Project – 6

HTML Basics

Submitted By:

Nishigandha Patil

INDEX

INTRODUCTION TO HTML

➢ What is HTML?

- HTML stands for **Hyper Text Markup Language.**
- It is the standard markup language for creating Web pages. It describes the structure of a Web page using a set of elements or tags.
- HTML elements tell the browser how to display the content.
- It can be integrated with other languages like CSS, JavaScript, etc. to show interactive web pages.

➢ HTML Document Structure:

```
<!DOCTYPE html>
<html>
<head>
    <title>Page Title</title>
</head>
<body>
    <!-- Content goes here -->
</body>
</html>
```

- **<!DOCTYPE html>:** HTML5 declaration. Represents the document type and version of HTML.
- **<html>…</html>:** The root element that wraps the entire HTML document.
- **<head>…</head>:** Contains meta-information about the HTML document, such as the title and links to external resources like CSS and JavaScript files.
- **<title>…</title>:** Sets the title of the HTML document, which is displayed on the browser tab.
- **<body>…</body>:** Contains the content such as headings, paragraphs, images, hyperlinks, tables, lists, etc. that will be displayed on the webpage.

➢ HTML Tags:

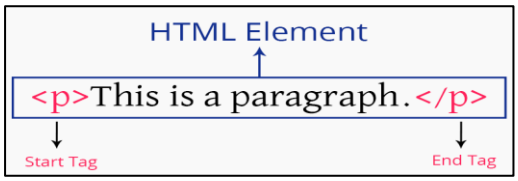
- HTML tags are the building blocks of an HTML document. They are special elements that define the structure and content of a web page.
- Tags are enclosed in angle < > brackets, and most come in pairs (opening < > and closing tags </ >).
- **Example:** Heading Tag <h1>…</h1> and Paragraph tag … .

➢ HTML Elements:

HTML elements are represented by tags. It is defined by a start tag, some content, and an end tag:

```
<tagname>content</tagname>
```

The HTML **element** is everything from the start tag to the end tag:



➢ HTML Attributes:

- HTML attributes provide additional information about HTML elements.
- Attributes usually come in name/value pairs like: name="value".
- Example: Google .
  Here <a> is a tag, href is an attribute and everything from start to end is an element.

➢ Working with HTML:

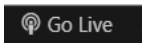
1. HTML Editors:

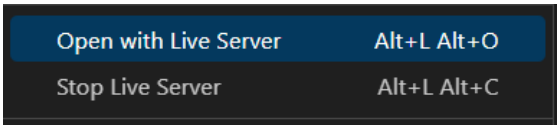
Popular HTML editors include:

1. Text editors: Notepad++, TextEdit
2. Code editors: Sublime Text, Visual Studio Code
3. IDEs: WebStorm, Eclipse
4. Online platforms: CodePen, JSFiddle

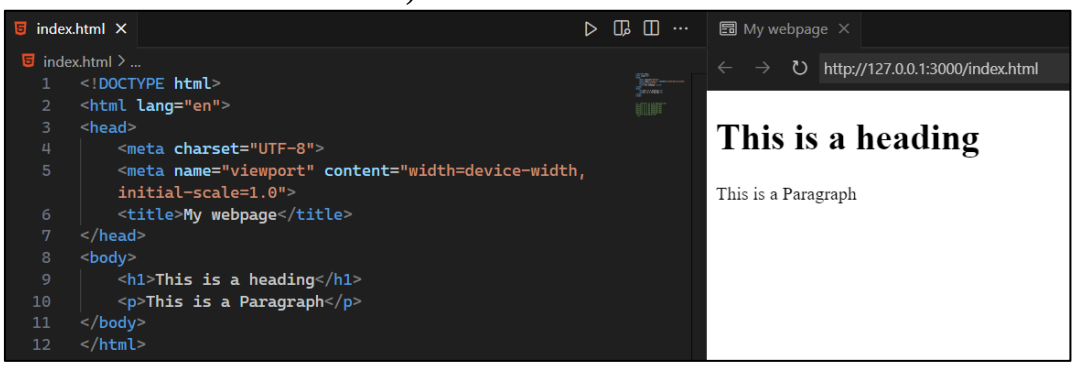
- **HTML In VS Code:**
  Open VS Code → Create a new file → Save the file with **.htm** or **.html** extension.
  Example: ‘index.htm’ or ‘index.html’ both are same.
  In web development, "templates" folder is often a standard convention for organizing HTML files.
  Shortcut: Type **!(exclamation mark)** or **html:5** and press Enter/Tab to get HTML boilerplate (HTML Document Structure) in VS Code. (works only for **.html** files)
  VS Code extensions for HTML: **Live Server** and **Live Preview.**

```
index.html > ...
1   <!DOCTYPE html>
2   <html lang="en">
3   <head>
4       <meta charset="UTF-8">
5       <meta name="viewport" content="width=device-width, initial-scale=1.0">
6       <title>My webpage</title>
7   </head>
8   <body>
9       <h1>This is a heading</h1>
10      <p>This is a Paragraph</p>
11  </body>
12  </html>
13
```

Click on Go Live  at the bottom of VS Code to render the HTML page in the browser.
Or right click on the HTML code and click on “Open with Live Server”.

