pages. The <img> tag creates a holding space for the referenced image.

***The <img> tag has two required attributes:***

- src - Specifies the path to the image
- alt - Specifies an alternate text for the image, if the image for some reason cannot be displayed

```
<html>
```

```
<head>
```

```
<title> Image Display </title>
```

```
</head>
```

```
<body>
```

```

```

```
</body>
```

```
</html>
```

### **Image Mapping**

***There are two basic forms of image map :***

- 1) Client Side Image map
- 2) Server Side Image map

*The <map> tag is used to define an image map. An image map is an image with clickable areas.*

The required name attribute of the <map> element is associated with the <img>'s usemap attribute and creates a relationship between the image and the map.

The <map> element contains a number of <area> elements, that defines the clickable areas in the image map.

Program:

```
<html>
<head>
    <title> ImageMapping </title>
    <body>

<map name="imagemap">
<area shape="rect" coords="23,1,143,90"
href="C:\User\Desktop\html\photo.html"/>
</img>
</body>
</html>
```

### **Server Side Image map**

When present, it specifies that the image is part of a server-side image map (an image map is an image with clickable areas).

When clicking on a server-side image map, the click coordinates are sent to the server as a URL query string.

Program:

```
<html>
<head>
    <title> ServerSideMap </title>
</head>
<body>
<a href="https://www.google.com/">
    
</a>
</body>
</html>
```

## **List, Table Frames**

### **List**

*HTML support following type of list :*

#### **1. Unordered List (UL)**

#### **2. Ordered List (OL)**

#### **Unordered List (Bullets) :**

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:

*I) TYPE = FILLROUND will give a solid round black bullet.*

*ii) TYPE = FILLLSQUARE will give a solid square black bullet.*

```
<html>
```

```
<body>
```

```
<ul type "disc">
```

```
<li> Apples </li>
```

```
<li> Bananas </li>
```

```
</ul>
```

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

```
<li> Apples </li>
```

```
<li> Bananas </li>
```

```
</ul>
```

```
</body>
```

```
</html>
```

### **Ordered List :**

An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.

The attributes can be specified with <LI> are TYPE,START,VALUE

***TYPE** attribute is used to control the numbering scheme.*

Type	Description
<code>type="1"</code>	The list items will be numbered with numbers (default)
<code>type="A"</code>	The list items will be numbered with uppercase letters
<code>type="a"</code>	The list items will be numbered with lowercase letters
<code>type="I"</code>	The list items will be numbered with uppercase roman numbers
<code>type="i"</code>	The list items will be numbered with lowercase roman numbers

### Numbers:

```
<ol type="1">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>
```

## Uppercase Letters:

```
<ol type="A">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>
```

## Lowercase Letters:

```
<ol type="a">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>
```

## Control List Counting

By default, an ordered list will start counting from 1. If you want to start counting from a specified number, you can use the start attribute:

### Example

```
<ol start="20">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>
```



## Nested HTML Lists

**Lists can be nested (list inside list):**

```
<ol>
  <li>Coffee</li>
  <li>Tea
    <ol>
      <li>Black tea</li>
      <li>Green tea</li>
    </ol>
  </li>
  <li>Milk</li>
</ol>
```

## HTML Tables

HTML tables allow web developers to arrange data into rows and columns.

The `<table>` tag defines an HTML table.

Each table row is defined with a `<tr>` tag.

Each table header is defined with a `<th>` tag.

Each table data/cell is defined with a `<td>` tag.

By default, the text in `<th>` elements are bold and centered.

By default, the text in `<td>` elements are regular and left-aligned.

