Full Stack Development Using Javascript-1

Unit-2 Introduction to HTML

Basics of HTML

HTML is the standard markup language for creating Web pages.

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.

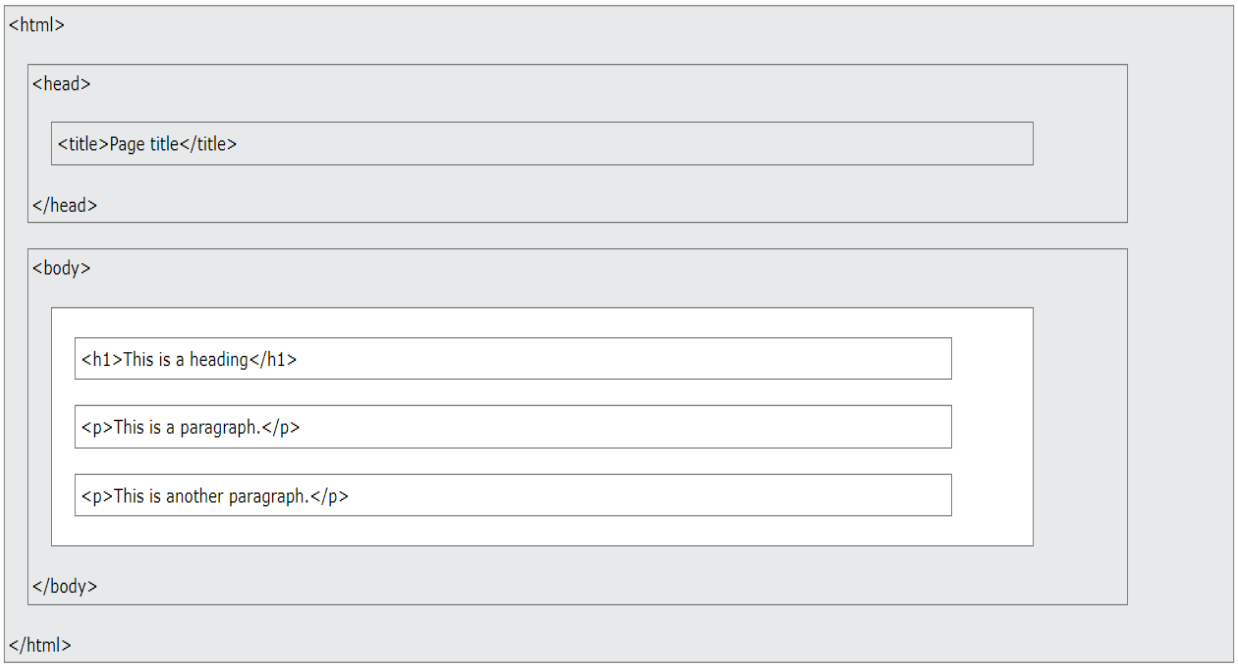
Building Blocks of HTML: <html>, <head>, <title>, <body>

- The <html> element is the root element of an HTML page
- The <head> element contains meta information about the HTML page
- The <title> element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab)
- The <body> element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.

Editors

Notepad, Notepad++, Sublime Text, VS Code

HTML Page Structure




```
<html>
    <head>
        <title>Demo</title>
    </head>
    <body>
            HTML Page structure
    </body>
</html>
```

Output: HTML Page structure

Data Formatting tags

1. **<b>:** Defines bold text

```
<html>
<body>
    This is normal text - <b>and this is bold text</b>
</body>
</html>
```

Output:

This is normal text - **and this is bold text**

2. **<i>:** Defines a part of text in an alternate voice or mood. The content inside is typically displayed in *italic*.

```
<html>
<body>
    This is normal text - <i>and this is italic text</i>
</body>
</html>
```

Output:

This is normal text - *and this is italic text*

3. **<u>:** Content inside is typically displayed with an underline

```
<html>
<body>
    <u>Underlined text</u>
</body>
</html>
```

Output:

Underlined text

4. **:** Define emphasized text. The content inside is typically displayed in *italic*.

```
<html>
<body>
    <p>You <em>have</em> to hurry up!</p>
    <p>We <em>cannot</em> live like this.</p>
</body>
</html>
```

Output:

You *have* to hurry up!