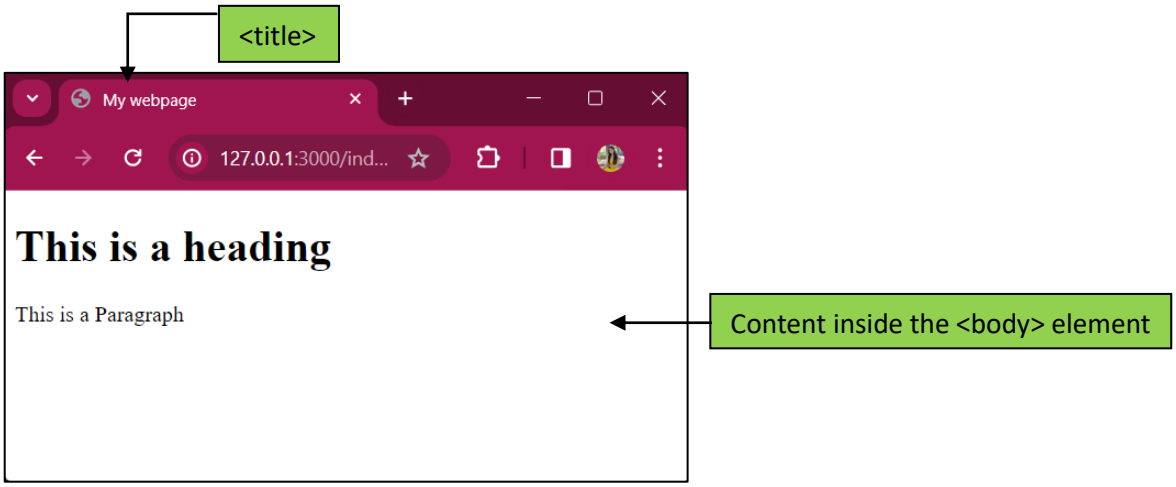


In VS Code you can preview your HTML files quickly by clicking the preview button in the top right corner of your editor or using the context menu (right click on code → Show Preview).



2. **Browser:** 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.

How title and body content appear in the browser?



➢ Never Skip the End Tag:

Some HTML elements will display correctly, even if you forget the end tag:

```
<body>
    <p>This is a Paragraph
    <p>This ia a Paragraph
</body>
```

This is a Paragraph

This ia a Paragraph

Never rely on this. Unexpected results and errors may occur if you forget the end tag:

```
<body>
    <h1>This is a heading
    <p>This is a Paragraph
</body>
```

This is a heading

This is a Paragraph

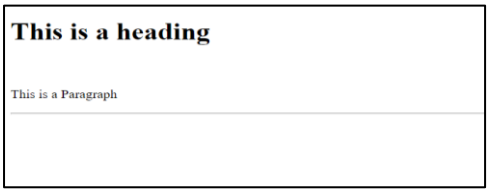
➢ Empty / Void Elements:

HTML elements with no content are called 'empty elements'

-
: Line break.
- <hr>: Horizontal Line.

They are self-closing tags <br /> and <hr />

```
<body>
    <h1>This is a heading</h1> <br />
    <p>This is a Paragraph</p> <hr />
</body>
```



➢ Case Sensitivity:

HTML tags are not case sensitive: <P> means the same as <p>.
Most web designers follow the practice of writing **lowercase** letters in HTML tags and attributes.

➢ Comments in HTML:

You can add comments to your HTML source by using the following syntax:

```
<!-- This is a Comment -->
```

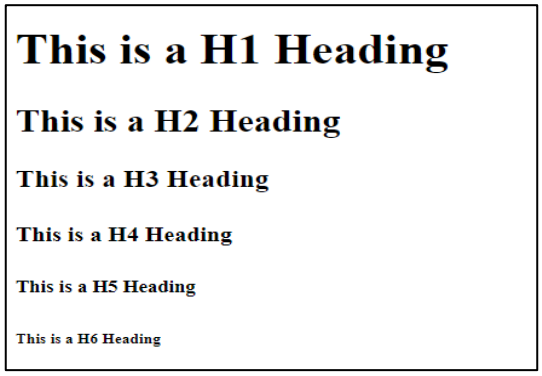
Comments can be used to hide content.
This can be helpful if you hide content temporarily.

```
<body>
    <h1>My webpage</h1>
    <p>This is a paragraph.</p>
    <!-- <p>This is another paragraph </p>
    <p>This is a paragraph too.</p>
</body>
```

BASIC HTML TAGS

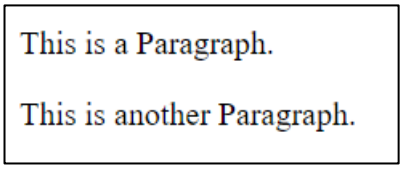
1. **Headings:**
   HTML headings are defined with the <h1> to <h6> tags.
   <h1> defines the most important heading. <h6> defines the least important heading.

```
<body>
    <h1>This is a H1 Heading</h1>
    <h2>This is a H2 Heading</h2>
    <h3>This is a H3 Heading</h3>
    <h4>This is a H4 Heading</h4>
    <h5>This is a H5 Heading</h5>
    <h6>This is a H6 Heading</h6>
</body>
```



2. **Paragraphs:**
   HTML paragraphs are defined with the <p> tag.

```
<body>
    <p>This is a Paragraph.</p>
    <p>This is another Paragraph.</p>
</body>
```



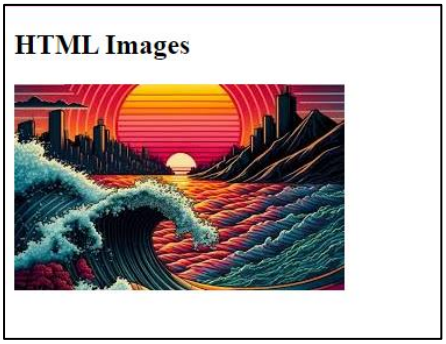
3. **Links:**
   HTML links are defined with the <a> tag.

```
<body>
    <h2>HTML Links</h2>
    <a href="https://www.google.com">This is a link</a>
</body>
</html>
```

   The link's destination is specified in the href attribute.

