ACROPOLIS

Enlightening Wisdom

Acropolis Institute of Technology & Research, Indore

www.acropolis.in

UNIT-II

HTML
Hyper Text Markup Language

History of HTML?

- In 1980, Lee discovered HTML in Geneva. Berners Lee Invented the world wide web in 1989.
- At present , the task of developing HTML is within an Organization “WORL WIDE WEB CONSORTIUM”. This organization now takes care of HTML.
- First HTML version was form of SGML(Standard Generalized Markup Language). Text could be structured by this. This version also called HTML 1.0
- Second version of HTML was named by IETF (INTERNET ENGINEERING TASK FORCE) . This version was called as HTML 2.0 which was published in 1995.Some new feature were added in which “Image Tag” was most important.
- HTML 3.0 was never published.

Cont..

- An organization had already emerged until the publication of HTML1.0 and the recommendation of HTML3.0, which is made to work for the HTML language.
- It is known as W3C.
- In 1997 the next version of HTML was published by the W3C.
- HTML4.0- It include style sheet, Accessibility, Frames, Advanced Tables etc.
- HTML 5 – It include following tags-

1.Audio and video tag

2. Header

3. Canvas

4. Footer

5. nav

What is HTML?

- HTML stands for Hyper Text Markup Language
- HTML is the standard markup 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 elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

HTML Documents

- All HTML documents must start with a document type declaration: <!DOCTYPE html>.
- The HTML document itself begins with <html> and ends with </html>.
- The visible part of the HTML document is between <body> and </body>.

Example-

```
<!DOCTYPE html>
  <html>
  <body>

  <h1>My First Heading</h1>
  <p>My first paragraph.</p>

  </body>
  </html>
```

The <!DOCTYPE> Declaration

- The <!DOCTYPE> declaration represents the document type and helps browsers to display web pages correctly.
- It must only appear once, at the top of the page (before any HTML tags).
- The <!DOCTYPE> declaration is not case sensitive.
- The <!DOCTYPE> declaration for HTML5 is:

```
<!DOCTYPE html>
```

What is an HTML Element?

- An HTML element is defined by a start tag, some content, and an end tag:
  - <tagname>Content goes here...</tagname>

- The HTML **element** is everything from the start tag to the end tag:
  - <h1>My First Heading</h1>
  - <p>My first paragraph.</p>

HTML Headings

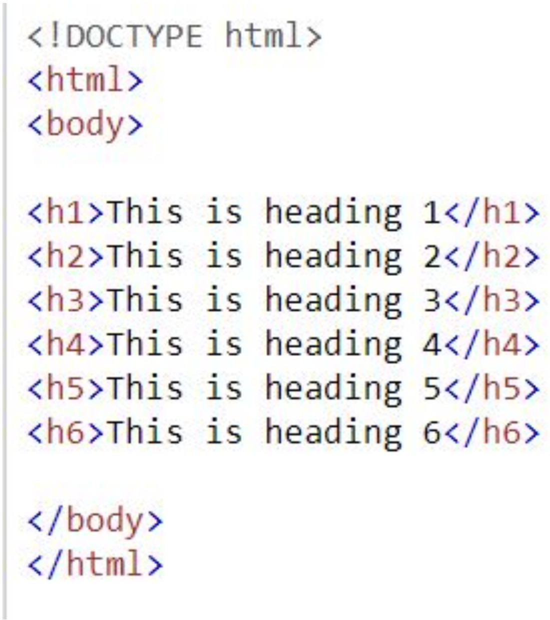
- HTML headings are defined with the <h1> to <h6> tags.
- <h1> defines the most important heading.
- <h6> defines the least important heading:

Examples-

```
<h1>This is heading 1</h1>
 <h2>This is heading 2</h2>
 <h3>This is heading 3</h3>
```

HTML Headings

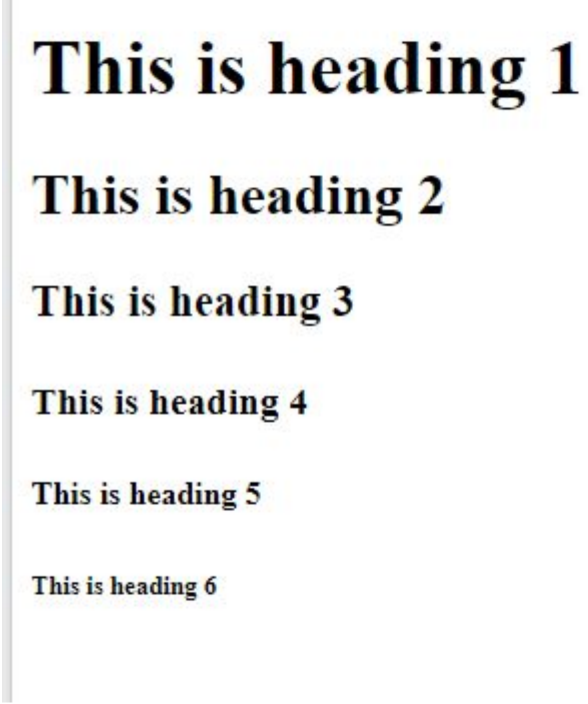
- ❖ HTML headings are defined with the <h1> to <h6> tags.
- ❖ <h1> defines the most important heading. <h6> defines the least important heading:



```
<!DOCTYPE html>
<html>
<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>
```



This is heading 1

This is heading 2

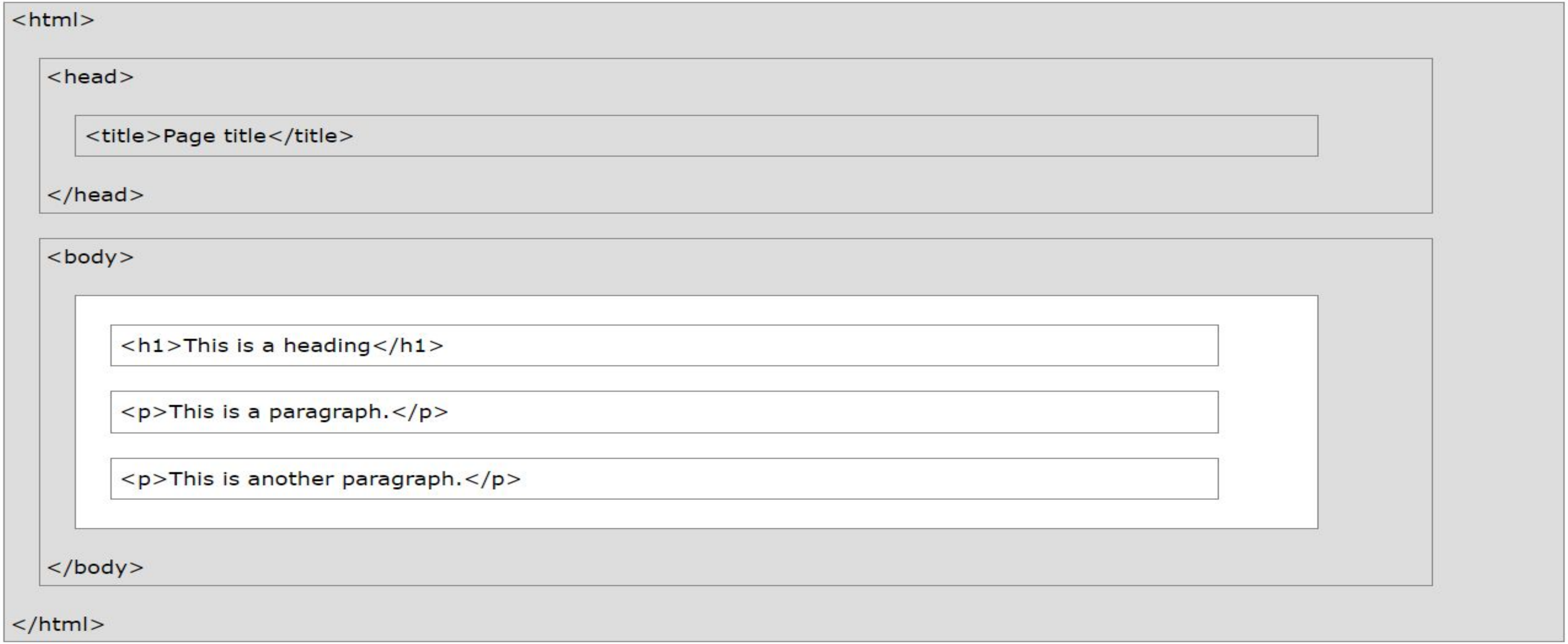
This is heading 3

This is heading 4

This is heading 5

This is heading 6

HTML Page Structure



```
<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>
```

Container and Empty Tags in HTML

- HTML uses predefined tags that tell the browser how to display the content. Tags are nothing but some instructions that are enclosed in angle braces(< >).
- Tags are used in many places of the webpage but many users are often confused about some tags whether it is a container or an empty tag. They get this confusion because they don’t know for what tag there should be an ending tag along with the opening tag or not.
- There are two types of tags in HTML:

    1. Container
    2. Empty

Container tags

- **Syntax:** <tag_name> …</tag_name>

- Some commonly used container tags are:

1. **Essential Tags:** Following tags are used to create the structure of the webpage:

- **<html>….</html>**: This marks the beginning and ending of the webpage also it tells that the document is an HTML document. This contains all other tags in between these tags which are considered for making a webpage.