We *cannot* live like this.

5. **:** Define text with strong importance. The content inside is typically displayed in **bold**.

```
<html>
<body>
<strong>This text is important!</strong>
</body>
</html>
```

Output:

This text is important!

6. **<font>:** The <font> tag was used in HTML 4 to specify the font face, font size, and color of text. Not supported in HTML5.

   Default size = 3, Range of size = 1 to 7

```
<html>
<body>
    <font size="3" color="blue" face="comic sans MS">Have a great day</font>
</body>
</html>
```

Output:

Have a great day

7. **
:** It inserts a single line break. It is an empty tag which means that it has no end tag.

```
<html>
<body>
    Have a<br>greatful<br>life<br>!!!!!
</body>
</html>
```

Output:

Have a
greatful
life
!!!!!

8. **<hr>:** Stands for horizontal rule and is used to insert a horizontal rule or a thematic break in an HTML page to divide or separate document sections. The <hr> tag is an empty tag, and it does not require an end tag.

```
<html>
<body>
        There is a horizontal rule below this paragraph.
        <hr>
        This is a horizontal rule above this paragraph.
</body>
</html>
```

Output:

There is a horizontal rule below this paragraph.

This is a horizontal rule above this paragraph.

Attributes: Size – To give thickness to horizontal bar

9. ** :** The tag was used in HTML4 to center-align text.

```
<html>
<body>
    Follow this
    <center>Be happy</center>
</body>
</html>
```

Output:

Follow this

Be happy

10. **<sup>:** Defines the superscript text. Superscript text appears half character above the normal line and is sometimes rendered in a smaller font. Superscript text can be used for footnotes.

```
<html>
<body>
    2<sup>X+1</sup>
</body>
</html>
```

Output:

2^{X+1}

11. **<sub>:** Defines the subscript text. Subscript text appears half a character below the normal line and is sometimes rendered in a smaller font.

```
<html>
<body>
    log<sub>b</sub>a
</body>
</html>
```

Output:

$\log_b a$

12. **<del>:** Defines text that has been deleted from a document. Browsers will usually strike a line through deleted text.

13. **<ins>:** Defines a text that has been inserted into a document. Browsers will usually underline inserted text.

```
<html>
<body>
    My favorite color is <del>blue</del> <ins>red</ins>
</body>
</html>
```

Output:

My favorite color is ~~blue~~ red

14. <mark>: define the marked text. It is used to highlight the part of the text in a paragraph. By default, <mark> tag highlight the text content in yellow color.

```
<html>
<body>
    Here is your <mark>Highlighted text</mark>
</body>
</html>
```

Output:

Here is your Highlighted text

15.<small>: Defines smaller text. It decreases the font size by one size (from medium to small, from x-large to large)

16.<big>: Define bigger text. It is used to increase the selected text size by one larger than the surrounding text.

```
<html>
<body>
<small>This is some smaller text.</small>
<big>This is some bigger text.</big>
</body>
</html>
```

Output:

This is some smaller text. This is some bigger text.

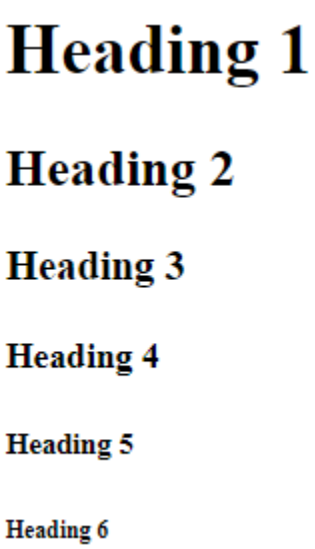
HTML Heading: <h1> to <h6>

HTML headings are titles or subtitles that you want to display on a webpage. HTML headings are defined with the <h1> to <h6> tags. <h1> defines the most important heading. <h6> defines the least important heading.