4. **Images:**
   HTML images are defined with the <img> tag.
   The source file (src) is provided as an attribute to specify the path of an image.

```
<body>
    <h2>HTML Images</h2>
    <img src="image.jpg">
</body>
```



5. **Bold, italic, underline:**
   - The **bold** text is defined using <b> tag.
   - The *italic* text is defined using <i> tag.
   - The underline text is defined using <u> tag.

```
<body>
    <b>This is a Bold text.</b><br/>
    <i>This is an Italic text.</i><br/>
    <u>This is an Underlined text.</u><br/>
</body>
</html>
```

This is a Bold text.
This is an Italic text.
This is an Underlined text.

6. **Subscript and superscript:**
   The <sub> tag is used for subscript text, typically used for mathematical or chemical formulas.
   The <sup> tag is used for superscript text, commonly used for exponents or footnotes.

```
<body>
    <p><b>Subscript:</b> CO <sub> 2</sub></p>
    <p><b>Superscript:</b> (a+b) <sup> 2</sup></p>
</body>
```

Subscript: CO_2

Superscript: $(a+b)^2$

7. **Emphasis:**
    defines emphasized text (typically, italic).

```
<body>
    <em>This is Emphasized Text</em>
</body>
```

This is Emphasized Text

8. **Preformatted text:**
   The <pre> tag 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.
   The <pre> tag is often used when you want to display code snippets, ASCII art, or any other text where maintaining the original formatting is crucial.

```
<body>
    <pre># Program to check if a number is even or not

        x = 24

        if x % 24 == 0:
            print(x,"Is Even Number")
        else:
            print(x, "Is Odd Number")
    </pre>
</body>
```

```
# Program to check if a number is even or not

        x = 24

        if x % 24 == 0:
            print(x,"Is Even Number")
        else:
            print(x, "Is Odd Number")
```

BASIC HTML ATTRIBUTES

➢ Attributes:

- All HTML elements can have attributes.
- Attributes provide additional information about elements.
- Attributes are always specified in the start tag.
- Attributes usually come in name/value pairs like: name="value".

1. Basic Attributes:

- **Attributes of <a>:**

Attributes	Description
href	Specifies the URL of the page the link goes to.
target	Specifies where to open the linked document. Values of target attribute: **_self** - Default. Opens the document in the same window/tab as it was clicked. **_blank** - Opens the document in a new window or tab. **_parent** - Opens the document in the parent frame. **_top** - Opens the document in the full body of the window.

```
<body>
    <h2>href and target attribute</h2>
    <a href="https://www.facebook.com" target="_blank">Visit Facebook</a>
</body>
```

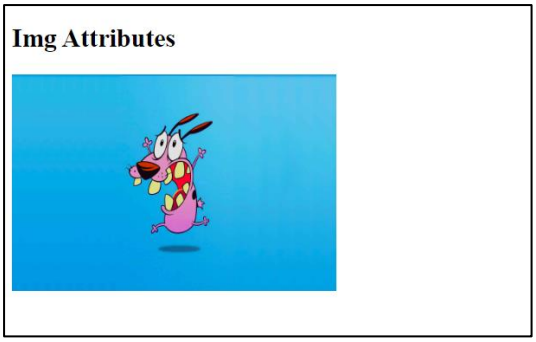
href and target attribute

Visit Facebook

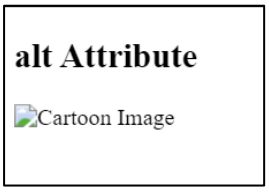
- **Attributes of <img>:**

Attributes	Description
src	Specifies the path of the image to be displayed.
width	Specifies the width of an image
height	Specifies the height of an image
alt	Required attribute that specifies an alternate text for an image

```
<body>
    <h2>Img Attributes</h2>
    <img src="Cartoon.jpg" width="300" height="200" alt="Cartoon image">
</body>
```



If the image for some reason cannot be displayed then this alt text will be displayed.



2. **Internationalization Attributes:** These attributes help adapt the document to different languages and regions. Examples include lang and dir.

```
<!DOCTYPE html>
<html lang="en">
<head>
```

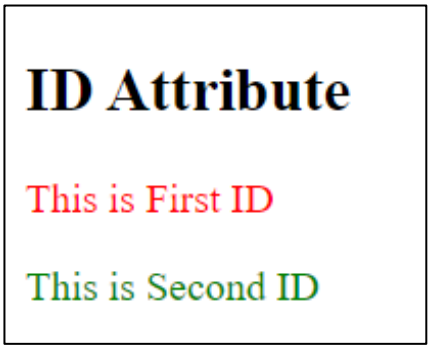
3. **Core Attributes:**

Attributes	Description
id	Used to assign a unique identifier to an HTML element. Each element with an ID has its own unique identity. Multiple elements cannot have the same ID.
class	Used to associate an HTML element with a particular class, typically for styling or JavaScript manipulation. class attribute is not unique, and multiple elements can share the same class.
style	Used to add styles to an element, such as color, font, size, and more.
title	The title attribute defines some extra information about an element.

➢ **Examples of Core Attributes:**

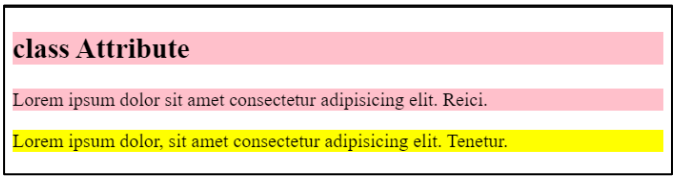
- **id attribute:** uses **hash (#)** to style the ID attribute.

```
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1
    0">
    <title>My webpage</title>
<style>
    #first{
        color: red;
    }
    #second{
        color:green;
    }
</style>
</head>
<body>
    <h2>ID Attribute</h2>
    <p id="first">This is First ID</p>
    <p id="second">This is Second ID</p>
</body>
</html>
```



- **class attribute:** uses **dot(.)** to style the Class attribute.

