PMCA601L –FULL STACK WEB DEVELOPMENT

Module:1	Introduction to Web Development	6 hours
Evolution of the Internet and World Wide Web - Introduction to HTML5 - Headings, Linking, Images, Lists, Tables, Forms, New HTML5 Form Input Types, Page Structure Elements - Introduction to CSS - Inline Styles, Embedded Style Sheets, Linking External Style Sheets, Backgrounds, Element Dimensions, Box Model and Text Flow, Positioning, Media Types and Media Queries, Drop Down Menus Selectors, Text Shadows, Box Shadows		

INSTRUCTOR DETAILS

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HTML5 – Introduction

- **HTML** stands for **Hyper Text Markup Language**, which is the most widely used language on Web to develop web pages. **HTML** was created by Berners-Lee in late 1991 but "HTML 2.0" was the first standard HTML specification which was published in 1995.
- HTML was developed with the intent of defining the structure of documents like headings, paragraphs, lists, and so forth to facilitate the sharing of scientific information between researchers. Now, HTML is being widely used to format web pages with the help of different tags available in HTML language.
- HTML5- WHAT WG-2014

HTML – APPLICATIONS

WEB PAGES DEVELOPMENT - HTML is used to create pages which are rendered over the web. Almost every page of web is having html tags in it to render its details in browser.

INTERNET NAVIGATION - HTML provides tags which are used to navigate from one page to another and is heavily used in internet navigation.

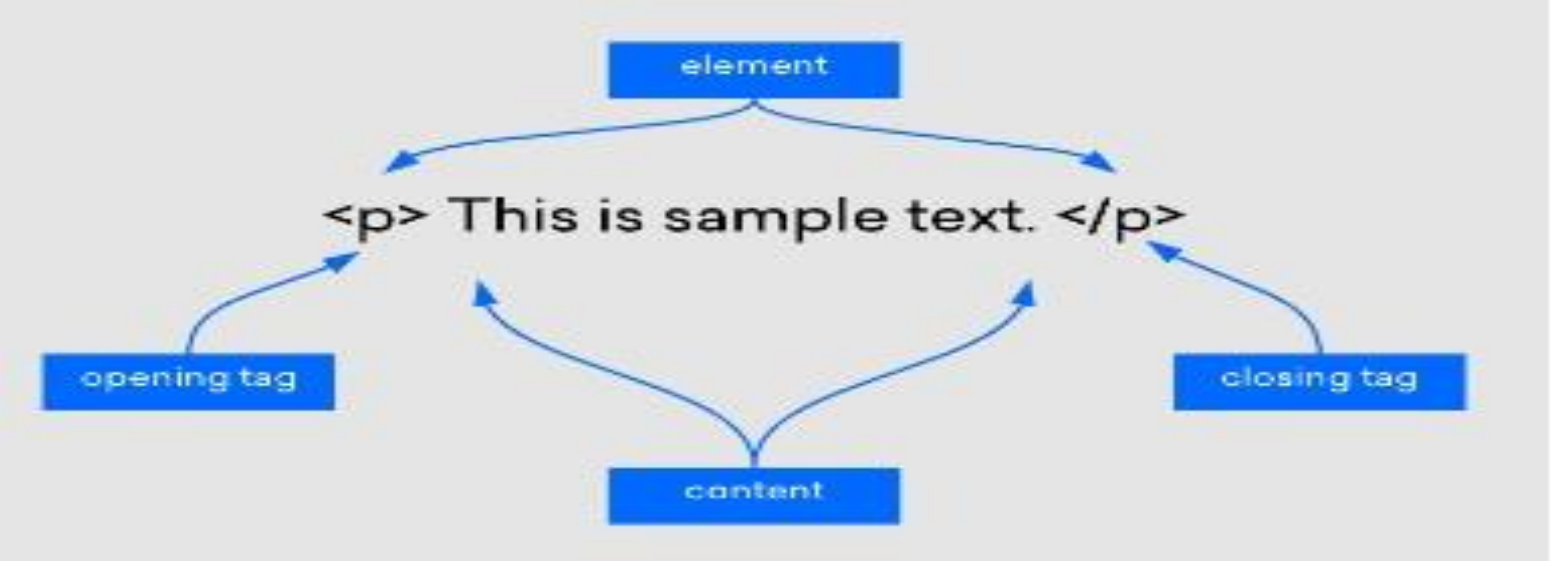
RESPONSIVE UI - HTML pages now-a-days works well on all platform, mobile, tabs, desktop or laptops owing to responsive design strategy.

OFFLINE SUPPORT HTML pages once loaded can be made available offline on the machine without any need of internet.

GAME DEVELOPMENT- HTML5 has native support for rich experience and is now useful in gaming development arena as well

HTML TAG

- An HTML tag is a piece of markup language used to indicate the beginning and end of an HTML element in an HTML document.
- Part of an html element, html tags help web browsers convert html documents into web pages.



HTML – TAGS

HTML is a markup language and makes use of various tags to format the content. These tags are enclosed within angle braces **<Tag Name>.** Except few tags, most of the tags have their corresponding closing tags. For example, **<html>** has its closing tag **</html>** and **<body>** tag has its closing tag **</body>** tag etc.

A typical HTML document will have the following structure –

```
<html>

   <head>
      Document header related tags
   </head>

   <body>
      Document body related tags
   </body>

</html>
```

STRUCTURE OF HTML PAGE

```
<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>
```

HTML – TAGS

Tag	Description
<!DOCTYPE...>	This tag defines the document type and HTML version.
<html>	This tag encloses the complete HTML document and mainly comprises of document header which is represented by <head>...</head> and document body which is represented by <body>...</body> tags.
<head>	This tag represents the document's header which can keep other HTML tags like <title>, <link> etc.
<title>	The <title> tag is used inside the <head> tag to mention the document title.
<body>	This tag represents the document's body which keeps other HTML tags like <h1>, , <p> etc.
<h1>	This tag represents the heading.
<p>	This tag represents a paragraph.

HTML – Body Tag

The HTML <body> tag is used for indicating the main content section of the HTML document. Attributes are:

- **Background** - Specifies the background image file path.
- **Bgcolor** - Specifies the background color.

Values for BGCOLOR and COLOR.

- **All colors can be specified as a six character hexadecimal value: RRGGBB**

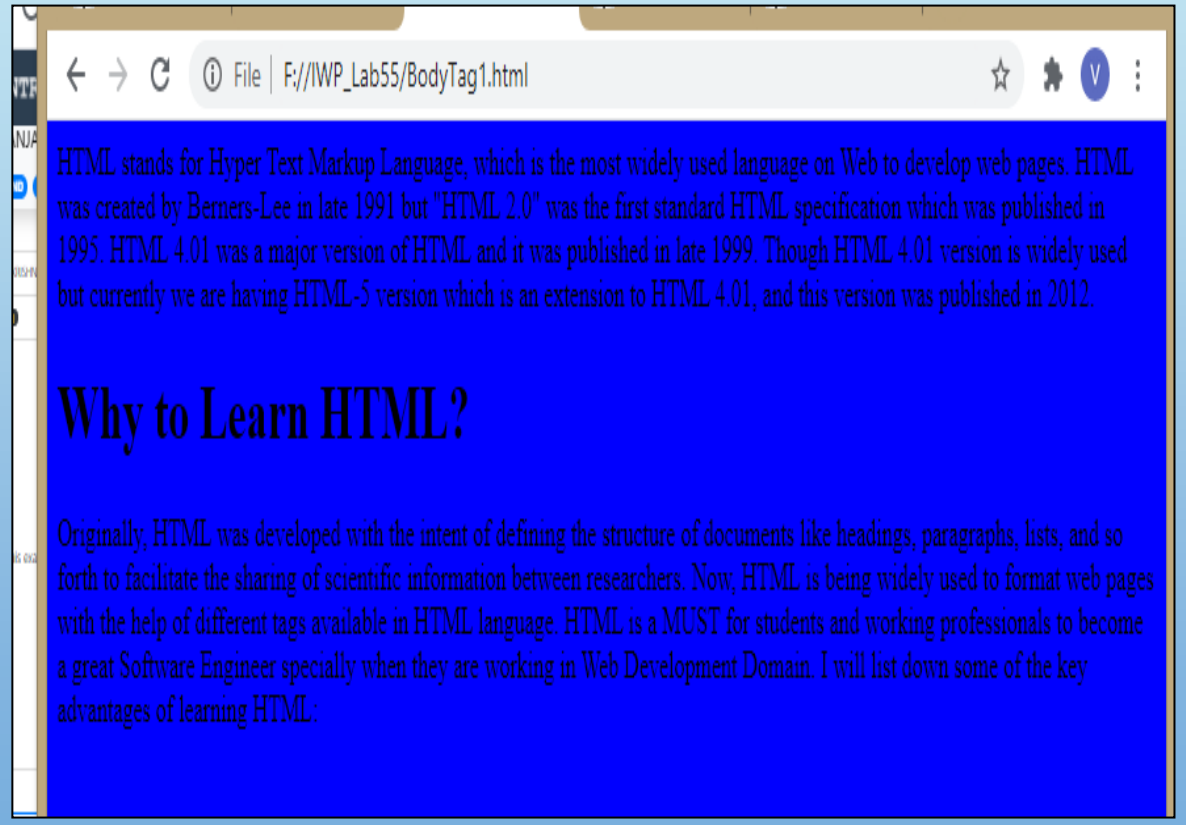
Example: 3 ways

- **<body bgcolor ="FF0000">**
- **<body bgcolor ="red">**
- **<body bgcolor ="rgb(255,0,0)">**

HTML – Body Tag

```
<html> <head>
 <title>HTML Table</title> </head>
 <body bgcolor="blue">
 HTML stands for Hyper Text Markup Language, which is the most widely used language on Web to develop web pages. HTML was created by Berners-Lee in late 1991 but "HTML 2.0" was the first standard HTML specification which was published in 1995. HTML 4.01….
<h1>Why to Learn HTML</h1>
Originally, HTML was developed with the intent of defining the structure of documents like headings, paragraphs, lists, and so forth to facilitate the sharing of scientific information between researchers. Now, …

HTML is  MUST for students and working professionals to become a great Software Engineer specially when they are working in Web Development Domain. I will list down some of the key advantages of learning HTML:
</body> </html>
```



HTML – Body Tag

```
<html> <head>
 <title>HTML Table</title> </head>
 <body background="elephants.jpg">
 HTML stands for Hyper Text Markup Language, which is the
most widely used language on Web to develop web pages.
HTML was created by Berners-Lee in late 1991 but "HTML 2.0"
was the first standard HTML specification which was published in
1995. HTML 4.01….
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researchers. Now, …

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become a great Software Engineer specially when they are
working in Web Development Domain. I will list down some of
the key advantages of learning HTML:
</body> </html>
```
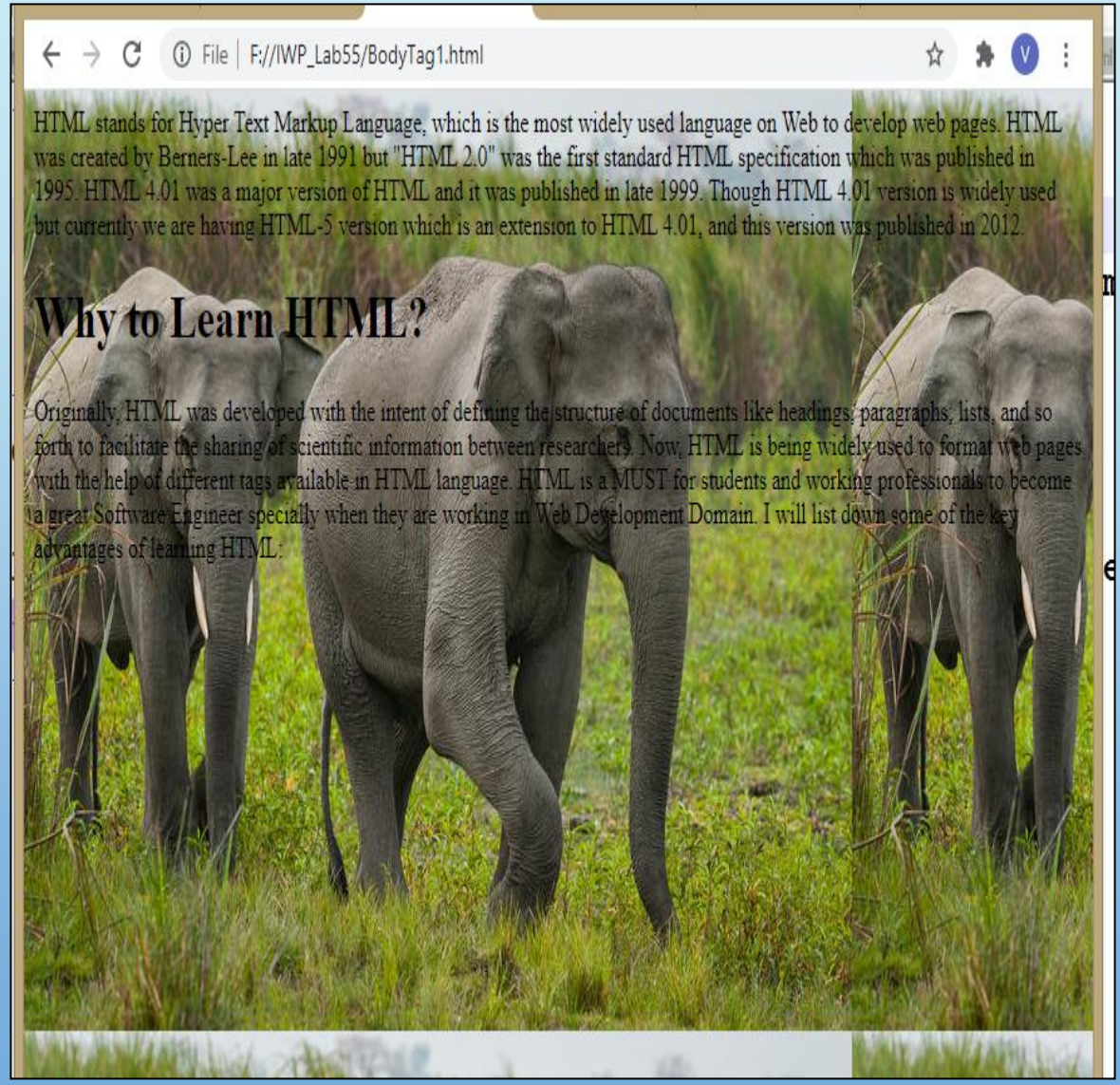