Cont..

- **<head>…</head>**: This tag is used to define the head part of the document which contains the information related to the webpage.
- **<title>…</title>**: This tag stores the description of the web page, whatever given in these tags appears on the tab name while opened by the browser. It is described in the head tag.
- **<body>….</body>:** This tag is used to display all the information or data, i.e, text, images, hyperlinks videos, etc., on the webpage to the user.

Cont…

2. Headings: Following tags are used for headings:

- **<h1>….</h1> to <h6>…</h6>:** It is used for including headings of different sizes ranging from 1 to 6.

3. Text formatters: Following tags are used for text formatting:

- **<p>….</p>**: When paragraphs are needed to be included, this tag is used
- **<b>….</b>**: Makes the contained text to bold.
- **<i>…</i>**: Makes the contained text to italic.

4. HyperLinks: Following tag is used to define a hyperlink in the webpage:

- **<a href=”link.com”>…</a>:** When we link some other webpages we add the hyper links to other webpages using this <a …>…</a>tag.

Cont..

5. Button tag: Following tag is used to create a click button:

- **<button>…</button>:** This is used in many ways but mainly used to manipulate dom by adding events and many more.

6. Division tag: Following tag is used to create a division:

- **<div>….</div>:** This defines a section in a document. The webpage can be divided to different sections using the <div>….</div> tag.

7. Iframe tag: Following tag is used for inline framing:

- **<iframe src=”link.com> </iframe>**: When some other document is to be embedded like some video or image into HTML we use this tag.

8. Navigation tag: Following tag is used to set a navigation link:

- **<nav>…</nav>:** Defines a navigation bar that contains a set of menu or a menu of hyperlinks.

Cont..

9. Script tag: Following tag is used to add JavaScript code to the webpage:

- **<script>…</script>** : This contains the javascript code that adds interactivity to the webpage.

10. Lists: Following tags are used to write data in the form of ordered and unordered lists:
<ol>…</ol>: This tag is used to create ordered lists.

- **<ul>…</ul>:** This tag is used to create unordered lists.
- **<li>…</li>:** This tag is used to add list items.

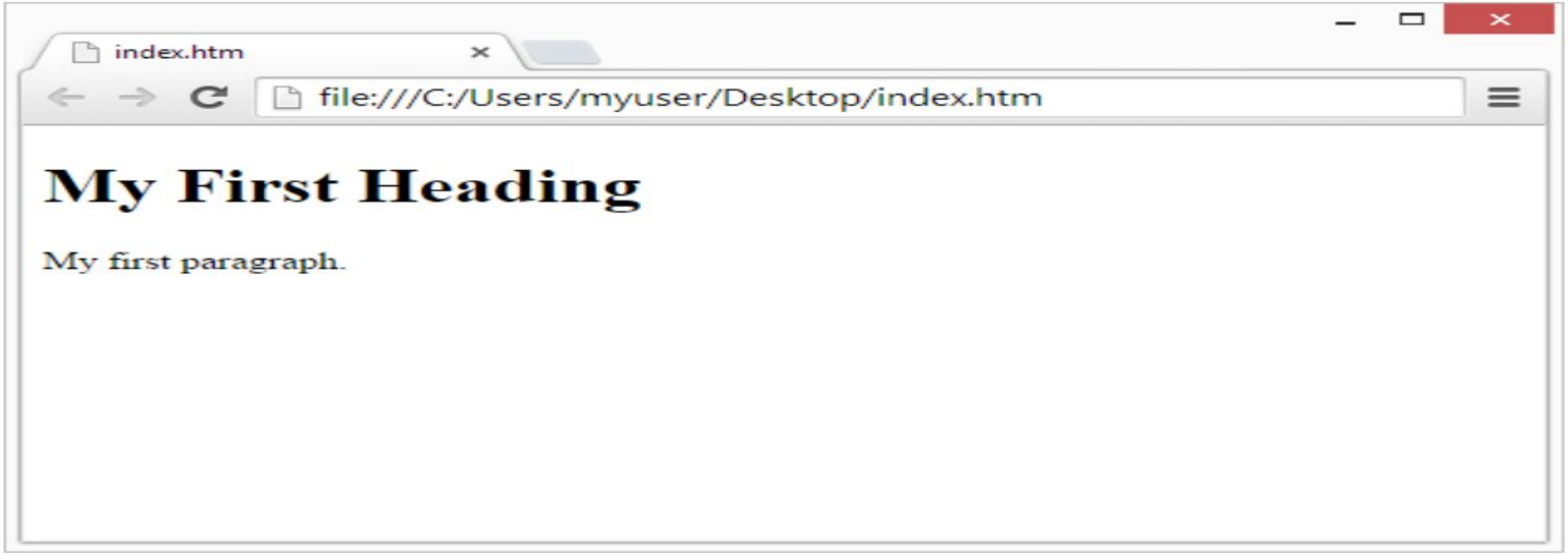
Empty Tags

Some commonly used empty tags are:

- **<br>:** Inserts a line break in a webpage wherever needed.
- **<hr>:** Inserts a horizontal line wherever needed in the webpage.
- **<img>:** This tag is used to display the images on the webpage which were given in the src attribute of the tag.
- **<input>**: This is mainly used with forms to take the input from the user and we can also define the type of the input.
- **<link>:** When we store our CSS in an external file this can be used to link external files and documents to the webpage and it is mainly used to link CSS files.
- **<meta>:** Contains all metadata of the webpage. Metadata is the data about data and is described in the head tag.
- **<source>:** When an external media source is needed to be included in the webpage. source tag is used to insert any media source like audio, video etc… in our webpage.

Web Browsers

- The purpose of a web browser (Chrome, Edge, Firefox, Safari) is to read HTML documents and display them correctly.
- A browser does not display the HTML tags, but uses them to determine how to display the document:

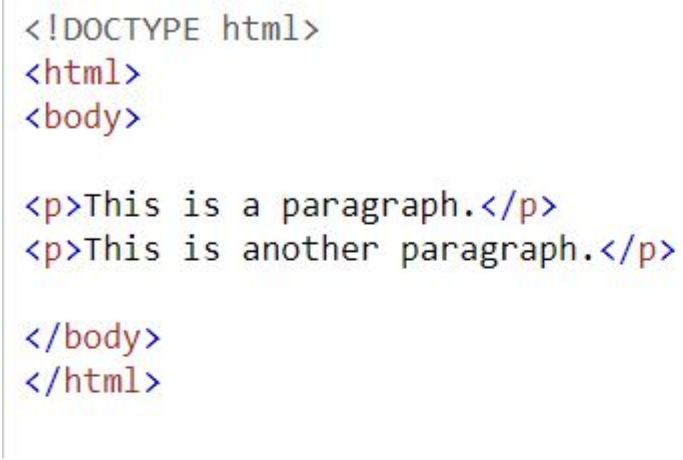


My First Heading

My first paragraph.