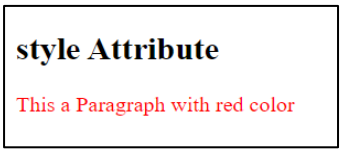
```
<style>
    .pink{
        background-color: pink;
    }
    .red{
        background-color: yellow;
    }
</style>
</head>
<body>
    <h2 class="pink">class Attribute</h2>
    <p class="pink">Lorem ipsum dolor sit amet consectetur adipisicing
    elit. Reici.</p>
    <p class="red">Lorem ipsum dolor, sit amet consectetur adipisicing
    elit. Tenetur.</p>
</body>
</html>
```



<style> tag: In the above examples of id and class, the **<style>** tag is used to include embedded CSS within an HTML document. It is commonly placed within the <head> section of the HTML file.
style is a tag as well as an attribute in HTML used for CSS.

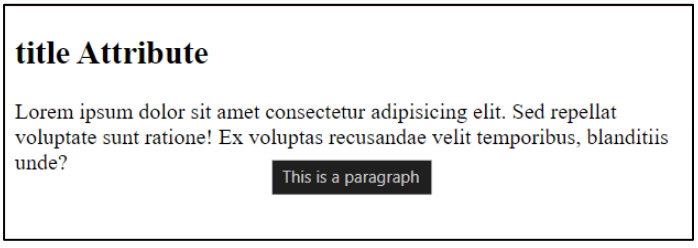
- **style attribute:**

```
<body>
    <h2>style Attribute</h2>
    <p style="color: red;">This a Paragraph with red color</p>
</body>
```



- **title attribute:**

```
<body>
    <h2>title Attribute</h2>
    <p title="This is a paragraph">Lorem ipsum dolor sit amet consectetur
    adipisicing elit. Sed repellat voluptate sunt ratione! Ex voluptas
    recusandae velit temporibus, blanditiis unde?</p>
</body>
```



For more attributes, Visit: https://www.w3schools.com/tags/ref_attributes.asp

HTML BLOCK AND INLINE ELEMENTS

Every HTML element has a default display value, depending on what type of element it is.

The two most common display values are **Block and Inline.**

1. **Block-level element**:
   - Always starts on a new line, and the browsers automatically add some space (a margin) before and after the element.
   - It takes up the full width available.
   - Two commonly used block elements are: **<p>** and ** **

```
<body>
    <p style="border: 1px solid black">Hello World</p>
    <div style="border: 1px solid black">Hello World</div>
</body>
```

Hello World

Hello World

Here are the block-level elements in HTML:

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

2. **Inline Elements:**
   - An inline element does not start on a new line.
   - An inline element only takes up as much width as necessary.
   - **** is an example of inline element.

Here are the inline elements in HTML:

<a>	 	<i>	<object>	<small>	<time>
<abbr>	<button>	<img>	<output>		<tt>
<acronym>	<cite>	<input>	<q>		<var>
<b>	<code>	<kbd>	<samp>	<sub>	
<bdo>	<dfn>	<label>	<script>	<sup>	
<big>		<map>	<select>	<textarea>	

```
<body>
    <span style="border: 1px solid black">Hello World</span>
</body>
```

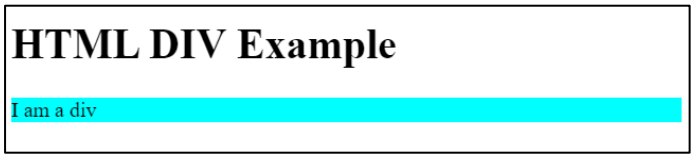
Hello World

The element has no required attributes, but style, class and id are common.

➢ Tag:

The tag is often used as a container for other HTML elements. It has no required attributes, but style, class and id are common.

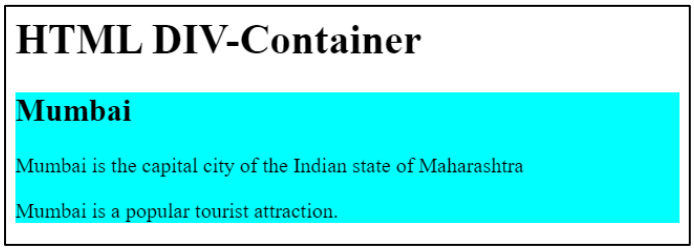
```
<body>
    <h1>HTML DIV Example</h1>
    <div style="background-color: aqua;">I am a div</div>
</body>
```



➢ as a container:

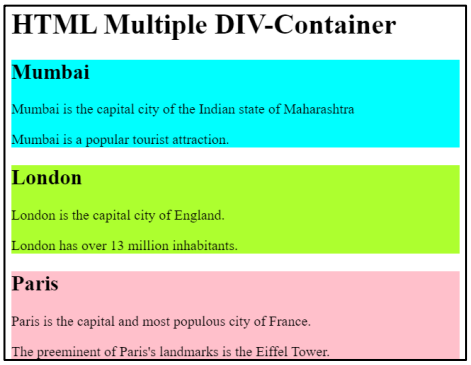
The tag is often used to group sections of a web page together.

```
<body>
    <h1>HTML DIV-Container </h1>
    <div style="background-color: aqua;">
        <h2>Mumbai</h2>
        <p>Mumbai is the capital city of the Indian state of Maharashtra</p>
        <p>Mumbai is a popular tourist attraction.</p>
    </div>
</body>
```



➢ Multiple Elements:

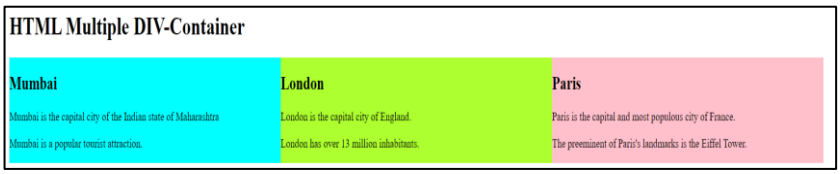
```
<body>
    <h1>HTML Multiple DIV-Container </h1>
    <div style="background-color: aqua;">
        <h2>Mumbai</h2>
        <p>Mumbai is the capital city of the Indian state of Maharashtra</p>
        <p>Mumbai is a popular tourist attraction.</p>
    </div>
    <div style="background-color:greenyellow">
        <h2>London</h2>
        <p>London is the capital city of England.</p>
        <p>London has over 13 million inhabitants.</p>
      </div>
      <div style="background-color:pink">
        <h2>Paris</h2>
        <p>Paris is the capital and most populous city of France.</p>
        <p>The preeminent of Paris's landmarks is the Eiffel Tower.</p>
      </div>
</body>
```



➢ Aligning elements side by side:

There are different methods for aligning elements side by side, all include some CSS styling.

```
<style>
    div.mycontainer {
      width:100%;
      overflow:auto;
    }
    div.mycontainer div {
      width:33%;
      float:left;
    }
</style>
```



HTML LISTS

HTML provides several types of lists that you can use to organize and structure content on a webpage. The main types of lists in HTML are:

1. **Unordered List (<ul>):**
   An unordered list starts with the <ul> tag. Each list item starts with the <li> tag.

```
<body>
    <h2>Unordered Lists</h2>
    <ul>
        <li>Item1</li>
        <li>Item2</li>
        <li>Item3</li>
    </ul>
</body>
</html>
```

Unordered Lists

- Item1
- Item2
- Item3

The CSS list-style-type property is used to define the style of the list item marker.
It can have one of the following values:

Value	Description
disc	Sets the list item marker to a bullet (default)
circle	Sets the list item marker to a circle
square	Sets the list item marker to a square
none	The list items will not be marked

```
<body>
    <h2>Unordered Lists- disc</h2>
    <ul style="list-style-type:disc;">
        <li>Coffee</li>
        <li>Tea</li>
      </ul>
    <h2>Unordered Lists- circle</h2>
    <ul style="list-style-type:circle;">
        <li>Coffee</li>
        <li>Tea</li>
      </ul>
    <h2>Unordered Lists- square</h2>
    <ul style="list-style-type:square;">
        <li>Coffee</li>
        <li>Tea</li>
      </ul>
    <h2>Unordered Lists- none</h2>
    <ul style="list-style-type:none;">
        <li>Coffee</li>
        <li>Tea</li>
    </ul>
</body>
```

Unordered Lists- disc

- Coffee
- Tea

Unordered Lists- circle

- Coffee
- Tea

Unordered Lists- square

- Coffee
- Tea

Unordered Lists- none

Coffee
Tea

2. **Ordered List (<ol>):**
   An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.
   Displays items in a numerical sequence, and supports various numbering styles like Arabic numerals, Roman numerals, and so on.

```
<body>
    <h2>Ordered Lists</h2>
    <ol>
        <li>Item1</li>
        <li>Item2</li>
        <li>Item3</li>
    </ol>
</body>
</html>
```

Ordered Lists

1. Item1
2. Item2
3. Item3

The type attribute of the <ol> tag, defines the type of the list item marker:

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

```
<body>
    <h2>Ordered Lists- Type "1"</h2>
    <ol type="1">
        <li>Coffee</li>
        <li>Tea</li>
    </ol>
    <h2>Ordered Lists- Type "A"</h2>
    <ol type="A">
        <li>Coffee</li>
        <li>Tea</li>
    </ol>
    <h2>Ordered Lists- Type "a"</h2>
    <ol type="a">
        <li>Coffee</li>
        <li>Tea</li>
    </ol>
    <h2>Ordered Lists- Type "I"</h2>
    <ol type="I">
        <li>Coffee</li>
        <li>Tea</li>
    </ol>
    <h2>Ordered Lists- Type "i"</h2>
    <ol type="i">
        <li>Coffee</li>
        <li>Tea</li>
    </ol>
</body>
```

Ordered Lists- Type "1"

1. Coffee
2. Tea

Ordered Lists- Type "A"

A. Coffee
B. Tea

Ordered Lists- Type "a"

a. Coffee
b. Tea

Ordered Lists- Type "I"

I. Coffee
II. Tea

Ordered Lists- Type "i"

i. Coffee
ii. Tea

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

```
<body>
    <h2>Ordered List </h2>
    <ol start="50">
        <li>Coffee</li>
        <li>Tea</li>
        <li>Milk</li>
      </ol>
</body>
```

Ordered List

50. Coffee
51. Tea
52. Milk

3. Description Lists (<dl>):

A description list is a list of terms, with a description of each term.

The <dl> tag defines the description list, the <dt> tag defines the term (name), and the <dd> tag describes each term:

```
<body>
    <h2>Description List</h2>
    <dl>
        <dt>HTML</dt>
        <dd>- HTML is the standard markup language for
        creating web pages</dd>
        <dt>CSS</dt>
        <dd>- CSS is used for styling and layout of web pages
        </dd>
        <dt>JavaScript</dt>
        <dd>- JavaScript is a scripting language that enables
        dynamic content on web pages.</dd>
      </dl>
</body>
</html>
```

Description List

HTML
- HTML is the standard markup language for creating web pages

CSS
- CSS is used for styling and layout of web pages

JavaScript
- JavaScript is a scripting language that enables dynamic content on web pages.

HTML TABLES

HTML tables are used to organize and display data in rows and columns. A table in HTML consists of table cells inside rows and columns.

➢ Syntax:

```
<table>                 <!-- Table Tag -->
    <tr>                <!-- Row 1 -->
        <th></th>       <!-- Header 1-->
        <th></th>       <!-- Header 2-->
    </tr>               <!-- Row 2 -->
    <tr>
        <td></td>       <!-- Table Data -->
        <td></td>       <!-- Table Data -->
    </tr>
</table>
```

➢ Key Elements of HTML Table:

<table>: Defines the table.

<tr>: Defines a table row.