## Program 1:

```
<html>
<body>
<table style="width:25%">
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Ashvini</td>
    <td>Tanpure</td>
    <td>28</td>
  </tr>
  <tr>
    <td>Aarti</td>
    <td>Mali</td>
    <td>28</td>
  </tr>
</table>
</body>
</html>
```

## Program 2:

```
<html>
  <head>
    <title>HTML table Tag</title>
  </head>
  <body>
    <table border = "1">
      <tr>
        <th>Team</th>
        <th>Ranking</th>
      </tr>
      <tr>
        <td>India</td>
        <td>1</td>
      </tr>
      <tr>
        <td>South Africa</td>
        <td>2</td>
      </tr>
      <tr>
        <td>Australia</td>
```

```
<td>3</td>  
</tr>  
</table>  
</body>  
</html>
```

Attribute	Decryption
<table>	Defines a table
<th>	Defines a table header
<tr>	Defines a table row
<caption>	Defines a table caption
<colgroup>	Defines group of table column
<col>	Defines the attribute values for one or more column
<thead>	Defines a table head
<tbody>	Defines a table body
<tfoot>	Defines a table footer

Following table explain the different Attributes of table Tag:

Attribute	Description
BORDER	Border is placed around the table. Border thickness is specified in pixel.
ALIGN	Horizontal alignment is controlled by align attribute. The value can be left/right/center.
CELLSPACING	Controls the space between the adjacent cells. The value is measured in pixel or percentage.
CELLPADDING	It controls the distance between the data in the cell and the boundaries of the cell.
WIDTH	Set the width to number of pixel or to a percentage of available screen width. If it is not specified the data cell is adjusted based on the cell data value.
COLUMNSPAN and ROWSPAN	The COLUMN SPAN attribute inside the td/th tag instructs the browser to extend the size of the cell across two or more rows or columns. Setting the value of column span and rowspan to more than number of columns or rows in the table should not extend the size of the table.

## Table Border Color & Background Image Attribute

```
<html>
```

```
  <body>
```

```
    <table border = "1" bordercolor = "green"
      background = "E:\PiXimperfect.jpg">
```

```
  <tr>
```

```
    <th>Column 1</th>
```

```
    <th>Column 2</th>
```

```
    <th>Column 3</th>
```

```
  </tr>
```

```
  <tr>
```

```
    <td rowspan = "2">Row 1 Cell 1</td>
```

```
    <td>Row 1 Cell 2</td><td>Row 1 Cell 3</td>
```

```
</tr>
```

```
</html>
```

## 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.

### Frame Tags

Tag	Description
<frameset>	Defines a set of frames
<frame>	Defines a sub window (a frame)
<noframe>	Defines a noframe section for browser that do not handle frames.

### Program:

```
<html>
```

```
<head>
```

```
<title>HTML Frames</title>
```

```
</head>
```

```
<frameset rows = "10%,80%,10%">
```

```
<frame name = "top" src = "/html/top_frame.htm" />
```

```

<frame name = "main" src = "/html/main_frame.htm"
/>

<frame name = "bottom" src =
"/html/bottom_frame.htm" />

<noframes>
    <body>Your browser does not support frames.</body>
</noframes>
</frameset>
</html>

```

## Embedding Audio Video

To play **audio** or **video** files into a web page **embed** tag is used.

Attribute	Description
<b>AUTOSTART</b>	Determines whether the audio clips plays as soon the pay is loaded. The value is either TRUE or FALSE.
<b>HEIGHT</b>	Determines the height of media player In pixel.
<b>WIDTH</b>	Determines the width of media player In pixel.

```

<html>
<body>
<embed
src="C:\Users\PREMP\Desktop\datta\videoplayback.mp4"
autostart="false" height="400" width="600">
</body>
</html>

```

## Type Attribute

```
<html>
```

```
<body>
```

```
<embed src="C:\Users\Desktop\videoplayback.mp4">
```

```
<embed type="text/html" src="C:\Users\Desktop\1.html">
```

```
</body>
```

```
</html>
```

## HTML Form & Form Elements

### HTML Form

- An **HTML form** is *a section of a document* which contains controls such as text fields, password fields, checkboxes, radio buttons, submit button, menus etc.
- An HTML form facilitates the user to enter data that is to be sent to the server for processing such as name, email address, password, phone number, etc. .