HTML Paragraphs

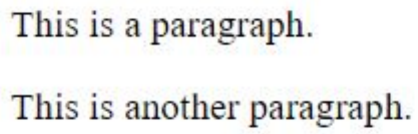
- HTML paragraphs are defined with the <p> tag:



```
<!DOCTYPE html>
<html>
<body>

<p>This is a paragraph.</p>
<p>This is another paragraph.</p>

</body>
</html>
```



This is a paragraph.

This is another paragraph.

HTML Link tag

- Links are found in nearly all web pages. Links allow users to click their way from page to page.
- HTML links are hyperlinks.
- We can click on a link and jump to another document.
- When we move the mouse over a link, the mouse arrow will turn into a little hand
- A link does not have to be text.
- A link can be an image or any other HTML element

Cont..

Example

- This example shows how to create a link to W3Schools.com:
- <a href="https://aitr.ac.in//">Visit AITR website</a>
- 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 Link tag

- HTML links are defined with the <a> tag:
- The link's destination is specified in the href attribute.
- Attributes are used to provide additional information about HTML elements.

```
<!DOCTYPE html>
<html>
<body>
<h1>HTML Links</h1>
<p><a href="https://aitr.ac.in//">Visit AITR Website</a></p>
</body>
</html>
```

HTML Images tag

- HTML images are defined with the <img> tag.

Following attributes are-

- **src:** The src stands for source. Every image has an src attribute which tells the browser where to find the image you want to display. The URL of the image provided points to the location where the image is stored.
- **alt:** If the image cannot be displayed then the alt attribute acts as an alternative description for the image. The value of the alt attribute is a user-defined text.
- **Setting width and height of Image:** The width and height attributes are used to specify the height and width of an image. The attribute values are specified in pixels by default.

Example

```
<!DOCTYPE html>
<html>
<head>
   <title>Src ,Alt, width & height Attribute Example</title>
</head>
<body>
   <p>inserted image using <img> tag:</p>
   <img src="image1.jpg" alt ="www.google.com" width="104" height = "142">
</body>
</html>
```

Cont…

- **Adding titles to Image:** Along with the images, titles can also be added to images to provide further information related to the inserted image. For inserting a title, the title attribute is used.
- **Setting a border to Image:** By default, every picture has a border around it. By using the border attribute, the thickness of the border can be changed. A thickness of “0” means that there will be no border around the picture.
- **Aligning an Image:** By default, an image is aligned on the left side of the page, but it can be aligned to the centre or right using the align attribute.
- **Adding Image as a Link:** An image can work as a link with a URL embedded in it. It can be done by using the “img” tag inside an “a” tag.

Example

```
<!DOCTYPE html>
<html>
<body>
  <img src=“image1.jpg“  alt=“google.com"
    width="200"
    height="200"
    title=“Apple Image">
</body>
</html>
```

Example

```
<!DOCTYPE html>
<html>
<body>
<p>inserted image using <img> tag:</p>
  <a href="https://www.google.com">
       <img src="apple.jpg" alt=“Apple"
              title="Logo of GeeksforGeeks"
                            border="10"
                            align="right"> </a>
</body>
</html>
```

HTML Styles

- The <style> tag in HTML helps us to modify our text, viewed in the page.
- This modification includes changing font size, font family, font color etc.
- Now let’s look at various attributes of style and what else the tag supports.

Syntax: <tagname style="property: value;">

1. **HTML Font Family:** The font family changes the font style of a text and can be used in any text writing tag like <p> or heading tag. These font families include all the names that you find in Microsoft Office or any other writing-based software.

Example

```html
<html>
<head>
  <title>Font Family</title>
</head>
<body>
  <h1 style="font-family:cooper black;“> HTML Style Tag</h1>
  <h2 style="font-family:Cambria;"> HTML Style Tag</h2>
  <h3 style="font-family:algerian;"> Font Family </h3>
  <p style="font-family:Castellar;"> Font Family </p>
</body>
</html>
```

Cont..

2.HTML Font Size: The font size changes the size of a text and this can also be used in any text writing tag like <p> or heading tag. The units can be given in "%" or pixels or other units can also be included.

Example:

```
<html>
<head>     <title>Font Size</title>           </head>
<body>
  <h1 style="font-size:80%;">HTML Font Size1</h1>
  <h2 style="font-size:20px;"> HTML Font Size2</h2>
  <p style="font-size:30px;"> HTML Font Size3</p>
</body>
</html>
```

Cont..

3.HTML Font Color: The font color tag changes the color of a text and can be used in any text writing tag like <p> or heading tag. We can use both name of the colors or also the color codes that is mainly used in Photoshop. For various color codes- http://htmlcolorcodes.com/

Example:

```
<html>
<head>    <title>Font Color</title>    </head>
<body>
   <h1 style="color:red;">HTML Font Color</h1>
   <h2 style="color:#8CCEF9;"> HTML Font Color</h2>
   <h3 style="color:green;"> HTML Font Color</h3>
   <p style="color:#810CA6;"> HTML Font Color</p>
</body>
</html>
```

Cont..

4.HTML Text Align: The text alignment tag is used to change the alignment of a text including centre, left or right alignment. For example:

```
<html>
<head>
  <title>Text Align</title>
</head>
<body>
  <h1 style="text-align:left;">HTML Text Align</h1>
  <h2 style="text-align:center;"> HTML Text Align</h2>
  <p style="text-align:right;"> HTML Text Align</h2>
</body>
</html>
```

Implementing style in HTML

- Styles in HTML are basically rules that describe how a document will be presented in a browser. Style information can be either attached as a separate document or embedded in the HTML document.

  There are 3 ways of implementing style in HTML :

- **Inline Style** : In this method, the style attribute is used inside the HTML start tag.
- **Embedded Style** : In this method, the style element is used inside the <head> element of the document.
- **External Style Sheet** : In this method the <link> element is used to point to an external CSS file.

Example of Inline Style

```
<!DOCTYPE html>
<html>
<body>
  <h1 style="color:Blue;font-size:25px;">
    Example of Inline Style
  </h1>
  <p style="color:red;">First paragraph </p>
  <p style="color:green;font-size:40px;">
    Second paragraph    </p>
  <hr style="border-color:orange;">
</body>
</html>
```

Example of Embedded Style

```
<!DOCTYPE html>
<html lang="en">
<head>
    <style type="text/css">
        body {   background-color: powderblue;  }

        h1 {
                color: black;
                font-family: arial;                 }

        p {
                color: yellow;
                font-family: verdana;         }
    </style>   </head>
<body>      <h1>Example of Embedded Style</h1>
<p>First paragraph.</p>
</body> </html>
```

External Style Sheet

- **External Style Sheet :** It can be useful when the CSS has to be applied to various web pages. An external style sheet holds all the style rules in a separate document that you can link from an HTML file on your site. There are two ways of attaching external style sheets –

- **Linking External Style Sheets**
- **Importing External Style Sheets**

- **Linking External Style Sheets** :
  In this method, an external style sheet is linked to an HTML document using the <link> tag.

Example of Linking External Style Sheets

```
<!DOCTYPE html>
<html>
<head>
  <link rel="stylesheet" type="text/css"
        href="externalstyle.css">
</head>
<body>
  <h3>Example of Linking External Style Sheet</h3>
<p>First paragraph.</p>
</body>   </html>
```

Importing External Style Sheets

- **Importing External Style Sheets** :
  External style sheets can be loaded into an HTML document using "@import". The "@import" statement instructs the browser to load the CSS file. Other CSS rules can also be included using the <style> element.

Example

```
<!DOCTYPE html>
<html> <head>
<style type = "text/css">
  @import url("importstyle.css");
    p {color:powderblue; font - size : 30px;}
</style>   </head>
<body>
  <h3>Example of external style sheet using import</h3>
<p>First paragraph</p>
</body>  </html>
```

Background Color

- The **background-color property** in CSS is used to specify the background color of an element. The background covers the total size of the element with padding and border but excluding margin. It makes the text so easy to read for the user.

Syntax: element { background-color property }

Property Values:

- **Color :** It defines the background color value or color codes. For example: A color name can be given as: “green” or HEX value as “#5570f0” or RGB value as “rgb(25, 255, 2)”.