<h1> headings should be used for main headings, followed by <h2> headings, then the less important <h3>, and so on.

```
<html>
<body>
    <h1>Heading 1</h1>
    <h2>Heading 2</h2>
    <h3>Heading 3</h3>
    <h4>Heading 4</h4>
    <h5>Heading 5</h5>
    <h6>Heading 6</h6>
</body>
</html>
```

Output:



Paragraph: <p>, <pre>

<p>: Defines a paragraph. Browsers automatically add a single blank line before and after each <p> element.

```
<html>
<body>
    <p>This is a paragraph.</p>
</body>
</html>
```

Output:

This is a paragraph.

<pre>: Defines preformatted text. Text in a <pre> element is displayed in a fixed-width font, and the text preserves both spaces and line breaks. The text will be displayed exactly as written in the HTML source code.

```
<html>
<body>
    <pre>
Text in a pre element
is displayed in a fixed-width
font, and it preserves
both      spaces and
line breaks
    </pre>
</body>
</html>
```

Output:

```
Text in a pre element
is displayed in a fixed-width
font, and it preserves
both      spaces and
line breaks
```

HTML Links: <a>

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.

Attributes:

href: Specifies the URL of the page the link goes to

target: Specifies where to open the linked document

<a target="_blank | _self | _parent | _top "\>

_blank = Opens the linked document in a new window or tab

_self = Opens the linked document in the same frame as it was clicked (this is default)

_parent = Opens the linked document in the parent frame

_top = Opens the linked document in the full body of the window

name: is used to specify the name for an <a> element. It is used to reference the form data after submitting the form or to reference the element in a JavaScript.

```
<html>
<body>
    Open link in a new window or tab: <a href="https://www.google.com"
target="_blank">Visit Google!</a>
</body>
</html>
```

Output:

Open link in a new window or tab: Visit Google!

Images: <img>

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

Attributes:

src: Specifies the path to the image

alt: Specifies an alternate text for the image, if the image for some reason cannot be displayed

height: It is used to specify the height of the image.

width: It is used to specify the width of the image.

```
<html>
<body>
    <img src="flower.jpg" alt="flower" width="100" height="100">
</body>
</html>
```

Output:

HTML<meta> tag:

HTML lets you specify metadata - additional important information about a document in a variety of ways. The META elements can be used to include name/value pairs describing properties of the HTML document, such as author, expiry date, a list of keywords, document author etc.

The <meta> tag is used to provide such additional information. This tag is an empty element and so does not have a closing tag but it carries information within its attributes.

You can include one or more meta tags in your document based on what information you want to keep in your document but in general, meta tags do not impact physical appearance of the document so from appearance point of view, it does not matter if you include them or not.

Attributes:

name: Name for the property. Can be anything. Examples include, keywords, description, author, revised, generator etc.

content: Specifies the property's value.

http-equiv: Used for http response message headers. For example, http-equiv can be used to refresh the page or to set a cookie. Values include content-type, expires, refresh and set-cookie.

```
<head>

<title>Meta Tags Example</title>

<meta name = "keywords" content = "HTML, Meta Tags, Metadata" />

<meta name = "description" content = "Learning about Meta Tags." />

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<meta http-equiv = "refresh" content = "5" />

</head>
```

HTML Lists:

A list is a record of short pieces of related information or used to display the data or any information on web pages in the ordered or unordered form. For instance, to purchase the items, we need to prepare a list that can either be ordered or unordered list which helps us to organize the data & easy to find the item.

There are two types of lists:

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

Attribute:

type: type = ” disc/square/circle/none”

```
<html>
<body>
    <ul>
        <li>Coffee</li>
        <li>Tea</li>
        <li>Milk</li>
    </ul>
</body>
</html>
```

Output:

- Coffee
- Tea
- Milk

2) **Ordered list:** An ordered list starts with the <ol> tag. Each list item starts with the <li> tag. The list items will be marked with numbers by default:

Attribute:

type: type=" 1/ i/ I/ a/ A"

start: Specifies the start value of an ordered list

reversed: Specifies that the list order should be reversed (9,8,7...)

```
<html>
<body>

<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

<ol start="50">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

</body>
</html>
```

