

Introduction to Web development

- Web development is the process of creating, building and maintaining websites and web applications.
- It involves everything from web design to programming and database management.

Web Development

- Frontend Development
- Backend Development
- Full stack Development

- (Frontend Development refers to everything that users see and interact with on the website.)
- It involves the design, structure and layout of the website and is often referred to as the 'client side' of an application.)
- (Backend Development refers to the server side of a website, where the logic and data are processed and stored.)
- (Full-stack development refers to the practice of developing both the frontend and backend of a website or web application.)
- Full-stack developers have a deep understanding of both areas and can build end-to-end solutions.)

Q. What is framework ?

→ A predefined set of tools, libraries, rules and best practices that provides a structured foundation for developing a software.

→ Advantages of a framework:

- Easy to test your code and debug it.
- Reduces redundancy of code in the project
- Reduces the time and cost of the project with the enhanced application.

→ Front-End frameworks : React JS, Angular JS, Vue JS, Bootstrap, SVELTE
 Backend frameworks: Express JS, django, Ruby programming
 Mobile frameworks : flutter, React Native, Xamarin

Essay

Application :
Atom

PAGE NO.: _____
Date: _____
YUVRAJ

HTML - Hyper Text Markup Language

- ✓ latest version - HTML5
- ✓ Markup Language - each tags represent different meanings.
- ✓ HTML is the most widely used language on the web to develop web pages.
- ✓ Developed by Tim Berners Lee in late 1991.
- ✓ HTML 1.0 is the first version and the latest version is HTML 5.
- ✓ HTML elements tell the browser how to display the content.

✓ Hyper Text : Hyper Text refers to the way in which Web pages (HTML documents) are linked together.

✓ Markup language : means HTML to simply "Mark up" a text document with tags and tell the browser that tell a Web browser how to structure it and display .

→ HTML Editors : are used to create, edit and manage HTML code.

✓ Text Editors : Notepad, Notepad++, Text Editor, Atom

✓ WYSIWYG Editors : Adobe, Dreamweaver, Blue Griffon
(What You See Is What You Get)

✓ Online HTML Editors : HTML Online Editor -
(file extension: .html / .htm)

* Structure of HTML Document

```

<!DOCTYPE html>           → Tells version of HTML
<html>                   → HTML Root Element
<head>                  → Used to contain page HTML metadata
<title> Page Title </title> → Title of HTML page
</head>

<body>                  → hold content of HTML
<h2> Heading Content </h2> → HTML heading tag
<p> Paragraph Content </p> → HTML paragraph tag
</body>

</html>