Syntax : element { background-color: color_name; }

Example-1

```
<!DOCTYPE html>
<html>
<!--This line changes the color of background-->
<body style="background-color:pink">
  <h1 style="color:green;text-align:center;">
    IWT- HTML
  </h1>
  <h3 style="text-align:center;">
    How to change color of Background?
  </h3>
</body>
</html>
```

Example-2

```
<!DOCTYPE html>
<html>
   <head>
      <title>background-color property</title>
      <style>
            body {       text-align:center;          background-color:green;      }
            h1     {       color:white;                    background-color:blue;        }
            h2    {        color:white;                    background-color:black;      }
      </style>
   </head>
   <body>
      <h1> IWT Background-Color</h1>
      <h2>background-color: color_name;</h2>
   </body>   </html>
```

HTML Formatting Elements

❖**Formatting elements were designed to display special types of text:**

- <b> - Bold text
- <strong> - Important text
- <i> - Italic text
- <em> - Emphasized text
- <mark> - Marked text
- <small> - Smaller text
- <del> - Deleted text
- <ins> - Inserted text
- <sub> - Subscript text
- <sup> - Superscript text

Example

```
<!DOCTYPE html>
<html>
<body >
   <p> <b> This Text is Bold </b></p>
   <p><strong>   This text is important! </strong></p>
   <p> <i> This Text is Italic </i></p>
  <p>You <em>have</em> to hurry up!</p>
  <p>Do not forget to practice <mark>HTML program</mark> today.</p>
  <p> This  is <sub> Subscript</sub> and <sup> Superscript</sup></p>
</body> </html>
```

HTML Tables

- Tables represent tabular data
- A table consists of one or several rows
- Each row has one or more columns
- Tables comprised of several core tags: <table></table>: begin / end the table

  <tr></tr>:create a table row

  <td></td>: create tabular data (cell)
- Tables should not be used for layout. Use CSS floats and positioning styles instead

HTML Tables

- A table is an arrangement of data in rows and columns, or possibly in a more complex structure. Tables are widely used in communication, research, and data analysis.
- Tables are useful for various tasks such as presenting text information and numerical data.
- Tables can be used to compare two or more items in tabular form layout.
- Tables are used to create databases.

HTML Tables

- Start and end of a table

```
<table> ... </table>
```

- Start and end of a row

```
<tr> ... </tr>
```

- Start and end of a cell in a row

```
<td> ... </td>
```

HTML Tables – Example

```
<!DOCTYPE html>
<html>
<body>
    <table style="width:100%">
        <tr>  <td>Firstname</td>
              <td>Lastname</td>
              <td>Grade</th>          </tr>
        <tr>  <td>Priya</td>
              <td>Sharma</td>
              <td>9.4</td>            </tr>
        <tr>  <td>Arun</td>
              <td>Singh</td>
              <td>8.6</td>            </tr>
              </table>
</body>   </html>
```

Complete HTML Tables

- Table rows split into three semantic sections: header, body and footer
  - <thead> denotes table header and contains <th> elements, instead of <td> elements
  - <tbody> denotes collection of table rows that contain the very data
  - <tfoot> denotes table footer but comes BEFORE the <tbody> tag
  - <colgroup> and <col> define columns (most often used to set column widths)

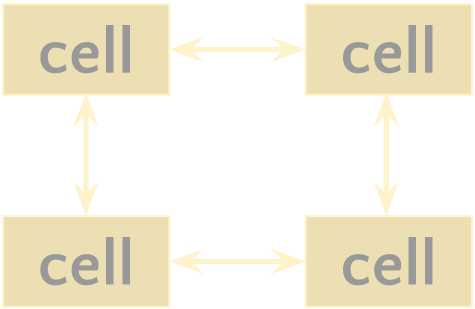
Adding a border to a HTML Table:

- A border is set using the CSS border property. If you do not specify a border for the table, it will be displayed without borders.

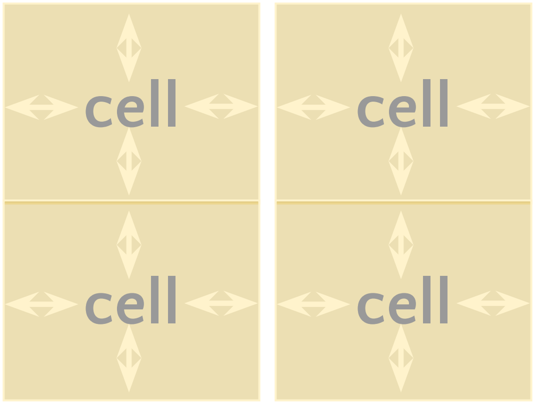
```
<head>
    <style>
        table, th, td {
            border: 1px solid black;        }
    </style>   </head>
<body>
    <table style="width:100%">
        <tr>
            <th>Firstname</th>
            <th>Lastname</th>
            <th>Grade</th>
        </tr>    </table>
```

Cell Spacing and Padding

- Tables have two important attributes:
  - cellspacing



  - Defines the empty space between cells
  - cellpadding



  - Defines the empty space around the cell content

Cell Spacing and Padding – Example

```
<html>
  <head><title>Table Cells</title></head>
  <body>
    <table cellspacing="15" cellpadding="0">
      <tr><td>First</td>
      <td>Second</td></tr>
    </table>
    <br/>
    <table cellspacing="0" cellpadding="10">
      <tr><td>First</td><td>Second</td></tr>
    </table>
  </body>
```