Output:

1. Coffee
2. Tea
3. Milk

50. Coffee
51. Tea
52. Milk

HTML Definition List:

The <dl> tag defines a description list. The <dl> tag is used in conjunction with <dt> (defines terms/names/title) and <dd> (describes each term/name/data).

```
<html>
<body>
<dl>
  <dt>Kindness</dt>
  <dd>Kindness is a type of behavior marked by acts of generosity, consideration, rendering assistant or concern for others, without expecting praise or reward in return.
</dd>
  <dt>Happiness</dt>
  <dd>Happiness, in the context of mental or emotional states, is positive or pleasant emotions ranging from contentment to intense joy. Other forms include life satisfaction, well-being, subjective well-being, flourishing and eudaimonia.</dd>
</dl>
</body>
</html>
```

Output:

Kindness
: Kindness is a type of behavior marked by acts of generosity, consideration, rendering assistant or concern for others, without expecting praise or reward in return.

Happiness
: Happiness, in the context of mental or emotional states, is positive or pleasant emotions ranging from contentment to intense joy. Other forms include life satisfaction, well-being, subjective well-being, flourishing and eudaimonia.

HTML Table:

The <table> tag defines an HTML table. An HTML table consists of one <table> element and one or more <tr>, <th>, and <td> elements. The <tr> element defines a table row, the <th> element defines a table header, and the <td> element defines a table cell. An HTML table may also include <caption>, <thead>, <tfoot>, and <tbody> elements.

HTML tags for table:

<caption>	Defines a table caption
<table>	Defines a table
<th>	Defines a header cell in a table
<tr>	Defines a row in a table
<td>	Defines a cell in a table
<thead>	Groups the header content in a table
<tbody>	Groups the body content in a table
<tfoot>	Groups the footer content in a table

HTML <table> tag attribute:

Attribute	Value	Description
align	right left center justify char	Deprecated − Visual alignment.
bgcolor	rgb(x,x,x) #hexcode colorname	Deprecated − Specifies the background color of the table.
border	pixels	Deprecated − Specifies the border width. A value of "0" means no border.
cellpadding	pixels or %	Deprecated − Specifies the space between the cell borders and their contents.

cellspacing	pixels or %	Deprecated − Specifies the space between cells.
rules	none groups rows cols all	Deprecated − Used in conjunction with the border attribute, specifies which rules appear between the cells of the table.
width	pixels or %	Deprecated − Specifies the width of the table.

<td>, <tr> attributes:

Attribute	Value	Description
align	right left center justify char	Deprecated − Visual alignment.
bgcolor	rgb(x,x,x) #hexcode colorname	Deprecated − Specifies the background color of the cell.
colspan	Number of columns to merge	Number of columns a header cell should span
rowspan	Number of rows to merge	Set the number of rows a header cell should span.

```
<html>
<body>
<table align="center" border="2" bgcolor="#87CEEB" rules="all" height=20%
width=20%>
<caption align="center">Table Example</caption>
    <tr align="center">
        <td>A</td>
        <td>B</td>
        <td>C</td>
        <td rowspan=3>D</td>
    </tr>
    <tr align="center">
        <td>E</td>
        <td colspan=2>F</td>
    </tr>
    <tr align="center">
        <td>G</td>
        <td>H</td>
        <td>I</td>
    </tr>
</table>
</body>
</html>
```

Output:

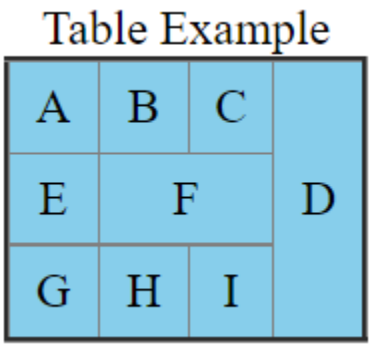


Table using <thead>, <tbody>, <tfoot>:

The <tbody> tag is used to group the body content in an HTML table.

The <tbody> element is used in conjunction with the <thead> and <tfoot> elements to specify each part of a table (body, header, footer).