```

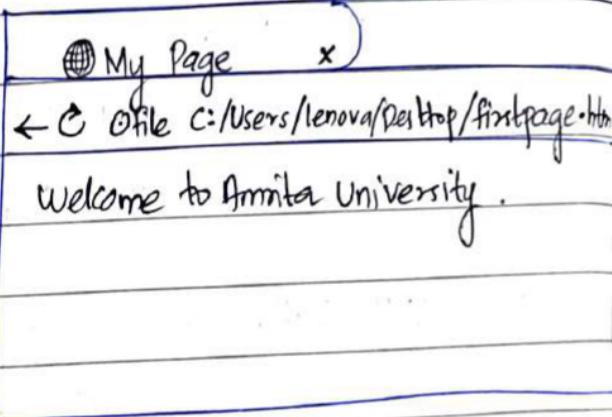
Example

firstpage.html

```

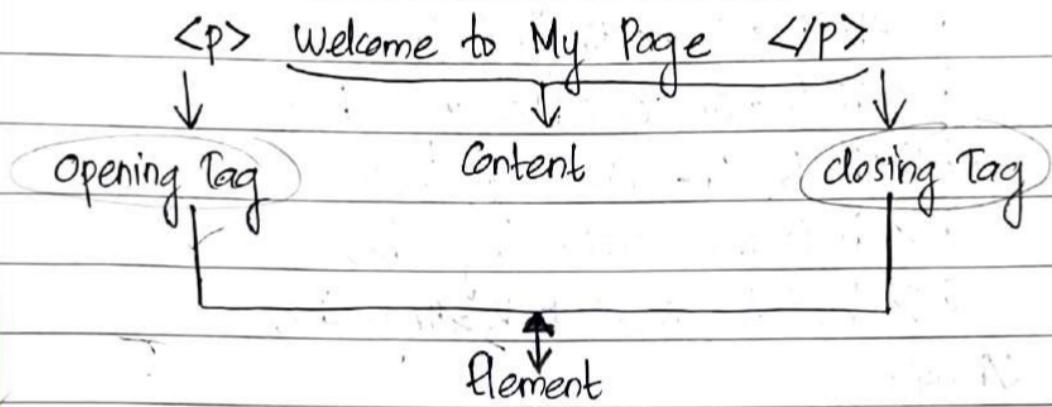
<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
  <meta charset="utf-8">
  <title>My Page</title>
</head>
<body>
  welcome to Amrita University
</body>
</html>

```



→ HTML Tags:

- ✓ HTML Tags are the fundamental elements of HTML used for defining the structure of the document.
- ✓ There are letters or words enclosed by angle brackets (< and >)
- Examples : <h1>, <html>, <p>,
, <center> etc .



→ HTML Attributes

- ✓ HTML attributes are special words that provide additional information to an HTML element.
- ✓ Attributes are placed inside the element's opening tag , and they are used to configure or adjust the element's behaviour.
- ✓ All attributes are made up of two parts : a name and a value.

• <tag-name attribute="Value">....</tag-name>

• Eg: <body bgcolor="yellow">...</body>

Colour Codes
FS27GC
FS4927
FSB027

→ HTML Headings

- * HTML Headings are used to define the titles and subtitles of sections on a webpage.

Example:-

```

<html>
<body>
  <h1> This is the main Heading </h1>
  <h2> This is a subheading </h2>
  <h3> This is a smaller subheading </h3>
  <h4> This is sub-subheading </h4>
  <h5> This is minor subheading </h5>
  <h6> This is the smallest Heading </h6>
</body>
</html>
  
```

<h1> → Main Heading (largest)
 <h2> → Sub headings.
 <h3> to <h6> → Smaller headings.

→ HTML Paragraphs

- ✓ A paragraph in HTML is simply a block of text enclosed within the `<p>` tag.
- ✓ The `<p>` tag helps divide content into manageable, readable sections.
- ✓ It adds space before and after the paragraph to visually separate it from other content.
- Breaks the text into a single block, creating an easy-to-read section.

Example: `<!DOCTYPE html>`

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

`<p>`

This paragraph contains a lot of lines in the source code, but the browser ignores it.

`</p>`

`<p>`

This paragraph contains a lot of spaces in the source code, but the browser ignores it.

`</p>`

`<p>`

The number of lines in a paragraph depends on the size of the browser window.
if you resize the browser window,

`</p>`

`</body>`

`</html>`

→ HTML Line Breaks

- The HTML
 tag element creates a line break, giving you a new line without starting a new paragraph.
- ✓ it is an empty tag, no need of closing tag.

Example: <p>

This paragraph has multiple

 lines. But HTML reduces them.

 to a single line, omitting

 the carriage return we have used.
</p>

This paragraph has multiple
lines. But HTML reduces them
to a single line, omitting
the carriage return we have used.

→ HTML Horizontal Rules

- The HTML `<hr>` tag is used to create a horizontal rule ~~on this~~ line, visually separating content on a web page.

→ HTML Text formatting Tags.

Tags	Description
<code><i></code>	Showcases italicized text
<code><small></code>	Renders text in a smaller font size
<code><ins></code>	Highlights added or inserted text.
<code><sub></code>	Creates subscript text.
<code></code>	Emphasizes text with importance, often in bold.
<code></code>	Displays text in a bold format.
<code><mark></code>	Accentuates text with a background highlight
<code></code>	Strikes through text to signify deletion.
<code></code>	Adds emphasis to text, commonly styled as italic.
<code><sup></code>	Formats text as superscript.