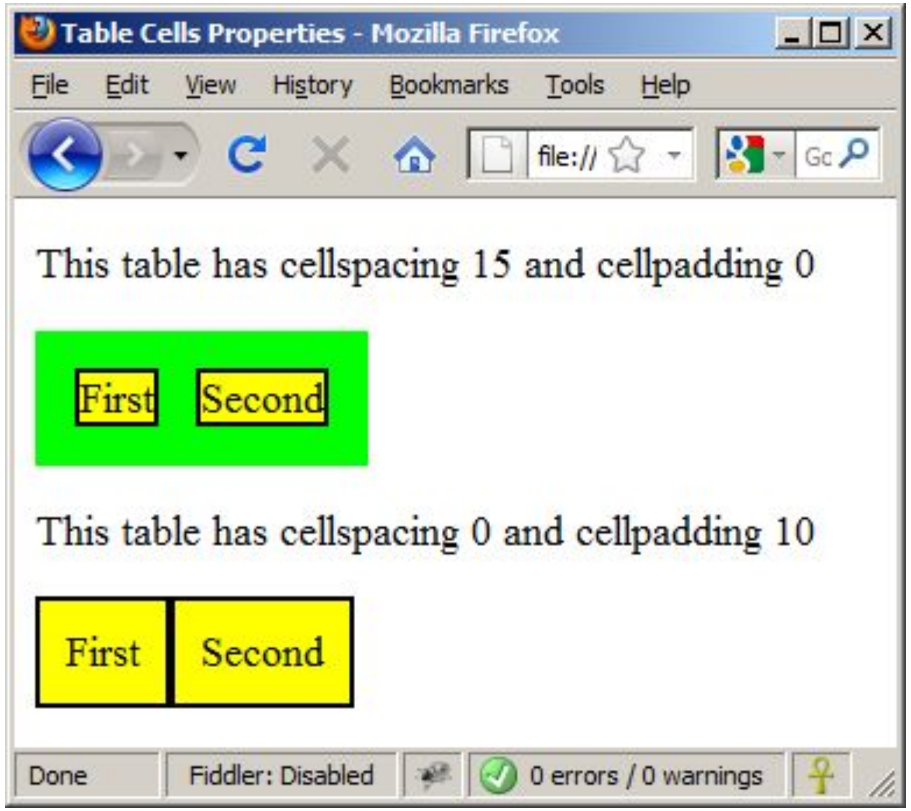


Table Cells Properties - Mozilla Firefox

This table has cellspacing 15 and cellpadding 0

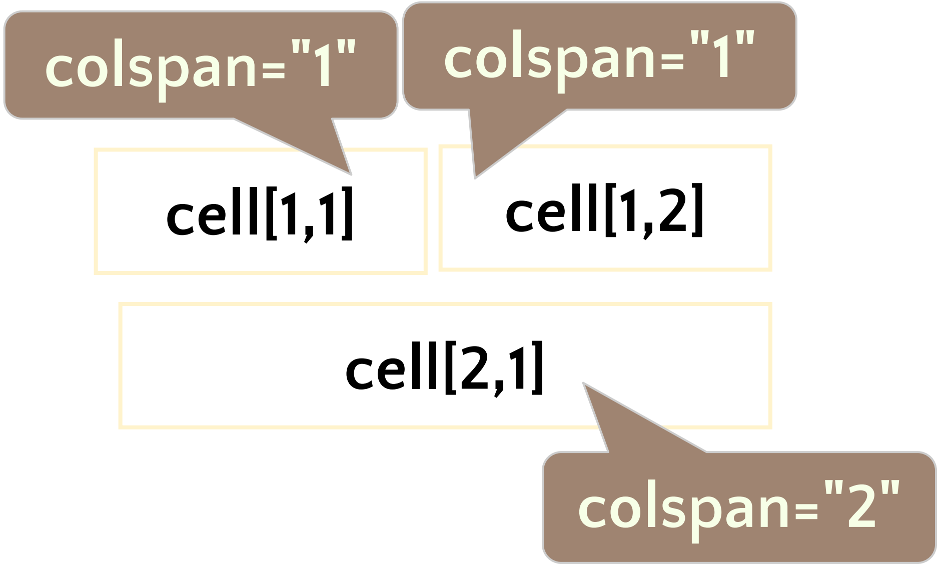
First	Second

This table has cellspacing 0 and cellpadding 10

First	Second

Column and Row Span

- Table cells have two important attributes:
  - colspan



colspan="1"

colspan="1"

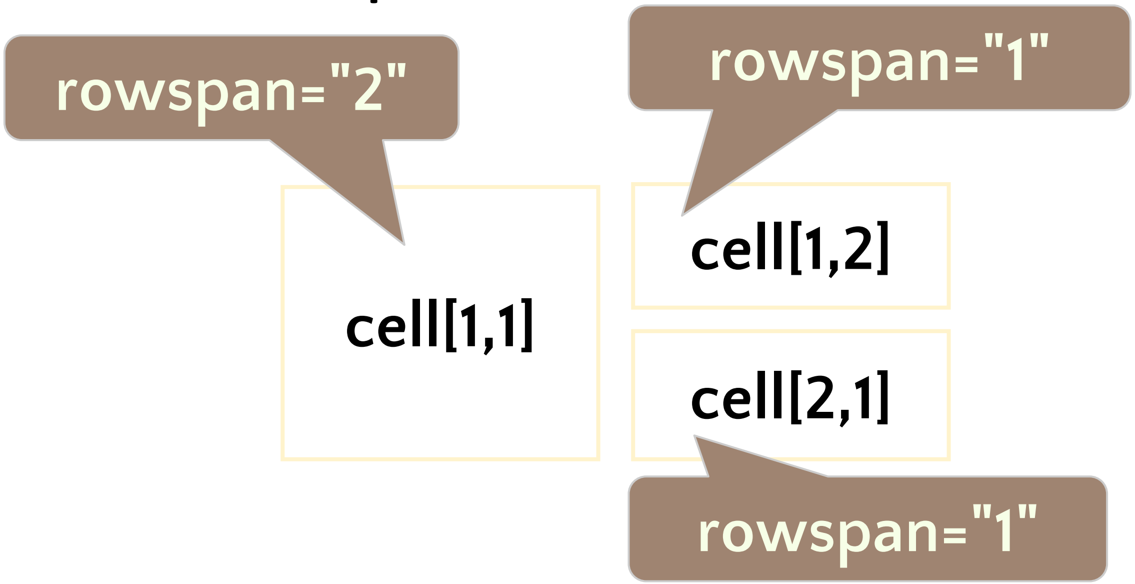
cell[1,1]

cell[1,2]

cell[2,1]

colspan="2"

  - rowspan



rowspan="2"

rowspan="1"

cell[1,1]

cell[1,2]

cell[2,1]

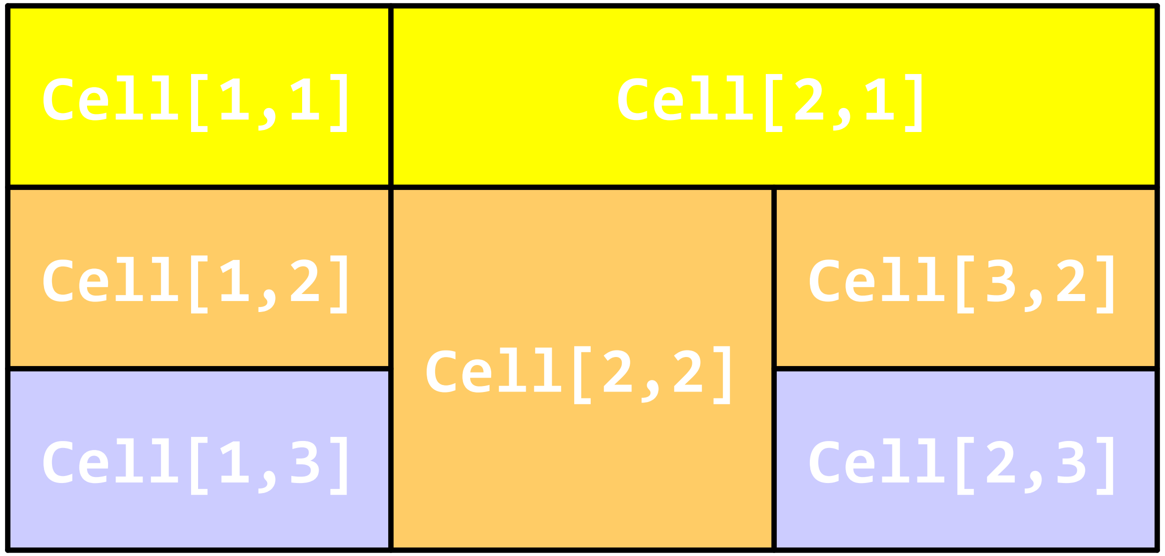
rowspan="1"

- Defines how many columns the cell occupies

- Defines how many rows the cell occupies

Column and Row Span – Example

```
<table cellspacing="0">
    <tr class="1"><td>Cell[1,1]</td>
        <td colspan="2">Cell[2,1]</td></tr>
    <tr class=“2"><td>Cell[1,2]</td>
        <td rowspan="2">Cell[2,2]</td>
        <td>Cell[3,2]</td></tr>
    <tr class=“3"><td>Cell[1,3]</td>
        <td>Cell[2,3]</td></tr>
</table>
```



Cell[1,1]	Cell[2,1]	
Cell[1,2]	Cell[2,2]	Cell[3,2]
Cell[1,3]		Cell[2,3]

HTML Form Tag

- Forms are required to take input from the user who visits the website. This form is used basically for the registration process, logging into your profile on a website or to create your profile on a website, etc.
- Now the form will take input from the form and post that data in backend applications (like PHP). So the backend application will process the data which is received by them. There are various form elements that we can use like text fields, text area, drop-down list, select, checkboxes, radio, etc.

HTML Form Tag

- Forms are the primary method for gathering data from site visitors
- Create a form block with

```
<form> ……… </form>
```

- Example:

```
<form action = "Script URL" method = "GET|POST">
                                        form elements like input, textarea etc. </form>
```

Attributes

There are many attributes that are associated with the <form> tag. Some of them are listed below:

- **Action Attribute:** -This is used to send the data to the server after the submission of the form.
- **Method**: -

1. Get Method: -It has a limited length of characters of URL. -we should not use get to send some sensitive data. -This method is better for non-secure data.

2.Post Method: -1. It has no size limitations 2. The submission of the form with the method post, can not be bookmarked.

Cont…

- **Enctype attribute**: -This attribute is used to specify that how a browser decodes the data before it sends it to the server.
  - **Application/x-www-form-urlencoded:** It is the default value. It encodes all the characters before sent to the server. It converts spaces into + symbols and special character into its hex value.
  - **Multipart/form-data:** This value does not encode any character.
  - **Text/plain:** This value convert spaces into + symbols but special characters are not converted.