Browsers can use these elements to enable scrolling of the table body independently of the header and footer. Also, when printing a large table that spans multiple pages, these elements can enable the table header and footer to be printed at the top and bottom of each page.

Note: The <tbody> element must have one or more <tr> tags inside.

The <tbody> tag must be used in the following context: As a child of a <table> element, after any <caption>, <colgroup>, and <thead> elements.

Tip: The <thead>, <tbody>, and <tfoot> elements will not affect the layout of the table by default. However, you can use CSS to style these elements (see example below)!

```
<html>
<head>
</head>
<body>
<table border="1">
  <thead>
    <tr>
      <th>Month</th>
      <th>Savings</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>January</td>
      <td>100</td>
    </tr>
    <tr>
      <td>February</td>
      <td>80</td>
    </tr>
  </tbody>
  <tfoot>
    <tr>
      <th>Sum</th>
      <th>180</th>
    </tr>
  </tfoot>
</table>
</body>
</html>
```

Output:

Month	Savings
January	100
February	80
Sum	**180**

HTML Forms:

<form> is a HTML element to collect input data with containing interactive controls. It provides facilities to input text, number, values, email, password, and control fields such as checkboxes, radio buttons, submit buttons, etc

Forms are generally used when you want to collect data from the user. For example, feedback form, login form, complaint form, inquiry form etc.

Attributes:

action: The action attribute defines the action to be performed when the form is submitted. Usually, the form data is sent to a file on the server when the user clicks on the submit button.

method: The method attribute specifies the HTTP method to be used when submitting the form data. The form-data can be sent as URL variables (with method="get") or as HTTP post transaction (with method="post").

The default HTTP method when submitting form data is GET.

GET Method

• Appends the form data to the URL, in name/value pairs

• NEVER use GET to send sensitive data! (the submitted form data is visible in the URL!)

• The length of a URL is limited (2048 characters)

• Useful for form submissions where a user wants to bookmark the result

• GET is good for non-secure data, like query strings in Google

POST Method:

• Appends the form data inside the body of the HTTP request (the submitted form data is not shown in the URL)

• POST has no size limitations, and can be used to send large amounts of data.

• Form submissions with POST cannot be bookmarked

align: It aligns form in left or right or center.

<input> type attributes:

<input type="text">

Attributes:

- maxlength: Specifies maximum no of characters allowed in textfield.
- readonly: indicates that value of field cannot be modified.
- value: to mention contents of textfield.
- placeholder: inform about values to be entered by user
- name: defines name of control and works like a variable

<input type="password">

Attributes:

- All attributes will work as in text except readonly.

<input type="radio">

Attributes:

- Checked: It denotes one of the radio button is checked
- name: common to all radio buttons of same group.

<input type="checkbox">: Defines a checkbox. Checkboxes let a user select ZERO or MORE options of a limited number of choices.

<input type="submit">: It renders submit button

<input type="reset">: It renders reset button

<input type="button">: It renders button and you have to write value=”value” text that will be printed as button text.

<input type="file">: It renders file upload control

<input type="date">: It is used for input fields that should contain a date.

<input type="email">: It is used for input fields that should contain an e-mail address.

<input type="image">: Defines an image as a submit button.

<textarea>:rows and cols attribute

• The <textarea> tag defines a multi-line text input control.

• The <textarea> element is often used in a form, to collect user inputs like comments or reviews.

• The size of a text area is specified by the cols and rows attributes.

• The name attribute is needed to reference the form data after the form is submitted (if you omit the name attribute, no data from the text area will be submitted).

<fieldset> and <legend>:

<fieldset>: The <fieldset> tag is used to group related elements in a form. The <fieldset> tag drawsa box around the related elements.

<legend>: The <legend> tag defines a caption for the <fieldset> element.

Dropdown Menu/ Selection control

<select>: The <select> element is used to create a drop-down list. The <select> element is most often used in a form, to collect user input.

Attribute:

name: It is needed to reference the form data after the form is submitted (if you omit the name attribute, no data from the drop-down list will be submitted).

<optgroup>: This tag is used to create a group of the same category options in a drop-down list. The <optgroup> tag is required when there is a long list of the item exists.