HTML – Font Tag

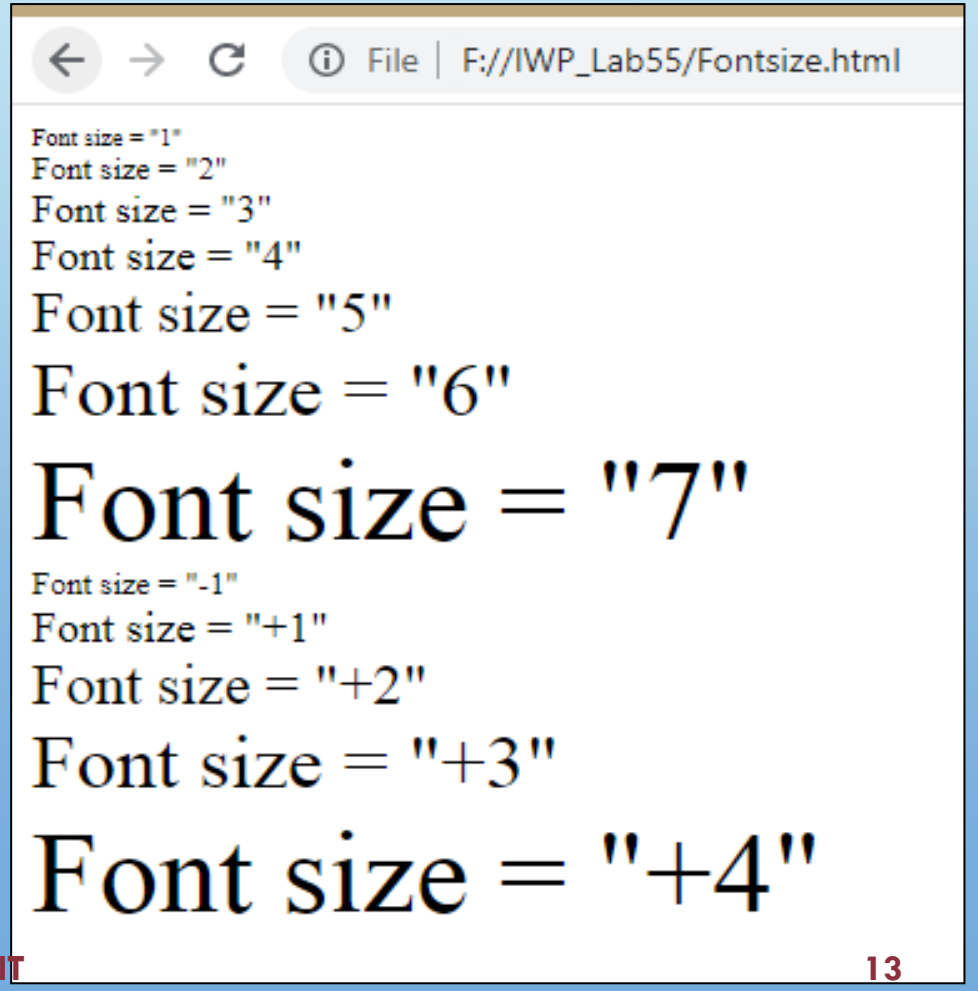
Font face and color depends entirely on the computer and browser that is being used to view your page but you can use HTML **** tag to add style, size, and color to the text on your website.

The font tag is having three attributes called **size**, **color**, and **face** to customize the fonts. To change any of the font attributes at any time within the webpage, simply use the tag. The text that follows will remain changed until close with the tag. Can change one or all of the font attributes within one <font> tag.

HTML – Font Size

Size tag used to change the size of the font ranges between 1 and 7, 3 is the default value. Also specify the size in larger or smaller by using + or – symbols respectively.

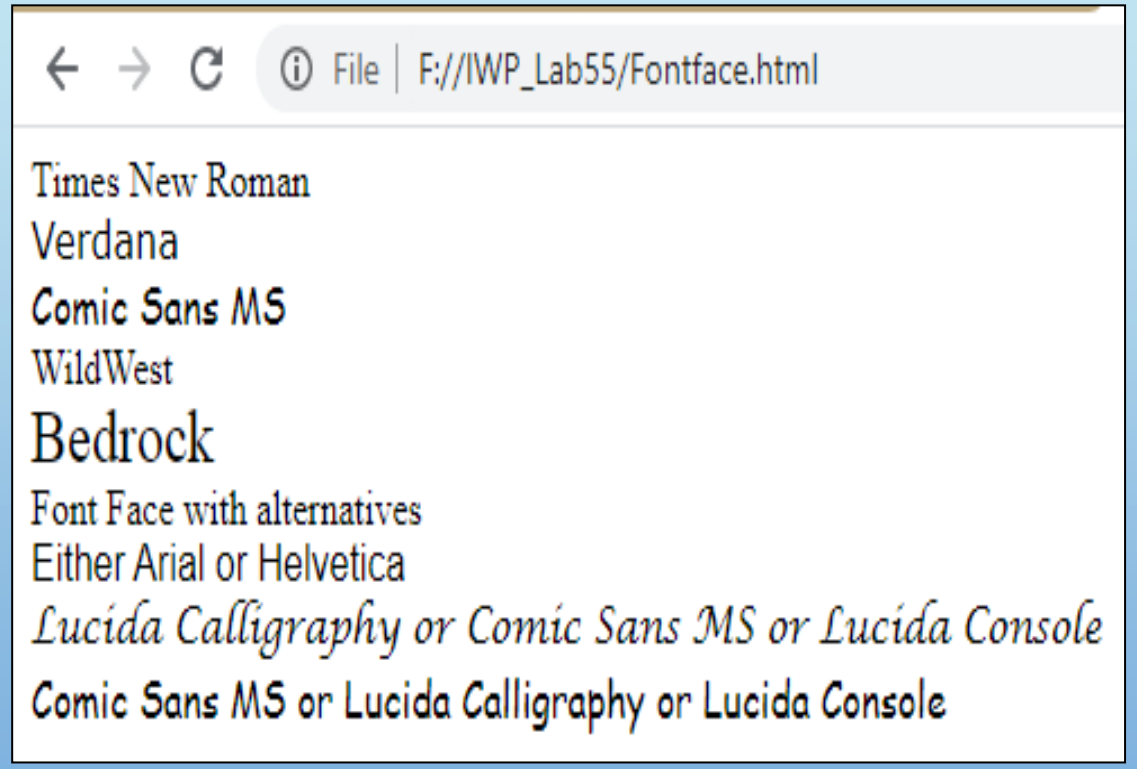
```
<html>
  <head>
    <title>Setting Font Size</title>
  </head>   <body>
    <font size = "1">Font size = "1"</font><br />
    <font size = "2">Font size = "2"</font><br />
    <font size = "3">Font size = "3"</font><br />
    <font size = "4">Font size = "4"</font><br />
    <font size = "5">Font size = "5"</font><br />
    <font size = "6">Font size = "6"</font><br />
    <font size = "7">Font size = "7"</font><br />
     <font size = "-1">Font size = "-1"</font><br />
    <font size = "+1">Font size = "+1"</font><br />
    <font size = "+2">Font size = "+2"</font><br />
    <font size = "+3">Font size = "+3"</font><br />
    <font size = "+4">Font size = "+4"</font>
 </body> </html>
```



HTML – Font Face

Face attribute used to set the font face. Also this can be set with alternate faces.

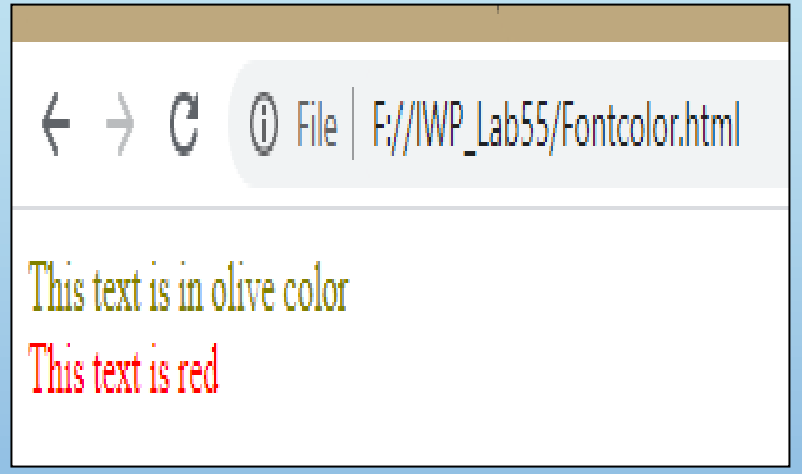
```
<body>
  <font face = "Times New Roman" >Times New Roman</font>
<br>
  <font face = "Verdana" >Verdana</font><br />
  <font face = "Comic sans MS" >Comic Sans MS</font><br />
  <font face = "WildWest" >WildWest</font><br />
  <font face = "Bedrock" size=5>Bedrock</font><br />
 Font Face with alternatives<br>
 <font face = "arial,helvetica"> Either Arial or Helvetica<br>
 <font face = "Lucida Calligraphy,Comic Sans MS,Lucida Console">
Lucida Calligraphy or Comic Sans MS or Lucida Console <br>
  <font face = "Comic Sans MS,Lucida Calligraphy,Lucida
Console"> Comic Sans MS or Lucida Calligraphy or  Lucida Console
<br>
   </body>
```



HTML – Font Color

Color attribute used to change the color of the text. Specify the required color either the color name or hexadecimal code for that color.

```
<html>

  <head>
    <title>Setting Font Color</title>
  </head>

  <body>
    <font color = "#808000">This text is in olive color</font>
<br />
    <font color = "red">This text is red</font>
  </body>

</html>
```



HTML – Font Color

Can specify direct a color name to set text or background color. W3C has listed 16 basic color names that will validate with an HTML validator but there are over 200 different color names supported by major browsers.

Color – Name	Hexadecimal code for color

Here is the list of W3C Standard 16 Colors names and it is recommended to use them.

	Black		Gray		Silver		White
	Yellow		Lime		Aqua		Fuchsia
	Red		Green		Blue		Purple
	Maroon		Olive		Navy		Teal

Color	Color HEX
	#000000
	#FF0000
	#00FF00
	#0000FF
	#FFFF00
	#00FFFF
	#FF00FF
	#C0C0C0
	#FFFFFF

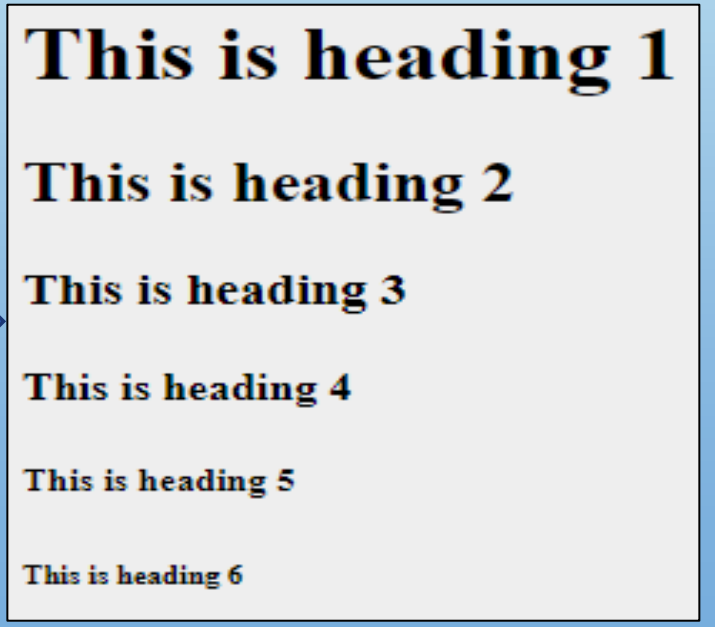
Link to check the Hexadecimal color code - https://www.tutorialspoint.com/html/html_color_names.htm

HTML – Tag Heading

Any document starts with a heading. You can use different sizes for your headings. HTML also has six levels of headings, which use the elements **<h1>, <h2>, <h3>, <h4>, <h5>, and <h6>**. While displaying any heading, browser adds one line before and one line after that heading.

```
<!DOCTYPE html>
<html>

   <head>
      <title>Heading Example</title>
   </head>

   <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>

</html>
```

Output



HTML – Tag Paragraph

The tag offers a way to structure your text into different paragraphs. Each paragraph of text should go in between an opening ** ** and a closing ** ** tag as shown below in the example.

```
<html>

   <head>
      <title>Paragraph Example</title>
   </head>

   <body>
      <p>Here is a first paragraph of text.</p>
      <p>Here is a second paragraph of text.</p>
      <p>Here is a third paragraph of text.</p>
   </body>

</html>
```

Output

Here is a first paragraph of text.

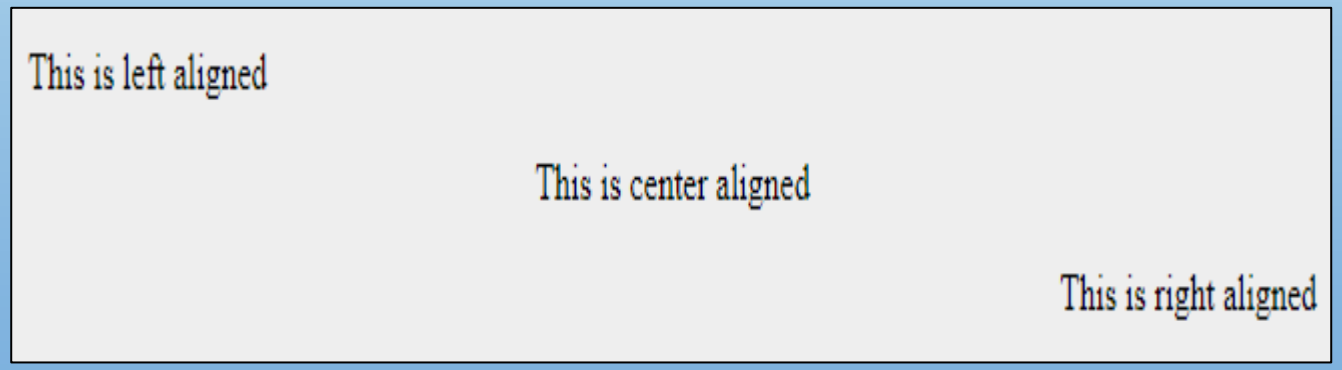
Here is a second paragraph of text.

Here is a third paragraph of text.

HTML – Tag Paragraph

The **<p>** tag with align attribute

```
<html>

   <head>
      <title>Align Attribute  Example</title>
   </head>

   <body>
      <p align = "left">This is left aligned</p>
      <p align = "center">This is center aligned</p>
      <p align = "right">This is right aligned</p>
   </body>

</html>
```



HTML – Tag Break

**
 or
** - inserts a new line. Whenever you use the **
** element, anything following it starts from the next line.

```
<html>

   <head>
      <title>Line Break  Example</title>
   </head>

   <body>
      <p>Hello<br />
         You delivered your assignment ontime.<br />
         Thanks<br />
         Mahnaz</p>
   </body>

</html>
```

Output

Hello
You delivered your assignment on time.
Thanks
Mahnaz

HTML – Attributes

An attribute is used to define the characteristics of an HTML element and is placed inside the element's opening tag. All attributes are made up of two parts – a **name** and a **value**.

- The **name** is the property you want to set. For example, the paragraph **<p>** element in the example carries an attribute whose name is **align**, which you can use to indicate the alignment of paragraph on the page. (Given in Slide-20)

- The **value** is what you want the value of the property to be set and always put within quotations. The below example shows three possible values of align attribute: **left, center** and **right**.

Note: Attribute names and attribute values are case-insensitive.