Examples: <code><i> Hello Aparna </i>
</code>	Hello Aparna.
<code> Hello
</code>	Hello
<code><mark> Hello World </mark>
</code>	<u>Hello World</u>
<code> Hello
</code>	Hello
<code> Hello
</code>	Hello
<code><u> hello </u>
</code>	<u>hello</u>
<code><ins> hai</ins>
</code>	<u>hai</u>

$\text{H} \langle \text{sub} \rangle 2 \langle / \text{sub} \rangle \text{O} \langle / \text{h1} \rangle \quad \text{H}_2\text{O}$
 $\text{A} \langle \text{sup} \rangle 2 \langle / \text{sup} \rangle \langle / \text{h1} \rangle \quad \text{A}^2$

Q: write html code for displaying the following -

$$2^4 = 16$$

$\text{H} \langle \text{sub} \rangle 2 \langle \text{sup} \rangle 4 \langle / \text{sup} \rangle = 16 \langle / \text{h1} \rangle \langle \text{br} \rangle$

$$\text{X}^4 + \text{Y}^6$$

$\text{H} \langle \text{sub} \rangle \text{X} \langle \text{sup} \rangle 4 \langle / \text{sup} \rangle + \text{Y} \langle \text{sup} \rangle 6 \langle / \text{sup} \rangle \langle / \text{h1} \rangle \langle \text{br} \rangle$

9th of september. $\text{H} \langle \text{sub} \rangle 9 \langle \text{sup} \rangle \text{th} \langle / \text{sup} \rangle \text{of september} \langle / \text{h1} \rangle \langle \text{br} \rangle$

→ HTML Comments

- HTML Comments are completely ignored by web browsers.
- HTML comments help you and others understand your code and increase code readability and are placed in between $<!-- \dots -->$ tags.

Example: $<!DOCTYPE \text{html}>$

$<\text{html}>$

$<\text{head}>$

$<!-- \text{Document Header starts} \rightarrow$

$<\text{title}> \text{This is document title} </\text{title}>$

$</\text{head}>$

$<!-- \text{Document Header Ends} \rightarrow$

$<\text{body}>$

$<\text{p}> \text{Document content goes here} \dots </\text{p}>$

$</\text{body}>$

$</\text{html}>$

→ HTML fonts

- The HTML `` tag specifies the size, color, and face (family) of the text to be displayed on the webpage.

Example: `<!DOCTYPE html>`

`<html>`

`<head>`

`<title>font face</title>`

`</head>`

`<body>`

`Times New Roman
`

`Verdona
`

`Comic Sans
`

`Bedrock
`

`</body>`

`</html>`

attribute:
inside the
tag

→ HTML Images

- HTML images provide visual content for web pages, enhancing user experiences and conveying information.

``

↑
Image source

↑
Alternative Text -

→ ``

- `src` ⇒ the `src` attribute defines the path of the image (image URL)
- `Alt` : The `alt` attribute defines the alternate text : if there is a broken link to the image path, the alternate text displays on the webpage.
- `width` and `Height` : The `width` and `height` attribute defines the height and width for the image.

→ Image Border used for adding border for an image .

```

<!DOCTYPE html>
<html>
<head>
<title> Set Image Border </title>
</head>
<body>
<p> Setting Image border </p> .
<img src = "/html/images/test.png" alt="Test Image" border="3" />
</body>
</html>.

```

(Adding border to an image, border = "3".)

→ Image Alignment

setting image align = "right"

Animated Image

```
<!DOCTYPE html>
<html>
<head>
<title>Using Animated Image </title>
</head>
<body>
<h1>
<img src = "/html/image.png" alt = "Animated Images" />
</body>
</html>
```

→ HTML Links

- (Hyperlinks) HTML links are words or button having a link to another page that take the user to that linked page when clicked.
- An anchor tag, or `<a>` tag is a basic element that creates hyperlinks between two pages.

`Link Text `

Example:

- most commonly used attribute of

Option	Description -
<code>_blank</code>	Opens the linked document in a new window or tab.
<code>_self</code>	Opens the linked document in the same frame.
<code>_parent</code>	Opens the linked document in the parent frame.
<code>_top</code>	Opens the linked document in the full body of the window.