<th>: Defines a table header cell.

<td>: Defines a table data cell. Everything between <td> and </td> are the content of the table cell.

```
<body>
   <table>
    <tr>
        <th>Name</th>
        <th>Age</th>
        <th>Address</th>
    </tr>
    <tr>
        <td>Nishu</td>
        <td>23</td>
        <td>Mumbai</td>
    </tr>
    <tr>
        <td>Manu</td>
        <td>21</td>
        <td>Pune</td>
    </tr>
    <tr>
        <td>Tanu</td>
        <td>18</td>
        <td>Nashik</td>
    </tr>
   </table>
</body>
```

Name	Age	Address
Nishu	23	Mumbai
Manu	21	Pune
Tanu	18	Nashik

1. Table border:

To add a border, use the CSS border property on table, th, and td elements inside <style> tag.

```
<style>
    table,th,td {
        border:1px solid black;
    }
</style>
```

Name	Age	Address
Nishu	23	Mumbai
Manu	21	Pune
Tanu	18	Nashik

To avoid double borders, set the CSS border-collapse:collapse; property to collapse the borders into a single border:

```
<style>
    table,th,td {
        border:1px solid black;
        border-collapse: collapse;
    }
</style>
```

Name	Age	Address
Nishu	23	Mumbai
Manu	21	Pune
Tanu	18	Nashik

Another CSS properties for table border styling:

```
<style>
    table,th,td {
        border:1px solid black;
        border-radius: 3px;
    }
    th, td {
        background-color: #96D4D4;
        border-style: dotted;
    }
</style>
```

Name	Age	Address
Nishu	23	Mumbai
Manu	21	Pune
Tanu	18	Nashik

2. **Table Sizes:**

HTML tables can have different sizes for each column, row or the entire table.

- To set the width of a table, add the style attribute to the <table> element:
- To set the size of a specific column, add the style attribute on a <th> or <td> element.
- To set the height of a specific row, add the style attribute on a table row element

```
<body>
    <table style="width: 100%;">                <!-- Table Width -->
        <tr>
            <th style="width: 200px;">Name</th> <!-- Column Width -->
            <th>Age</th>
            <th>Address</th>
        </tr>
        <tr style="height: 100px;">             <!-- Row Height-->
            <td>Nishu</td>
            <td>23</td>
            <td>Mumbai</td>
        </tr>
        <tr>
            <td>Manu</td>
            <td>21</td>
            <td>Pune</td>
        </tr>
        <tr>
            <td>Tanu</td>
            <td>18</td>
            <td>Nashik</td>
        </tr>
    </table>
</body>
```

Name	Age	Address
Nishu	23	Mumbai
Manu	21	Pune
Tanu	18	Nashik

3. **rowspan and colspan Attributes:**

rowspan: Use rowspan if you want a table cell to span multiple rows

```
<style>
    table,th,td {
        border:1px solid black;
        border-collapse: collapse;
    }
</style>
</head>
<body>
    <table style="width:100%">
        <tr>
          <th>Name</th>
          <td>Nishu</td>
        </tr>
        <tr>
          <th rowspan="2">Phone</th>
          <td>1234567</td>
        </tr>
        <tr>
          <td>9876543</td>
        </tr>
    </table>
</body>
```

Name	Nishu
Phone	1234567
	9876543

colspan: Use colspan if you want a table cell to span multiple columns

```
<style>
    table,th,td {
        border:1px solid black;
        border-collapse: collapse;
    }
</style>
</head>
<body>
    <table style="width:100%">
        <tr>
          <th colspan="2">Name</th>
          <th>Age</th>
        </tr>
        <tr>
          <td>Nishu</td>
          <td>Manu</td>
          <td>23</td>
        </tr>
        <tr>
          <td>Jay</td>
          <td>Tanu</td>
          <td>18</td>
        </tr>
      </table>
</body>
```

Name		Age
Nishu	Manu	23
Jay	Tanu	18

4. **colgroup**: Use the <colgroup> and <col> elements to apply styles to an entire column in an HTML table.
   The <colgroup> tag must be a child of a <table> element and should be placed before any other table elements, like <thead>, <tr>, <td> etc., but after the <caption> element, if present.

```
<body>
    <table style="width: 100%;">
        <colgroup>
            <col span="2" style="background-color: #D6EEEE">
          </colgroup>
        <tr>
            <th>Name</th>
            <th>Age</th>
            <th>Address</th>
        </tr>
        <tr>
            <td>Nishu</td>
            <td>23</td>
            <td>Mumbai</td>
        </tr>
        <tr>
            <td>Manu</td>
            <td>21</td>
            <td>Pune</td>
        </tr>
        <tr>
            <td>Tanu</td>
            <td>18</td>
            <td>Nashik</td>
        </tr>
      </table>
</body>
```

Name	Age	Address
Nishu	23	Mumbai
Manu	21	Pune
Tanu	18	Nashik

5. **Adding title of the Table:** Use <caption> to add Title of the table.

```
<body>
    <table style="width: 100%;">
        <caption>Student Details</caption>
```

Student Details

Name	Age	Address
Nishu	23	Mumbai
Manu	21	Pune
Tanu	18	Nashik

6. **Header and Footer:**
   Besides <th> for individual header cells, HTML tables allow you to group header or footer content using <thead> and <tfoot>.

```html
<table style="width:100%;">
    <caption>Employee Information</caption>
    <thead>                 <!--Table Heading-->
        <tr>
            <th>ID</th>
            <th>Name</th>
            <th>Position</th>
            <th>Salary</th>
        </tr>
    </thead>
    <tbody>                 <!--Table Body-->
        <tr>
            <td>1</td>
            <td>John</td>
            <td>Developer</td>
            <td>$80,000</td>
        </tr>
        <tr>
            <td>2</td>
            <td>Bob</td>
            <td>Designer</td>
            <td>$70,000</td>
        </tr>
        <tr>
            <td>3</td>
            <td>Henry</td>
            <td>Manager</td>
            <td>$90,000</td>
        </tr>
    </tbody>
    <tfoot>                 <!--Table Footer-->
        <tr>
            <td colspan="3">Total Employees</td>
            <td>3</td>
        </tr>
    </tfoot>
</table>
```