HTML – Attributes

The four core attributes that can be used on the majority of HTML are –

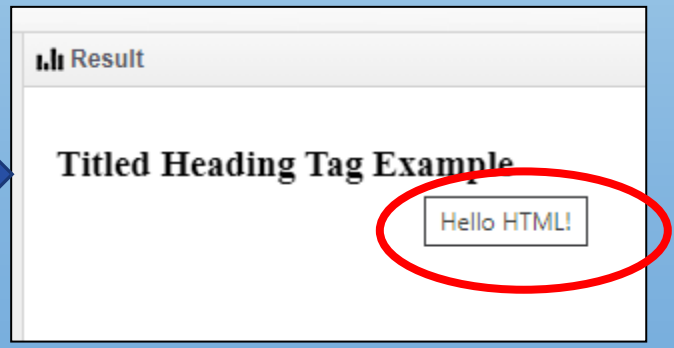
1. **Id** - The **id** attribute of an HTML tag can be used to uniquely identify any element within an HTML page.

This para explains what is HTML
This para explains what is Cascading Style Sheet

2. **Title** - The **title** attribute gives a suggested title for the element. The behaviour of this attribute will depend upon the element that carries it, although it is often displayed as a tooltip when cursor comes over the element or while the element is loading.

```
<!DOCTYPE html>
<html>

   <head>
      <title>The title Attribute Example</title>
   </head>

   <body>
      <h3 title = "Hello HTML!">Titled Heading Tag Example</h3>
   </body>

</html>
```

Output



HTML – Attributes(Contd)

3. **Class** - The **class** attribute is used to associate an element with a style sheet, and specifies the class of element.

class = "className1 className2 className3“

4. **Style** - The style attribute allows you to specify Cascading Style Sheet (CSS) rules within the element.

```
<html>

   <head>
      <title>The style Attribute</title>
   </head>

   <body>
      <p style = "font-family:arial; color:#FF0000;">Some text...</p>
   </body>

</html>
```

HTML – General Attributes

Attribute	Options	Function
align	right, left, center	Horizontally aligns tags
valign	top, middle, bottom	Vertically aligns tags within an HTML element.
bgcolor	numeric, hexidecimal, RGB values	Places a background color behind an element
background	URL	Places a background image behind an element
id	User Defined	Names an element for use with Cascading Style Sheets.
class	User Defined	Classifies an element for use with Cascading Style Sheets.
width	Numeric Value	Specifies the width of tables, images, or table cells.
height	Numeric Value	Specifies the height of tables, images, or table cells.
title	User Defined	"Pop-up" title of the elements.

HTML – Formatting Tags

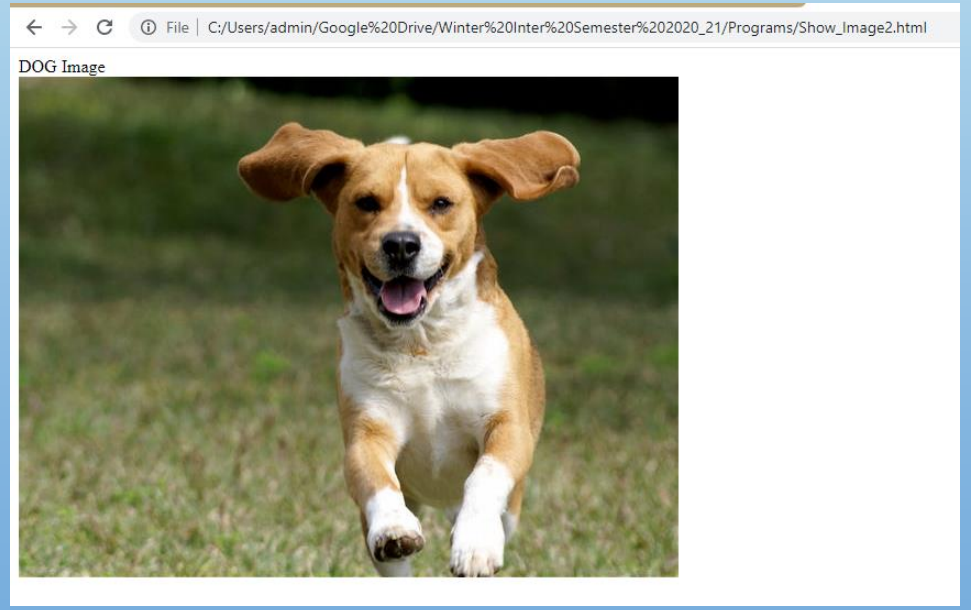
- Anything that appears within **...** element is displayed in italicized
- Anything that appears within **...** element, is displayed in bold
- Anything that appears within **<u>...</u>** element, is displayed with underline .
- Anything that appears within **<strike>...</strike>** element is displayed with strikethrough.
- The content of a **^{...}** element is written in superscript.
- The content of a **_{...}** element is written in subscript.
- The ** and ** elements allow you to group together several elements to create sections or subsections of a page.

HTML – Image tag

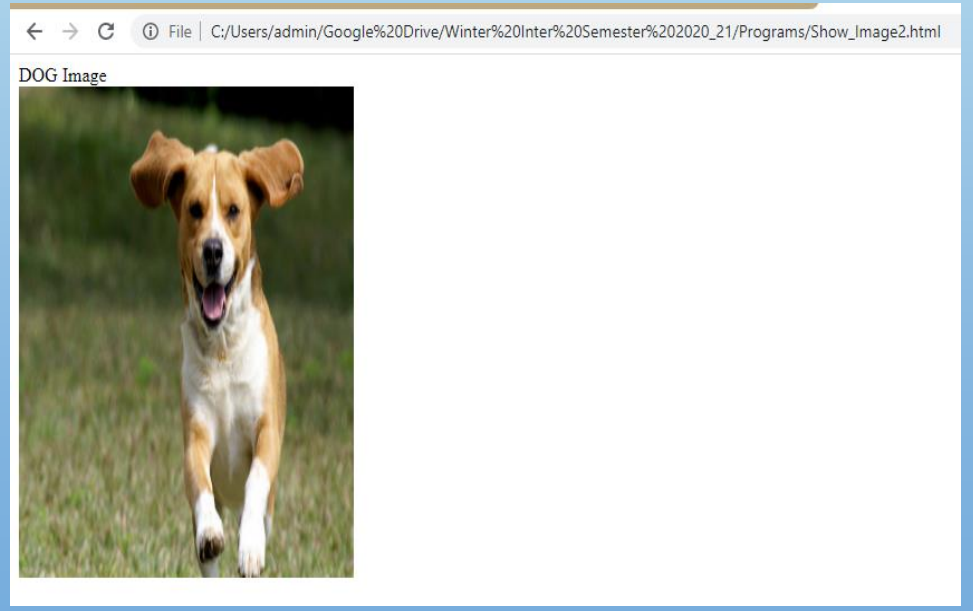
Can insert any image in your web page by using **<img>** tag. The <img> tag is an empty tag, which means that, it can contain only list of attributes and it has no closing tag.

<img src = "Image URL" ... attributes-list>

E.g. <img src="dog2.jpg" alt ="Dog picture“>



E.g. <img src="dog2.jpg" alt ="Dog picture" width="300" height="400">



HTML – Lists

All lists must contain one or more list elements. Lists may contain –

<ul> – An unordered list. This will list items using plain bullets. An unordered list is a collection of related items that have no special order or sequence. Each item in the list is marked with a bullet. Its types are

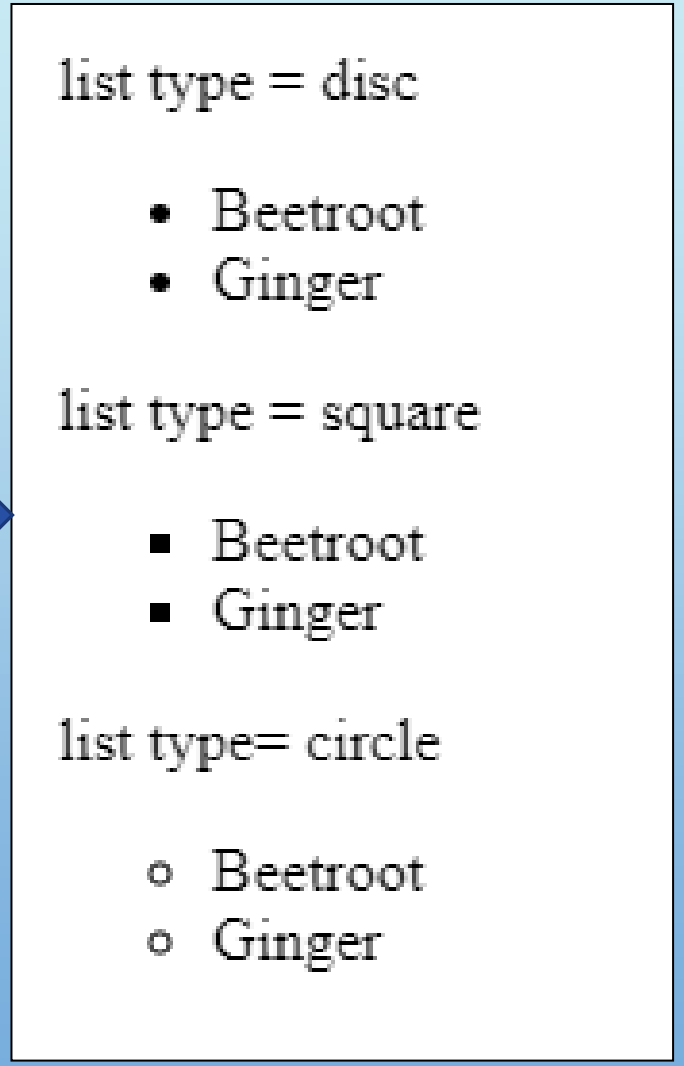
- <ul type = "square"> ■
- <ul type = "disc"> ●
- <ul type = "circle"> ○

<li> - Generates list item under list elements.

HTML – Unordered List Example

```
<html>
  <head>
<title>HTML Unordered List</title>
</head>
<body>
list type = disc
 <ul type = "disc">
  <li>Beetroot</li>
  <li>Ginger</li>
 </ul>
list type = square
  <ul type = "square">
     <li>Beetroot</li>
     <li>Ginger</li>
  </ul>
 list type= circle
   <ul type = "circle">
      <li>Beetroot</li>
      <li>Ginger</li>
   </ul>
</body>
</html>
```

Output



HTML – Ordered Lists

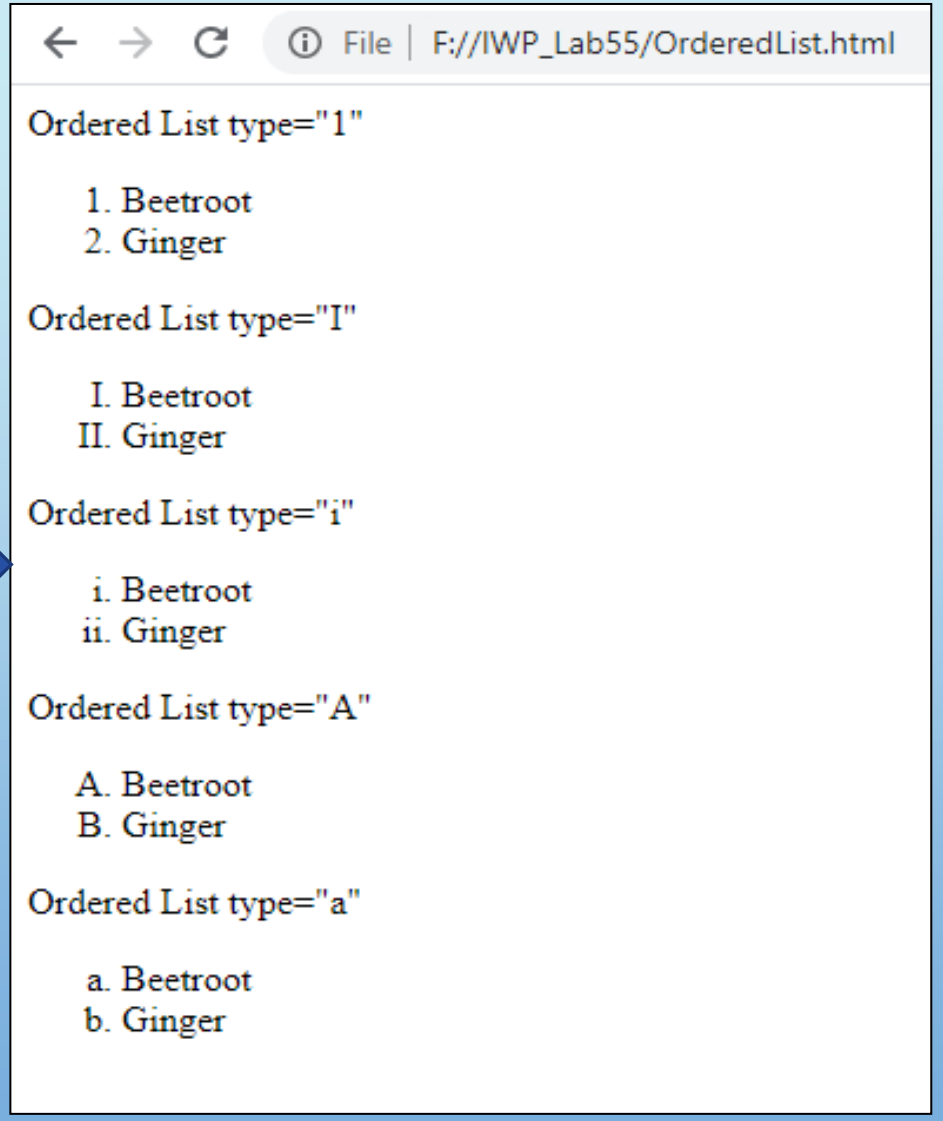
<ol> – if you are required to put your items in a numbered list instead of bulleted, then HTML ordered list will be used. This list is created by using **<ol>** tag. The numbering starts at one and is incremented by one for each successive ordered list element tagged with **<li>.** This will use different schemes of numbers to list your items

- <ol type = "1"> - Default-Case Numerals.
- <ol type = "I"> - Upper-Case Numerals.
- <ol type = "i"> - Lower-Case Numerals.
- <ol type = "A"> - Upper-Case Letters.
- <ol type = "a"> - Lower-Case Letters.