Example: `Visit W3Schools! Text `

→ HTML Email Links

- HTML email links allows users to click on a link and automatically open their default email client with a new message composed to the specified email address.
- This is done using the mailto: protocol in the href attribute of an anchor <a> tag.

Example: name@email.com

```

<!DOCTYPE html>
<html>
<body>
    <p>creating an HTML email link</p>
    <a href="mailto: name@email.com">
        click to send mail
    </a>
</body>
</html>

```

} email links for single recipient

- ↳ • for adding email links for multiple recipients, we've to give the email id's separated by commas.

* HTML list

- HTML lists are group or collection of items ^(series) _(bullet points)
- These items can be both organized and unorganized depending on the requirement.

Types:

- Ordered Lists
- Unordered Lists
- Definition Lists

→ Unordered list

- Unordered lists display lists of items that are not in a specific order.
- The unordered lists are marked with bullet points
- To create an unordered list, the `` tag is used along with the `` tag
- The `` tag specifies the list items.

Example of HTML list :

- HTML
- CSS
- Java Script
- Java
- Java FX

```
<!DOCTYPE html>
<html>
  <head>
    <title>HTML list </title>
  </head>
  <body>
    <h1>Example of HTML list </h1> <br>
    <ul>
      <li>HTML </li>
      <li>CSS </li>
      <li>JavaScript </li>
      <li>Java </li>
      <li>Java FX </li>
    </ul>
  </body>
</html>
```

→ Ordered lists

- Ordered lists are the lists of items that are in a specific order (1,2,3...)
- The ordered lists are marked with numbers by default.
- To create an ordered list, the `` tag is used along with the `` tag, where `` specifies the list items.

Example: 1. HTML
2. CSS
3. JS
4. Java
5. JavaFX

```

<!DOCTYPE html>
<html>
<head>
<title> Example of HTML list </title>
</head>
<body>
<h1> Example of HTML List </h1> <br>
<ul>
<li> HTML </li>
<li> CSS </li>
<li> JS </li>
<li> Java </li>
<li> JavaFX </li>
</ul>
</body>
</html>

```

→ Definition lists

Definition lists are lists of items with their corresponding descriptions.

The definition lists are created by using the `<dl>`, `<dt>`, and `<dd>` tags. where:

`<dl>` tag specifies the definition list

`<dt>` tag specifies the definition term.

`<dd>` tag specifies the definition description.

→ Example of HTML list

HTML

HyperText markup language

CSS

Cascading style sheet

JS

JavaScript

→

```
<!DOCTYPE html>
<html>
<head>
<title> HTML list </title>
</head>
<body>
<h2> Example of HTML list </h2>
<dl>
  <dt> HTML </dt>
  <dd> HyperText markup language </dd>
  <dt> CSS </dt>
  <dd> Cascading style sheet </dd>
  <dt> JS </dt>
  <dd> JavaScript </dd>
</dl>
</body>
</html>
```

29/07/25
Tuesday

M	T	W	T	F	S	S
Page No.:						
Date:						YOUVA

Write the html code for the following.

Example of HTML Nested list.

1. Item One
2. Item Two
 - Subitem A
 - Subitem B
3. Item Three

```
<!DOCTYPE html>
<html>
<head>
<title> HTML Nested list </title>
</head>
<body>
<h1> Example of HTML Nested list </h1>
<ol>
    <li> Item One </li>
    <li> Item Two </li>
    <del>
        <ul type="circle">
            <li> Subitem A </li>
            <li> Subitem B </li>
        </ul>
    </del>
</ol>
<del></del>
```


 Item Three

</body>

</html>

→ HTML Tables

- HTML Tables represent data such as text, images etc. in a structured format with rows and columns.
- HTML <table> tag : is used to create the table that wrap the rows and columns within it .
- HTML <tr> tag : stands for "table row" and is used to create a row within the table .
- HTML <td> tag : Represents "table data" and is used to create standard cells within a row .
- HTML <th> tag : Represents "table header" and is used to create header cells within a row .