Form Element

❖ There are various form elements available like

- text fields,
- textarea fields,
- drop-down menus,
- radio buttons,
- Checkboxes
- Fieldset

‘Input’ Element

```
<form method="post" action="http://server1">
    Enter your name:
    <input type="text" name="fname">
    <br/>
    Enter your age:
    <input type="text" name="age">
    <br/>
    <input type="submit" value="Submit">
  </form>
```

'Select' Element

```
<!DOCTYPE html>
  <html lang="en">
  <head>
  <meta charset="UTF-8">
  <title> HTML Form Select Attribute </title>    </head>
  <body>
  <form action="action-page.php">
  <select name=“Branch">
  <option value=“CSE"> CSE</option>
  <option value=“CSIT"> CSIT </option>
  <option value=“IT"> IT </option>
  </select>
  <input type="submit">
  </form> </body>
```

'Textarea' Element

```
<!DOCTYPE html>
  <html lang="en">
  <head>   <meta charset="UTF-8">
            <title> HTML Form Textarea Attribute </title>   </head>
  <body>
  <h2>Textarea</h2>
  <p>The textarea element defines a multi-line input field.</p>
  <form action="action-page.php">
  <textarea name="message" rows="5" cols="60"> This is a simple Example of
  Textarea. </textarea>
  <br>
  <input type="submit">
  </form>  </body>  </html>
```

Fieldsets

- Fieldsets are used to enclose a group of related form fields:

```
<form method="post" action="form.php">
   <fieldset>
      <legend>Client Details</legend>
      <input type="text" id="Name" />
      <input type="text" id="Phone" />
   </fieldset>
   <fieldset>
      <legend>Order Details</legend>
      <input type="text" id="Quantity" />
      <textarea cols="40" rows="10"
         id="Remarks"></textarea>
   </fieldset>
</form>
```

- The <legend> is the fieldset's title.

Form Input Controls

- Checkboxes:

```
<input type="checkbox" name="fruit" value="apple" />
```

- Radio buttons:

```
<input type="radio" name="title" value="Mr." />
```

- Radio buttons can be grouped, allowing only one to be selected from a group:

```
<input type="radio" name="city" value="Lom" />
<input type="radio" name="city" value="Ruse" />
```

Other Form Controls

- Dropdown menus:

```
<select name="gender">
  <option value="Value 1"
    selected="selected">Male</option>
  <option value="Value 2">Female</option>
  <option value="Value 3">Other</option>
</select>
```

- Submit button:

```
<input type="submit" name="submitBtn" value="Apply Now" />
```

Other Form Controls

- Reset button – brings the form to its initial state

```
<input type="reset" name="resetBtn" value="Reset the form" />
```

- Image button – acts like submit but image is displayed and click coordinates are sent

```
<input type="image" src="submit.gif" name="submitBtn" alt="Submit" />
```

- Ordinary button – used for Javascript, no default action

```
<input type="button" value="click me" />
```

Other Form Controls

- Password input – a text field which masks the entered text with * signs

```
<input type="password" name="pass" />
```

- Multiple select field – displays the list of items in multiple lines, instead of one

```
<select name="products" multiple="multiple">
  <option value="Value 1"
    selected="selected">keyboard</option>
  <option value="Value 2">mouse</option>
  <option value="Value 3">speakers</option>
</select>
```

Other Form Controls

- File input – a field used for uploading files

```
<input type="file" name="photo" />
```

- When used, it requires the form element to have a specific attribute:

```
<form enctype="multipart/form-data">
...
  <input type="file" name="photo" />
...
</form>
```

Labels

- Form labels are used to associate an explanatory text to a form field using the field's ID.

```
<label for="fn">First Name</label>
 <input type="text" id="fn" />
```

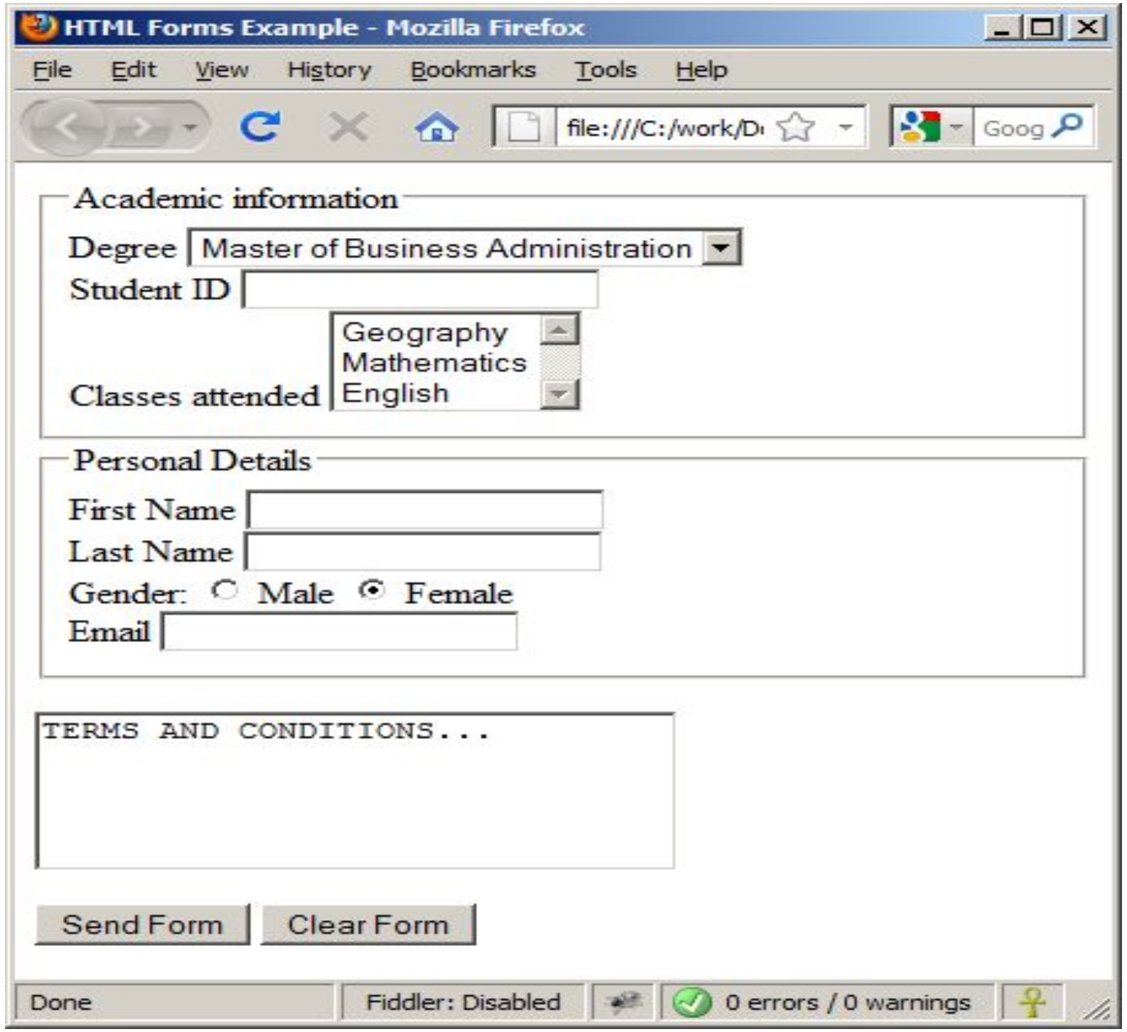
- Clicking on a label focuses its associated field (checkboxes are toggled, radio buttons are checked)
- Labels are both a usability and accessibility feature and are required in order to pass accessibility validation.