HTML – Ordered List Example

```
<html>
    <body>
    Ordered List type="1"
    <ol type = "1">
      <li>Beetroot</li>    <li>Ginger</li>
    </ol>
    Ordered List type="I"
    <ol type = "I">
      <li>Beetroot</li>    <li>Ginger</li>
    </ol>
    Ordered List type="i"
    <ol type = "i">
      <li>Beetroot</li>   <li>Ginger</li>
    </ol>
    Ordered List type="A"
    <ol type = "A">
      <li>Beetroot</li>     <li>Ginger</li>
    </ol>
    Ordered List type="a"
    <ol type = "a">
      <li>Beetroot</li>      <li>Ginger</li>
    </ol>
</body> </html>
```

Output



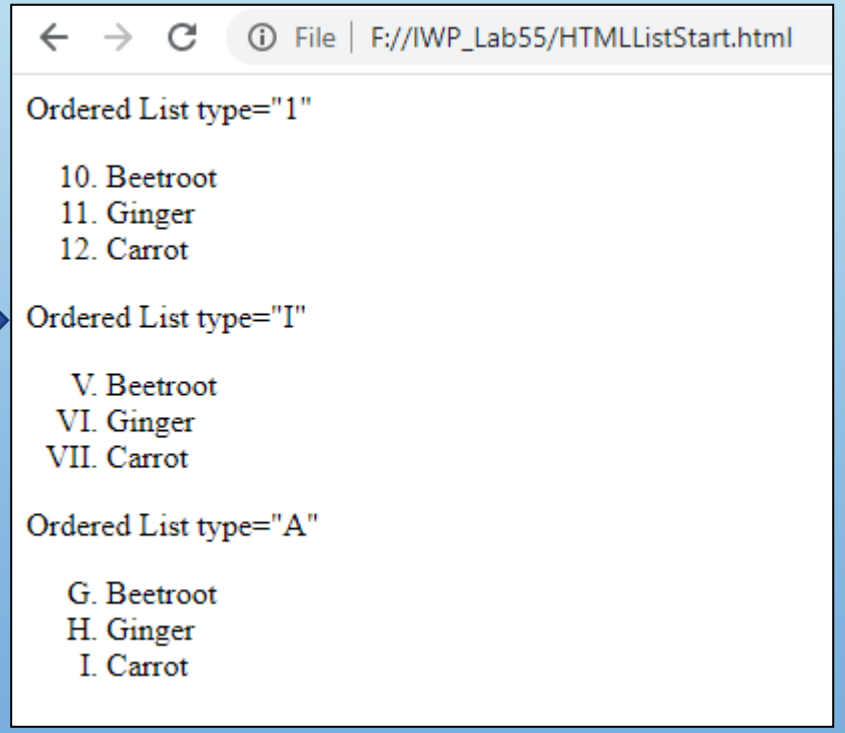
HTML – Ordered List Example

start attribute for <ol> tag to specify the starting point of numbering

```
<ol type = "1" start = "4">    - Numerals starts with 4.
<ol type = "I" start = "4">    - Numerals starts with IV.
<ol type = "i" start = "4">    - Numerals starts with iv.
<ol type = "a" start = "4">    - Letters starts with d.
<ol type = "A" start = "4">    - Letters starts with D.
```

```
<html>
    <body>
   Ordered List type="1"
    <ol type = "1" start ="10">
      <li>Beetroot</li>    <li>Ginger</li>
<li>Carrot</li>
    </ol>
    Ordered List type="I"
    <ol type = "I" start="5">
      <li>Beetroot</li>
<li>Ginger</li><li>Carrot</li>
    </ol>
  Ordered List type="A"
    <ol type = "A" start="7">
      <li>Beetroot</li>
<li>Ginger</li><li>Carrot</li>
    </ol>
</body> </html>
```

Output



Definition List

A definition list is a list of items, with a description of each item.

The<dl> tag defines a definition list.

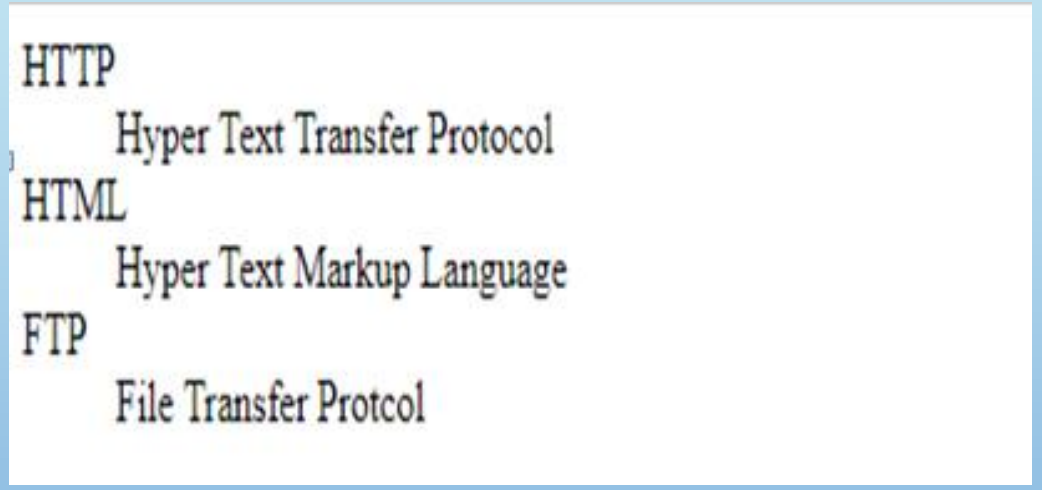
The <dt> tag defines a term/name in a description list. The <dd> tag is used to describe a term/name in a description list.
The <dt> tag is used in conjunction with **<dl>** (defines a description list) and <dd> (describes each term/name).

```
<DL>
<DT> HTML </DT>
<DD> Hyper Text Markup Language </DD>
<DT> DOG </DT>
<DD> A human's best friend!</DD>
</DL>
```

HTML
Hyper Text Markup Language
DOG
A human's best friend!

Definition List- Example

```
<html>
<head>
<title> How to use definition / description list </title>
</head>
<body>
<dl>
<dt> HTTP </dt>
<dd> Hyper Text Transfer Protocol </dd>
<dt> HTML </dt>
<dd> Hyper Text Markup Language </dd>
<dt> FTP </dt>
<dd> File Transfer Protcol </dd>
</dl>
</body>
</html>
```

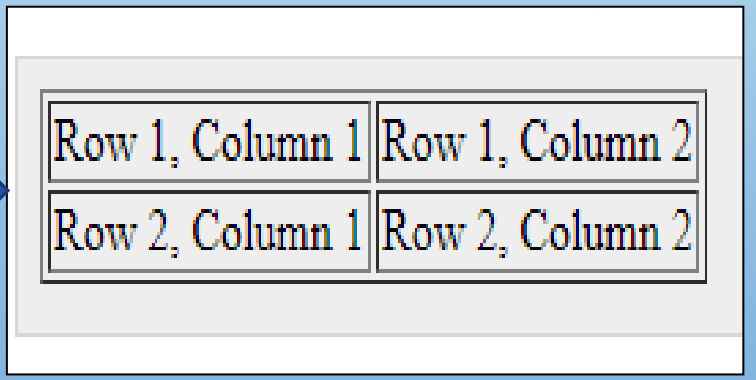


HTML – Table

The HTML tables are created using the **<table>** tag in which the **<tr>** tag is used to create table rows and **<td>** tag is used to create data cells. The elements under <td> are regular and left aligned by default. Table heading can be defined using **<th>** tag. This tag will be put to replace <td> tag

```
<html>
  <head>
    <title>HTML Tables</title>
  </head>
  <body>
    <table border = "1">
      <tr>
        <td>Row 1, Column 1</td>   <td>Row 1, Column 2</td>
      </tr>

      <tr>
        <td>Row 2, Column 1</td>   <td>Row 2, Column 2</td>
      </tr>
    </table>
  </body>
</html>
```

Output

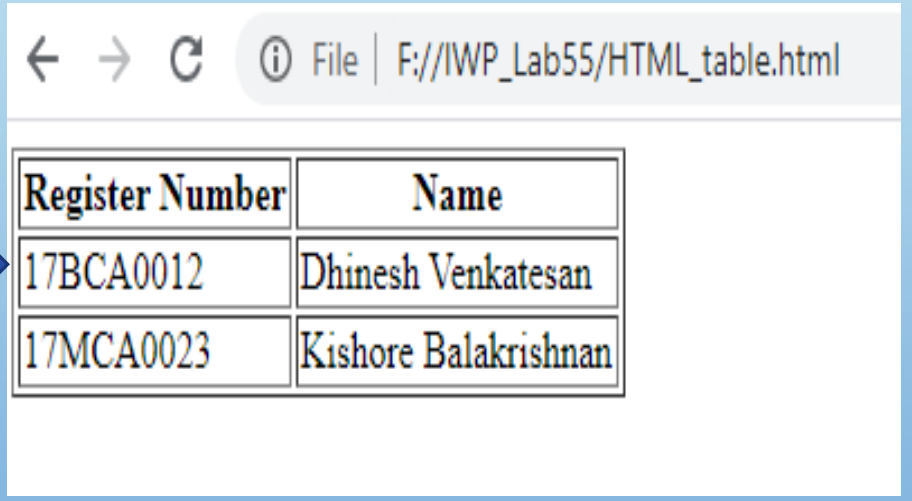


HTML – Table

HTML tables allow web developers to arrange data into rows and columns. Everything between <td> and </td> are the content of the table cell. Sometimes you want your cells to be table header cells. In those cases use the <th> tag instead of the <td> tag:

```
<html>
  <head>
    <title>HTML Tables</title>
  </head>
  <body>
    <table border = "1">
     <tr>
        <th>Register Number</th>   <th> Name</th>
      </tr>

      <tr>
        <td>17BCA0012</td>  <td>Dhinesh Venkatesan</td>
      </tr>

      <tr>
        <td>17MCA0023</td>   <td>Kishore Balakrishnan</td>
      </tr>
    </table>
  </body>
</html>
```

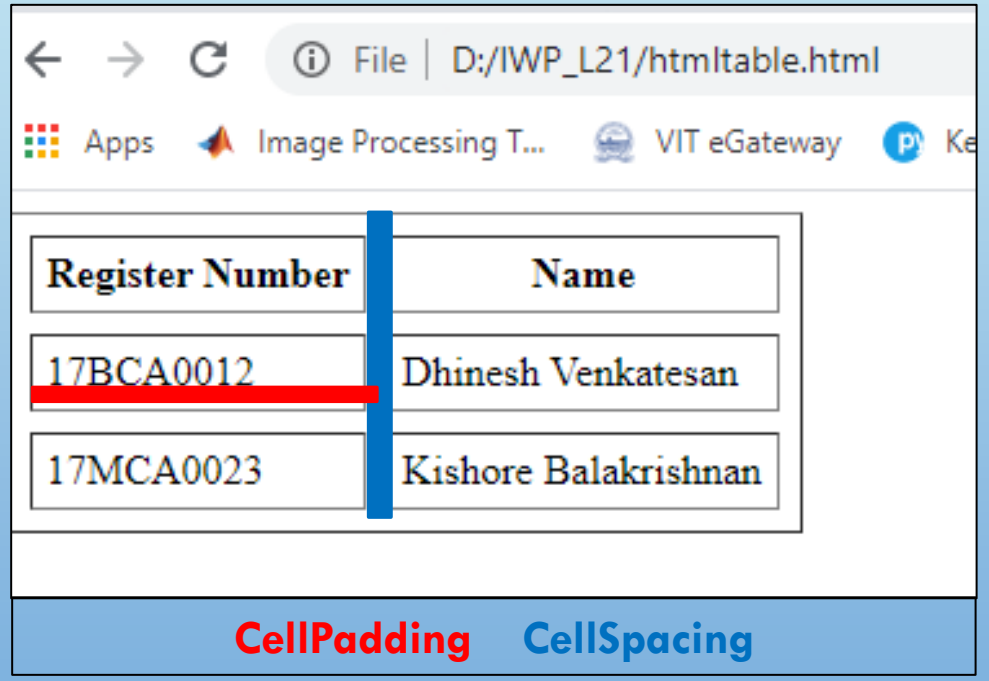
Output



HTML – Table

The **cellspacing** attribute defines space between table cells, while **cellpadding** represents the distance between cell borders and the content within a cell.

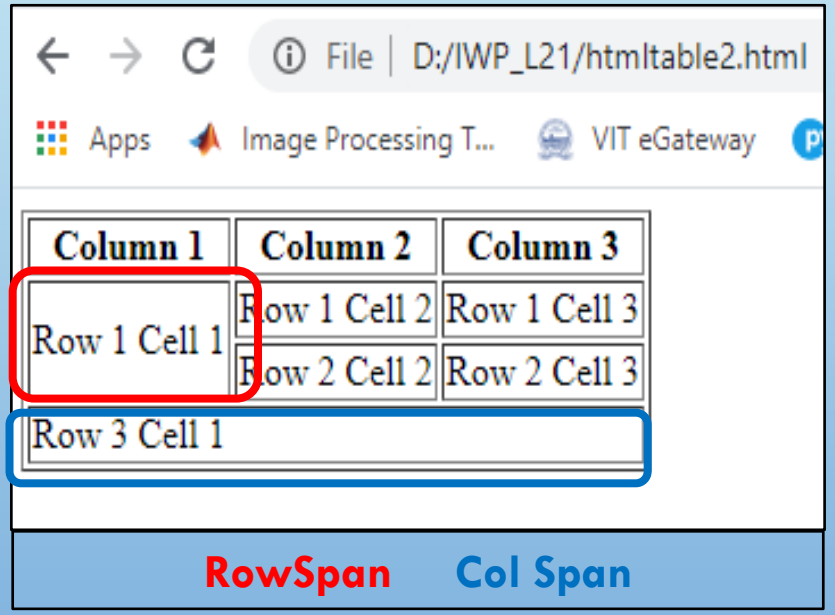
```
<html>
  <head>
    <title>HTML Tables</title>
  </head>
  <body>
    <table border = "1“ cellpadding=“5” cellspacing=“8”>
     <tr>
        <th>Register Number</th>   <th> Name</th>
      </tr>

      <tr>
        <td>17BCA0012</td>  <td>Dhinesh Venkatesan</td>
      </tr>

      <tr>
        <td>17MCA0023</td>   <td>Kishore Balakrishnan</td>
      </tr>
    </table>    </body>
</html>
```



HTML – Table

You will use **colspan** attribute if you want to merge two or more columns into a single column. Similar way you will use **rowspan** if you want to merge two or more rows.

```
<html> <head>
<title>HTML Table Colspan/Rowspan</title>
</head>
<body> <table border = "1">
<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>

<tr> <td>Row 2 Cell 2</td> <td>Row 2 Cell 3</td> </tr>

<tr> <td colspan = "3">Row 3 Cell 1</td> </tr>
</table>
</body> </html>
```

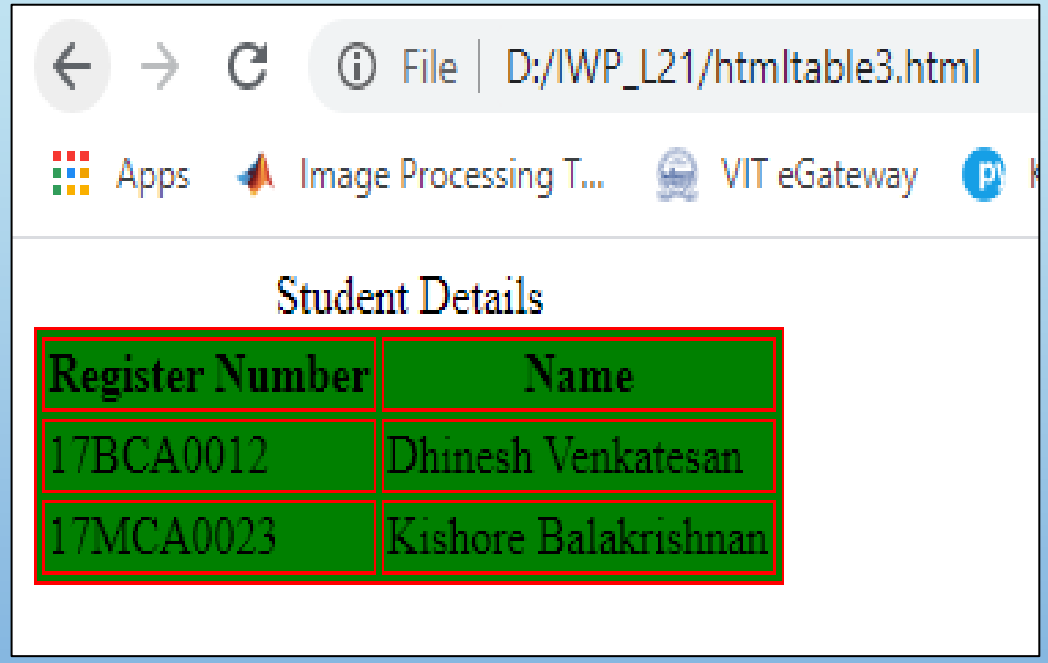


HTML Table – Attributes

- **bgcolor** attribute – can set background color for whole table or just for one cell.
- **background** attribute – can set background image for whole table or just for one cell.
- **bordercolor** - can set border color using this attribute.
- **<caption>** - this tag will serve as a title or explanation for the table and it shows up at the top of the table.
- Tables can be divided into three portions – a header, a body, and a foot.
  - **<thead>** – to create a separate table header.
  - **<tbody>** – to indicate the main body of the table.
  - **<tfoot>** – to create a separate table footer.
- set a table width and height using **width** and **height** attributes. Can specify table width or height in terms of pixels or in terms of percentage of available screen area.