Example :

Product	Category	Price
Laptop	Electronics	\$800
Bookshelf	furniture	\$150
Coffeemaker	Appliances	\$50

```

Code: <!DOCTYPE html>
      <html>
        <head>
          <title> </title>
        </head>
        <body>
          <table border='1'>
            <tr>
              <th> Product </th>
              <th> Category </th>
              <th> Price </th>
            </tr>
            <tr>
              <td> Laptop </td>
              <td> Electronics </td>
              <td> $800 </td>
            </tr>
            <tr>
              <td> Bookshelf </td>
              <td> Furniture </td>
              <td> $150 </td>
            </tr>
            <tr>
              <td> Coffeemaker </td>
              <td> Appliance </td>
              <td> $50 </td>
            </tr>
          </table>
        </body>
      </html>
    
```

Attributes of Table tags

- `<table bgcolor = "#f0f0f0">` → Adding background color to the table.
- `<table background = "image.png">` → Adding background image to the table.
- `<table width = "80%">` → Define the width of the table
- `<table height = "200">` → Define the height of the table

Q: Create a table with background colour yellow as shown below.

Roll No.	Name	Batch	Course
101	A	1	BCA
102	B	2	MCA
103	C	3	BCA
104	D	4	MCA

Add the background color of the webpage as blue.

```

<!DOCTYPE html>
<html>
<body bgcolor = "blue">
<table border = "1" bgcolor = "yellow">
<tr>
    <th> Roll No </th>
    <th> Name </th>
    <th> Batch </th>
    <th> Course </th>
</tr>

```

</tr>

<td> 101 </td>

<td> A </td>

<td> 1 </td>

<td> BCA </td>

</tr>

</tr>

<td> 102 </td>

<td> B </td>

<td> 2 </td>

<td> MCA </td>

</tr>

</tr>

<td> C </td>

<td> 3 </td>

<td> BCA </td>

</tr>

</tr> ~~104~~

<td> 104 </td>

<td> D </td>

<td> ~~104~~ </td>

<td> MCA </td>

</tr>

</table>

</body>

</html> .

HTML Forms

- An HTML form is used to collect user input.
- HTML forms, defined using the `<form>` Tags .
- They incorporate a variety of interactive controls such as text fields, numeric inputs, email fields, password fields, checkboxes, radio buttons, and submit buttons
- The HTML `<input>` element is the most used form element.

Type

Description

`<input type="text">` Displays a single-line text input field

`<input type="radio">` Displays a radio button (for selecting one of many choices) .

`<input type="checkbox">` Displays a checkbox (for selecting zero or more of many choices)

`<input type="submit">` Displays a submit button (for submitting the form)

`<input type="button">` Displays a clickable button -

Example:

first name:	<input type="text"/>
last name:	<input type="text"/>

<form>

```

<label for="fname"> first name: </label><br>
<input type="text" id="fname" name="fname"><br>
<label for="lname"> last name: </label><br>
<input type="text" id="lname" name="lname"><br>
</form>

```

Label Tag

- The `<label>` tag defines a label for many form elements.
- The `for` attribute of the `<label>` tag should be equal to the `id` attribute of the `<input>` element to bind them together.

Radio Button

- Radio Buttons lets a user to select ONE of a limited number of choices.

Example:

choose your favourite web language

HTML

CSS

JS

<form>

```

<input type="radio" id="html" name="fav_language" value="HTML">
<label for="html"> HTML </label> <br>
<input type="radio" id="css" name="fav_language" value="CSS">
<label for="css"> CSS </label> <br>
<input type="radio" id="javascript" name="fav_language" value="JavaScript">
<label for="javascript"> JavaScript </label> .

```

Check Box

- Checkboxes let a user select ZERO or MORE options of a limited number of choices.

Example: I have a bike

I have a car

I have a boat .