<option>: The <option> tag defines an option in a select list. <option> elements go inside

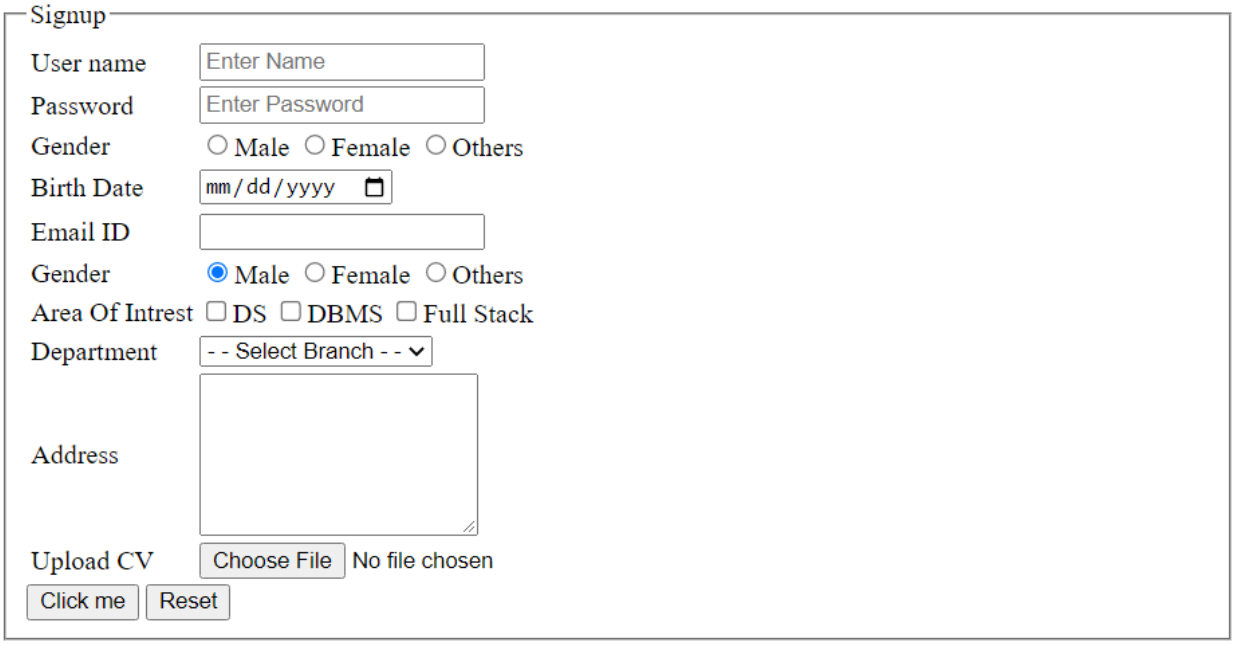
.

```
<html>
	<head><title>HTML Form</title>
	</head>
	<body>
		<form method="get" action="demo.html">
		<fieldset><legend>Signup</legend>
		<table>
		<tr>
		<td>User name </td>
		<td><input type="text" maxlength="10" name="xyz" placeholder="Enter Name"/></td>
		</tr>
		<tr>
		<td>Password </td>
		<td><input type="password" maxlength="8" placeholder="Enter Password"></td>
		</tr>
		<tr>
		<td>Gender </td>
		<td><input type="radio" name="x" checked/>Male <input type="radio" name="x"/>Female <input type="radio" name="x"/>Others</td>
		</tr>
		<tr>
		<td>Birth Date </td>
		<td><input type="date"></td>
```

```
</tr>

<tr>

</tr>

<tr>

<td>Email ID </td>

<td><input type="email"></td>

</tr>

<td>Gender </td>

<td><input type="radio" name="x" checked/>Male <input type="radio" name="x"/>Female <input type="radio" name="x"/>Others</td>

</tr>

<tr>

<td>Area Of Intrest </td>

<td><input type="checkbox" checked/>DS <input type="checkbox"/>DBMS <input type="checkbox"/>Full Stack</td>

</tr>

<tr>

<td>Department </td>

<td>

<select>

<option value=" " disabled hidden selected> - - Select Branch - - </option>

<optgroup label="CE">

<option>RAI</option>

<option>IT</option>
```

```
<option>CSD</option>
<option>CSE</option>
</optgroup>
<optgroup label="Mechanical">
<option>Mech</option>
<option>CAD</option>
<option>Thermal</option>
</optgroup>
</select>
</td>
</tr>
<tr>
<td>Address </td>
<td><textarea rows="6" cols="20"></textarea></td>
</tr>
<tr>
<td>Upload CV </td>
<td><Input type="file"/></td>
</tr>
</table>
<tr>
<td><Input type="submit" value="Click me"/></td>
<td><Input type="reset" value="Reset"/></td>
```

```
            </tr>

            </table>

            </fieldset>

            </form>

        </body>

</html>
```