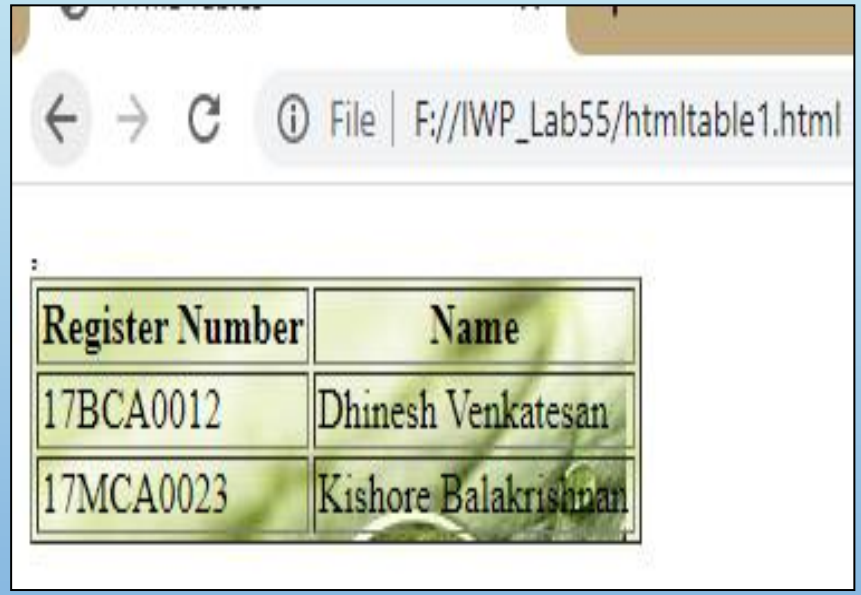
HTML Table – bgcolor, bordercolor, caption

```
<html>
  <head>
    <title>HTML Tables</title>
  </head>
  <body>
    <table border = "1“ bgcolor=green bordercolor=red >
     <caption>Student Details<\caption>
     <tr>
        <th>Register Number</th>   <th> Name</th>
      </tr>

      <tr>
        <td>17BCA0012</td>  <td>Dhinesh Venkatesan</td>
      </tr>

      <tr>
        <td>17MCA0023</td>   <td>Kishore Balakrishnan</td>
      </tr>
    </table>   </body>
</html>
```



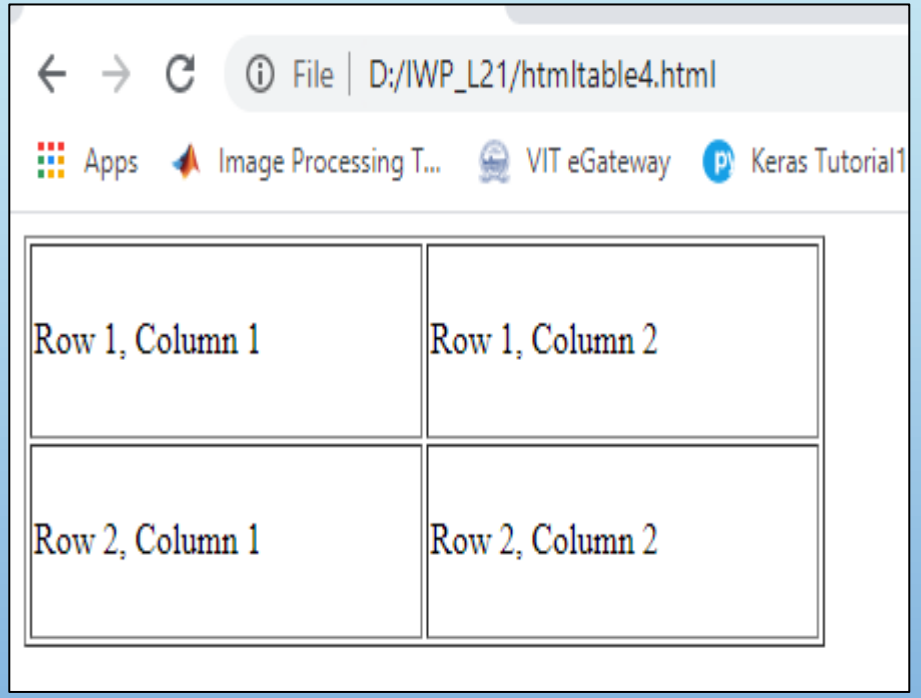
HTML Table – background

```
<html>
  <head>
    <title>HTML Tables</title>
  </head>
  <body>
    <table border = "1“ background=“image1.jpg”>
     <tr>
        <th>Register Number</th>   <th> Name</th>
      </tr>

      <tr>
        <td>17BCA0012</td>  <td>Dhinesh Venkatesan</td>
      </tr>

      <tr>
        <td>17MCA0023</td>   <td>Kishore Balakrishnan</td>
      </tr>
    </table>
  </body>
</html>
```



HTML Table – width and height attribute

```
<html>
<head>
<title>HTML Table Width/Height</title>
</head>
<body>
<table border = "1" width = "400" height = "150">
<tr> <td>Row 1, Column 1</td>
<td>Row 1, Column 2</td> </tr>
 <tr> <td>Row 2, Column 1</td>
<td>Row 2, Column 2</td> </tr>
</table>
</body>
</html>
```



HTML – A and Href tag

A link is specified using HTML tag **<a>**. This tag is called **anchor tag** and anything between the opening <a> tag and the closing tag becomes part of the link and a user can click that part to reach to the linked document.

A webpage can contain various links that take you directly to other pages and even specific parts of a given page. These links are known as hyperlinks. Hyperlinks allow visitors to navigate between Web sites by clicking on words, phrases, and images.

LINK - standard link - to a page the visitor hasn't been to yet.
(standard color is blue - #0000FF).

VLINK - visited link - to a page the visitor has been to before.

(standard color is purple - #800080).

ALINK - active link - the color of the link when the mouse is on it.

(standard color is red - #FF0000).

Link

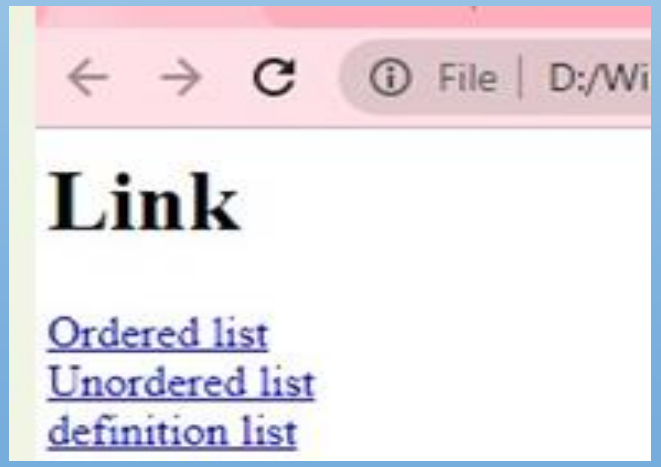
The anchor <a> tag defines a hyperlink, which is used to link from one page to another.

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:

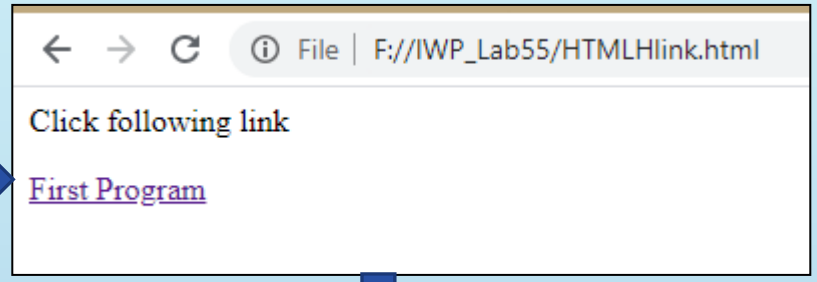
- An unvisited link is underlined and blue
- A visited link is underlined and purple
- An active link is underlined and red

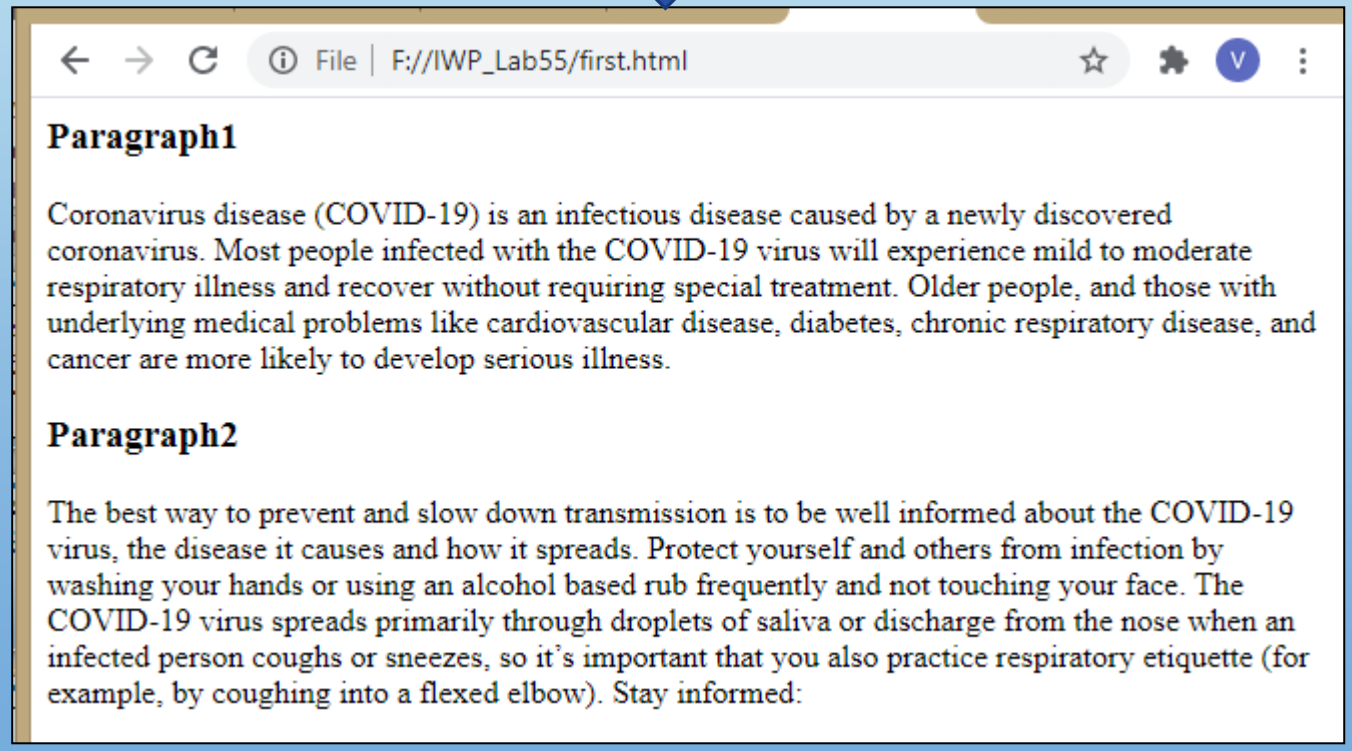
```
<html>
<head>
<title>How to create a link between pages</title>
</head>
<body>
<h1>Link</h1>
<a href="ordered.html">Ordered list</a> <br />
<a href="unordered.html">Unordered list</a> <br />
<a href="definition.html">definition list</a> <br/>
</body>
</html>
```



HTML – A and Href tag

```
<html>
  <head>
    <title>Hyperlink Example</title>
  </head>
  <body>
    <p>Click following link</p>
    <a href = "first.html" >First
Program </a>
  </body>
</html>
```





HTML – Marquee

The <marquee> tag in HTML creates a scrolling text or image effect within a webpage. It allows content to move horizontally or vertically across the screen, providing a simple way to add dynamic movement to elements. Although this tag is **deprecated** in HTML5.

This is a scrolling piece of text displayed either horizontally across or vertically down your webpage depending on the settings. This is created by using HTML <marquee> tag.