Employee Information

ID	Name	Position	Salary
1	John	Developer	$80,000
2	Bob	Designer	$70,000
3	Henry	Manager	$90,000
Total Employees			3

HTML FORMS

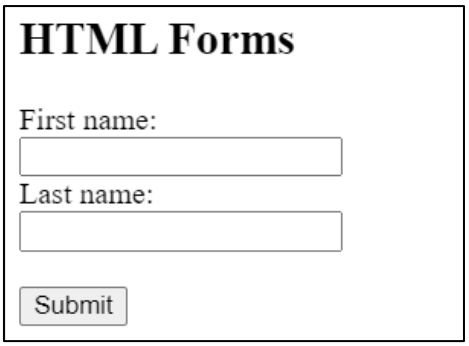
HTML forms are essential for collecting user input on web pages. Whether it's a search bar, a login screen, or a multi-field registration form, HTML forms play a key role in web interactions.

The HTML <form> element is used to create an HTML form for user input.

The <form> is a container for different types of input elements, such as: text fields, checkboxes, radio buttons, submit buttons, etc.

➢ Basic Form Structure:

```
<body>
    <h2>HTML Forms</h2>
    <form>
        <label>First name:</label><br>
        <input type="text"><br>
        <label>Last name:</label><br>
        <input type="text"><br><br>
        <input type="submit" value="Submit">
    </form>
</body>
</html>
```



➢ HTML Form Attributes:

Form Attributes	Description
action	Defines the action to be performed when the form is submitted.
target	Specifies where to display the response after submitting the form. Common values: "**_blank**" (opens in a new tab/window) or "**_self**" (opens in the same tab/window).
method	Defines the HTTP method for sending form data. Common values: **"GET"** and **"POST."** Default value is "GET" **Note:** Always use "POST" if the form data contains sensitive or personal information!
autocomplete	Controls whether the browser should automatically complete the form for the user. When autocomplete is **on**, the browser automatically complete values based on values that the user has entered before.
novalidate	When present, this boolean attribute indicates that the form should not be validated on submission.
name	Provides a name for the form. It is mainly used when scripting with JavaScript.

```
<form action="/index.html" target="_self" method="post"
autocomplete="on" novalidate>
```

If you click the "Submit" button, the form-data will be sent to a page called "/index.html".

➢ Form Elements:

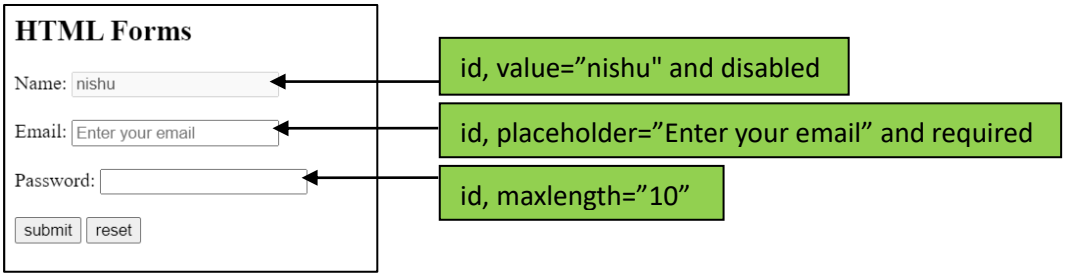
The HTML <form> element can contain one or more of the following form elements:

1. **<input>:** Most used form element.

Attributes	Description
type	Specifies the type of the input field **Common Values:** text, password, checkbox(for selecting multiple options - eg. hobbies), radio(for selecting one of many options-eg. gender), button, submit, reset etc.
name	Provides a name for the input field. This name is used when submitting the form.
id	Provides a unique identifier for the input field. Useful for associating the 'label' with the input.
value	Specifies the initial value of the input field.
placeholder	Provides a short hint that describes the expected value of the input field.
required	Indicates that the input field must be filled out before submitting the form.
readonly	Specifies that the input field is read-only and cannot be modified by the user. The value of a read-only input field will be sent when submitting the form
disabled	Disables the input field, preventing user interaction and form submission. The value of a disabled input field will not be sent when submitting the form
maxlength	Specifies the maximum number of characters allowed in the input field.
autocomplete	Controls whether the browser should automatically complete the input value based on user input history.
multiple	specifies that the user is allowed to enter more than one value in an input field. The multiple attribute works with the following input types: email, and file.

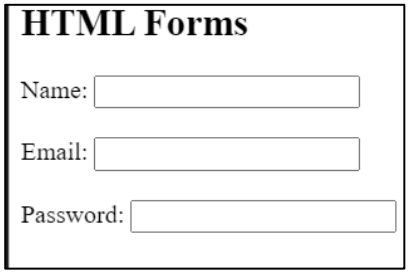
Example:

```
<body>
    <h2>HTML Forms</h2>
    <form action="" method="post">
        <label for="name">Name:</label>
        <input type="text" id="name" value="nishu" disabled><br/><br/>

        <label for="email">Email:</label>
        <input type="email" id="email" placeholder="Enter your email" required><br/><br/>

        <label for="password">Password:</label>
        <input type="password" id="password" maxlength="10"><br/><br/>

        <input type="button" value="submit">
        <input type="reset" value="reset">
    </form>
</body>
```