HTML Frame:

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.

Note: Main html page should not have <body> tag.

<frameset>

To decide partitions into more than one frame

attributes:

rows: Specifies how many rows are contained in the frameset and the size of each row.

rows=”20%, 30%, *” (Three horizontal frames – 20%, 30%, remaining space)

rows=”150, 300, 200”

rows=”10%, 30%, 60%”

rows=”1*, 2*, 3*". This is an alternative to percentages. You can use relative widths of the browser window. Here the window is divided into sixths: the first column takes up one sixth, the second takes one third, and the third takes half of the window.

cols: Specifies how many rows are contained in the frameset and the size of each row. You can specify the height of each row in the same way as explained above for columns.

border: This attribute specifies the width of the border of each frame in pixels. For example, border= "5". A value of zero means no border.

frameborder: This attribute specifies whether a three-dimensional border should be displayed between frames. This attribute takes value either 1 (yes) or 0 (no). For example, frameborder = "0" specifies no border.

noresize: frames are not draggable. By default, you can resize any frame by clicking and dragging on the borders of a frame.

noresize = "noresize". Or simply write noresize

<frame>

Attributes:

src: Source of HTML file to be shown in partition.

For example, src = "frame1.htm" will load an HTML file available in html directory.

scrolling: This attribute controls the appearance of the scrollbars that appear on the frame. This takes values either "yes", "no" or "auto". For example, scrolling = "no" means it should not have scroll bars.

frame.html

```
<html>
        <frameset frameborder="2" border="10" rows="25%,*,25%" noresize>
            <frame src="demo.html"/>
            <frameset cols="50%,*">
                <frame src="demo.html"/>
                <frame src="demo.html"/>
        </frameset>
        <frame src="demo.html" scrolling="no"/>
        </frameset>
</html>
```

demo.html

```
<html>
	<body>
	<h1 align="center">Html File for all frames</h1>
	<pre>
h
e
l
l
o
e
v
e
r
y
o
n
e
h
e
l
```