<marquee > One or more lines or text message or image </marquee>

Attribute **direction** decides whether horizontal or vertical direction. Horizontal is default.

```
<html>
<head>
<title>HTML marquee Tag</title> </head>
<body>
<marquee direction = "up">
This text will scroll from bottom to up
</marquee>
</body>
 </html>
```

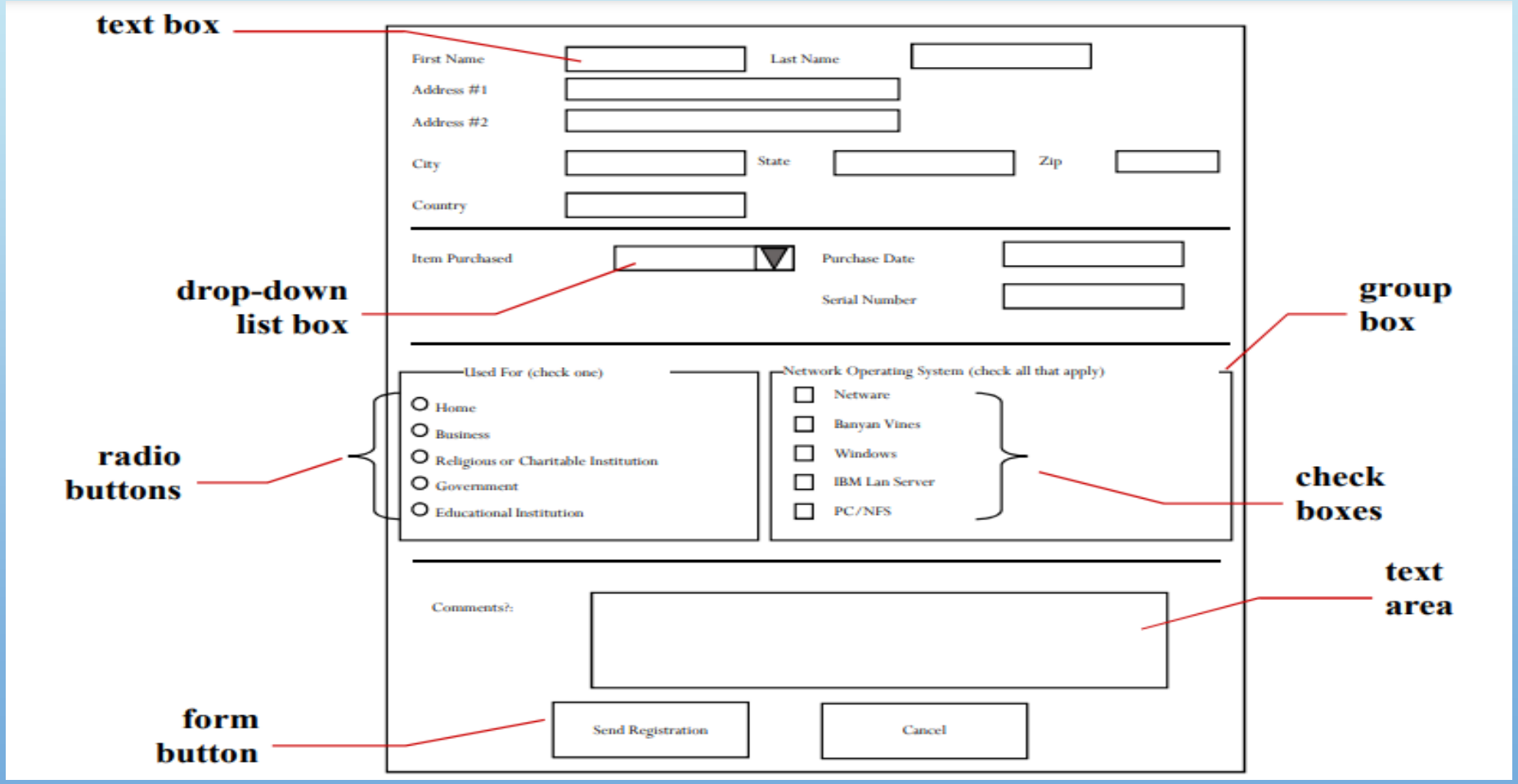
HTML – Forms

HTML Forms are required, when you want to collect some data from the site visitor. There are different types of form controls that you can use to collect data using HTML form:

- Text Input Controls
- Checkboxes Controls
- Radio Button Controls
- Select/drop down/Combo Box Controls
- File Select boxes
- Clickable Buttons
- Submit and Reset Button

Input tag is used with any one of the above as attribute.

HTML Form Layout



HTML – Input Attributes

name: The name attribute is used to specify the name of the input element.
value: The value attribute is used to specify the value of the input element.
type: The type attribute is used to specify the type of the input element. Its default value is text.
placeholder: Placeholder attribute is used to specify hint that describes the expected value of an input field.
required: The required attribute specifies that an input field must be filled out before submitting the form.
disabled: The disabled attribute specifies that the element should be disabled. The disabled attribute can be set to keep a user from using the < input > element until some other condition has been met.
readonly: The readonly attribute specifies that an input field is read-only. A read-only input field cannot be modified. A form will still submit an input field that is readonly, but will not submit an input field that is disabled.

HTML – Input Attributes

min: This property is used to specifies a minimum value for an <input> element

max : The max attribute is used to specify the maximum value for an < input > element.

step: This property is used to specifies the legal number intervals for an input field

maxlength: This property is used to specifies the maximum number of characters allowed in an <input> element

size: This property is used to specifies the width, in characters, of an <input> element

checked: The checked attribute specifies that an element should be pre-selected (checked) when the page loads. The checked attribute can be used with < input type="checkbox" > and < input type="radio" >.

multiple: This property is used to specifies that a user can enter more than one value in an <input> element

pattern: This property is used to specifies a regular expression that an <input> element's value is checked against.

HTML – Input Attributes

Attributes are mandatory to use input tags. Common attributes are provided in the below table:

Attribute	Usages
Type	Indicates the type of input control and for text input control it will be set to text.
name	Used to give a name to the control which is sent to the server to be recognized and get the value.
value	This can be used to provide an initial value inside the control.

HTML – Text Input

There are three types of text input used on forms –
Single-line text input controls – This control is used for items that require only one line of user input

```
<input type = "text" name = "username" >
```

Password input controls – This is also a single-line text input but it masks the character as soon as a user enters it.

```
<input type = "password" name =
"userpassword" >
```

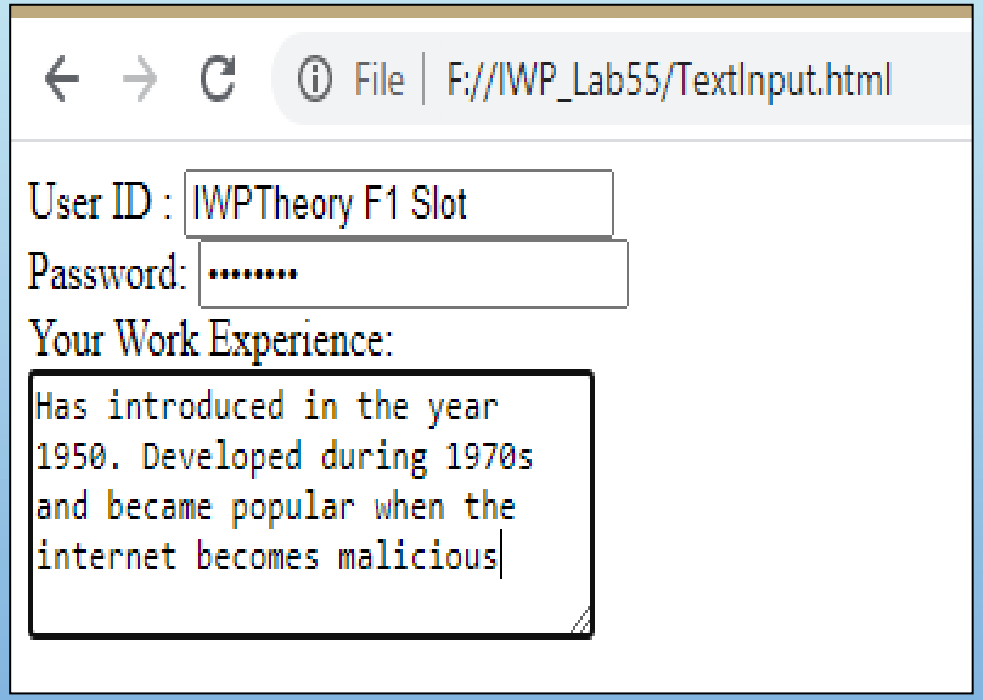
Multi-line text input controls – This is used when the user is required to longer than a single sentence. Multi-line input controls are created using HTML **<textarea>** tag.

```
<textarea rows=5 cols=50
name="userHistory" > </textarea>
```

Attribute	Usages
size	Allows to specify the width of the text-input control in terms of characters.
maxlength	Allows to specify the maximum number of characters a user can enter into the text box.

HTML – Text Inputs

```
<html>
  <head>
    <title>Text Input Control</title>
  </head>

  <body>
    <form >
      User ID : <input type = "text" name = "user_id">      <br>
      Password: <input type = "password" name = "password" >
      <br>
      Your Work Experience:<br>
      <textarea name="workexperience" rows=5 cols=30>
        </textarea>
    </form>
  </body>
</html>
```

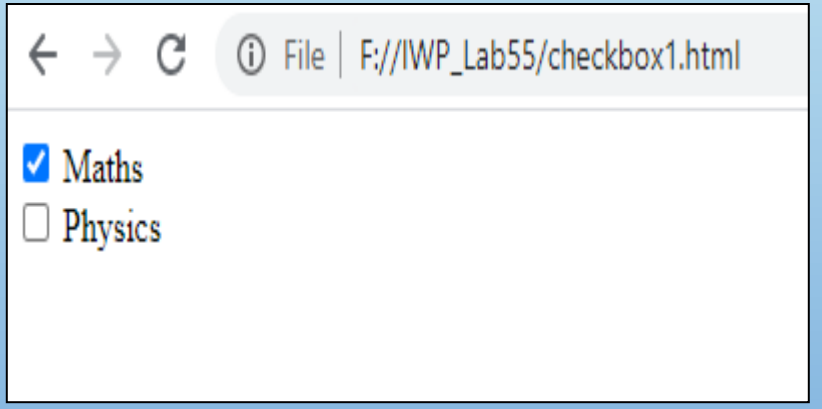


Checkbox

Checkboxes are used when more than one option is required to be selected. Special attribute is

checked – set to check if your want to select it by default

```
<html>
  <head>
    <title>Checkbox Control</title>
  </head>

  <body>
    <form>
      <input type = "checkbox" name = "maths" checked> Maths <br>
      <input type = "checkbox" name = "physics" > Physics
    </form>
  </body>
</html>
```

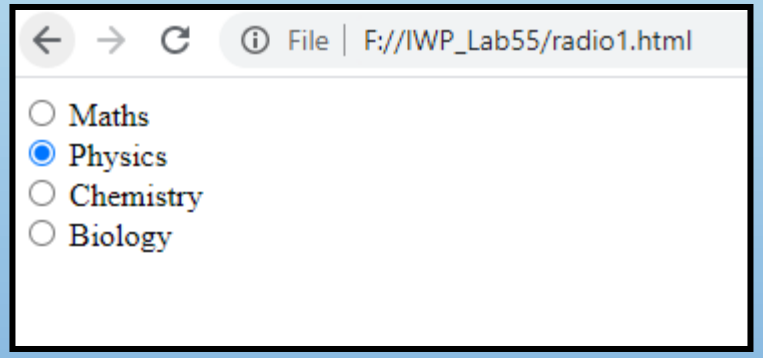


HTML – Radio Button

Radio buttons are used when out of many options, just one option is required to be selected. Special attribute is

checked – set to check if your want to select it by default

```
<html>
  <head>
    <title>Radio Box Control</title>
  </head>

  <body>
    <form>
      <input type = "radio" name = "subject" value = "maths"> Maths <br>
      <input type = "radio" name = "subject" value = "physics" checked> Physics <br>
          <input type = "radio" name = "subject" value = "chemistry"> Chemistry
<br>
          <input type = "radio" name = "subject" value = "biology"> Biology <br>
    </form>
  </body> </html>
```

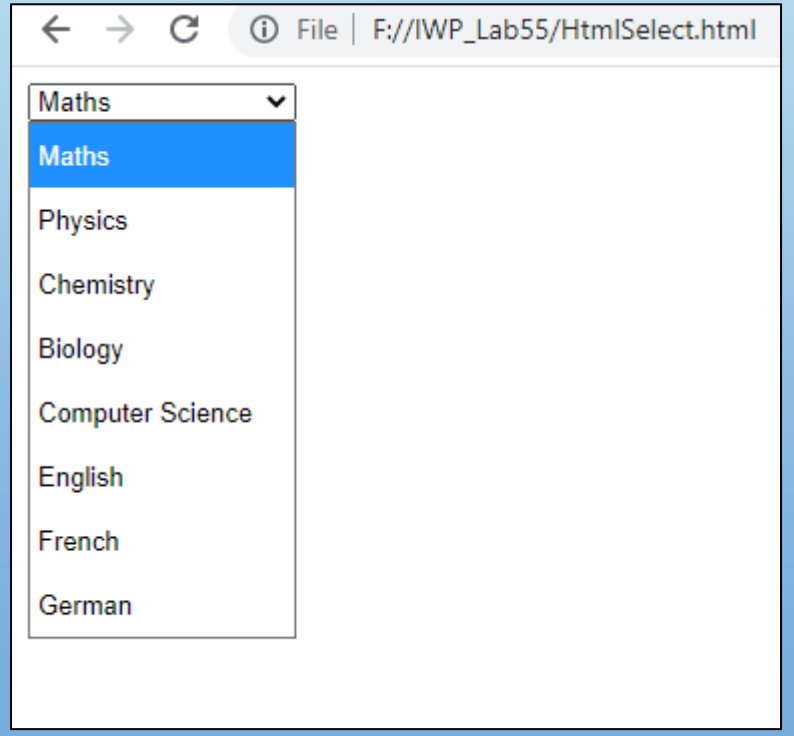


HTML – Select Box

A select box, also called drop down box which provides option to list down various options in the form of drop down list, from where a user can select one or more options.

Multiple - If set to "multiple" attribute then allows a user to select multiple items from the menu.

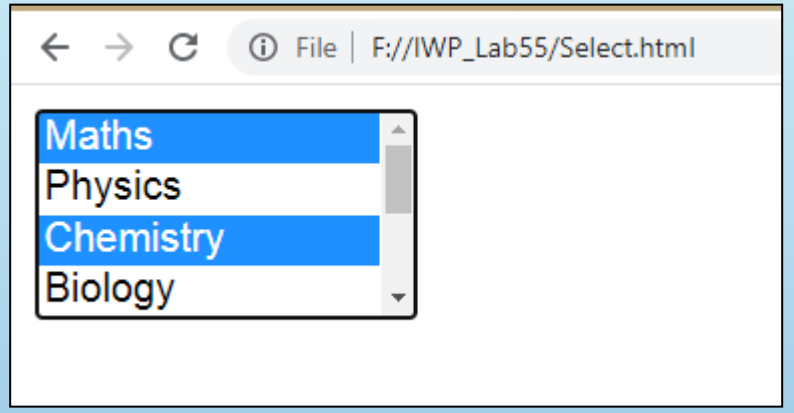
```
<body>
    <form>
      <select name = "dropdown">
        <option value = "Maths" selected>Maths</option>
        <option value = "Physics">Physics</option>
        <option value = "Chemistry"> Chemistry</option>
        <option value = "Biology">Biology </option>
        <option value = "Computer">Computer Science </option>
        <option value = "English"> English</option>
        <option value = "French">French </option>
        <option value = "German"> German</option>
      </select>
    </form> </body>
```



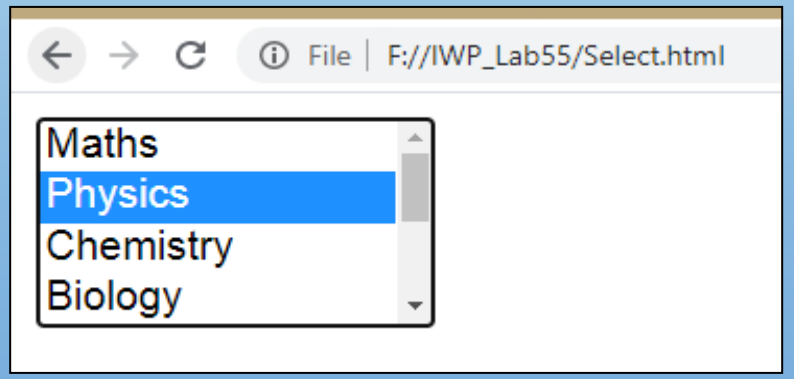
HTML – Select with multiple

```
<body>
    <form>
      <select name = "dropdown“ mutiple>
        <option value = "Maths" selected>Maths</option>
        <option value = "Physics">Physics</option>
        <option value = "Chemistry"> Chemistry</option>
        <option value = "Biology">Biology </option>
        <option value = "Computer">Computer Science </option>
        <option value = "English"> English</option>
        <option value = "French">French </option>
        <option value = "German"> German</option>
      </select>
    </form>
</body>
```

Multiple Selection



Single Selection



HTML5 – Semantic Tags

In HTML4, developers have to use their own id/class names to style elements: header, top, bottom, footer, menu, navigation, main, container, content, article, sidebar, topnav, etc.