HTML Forms – Example

```
<form method="post" action="apply-now.php">
  <input name="subject" type="hidden" value="Class" />
  <fieldset><legend>Academic information</legend>
    <label for="degree">Degree</label>
    <select name="degree" id="degree">
      <option value="BA">Bachelor of Art</option>
      <option value="BS">Bachelor of Science</option>
      <option value="MBA" selected="selected">Master of
        Business Administration</option>
    </select>
    <br />
    <label for="studentid">Student ID</label>
    <input type="password" name="studentid" />
  </fieldset>
  <fieldset><legend>Personal Details</legend>
    <label for="fname">First Name</label>
    <input type="text" name="fname" id="fname" />
    <br />
    <label for="lname">Last Name</label>
    <input type="text" name="lname" id="lname" />
```

```
<form method="post" action="apply-now.php">
  <input name="subject" type="hidden" value="Class" />
  <fieldset><legend>Academic information</legend>
    <label for="degree">Degree</label>
    <select name="degree" id="degree">
      <option value="BA">Bachelor of Art</option>
      <option value="BS">Bachelor of Science</option>
      <option value="MBA" selected="selected">Master of
        Business Administration</option>
    </select>
    <br />
    <label for="studentid">Student ID</label>
    <input type="password" name="studentid" />
  </fieldset>
  <fieldset><legend>Personal Details</legend>
    <label for="fname">First Name</label>
    <input type="text" name="fname" id="fname" />
    <br />
    <label for="lname">Last Name</label>
    <input type="text" name="lname" id="lname" />
```

HTML Forms – Example



HTML Forms Example - Mozilla Firefox
File Edit View History Bookmarks Tools Help
file:///C:/work/D
Goog

Academic information

Degree Master of Business Administration

Student ID

Classes attended Geography Mathematics English

Personal Details

First Name

Last Name

Gender: ○ Male ● Female

Email

```
TERMS AND CONDITIONS...
```

Send Form Clear Form

Done
Fiddler: Disabled
0 errors / 0 warnings

Frame Tag

- 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.

Creating Frames

- To use frames on a page we use <frameset> tag instead of <body> tag. The <frameset> tag defines, how to divide the window into frames. The **rows** attribute of <frameset> tag defines horizontal frames and **cols** attribute defines vertical frames. Each frame is indicated by <frame> tag and it defines which HTML document shall open into the frame.

Example

```
<!DOCTYPE html>
<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>
```

Attributes of Frameset tag

1.cols: The cols attribute is used to create vertical frames in web browser. This attribute is basically used to define the no of columns and its size inside the frameset tag.

The size or width of the column is set in the frameset in the following ways :

- Use absolute value in pixel
  Example:<frameset cols = "300, 400, 300">
- Use percentage value
  Example:<frameset cols = "30%, 40%, 30%">
- Use wild card values:
  Example:<frameset cols = "30%, *, 30%">

Cont..

2.rows: The rows attribute is used to create horizontal frames in web browser. This attribute is used to define no of rows and its size inside the frameset tag. The size of rows or height of each row use the following ways :

- Use absolute value in pixel
  Example:
- frameset rows = "300, 400, 300">
- Use percentage value
  Example:<frameset rows = "30%, 40%, 30%">
- Use wild card values
  Example:<frameset rows = "30%, *, 30%">

Cont..

3.**border:** This attribute of frameset tag defines the width of border of each frames in pixels. Zero value is used for no border. **Example:**<frameset border="4" frameset>

4.frameborder: This attribute of frameset tag is used to specify whether the three-dimensional border should be displayed between the frames or not for this use two values 0 and 1, where 0 defines for no border and value 1 signifies for yes there will be border.

5.framespacing: This attribute of frameset tag is used to specify the amount of spacing between the frames in a frameset. This can take any integer value as an parameter which basically denotes the value in pixel. **Example:**<framespacing="20"> It means there will be 20 pixel spacing between the frames

Attributes of Frame Tag

1.**name:** This attribute is used to give names to the frame. It differentiate one frame from another. It is also used to indicate which frame a document should loaded into.
Example: <frame name = "top" src = "C:/Users/dharam/Desktop/attr1.png" />
<frame name = "main" src = "C:/Users/dharam/Desktop/gradient3.png" />
<frame name = "bottom" src = "C:/Users/dharam/Desktop/col_last.png" />

2.**src:** This attribute in frame tag is basically used to define the source file that should be loaded into the frame.The value of src can be any url.
Example:<frame name = "left" src = "/html/left.htm" />

Cont..

3.marginwidth: This attribute in frame tag is used to specify width of the spaces in pixels between the border and contents of left and right frame. **Example:**<frame marginwidth="20">

4.marginheight: This attribute in frame tag is used to specify height of the spaces in pixels between the border and contents of top and bottom frame. **Example:**<frame marginheight="20">

5.scrollbar: To control the appearance of scroll bar in frame use scrollbar attribute in frame tag. This is basically used to control the appearance of scrollbar. The value of this attribute can be yes, no, auto. Where the value no denotes there will be no appearance of scroll bar. **Example:**<frame scrollbar="no">

Iframe Tag

- The iframe in HTML stands for **Inline Frame**. The ” iframe ” tag defines a rectangular region within the document in which the browser can display a separate document, including scrollbars and borders. An inline frame is used to embed another document within the current HTML document.
- Iframe is basically used to show a webpage inside the current web page.
- The ‘ **src** ’attribute is used to specify the URL of the document that occupies the iframe.

Syntax : ’<iframe src="URL"></iframe>

Attributes and their Examples

1. **Height and Width:**

   The height and width attributes are used to specify the size of the iframe. The attribute values are specified in pixels by default, but they can also be specified in percentages like ” 80% “.

Example

```
<!DOCTYPE html>
<html>
<body>
    <iframe src=“www.google.com"
        height="300" width="400">
  </iframe>
</body>
</html>
```

Cont..

2. Border:

- **Removing Border:** By default, iframe has a border around it. To remove the border, we must use the style attribute and use the CSS border property.

```
<!DOCTYPE html>
<html>
<body>
    <iframe src=" https://aitr.ac.in/ "
        height="300" width="400" style="border:none;">
  </iframe>
</body> </html>
```

Cont..

- **Border Style:** Changing the size, style, and color of the Iframe’s border :<!DOCTYPE html>

```
<html>
<body>
  <iframe src="https://aitr.ac.in/ "
  height="300" width="400" style="border:4px solid orange;">

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

Cont…

3. **Link:** An iframe can be used as the target frame for a link. The target attribute of the link must refer to the name attribute of the iframe.

```
<!DOCTYPE html>
<html> <body>
   <p>Click the link text</p>
   <iframe height="300" width="350" src=  "https://aitr,ac.in     name="iframe_a">
   </iframe>
   <p>
   <a href=https://www.google.com    target="iframe_a">
   Google Home Page
   </a>  </p>
</body> </html>
```

HTML Block and Inline Elements

- Every HTML element has a default display value, depending on what type of element it is.
- There are two display values: block and inline.

1.Block-level Elements:

- A block-level element always starts on a new line.
- A block-level element always takes up the full width available (stretches out to the left and right as far as it can).
- A block level element has a top and a bottom margin, whereas an inline element does not.
- The <div> element is a block-level element.

Block-level elements in HTML

- <address>
- <article>
- <aside>
- <blockquote>
- <canvas>
- <dd>
- <div>
- <dl>
- <dt>
- <fieldset>
- <figcaption>
- <figure>
- <footer>
- <form>
- <h1>-<h6>
- <header>
- <hr>
- <li>
- <main>
- <nav>
- <noscript>
- <ol>
- <p>
- <pre>
- <section>
- <table>
- <tfoot>
- <ul>
- <video>

Inline Elements

- An inline element does not start on a new line.
- An inline element only takes up as much width as necessary.
- This is a <span> element inside a paragraph.
- An inline element cannot contain a block-level element!

Inline elements in HTML:

- <a>
- <abbr>
- <acronym>
- <b>
- <i>
- <big>
- <br>
- <button>
- <cite>
- <code>
- <img>
- <em>>
- <input>
- <kbd>
- <label>
- <map>
- <object>
- <output>
- <q>
- <samp>
- <script>
- <select>
- <small>
- <span>
- <strong>

Div Tag (Division tag)

- The div tag is used in HTML to make divisions of content in the web page like (text, images, header, footer, navigation bar, etc). Div tag has both open(<div>) and closing (</div>) tag and it is mandatory to close the tag.
- The Div is the most usable tag in web development because it helps us to separate out data in the web page and we can create a particular section for particular data or function in the web pages.
- Div tag is Block level tag
- It is a generic container tag
- It is used to the group of various tags of HTML so that sections can be created and style can be applied to them.

Example

```
<html>
<head>  <title>Division tag example</title>
<style type=text/css>
P{    background-color:gray;
      margin: 10px;  }
div
{    color: white;
background-color: Blue;
margin: 2px;
font-size: 25px;    }
</style>  </head>
<body>     <div > division1</div>       <div > division2</div>
<div > division3</div>
</body></html>
```

Span Element

- The <span> element is an inline container used to mark up a part of a text, or a part of a document.
- The <span> element has no required attributes, but style, class and id are common.
- When used together with CSS, the <span> element can be used to style parts of the text.

Example