l

o

e

v

e

r

y

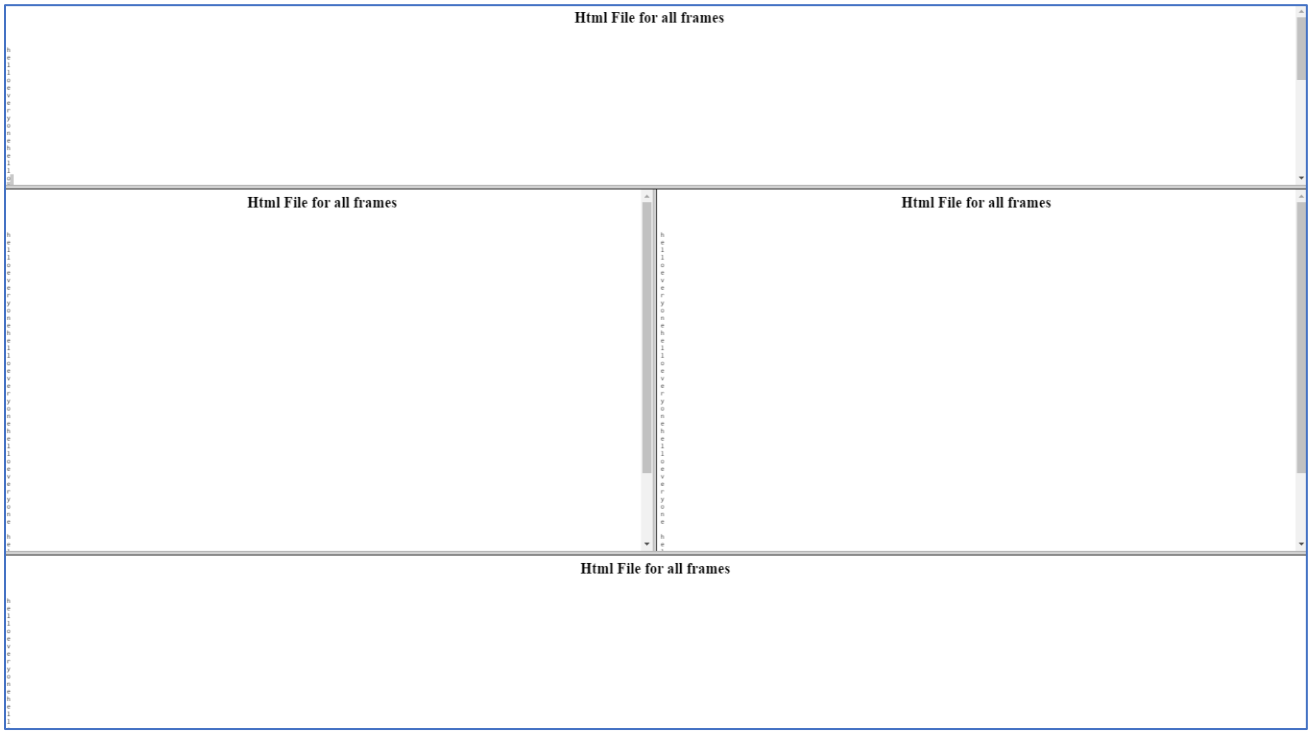
o

n

e </pre>

</body>

</html>



**HTML Block and Inline elements: and **

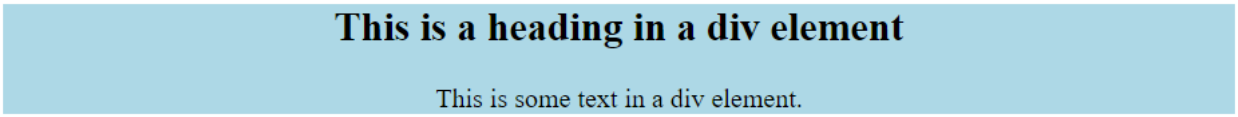
** :** The div tag is known as Division tag. The div tag is used in HTML to make divisions of content in the web page like (text, images, header, footer, navigation bar, etc). Div tag has both open( ) and closing ( ) tag and it is mandatory to close the tag.

It is a block level tag. This defines specific section or division in html page. This gives style to entire block and all-inclusive contents.

It is used to the group of various tags of HTML so that sections can be created and style can be applied to them.

```
<html>
<head>
</head>
<body>
<div style="background-color: lightblue;
  text-align: center;">
  <h2>This is a heading in a div element</h2>
  <p>This is some text in a div element.</p>
</div>
<p>This is some text outside the div element.</p>
</body>
</html>
```

Output:



This is some text outside the div element.

: The HTML span element is a generic inline container for inline elements and content. It is used to group elements for styling purposes (by using the class or id attributes), A better way to use it when no other semantic element is available.

The span tag is a paired tag means it has both open(<) and closing (>) tags, and it is mandatory to close the tag. The span tag is used for the grouping of inline elements & this tag does not make any visual change by itself. span is very similar to the div tag, but div is a block-level tag and span is an inline tag.

```
<html>
<body>
<p>One has <span style="color:blue;font-weight:bold">blue</span> eyes and other one has
<span style="color:darkolivegreen;font-weight:bold">dark green</span> eyes.</p>
</body>
</html>
```

Output:

One has **blue** eyes and other one has **dark green** eyes.