This is so difficult for search engines to identify the correct web page content. Now in HTML5 elements **(<header> <footer> <nav> <section> <article>),** this will become easier. It now allows data to be shared and reused across applications, enterprises, and communities."

Semantic elements can increase the accessibility of the website, and also helps to create a better website structure.

HTML5 – Semantic Tags

A **semantic element** clearly describes its **meaning** to both the browser and the developer.

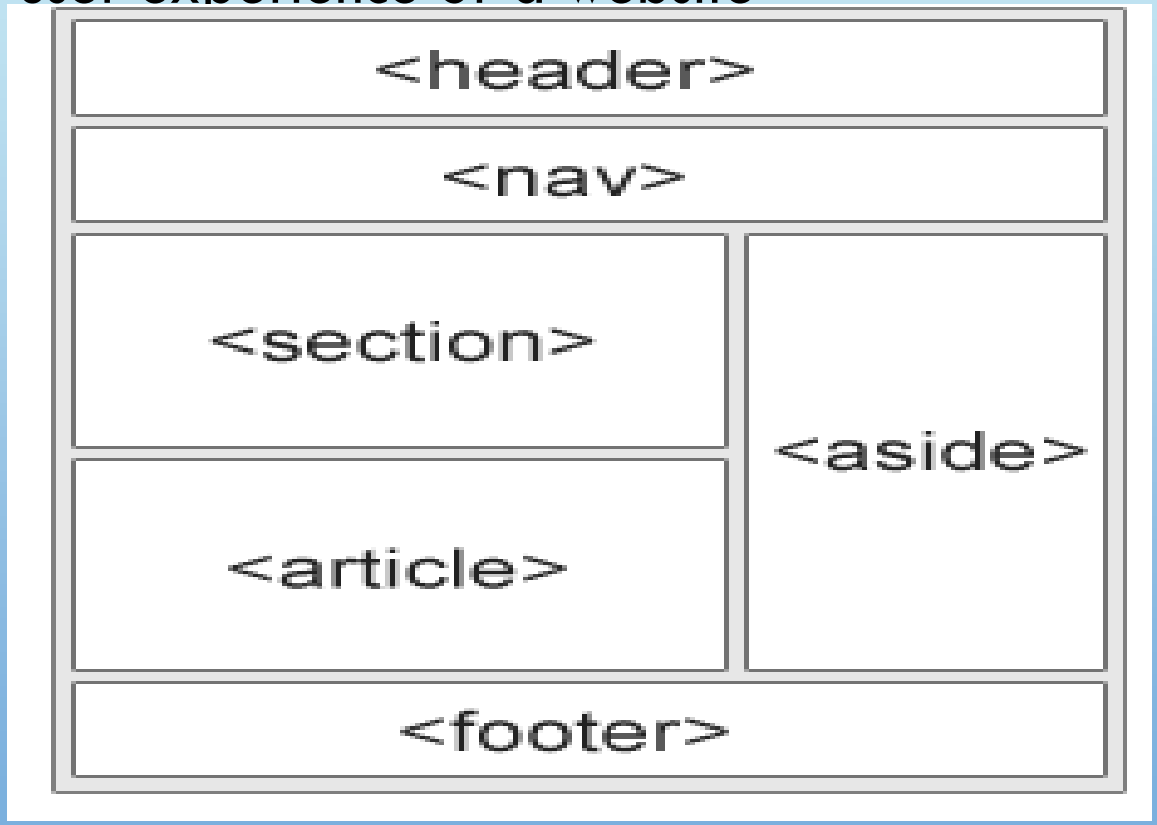
Semantic elements have meaningful names which tells about type of content. For example header, footer, table, … etc. HTML5 introduces many semantic elements as mentioned below which make the code easier to write and understand for the developer as well as instructs the browser on how to treat them.

Examples of **non-semantic** elements: and - Tells nothing about its content.

Examples of **semantic** elements: <form>, <table>, and <article> - Clearly defines its content.

HTML – Sample

In HTML there are some semantic elements that can be used to define different parts of a web page: Semantic tags in HTML help to improve the structure, accessibility, and user experience of a website



HTML – Semantic Tags

Semantic Tag	Description
<article>	Defines an article
<aside>	Defines content aside from the page content
<details>	Defines additional details that the user can view or hide
<figcaption>	Defines a caption for a <figure> element
<figure>	Specifies self-contained content, like illustrations, diagrams, photos, code listings, etc.
<footer>	Defines a footer for a document or section
<header>	Specifies a header for a document or section
<main>	Specifies the main content of a document
<mark>	Defines marked/highlighted text
<nav>	Defines navigation links
<section>	Defines a section in a document
<summary>	Defines a visible heading for a <details> element
<time>	Defines a date/time

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Incredible India</title>
</head>
<body>
    <header>
        <img src="" alt="Incredible India">
    </header>
    <section>
        <img src="" alt="Taj Mahal">
        <h2>Welcome to Land of Heritage <br>India!</h2>
    </section>
    <nav>
        <ul>
            <li>Places to Visit</li>
            <li>Heritage</li>
            <li>Culture</li>
            <li>Plan your Trip</li>
        </ul>
    </nav>
</body>
</html>
```

```html
<main>
    <article>
        <h2>The Land of Gandhi</h2>
        <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Inventor
        <h3>Must Visit Destinations</h3>
        <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Assumenda
        <ul>
            <li><img src="" alt="Maha"></li>
```

```html
<section>
    <ul >

        <li><a href="https://tourism.ap.gov.in" title="Andhra Pradesh" target="_
        Andhra Pradesh </a></li>

        <li><a href="http://www.arunachaltourism.com" title="Arunachal Pradesh"
        Arunachal Pradesh </a></li>

        <li><a href="https://tourism.assam.gov.in" title="Assam" target="_blank"
        Assam </a></li>

        <li><a href="https://tourism.bihar.gov.in" title="Bihar" target="_blank"
        Bihar </a></li>

        <li><a href="https://www.chhattisgarhtourism.in" title="Chhattisgarh" ta
        Chhattisgarh </a></li>

            <li><a href="https://uttarakhandtourism.gov.in" title="Uttarakhan
            Uttarakhand </a></li>

            <li><a href="http://www.wbtourismgov.in" title="West Bengal" targ
            West Bengal </a></li>

    </ul>
    </section>
</main>
<footer>
    <p>@Coptright 2022-2023</p>
```

Incredible India
www.incredibleindia.org

Places to Visit | Heritage | Culture | Plan your Trip

Incredible India
www.incredibleindia.org

Places to Visit | Heritage | Culture | Plan your Trip

The Land of Gandhi

One of the oldest civilisations in the world, India is a mosaic of multicultural experiences. With a rich heritage and myriad attractions, the country is among the most popular tourist destinations in the world. It covers an area of 32, 87,263 sq. km, extending from the snow-covered Himalayan heights to the tropical rain forests of the south. As the 7th largest country in the world, India stands apart from the rest of Asia, marked off as it is by mountains and the sea, which give the country a distinct geographical entity.

Must Visit Destinations

HTML – Video

- **<video>** element is used to show a video on a web page. Height, Width and Control. The controls attribute adds video controls, like play, pause, and volume.
- It is a good idea to always include width and height attributes. If height and width are not set, the page might flicker while the video loads.
- The **<source>** element allows you to specify alternative video files which the browser may choose from. The browser will use the first recognized format.
- The text between the **<video>** and **</video>** tags will only be displayed in browsers that do not support the <video> element.

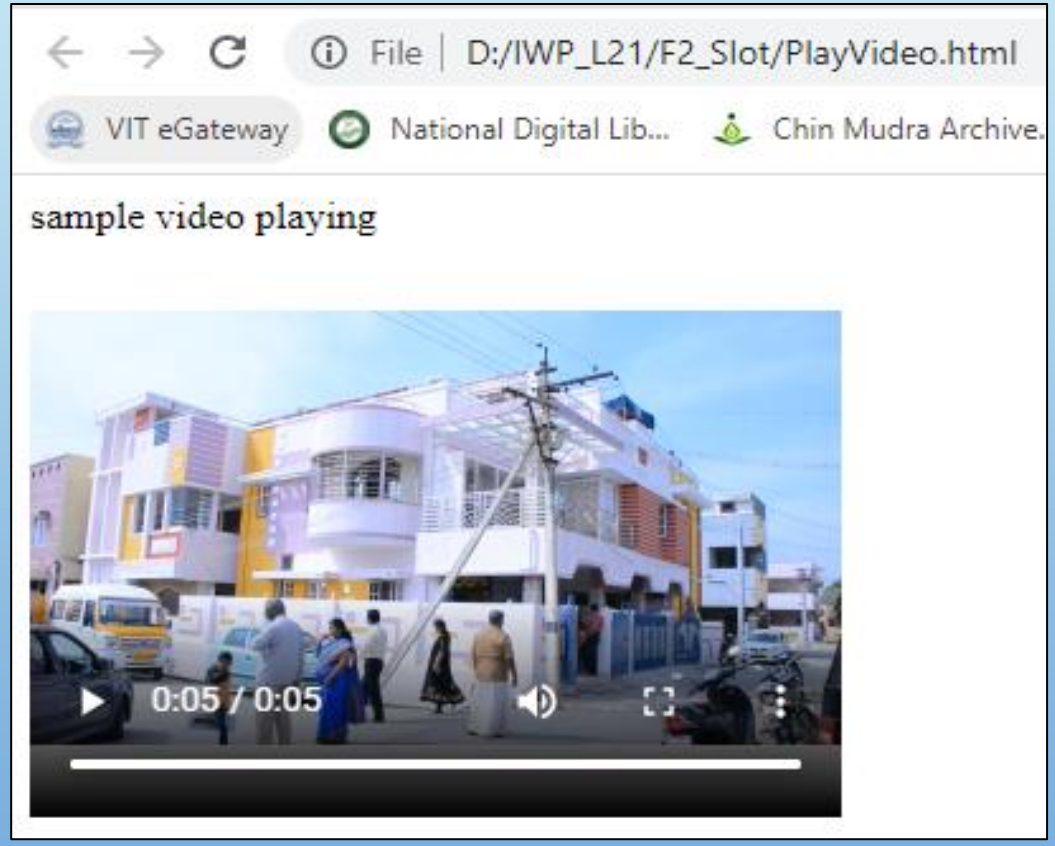
```
<video width="320" height="240" autoplay muted controls>
  <source src="movie.mp4" type="video/mp4">
  <source src="movie.ogg" type="video/ogg">
Your browser does not support the video tag.
</video>
```

HTML – Video Tag Attribute

Attribute	Description
controls	It defines the video controls which is displayed with play/pause buttons.
height	It is used to set the height of the video player.
width	It is used to set the width of the video player.
poster	It specifies the image which is displayed on the screen when the video is not played.
autoplay	It specifies that the video will start playing as soon as it is ready.
loop	It specifies that the video file will start over again, every time when it is completed.
muted	It is used to mute the video output.
preload	It specifies the author view to upload video file when the page loads.
src	It specifies the source URL of the video file.

HTML – Video

```
<html>
<body>
sample video playing<br>
<video width="320" height="240" controls autoplay >
  <source src="d:\Sam_5565.mov" type="video/mp4">
  Your browser does not support the html video tag.
</video>
</body>
</html>
```



HTML – Audio

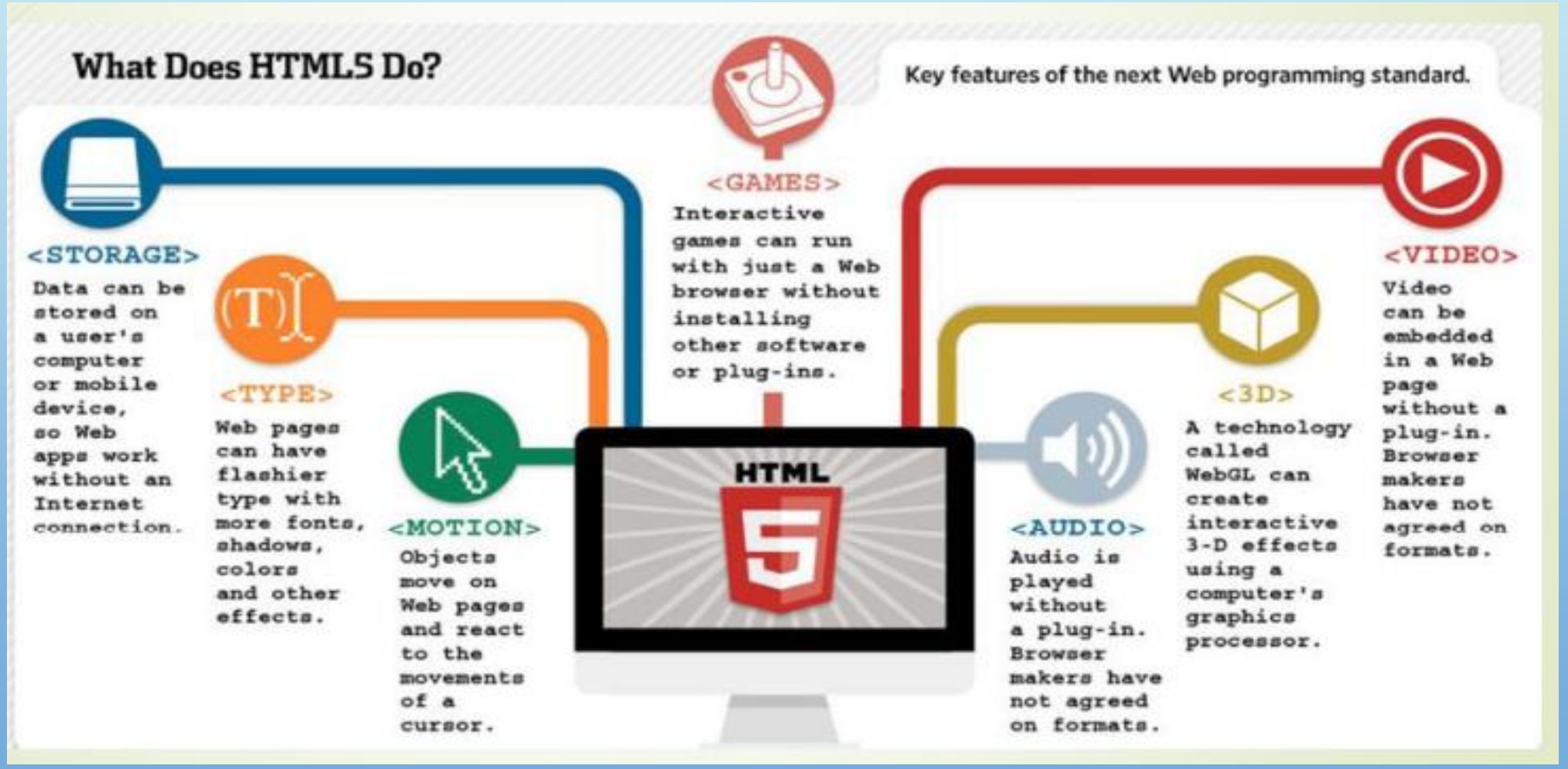
HTML audio tag is used to define sounds such as music and other audio clips. Currently there are three supported file format for HTML 5 audio tag.

- **mp3**
- **wav**
- **ogg**

HTML5 supports <video> and <audio> controls. The Flash, Silverlight and similar technologies are used to play the multimedia items.