### Why use HTML Form

**HTML forms are required if you want to collect some data from of the site visitor.**

**For example: If a user want to purchase some items on internet, he/she must fill the form such as shipping address and credit/debit card details so that item can be sent to the given address.**



- A form is defined with the `<form>` tag.

`<form>`

.....

## Input elements

`</form>`

### Input :

- The most used form tag is the `<input>` tag.
- The type of input is specified with the **type attribute**.

### Text Filed :

- Text field are used when you want the user to type letters, numbers, etc in a form.

### Program:

`<html>`

`<body>`

`<form>`

**First Name :**`<input type="text" name="firstname"/>`

`</br> </br>`

**Last Name :**`<input type="text" name="lastname"/>`

`</form>`

`</body>`

`</html>`

### <textarea> tag in form

- The <textarea> tag in HTML is used to insert multiple-line text in a form.
- The size of <textarea> can be specify either using "rows" or "cols" attribute.

<html>

<body>

<form>

Enter your address:<br>

<textarea rows="2" cols="20">

</textarea>

</form>

</body>

</html>

### Radio Button Control

- The radio button is used to select one option from multiple options.
- It is used for selection of gender, quiz questions etc.
- If you use one name for all the radio buttons, only one radio button can be selected at a time.

Using radio buttons for multiple options, you can only choose a single option at a time.

<form>

<label for="gender">Gender: </label>

<input type="radio" name="gender" value="male"/>Male

<input type="radio" name="gender" value="female"/>Female

<br/>

</form>

## Checkboxes

Checkboxes are used when you want the user to select one or more option of a limited number of choices.

**<form>**

**I have a Bike :**

**<input type="checkbox" name="vehicle" value="Bike" />**

**</br>**

**I have a Car :**

**<input type="checkbox" name="vehicle" value="Car"/>**

**</br>**

**I have a Airplane :**

**<input type="checkbox" name="vehicle" value="Car"/>**

**</br>**

**</form>**

## The form's Action Attribute and the submit Button

When user click on the "Submit" button, the content of the form is sent to the server. The forms action attribute defines the name of the file to send the content to. The file defined in the action attribute usually does something with the received input.

**<form name="input" action ="submit.html" method="get">**

**Username :**

**<input type="text" name="user"/>**

**<input type="submit" value="submit"/>**

**</form>**

## Form Tags

<b>Tag</b>	<b>Description</b>
<form>	It defines an HTML form to enter inputs by the used side.
<input>	It defines an input control.
<textarea>	It defines a multi-line input control.
<label>	It defines a label for an input element.
<fieldset>	It groups the related element in a form.
<legend>	It defines a caption for a <fieldset> element.
<select>	It defines a drop-down list.
<optgroup>	It defines a group of related options in a drop-down list.
<option>	It defines an option in a drop-down list.
<button>	It defines a clickable button.

## HTML Div Tag

- The <div> tag defines a division or a section in an HTML document.
- The <div> tag is used as a container for HTML elements - which is then styled with CSS or manipulated with JavaScript.

- The <div> tag is easily styled by using the class or id attribute.
- Any sort of content can be put inside the <div> tag!

The **HTML <div> tag** is used *to group the large section of HTML elements together.*

We know that every tag has a specific purpose e.g. p tag is used to specify paragraph, <h1> to <h6> tag are used to specify headings but the <div> tag is just like a container unit which is used to encapsulate other page elements and divides the HTML documents into sections.

The div tag is generally used by web developers to group HTML elements together and apply CSS styles to many elements at once. For example: If you wrap a set of paragraph elements into a div element so you can take the advantage of CSS styles and apply font style to all paragraphs at once instead of coding the same style for each paragraph element.