```
<p>Add the <span class="ingredient">Basil</span>,
                <span class="ingredient">Pine nuts</span>
           and <span class="ingredient">garlic</span>
                                   to a blender and blend into a paste.</p>

<p>Gradually add the <span class="ingredient">olive oil</span>
                                     while running the blender slowly.</p>
```

The dl, dd, and dt elements

```
<!DOCTYPE html>
<html> <body>
<h1>The dl, dd, and dt elements</h1>
<p>These three elements are used to create a description list:</p>
<dl>
    <dt>Coffee</dt>
    <dd>Black hot drink</dd>
     <dt>Milk</dt>
    <dd>White cold drink</dd>
</dl>   </body>  </html>
```

HTML5 - New Tags (Elements)

Tags (Elements)	Description
<article>	Represents an independent piece of content of a document, such as a blog entry or newspaper article
<aside >	Represents a piece of content that is only slightly related to the rest of the page.
<audio>	Defines an audio file.
<canvas>	This is used for rendering dynamic bitmap graphics on the fly, such as graphs or games.
<command>	Represents a command the user can invoke.
<datalist>	Together with the a new list attribute for input can be used to make comboboxes
<details>	Represents additional information or controls which the user can obtain on demand
<embed>	Defines external interactive content or plugin.
<figure>	Represents a piece of self-contained flow content, typically referenced as a single unit from the main flow of the document.

HTML5 - New Tags (Elements)

Tags (Elements)	Description
<footer>	Represents a footer for a section and can contain information about the author, copyright information, etc.
<header>	Represents a group of introductory or navigational aids.
<hgroup>	Represents the header of a section.
<keygen>	Represents control for key pair generation.
<mark>	Represents a run of text in one document marked or highlighted for reference purposes, due to its relevance in another context.
<meter>	Represents a measurement, such as disk usage.
<nav>	Represents a section of the document intended for navigation.
<output>	Represents some type of output, such as from a calculation done through scripting.
<progress>	Represents a completion of a task, such as downloading or when performing a series of expensive operations.

HTML5 - New Tags (Elements)

Tags (Elements)	Description
<section>	Represents a generic document or application section
<time>	Represents a date and/or time.
<video>	Defines a video file.
<wbr>	Represents a line break opportunity.
<section>	Represents a generic document or application section

What is HTML Canvas?

- The <canvas> tag in HTML is used to draw graphics on a web page using JavaScript. By default, it does not contain borders and text.
- The <canvas> element is only a container for graphics. You must use JavaScript to actually draw the graphics.
- Canvas has several methods for drawing paths, boxes, circles, text, and adding images.

Syntax:

```
<canvas id = "script"> Contents... </canvas>
```

Cont…

- **Attributes:** The tag accepts two attributes as mentioned above and described below.
- **Height: This** attribute is used to set the height of the canvas.
- **Width:** This attribute is used to set the width of the canvas.

```
<!DOCTYPE html>
<html>   <body>
    <canvas id = “HTML Canvas Tag" width = "200"
                                  height = "100" style = "border:1px solid black">
    </canvas>
    </body>   </html>
```

Example

```
<!DOCTYPE html> <html> <head>
<meta charset="utf-8"/>
<script type="application/javascript">
function draw()
{ var canvas = document.getElementById('canvas');
     if (canvas.getContext)
       { var ctx = canvas.getContext('2d');
         ctx.fillStyle = 'rgb(200, 0, 0)';
         ctx.fillRect(10, 10, 50, 50);
         ctx.fillStyle = 'rgba(0, 0, 200, 0.5)';
         ctx.fillRect(30, 30, 50, 50);
          } } </script> </head>
<body onload="draw();">
       <canvas id="canvas" width="150" height="150">
       </canvas> </body> </html>
```

Audio Tag

- To embed audio in HTML, we use the <audio> tag. Before HTML5, audio can not be added to web pages in the Internet Explorer era.
- To play audio, we used web plugins like Flash.
- After the release of HTML5, it is possible. This tag supports Chrome, Firefox, Safari, Opera, and Edge in three audio formats – MP3, WAV, OGG. Only Safari browser doesn’t support OGG audio format.

Syntax:

```
<audio>
        <source src="file_name" type="audio_file_type">
</audio>
```

Attribute of Audio Tag

Attribute	Value	Description
autoplay	autoplay	Specifies that the audio will start playing as soon as it is ready
controls	controls	Specifies that audio controls should be displayed (such as a play/pause button etc)
loop	loop	Specifies that the audio will start over again, every time it is finished
muted	muted	Specifies that the audio output should be muted
preload	auto metadata none	Specifies if and how the author thinks the audio should be loaded when the page loads
src	*URL*	Specifies the URL of the audio file

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>
<h2>Click play button to play audio</h2>
<audio src="test.mp3" controls></audio>
</body>
</html>
```

Video Tag

- The <video> tag is used to embed video content in a document, such as a movie clip or other video streams.
- The <video> tag contains one or more <source> tags with different video sources. The browser will choose the first source it supports.
- The text between the <video> and </video> tags will only be displayed in browsers that do not support the <video> element.

Attribute of Video Tag

Attribute	Value	Description
autoplay	autoplay	Specifies that the video will start playing as soon as it is ready
controls	controls	Specifies that video controls should be displayed (such as a play/pause button etc).
height	*pixels*	Sets the height of the video player
loop	loop	Specifies that the video will start over again, every time it is finished
muted	muted	Specifies that the audio output of the video should be muted
poster	*URL*	Specifies an image to be shown while the video is downloading, or until the user hits the play button
preload	auto metadata none	Specifies if and how the author thinks the video should be loaded when the page loads
src	*URL*	Specifies the URL of the video file
width	*pixels*	Sets the width of the video player

Example

```
<!DOCTYPE html>
<html>
<body>
<p>Adding Video Tag</p>
<video width="400" height="350" controls>
<source src=“a.mp4" type="video/mp4">
<source src=“b.ogg" type="video/ogg">
</video>
</body>
</html>
```

Nav Tag

- The <nav> tag is used for declaring the navigational section in HTML documents. Websites typically have sections dedicated to navigational links, which enables users to navigate the site.
- These links can be placed inside a nav tag. In other words, the nav element represents a section of the page whose purpose is to provide navigational links, either in the current document or to another document.
- The links in the nav element may point to other webpages or to different sections of the same webpage. It is a semantic element. Common examples of the nav elements are menus, tables, contents, and indexes.

Example

```
<!DOCTYPE html>
<html>
<body>
    <h2> HTML nav Tag</h2>
    <!-- nav tag starts -->
    <nav>
        <a href="#">Home</a> |
        <a href=“www.google.com">Google</a> |
        <a href="#">Languages</a> |
        <a href="#">Data Structure</a> |
        <a href="#">Algorithm</a>
    </nav>
    <!-- nav tag ends -->
</body> </html>
```

Browser Support

- The latest versions of Apple Safari, Google Chrome, Mozilla Firefox, and Opera all support many HTML5 features and Internet Explorer 9.0 will also have support for some HTML5 functionality.
- The mobile web browsers that come pre-installed on iPhones, iPads, and Android phones all have excellent support for HTML5.

New Features

- HTML5 introduces a number of new elements and attributes that can help you in building modern websites. Here is a set of some of the most prominent features introduced in HTML5.
- **New Semantic Elements** − These are like <header>, <footer>, and <section>.
- **Forms 2.0** − Improvements to HTML web forms where new attributes have been introduced for <input> tag.
- **Persistent Local Storage** − To achieve without resorting to third-party plugins.
- **WebSocket** − A next-generation bidirectional communication technology for web applications.
- **Server-Sent Events** − HTML5 introduces events which flow from web server to the web browsers and they are called Server-Sent Events (SSE).

Backward Compatibility

- HTML5 is designed, as much as possible, to be backward compatible with existing web browsers. Its new features have been built on existing features and allow you to provide fallback content for older browsers.
- It is suggested to detect support for individual HTML5 features using a few lines of JavaScript.
- If you are not familiar with any previous version of HTML, I would recommend that you go through our **HTML Tutorial** before exploring the features of HTML5.

Q&A

THANKS