```
<!DOCTYPE>
<html>
<body>
<audio controls>
  <source src="koyal.mp3" type="audio/mpeg">
Your browser does not support the html audio tag.
</audio>
</body>
</html>
```

NEED OF HTML 5



DOC TYPE AND LANGUAGE ATTRIBUTE IN HTML 5

Remember the DOC type declaration of XHTML

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

In HTML5, there is just one possible DOCTYPE declaration and it is simpler:

```
<!DOCTYPE html>
```

Just 15 characters!

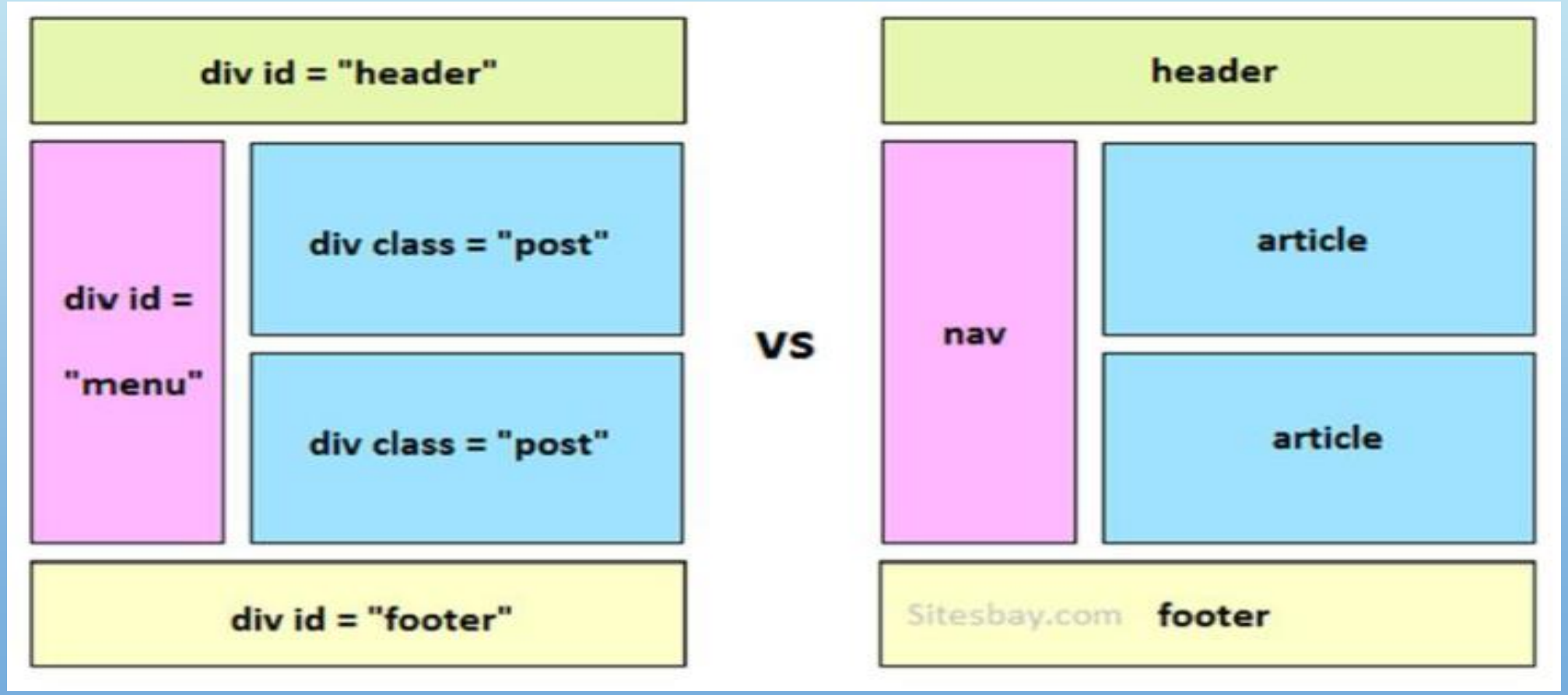
The declaration is not an HTML tag. It is an "information" to the browser about what document type to expect.

```
<html lang="en">
```

The **lang** attribute in the <html> element declares which language the page content is in. Though not strictly required, it should always be specified, as it can assist search engines and screen readers.

Each of the world's major languages has a two-character code, e.g. Spanish = "es", French = "fr", German = "de", Chinese = "zh", Arabic = "ar".

HTML 4 VS HTML 5 STRUCTURE



HTML

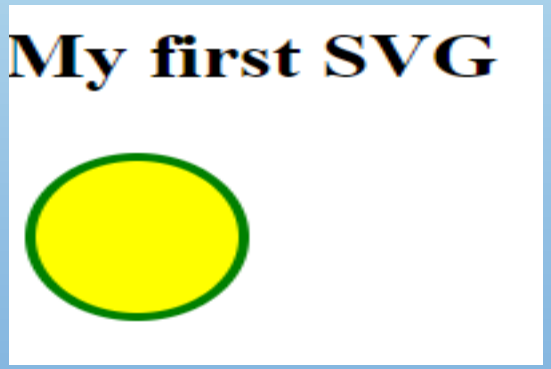
- IT DIDN'T SUPPORT AUDIO AND VIDEO WITHOUT THE USE OF FLASH PLAYER SUPPORT.
- IT USES COOKIES TO STORE TEMPORARY DATA.
- DOES NOT ALLOW JAVASCRIPT TO RUN IN THE BROWSER
- VECTOR GRAPHICS ARE POSSIBLE IN HTML WITH THE HELP OF VARIOUS TECHNOLOGIES SUCH AS VML, SILVER-LIGHT, FLASH, ETC.
- IT DOES NOT ALLOW DRAG AND DROP EFFECTS.
- LESS MOBILE FRIENDLY

HTML5

- IT SUPPORTS AUDIO AND VIDEO CONTROLS WITH THE USE OF <AUDIO> AND <VIDEO> TAGS.
- IT USES SQL DATABASES AND APPLICATION CACHE TO STORE OFFLINE DATA.
- ALLOWS JAVASCRIPT TO RUN IN THE BACKGROUND. THIS IS POSSIBLE DUE TO JS WEB WORKER API IN HTML5.
- VECTOR GRAPHICS ARE ADDITIONALLY AN INTEGRAL PART OF HTML5 LIKE SVG AND CANVAS.
- IT ALLOWS DRAG AND DROP EFFECTS.
- MOBILE COMPATIBLE

HTML GRAPHICS-EMBED SVG

- SVG (SCALABLE VECTOR GRAPHICS) IS A W3C RECOMMENDATION USED TO DEFINE GRAPHICS FOR THE WEB
- SVG HAS SEVERAL METHODS FOR DRAWING PATHS, BOXES, CIRCLES, TEXT, AND GRAPHIC IMAGES.
- EXAMPLE
  - <CIRCLE>
  - </RECT>
  - </POLYGON>




```
<svg width="100" height="100">
  <circle cx="50" cy="50" r="40" stroke="green" stroke-width="4" fill="yellow" />
</svg>
```

CANVAS SUPPORT

- THE HTML <CANVAS> ELEMENT IS USED TO DRAW GRAPHICS ON A WEB PAGE, VIA JAVASCRIPT. IT IS ONLY A CONTAINER FOR GRAPHICS
- ALWAYS SPECIFY AN ID ATTRIBUTE (TO BE REFERRED TO IN A SCRIPT), AND A WIDTH AND HEIGHT ATTRIBUTE TO DEFINE THE SIZE OF THE CANVAS. TO ADD A BORDER, USE THE STYLE ATTRIBUTE.
- AFTER CREATING THE RECTANGULAR CANVAS AREA, YOU MUST ADD A JAVASCRIPT TO DO THE DRAWING.

```
<canvas id="myCanvas" width="200" height="100" style="border:1px solid #d3d3d3;">
Your browser does not support the HTML canvas tag.</canvas>
<script>
var c = document.getElementById("myCanvas");
var ctx = c.getContext("2d");
ctx.moveTo(0,0);
ctx.lineTo(200,30);
ctx.stroke();
```

HTML MEDIA: SUPPORT AUDIO

- THE <AUDIO> TAG IS USED TO EMBED SOUND CONTENT IN A DOCUMENT, SUCH AS MUSIC OR OTHER AUDIO STREAMS.
- <AUDIO CONTROLS>
  <SOURCE SRC="HORSE.OGG" TYPE="AUDIO/OGG">
  <SOURCE SRC="HORSE.MP3" TYPE="AUDIO/MPEG">
  YOUR BROWSER DOES NOT SUPPORT THE AUDIO TAG.
  </AUDIO>
- THE <AUDIO> TAG CONTAINS ONE OR MORE <SOURCE> TAGS WITH DIFFERENT AUDIO SOURCES. THE BROWSER WILL CHOOSE THE FIRST SOURCE IT SUPPORTS
- THE CONTROLS ATTRIBUTE ADDS AUDIO CONTROLS, LIKE PLAY, PAUSE, AND VOLUME.
- TO START AN AUDIO FILE AUTOMATICALLY, USE THE AUTOPLAY ATTRIBUTE:

VIDEO SUPPORT

- TO SHOW A VIDEO IN HTML, USE THE <VIDEO> ELEMENT:
- <VIDEO WIDTH="320" HEIGHT="240" CONTROLS AUTOPLAY>
  <SOURCE SRC="MOVIE.MP4" TYPE="VIDEO/MP4">
  <SOURCE SRC="MOVIE.OGG" TYPE="VIDEO/OGG">
  YOUR BROWSER DOES NOT SUPPORT THE VIDEO TAG.
  </VIDEO>
- THE CONTROLS ATTRIBUTE ADDS VIDEO CONTROLS, LIKE PLAY, PAUSE, AND VOLUME.
- THE <SOURCE> ELEMENT ALLOWS YOU TO SPECIFY ALTERNATIVE VIDEO FILES WHICH THE BROWSER MAY CHOOSE FROM. THE BROWSER WILL USE THE FIRST RECOGNIZED FORMAT.
- THE TEXT BETWEEN THE <VIDEO> AND </VIDEO> TAGS WILL ONLY BE DISPLAYED IN BROWSERS THAT DO NOT SUPPORT THE <VIDEO> ELEMENT.
- TO START A VIDEO AUTOMATICALLY, USE THE AUTOPLAY ATTRIBUTE:

ADD PLUGINS

- PLUG-INS ARE COMPUTER PROGRAMS THAT EXTEND THE STANDARD FUNCTIONALITY OF THE BROWSER.
- PLUG-INS WERE DESIGNED TO BE USED FOR MANY DIFFERENT PURPOSES:
  - TO RUN JAVA APPLETS
  - TO RUN MICROSOFT ACTIVEX CONTROLS
  - TO DISPLAY FLASH MOVIES
  - TO DISPLAY MAPS
  - TO SCAN FOR VIRUSES
- THE <OBJECT> ELEMENT DEFINES AN EMBEDDED OBJECT WITHIN AN HTML DOCUMENT. IT IS SUPPORTED BY ALL BROWSERS.
  - <OBJECT WIDTH="100%" HEIGHT="500PX" DATA="SNIPPET.HTML">
    </OBJECT>
  - CAN ALSO BE USED TO INCLUDE HTML IN HTML:
- THE <EMBED> ELEMENT ALSO DEFINES AN EMBEDDED OBJECT WITHIN AN HTML DOCUMENT. <EMBED SRC="AUDI.JPEG">

HTML APIS

- HTML **GEOLOCATION API IS** USED TO GET THE GEOGRAPHICAL POSITION OF A USER.
- **DRAG AND DROP-** TO "GRAB" AN OBJECT AND DRAG IT TO A DIFFERENT LOCATION.
- **WEB STORAGE** IS MORE SECURE, AND LARGE AMOUNTS OF DATA CAN BE STORED LOCALLY, WITHOUT AFFECTING WEBSITE PERFORMANCE.
- A **WEB WORKER** IS A JAVASCRIPT THAT RUNS IN THE BACKGROUND, INDEPENDENTLY OF OTHER SCRIPTS, WITHOUT AFFECTING THE PERFORMANCE OF THE PAGE.
- A **SERVER-SENT EVENT** IS WHEN A WEB PAGE AUTOMATICALLY GETS UPDATES FROM A SERVER.
- THE **BATTERY STATUS API** SOMETIMES REFERRED TO AS THE BATTERY API PROVIDES INFORMATION ABOUT THE BATTERY OF THE COMPUTER

HTML 5 GEO LOCATION

HTML5 geolocation is a browser API (application programming interface) that is utilized for obtaining the device geographic position (latitude and longitude coordinates).

This can help detect the geo location of the visitor or user on a website or app.

Depending on the availability of GPS on the device and the quality of the mobile/WIFI signals, HTML5 geolocation can be very accurate.

HTML5 geolocation is widely used and supported on all major browsers:

- Google Chrome (version 5.0 onwards)
- Internet Explorer (version 9.0 onwards)
- Firefox (version 3.5 onwards)
- Safari (version 5.0 onwards)
- Opera (version 16.0 onwards)

HTML5 geolocation is strictly permission based i.e. the user will be prompted with a browser popup asking to share their device's location with the website or app being accessed.

DATA STORAGE IN HTML 5

web storage is more secure and large amounts of data can be stored locally on the client-side web browser. All the data is stored in key-value pairs.

There are 2 types of storage 1. Local storage 2. Session storage

Local Storage: It is used to store data on the client side. It has no expiration time, so the data in the Local Storage exists always till the user manually deletes it.

Session Storage: It is used to store data on the client-side. Data in the SessionStorage exist till the current tab is open, if we close the current tab then our data will also erase automatically from the Session Storage.

For storing data in web storage:

```
LocalStorage.setItem("key", "value");
LocalStorage.getItem("key");
```

EXAMPLE

- <!DOCTYPE HTML>
- <HTML>
- <BODY>
- <H1>HTML GEOLOCATION</H1>
- <P>CLICK THE BUTTON TO GET YOUR COORDINATES.</P>
- <BUTTON ONCLICK="GETLOCATION()">TRY IT</BUTTON>
- <P ID="DEMO"></P>
- <SCRIPT>
- CONST X = DOCUMENT.GETELEMENTBYID("DEMO");

```
function getLocation() {
  if (navigator.geolocation) {
    navigator.geolocation.getCurrentPosition(showPosition);
  } else {
    x.innerHTML = "Geolocation is not supported by this
browser.";
  }
}

function showPosition(position) {
  x.innerHTML = "Latitude: " + position.coords.latitude +
  "<br>Longitude: " + position.coords.longitude;
}
</script>

</body>
</html>
```

- EXAMPLE EXPLAINED AND OUTPUT:
- CHECK IF GEOLOCATION IS SUPPORTED
- IF SUPPORTED, RUN THE GETCURRENTPOSITION() METHOD. IF NOT, DISPLAY A MESSAGE TO THE USER
- IF THE GETCURRENTPOSITION() METHOD IS SUCCESSFUL, IT RETURNS A COORDINATES OBJECT TO THE FUNCTION SPECIFIED IN THE PARAMETER (SHOWPOSITION)
- THE SHOWPOSITION() FUNCTION OUTPUTS THE LATITUDE AND LONGITUDE