### **Example**

A <div> section in a document that is styled with CSS:

```
<html>
<head>
<style>
.myDiv {
  border: 5px outset red;
  background-color: lightblue;
  text-align: center;
}
</style>
```

```
</head>  
<body>
```

```
<div class="myDiv">  
  <h2>This is a heading in a div element</h2>  
  <p>This is some text in a div element.</p>  
</div>
```

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

Program 2:

```
<html>
```

```
<body>
```

```
<div style="border:1px solid pink;padding:20px;font-size:20px">
```

```
<p> Welcome BCA Student in Web Technologies Subject today  
we are going to learn division tag in html. </p>
```

```
<p>This is second paragraph</p>
```

```
</div>
```

```
</body>
```

```
</html>
```

## HTML <span> Tag

### Definition and Usage

- The <span> tag is an inline container used to mark up a part of a text, or a part of a document.
- The <span> tag is easily styled by CSS or manipulated with JavaScript using the class or id attribute.
- The <span> tag is much like the <div> element, but <div> is a block-level element and <span> is an inline element.

The <span> tag can be useful for the following task:

- To change the language of a part of the text.
- To change the color, font, background of a part of text using CSS
- To apply the scripts to the particular part of the text.

Program1:

```
<html>
<body>
<h1>The span element</h1>
<p>in web tech <span style="color:blue;font-weight:bold">blue</span> many useful web development <span style="color:darkolivegreen;font-weight:bold">concept included</span> eyes.</p>
</body>
</html>
```

Program1:

```
<html>
```

```
<head>
```

```
<title>Span Tag</title>
```

```
</head>
```

```
<body>
```

```
<h2>Example of span tag</h2>
```

```
<p>I have choosen only
```

```
<span style="color: red;">red</span>,
```

```
<span style="color: blue;">blue</span>, and
```

```
<span style="color: green;">green</span> colors for my pain  
ting.
```

```
</p>
```

```
</body>
```

```
</html>
```



## **CSS With HTML**

- CSS stands for Cascading Style Sheet.
- CSS is used to design HTML tags.
- CSS is a widely used language on the web.
- HTML, CSS and JavaScript are used for web designing. It helps the web designers to apply style on HTML tags.

**CSS is the language we use to style an HTML document.**

**CSS describes how HTML elements should be displayed.**

**CSS stands for Cascading Style Sheets**

**CSS describes how HTML elements are to be displayed on screen, paper, or in other media**

**CSS saves a lot of work. It can control the layout of multiple web pages all at once**

**External style sheets are stored in CSS files**

### **What is CSS**

**CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language. It provides an additional feature to HTML. It is generally used with HTML to change the style of web pages and user interfaces. It can also be used with any kind of XML documents including plain XML, SVG and XUL.**

**CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications.**

### What does CSS do

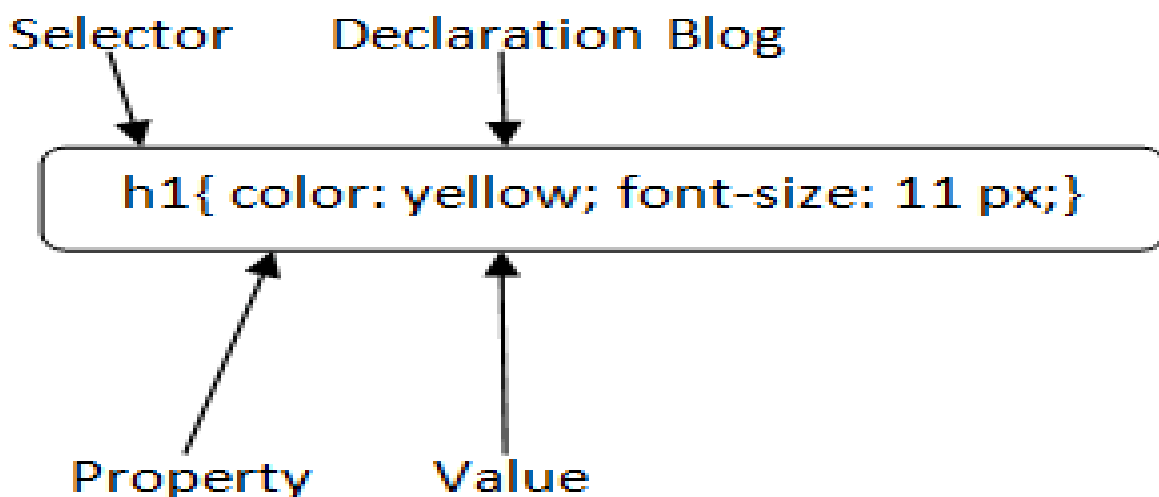
- You can add new looks to your old HTML documents.
- You can completely change the look of your website with only a few changes in CSS code.