<form>

```

<input type="checkbox" id="vehicle1" name="vehicle1" value="Bike">
<label for="vehicle1"> I have a bike </label> <br>
<input type="checkbox" id="vehicle2" name="vehicle2" value="Car">
<label for="vehicle2"> I have a Car </label> <br>
<input type="checkbox" id="vehicle3" name="vehicle3" value="Boat">
<label for="vehicle3"> I have a Boat </label> <br>

```

Date

The `<input type="date">` defines a date picker.

Birthday : `dd-mm-yyyy` 

`<label for="birthday"> Birthday: </label>`

`<input type="date" id="birthday" name="birthday">`

TextArea

`<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.

At w3schools.com you will learn how
to make a website

Review of W3Schools :

`<label for="w3review"> Review of W3Schools : </label>`

`<textarea id="w3review" name="w3review" rows="4" cols="50">`

At w3schools.com you will learn how to make a website.

`</textarea>`

`</form>`

Submit

The `<input type="submit">` defines a button for submitting the form data to a form-handler.

First name:

John

Last name:

Doe

Submit

```
<form action="/action-page.php">
  <label for="fname">First name: </label><br>
  <input type="text" id="fname" name="fname" value="John"><br>
  <label for="lname">Last name: </label><br>
  <input type="text" id="lname" name="lname" value="Doe"><br><br>
  <input type="submit" value="Submit">
```

Commonly used Attributes of Table Tag

Colspan and Rowspan

Colspan is used to merge cells horizontally (across columns).

Name	Class
mahima	1
Sm'	3
shivika	5

<html>

<head>

<title> Table </title>

</head>

<body>

<table border="2">

<thead>

<tr>

<th colspan="2"> Name </th>

<th> class </th>

</tr>

</thead>

<tr>

<td> mahima </td>

<td> Gupta </td>

<td> 1 </td>

</tr>

<tr>

<td> Sri </td>
 <td> Krishnan </td>
 <td> 3 </td>

</tr>

<tr>

<td> shivika </td>
 <td> Goyal </td>
 <td> 5 </td>

</tr>

</table>

</body>

</html>

- Rowspan is used to merge cells vertically. (across rows)

HTML Table RowSpan -

Name	Class	
Radha	10	MVM School
Ankur	11	

<table border="3">

<tr>

Q)

Registration form

Student Name	TextBox
Father's Name	TextBox
Mother's Name	TextBox
Date of Birth	Date Picker
Gender	Male <input type="radio"/> Female <input checked="" type="radio"/>
Email ID	Textbox
Mobile No.:	Textbox
Address :	TextArea
State :	Textbox
City	Textbox submit Button

```
<html>
<head>
    <title> Registration form </title>
</head>
<body>
    <table border="2">
        <thead>
            <tr>
                <th> colspan="2" > Registration form </th>
            </tr>
        </thead>
        <form>
            <tr>
                <td>
                    <label for="sname"> Student Name : </label>
                </td>
                <td>
                    <input type="text" id="sname" name="sname">
                </td>
            </tr>
            <tr>
                <td>
                    <label for="fname"> Father's Name : </label>
                </td>
                <td>
                    <input type="text" id="fname" name="fname">
                </td>
            </tr>
            <tr>
                <td>
                    <label for="mname"> Mother's Name : </label>
                </td>
            </tr>
        </form>
    </table>
</body>
```

<td>

<input type="text" id="mname" name="mname">

</td>

<td>

<td>

<td><label for="birthday"> Date of Birth : </label>

</td>

<td>

<input type="date" id="birthday" name="birthday">

</td>

<tr>

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

</td>

<td>

<input type="radio" id="male" name="gender" value="male">

<label for="male"> Male </label>

<input type="radio" id="female" name="gender" value="female">

<label for="female"> Female </label>

</td>

</tr>

<tr>

<td><label for="emailid"> Email ID: </label>

</td>

<td>

<input type="text" id="emailid" name="emailid">

</td>

</tr>

<tr>
 <td>
 <label for="mobileno"> Mobile Number : </label>
 </td>
 <td>
 <input type="text" id="mobileno" name="mobileno">