### Types of CSS

1. Inline CSS
2. Internal CSS
3. External CSS

### CSS Syntax

A CSS rule set contains a selector and a declaration block.



## **Selector:**

Selector indicates the HTML element you want to style. It could be any tag like <h1>, <title> etc.

## **Declaration Block:**

The declaration block can contain one or more declarations separated by a semicolon. For the above example, there are two declarations:

1. color: yellow;
2. font-size: 11 px;

Each declaration contains a property name and value, separated by a colon.

## **Property:**

A Property is a type of attribute of HTML element. It could be color, border etc.

## **Value:**

Values are assigned to CSS properties. In the above example, value "yellow" is assigned to color property.

## 1. Inline CSS

```
<html>
```

```
<body>
```

```
<p style="background: pink; color:blue;">
```

**Textb Color is Blue and background color is pink**

```
<h1 style=background:blue;">
```

**Its my H1 Header**

```
</h1>
```

```
</p>
```

```
</body>
```

```
</html>
```

## 2. Internal CSS

An internal CSS sheet should be used when a single document has a unique style.

CSS can be inserted in HTML within the head section of HTML code. This is sometime called embedding CSS with HTML.

CSS and HTML are different, so we need to tell the browser that we dealing with CSS. This is done using style tag followed by type attribute

## **Syntax :**

**<head>**

**<style type="text/css">**

**</style>**

**</head>**

Example of Internal CSS

**<html>**

**<head>**

**<style type="text/css">**

**p{**

**color:red;**

**}**

**h1{**

**color:blue;**

**text-align:center;**

**body**

**{**

**background-color:gray;**

**}**

**</style>**

**</head>**

**<body>**

**<h1> Internal CSS Example </h1>**

**<p> Now thats how CSS is inserted Internal </p>**

**</body>**

**</html>**

### 3. External CSS

- An external style sheet is deal when the style is applied to many pages. When an external style sheet, we change the look of an entire site by changing one file.
- Best way to insert CSS code is to write it in a different file and refer file and then refer it in HTML code.
- External CSS contains only CSS code and is saved with a “.css” file extension. This CSS file is reffred from HTML file using the <link> tag.
- An external CSS is ideal when the style is applied to many web pages. Web designer can change the look of an entire Web Site by changing one file.

```
<html>
```

```
<head>
```

```
<link rel="stylesheet" type="text/css"  
href="C:\Users\Desktop\CSS\sample.css"/>
```

```
</head>
```

```
<body>
```

```
<p>
```

```
This is example for inserting CSS externaly </p>
```

```
</body>
```

```
</html>
```

**CSS Code :**

```
p {
```

```
text-align: center;
```

```
color: white
```

```
}
```

```
body
```

```
{
```

```
background-color:green;
```

```
}
```

## References:

- 1) <https://www.tutorialspoint.com/html/index.htm>
- 2) Markup Languages: XML, HTML, Markup Language, Scalable Vector Graphics, Standard Generalized Markup Language, Extensible Stylesheet Language Paperback – Import, 25 June 2011
- 3) **A Textbook of Web technologies of vision publication.**
- 4) **www.google.com**

***THANK YOU...***

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