 <td>
 <label for="address"> Address : </label>

 <td>
 <textarea id="address" name="address" rows="4" cols="20">
 </td>

 <td>
 <label for="state"> State : </label>

 <td>
 <input type="text" id="state" name="state">

 <td>
 <label for="city"> City : </label>

 <td>
 <input type="text" id="city" name="city">

<tr>

<td> </td>

<td>

<input type="submit" value="Submit">

</td>

</tr>

</form>

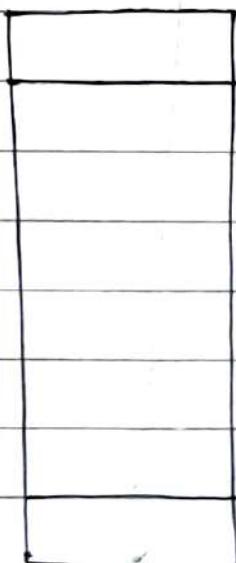
</body>

</html>

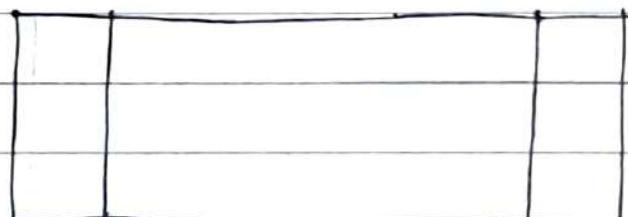
Frames in HTML

- HTML frames are used to divide your browser window into multiple sections where each section can load a separate HTML document independently.
- A collection of frames in the browser window is known as a frameset.
- To make 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.

Horizontal frames



Vertical frames



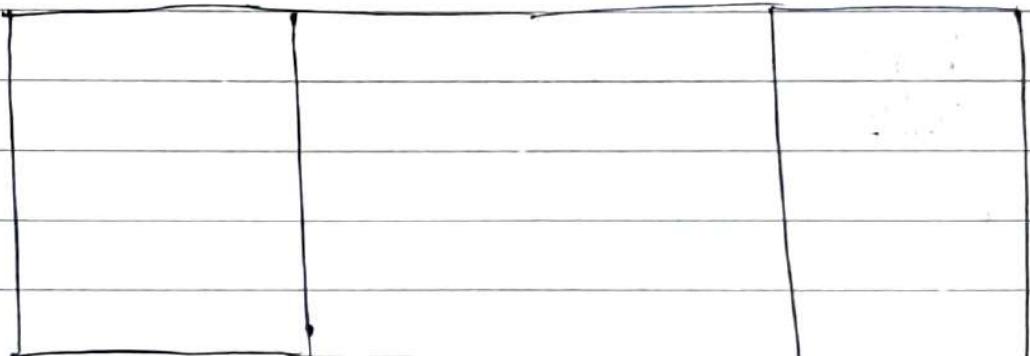
Horizontal frames

```
<!DOCTYPE html>
<html>
<head>
<title>HTML frames </title>
</head>
<frameset rows="10%, 80%, 10%">
<frame name="top" src="activity1.html"/>
<frame name="main" src="activity2.html"/>
<frame name="bottom" src="activity3.html"/>
<body>
Your browser doesn't support frames.
</body>
</frameset>
</html>
```



Vertical frames

```
<!DOCTYPE html>
<html>
<head>
    <title> HTML frames </title>
</head>
<frameset cols="25%, 50%, 25%">
    <frame name="left" src="activity1.html" />
    <frame name="center" src="activity2.html" />
    <frame name="right" src="activity3.html" />
<body>
    Your browser doesn't support frames.
</body>
</frameset>
</html>
```



Nav Tag (Navigation Tag)

The `<nav>` tag defines a set of navigation links.

Example: The nav element

The nav element defines a set of navigation links:

HTML | CSS | JavaScript | Python

```
<!DOCTYPE html>
<html>
<body>
<h1>The nav element</h1>
<p>The nav element defines a set of navigation links :</p>
<nav>
<a href="/html/">HTML</a> |
<a href="/css/">CSS </a> |
<a href="/javascript/">JavaScript </a> |
<a href="/python/">Python </a> |
</nav>
</body>
</html>
```