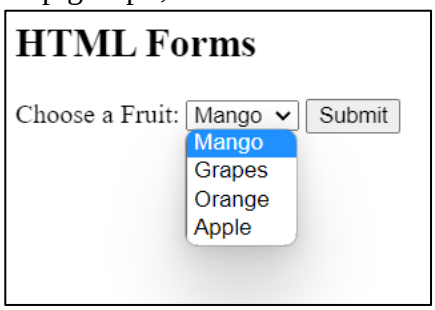
2. **<label>:** Defines a label for many form elements. The for attribute of the <label> tag should be equal to the id attribute of the <input> element to bind them together.

```
<body>
    <h2>HTML Forms</h2>
    <form action="" method="post">
        <label for="name">Name:</label>
        <input type="text" id="name"><br/><br/>
        <label for="email">Email:</label>
        <input type="email" id="email"><br/><br/>
        <label for="password">Password:</label>
        <input type="password" id="password">
    </form>
</body>
```



3. **<select> and <option>:** Defines a drop-down list.
<option> elements go inside a <select>, <optgroup>, or <datalist> element.

```
<body>
    <h2>HTML Forms</h2>
    <form action="" method="post">
        <label for="fruit">Choose a Fruit:</label>
        <select id="fruit" name="fruit">
          <option value="Mango">Mango</option>
          <option value="Grapes">Grapes</option>
          <option value="Orange">Orange</option>
          <option value="Apple">Apple</option>
        </select>
        <input type="submit">
    </form>
</body>
```



To define a pre-selected option, add the selected attribute to the <option>.
Use the size attribute to specify the number of visible values. (eg. size="2")

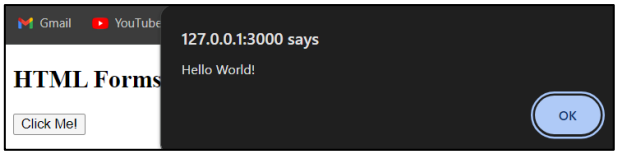
4. **<textarea>:** Defines a multi-line input field (a text area).

```
<body>
    <h2>HTML Forms</h2>
    <form action="">
        <label for="message">Enter your message</label><br>
        <textarea name="message" id= "message" rows="7" cols="20"></
        textarea><br>
        <input type="submit">
    </form>
```

The rows attribute specifies the visible number of lines in a text area.
The cols attribute specifies the visible width of a text area.

5. **<button>:** Defines a clickable button.

```
<body>
    <h2>The button Element</h2>
    <button type="button" onclick="alert('Hello World!')">Click
    Me!</button>
</body>
```

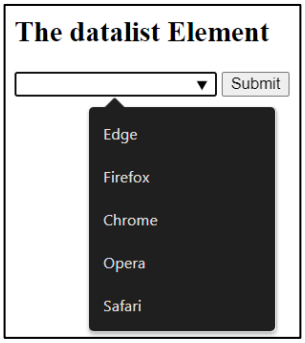


6. **<fieldset> and <legend>:**
   <fieldset>: Used to group related data in a form**.**
   <legend>: Defines a caption for the <fieldset> element.

```
<body>
    <form action="">
        <fieldset>
          <legend>Personal Details:</legend>
          <label for="fname">First name:</label><br>
          <input type="text" id="fname" name="fname"
          value="Nishu"><br>
          <label for="lname">Last name:</label><br>
          <input type="text" id="lname" name="lname"
          value="Patil"><br><br>
          <input type="submit" value="Submit">
        </fieldset>
    </form>
</body>
```

7. **<datalist>:** Specifies a list of pre-defined options for an <input> element.
   The list attribute of the <input> element, must refer to the id attribute of the <datalist> element.

```
<body>
    <h2>The datalist Element</h2>
    <form action="">
        <input list="browsers" name="browser">
        <datalist id="browsers">
          <option value="Edge">
          <option value="Firefox">
          <option value="Chrome">
          <option value="Opera">
          <option value="Safari">
        </datalist>
        <input type="submit">
    </form>
</body>
```



8. **<optgroup>:** Used to group related options in a <select> element.

```
<body>
    <h2>The optgroup element</h2>
    <label for="cars">Choose a car:</label>
    <select name="cars" id="cars">
      <optgroup label="Swedish Cars">
        <option value="volvo">Volvo</option>
        <option value="saab">Saab</option>
      </optgroup>
      <optgroup label="German Cars">
        <option value="mercedes">Mercedes</option>
        <option value="audi">Audi</option>
      </optgroup>
    </select>
    <br><br>
    <input type="submit" value="Submit">
</body>
```

HTML MEDIA

Multimedia comes in many different formats. It can be almost anything you can hear or see, like images, music, sound, videos, records, films, animations, and more. Multimedia files have formats and different extensions like: .wav, .mp3, .mp4, .mpg, .wmv, and .avi.

1. **HTML Video:** Used to show a video on a web page.

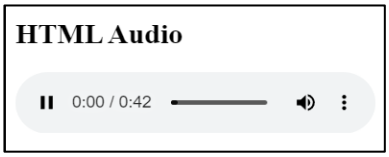
```
<body>
    <h2>HTML Video</h2>
    <video src="my_video.mp4" width="300px" height="200px" controls>
</body>
```

Attributes for <video> Tag:

attributes	Discription
src	Specifies the path to the video file.
controls	Adds video controls, like play, pause, and volume
autoplay	Automatically starts playing the video when the page loads.
loop	Repeats the video once it ends.
muted	Mutes the video by default.
poster	Specifies an image to be displayed before the video starts playing.
width and height	Specifies the dimensions of the video.

2. **HTML Audio:** Used to play an audio file on a web page

```
<body>
    <h2>HTML Audio</h2>
    <audio src="my_audio.mp3" controls></audio>
</body>
```



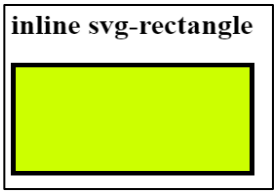
Attributes of <audio>tag are same as <video>tag except poster and width-height. It has one more attribute preload: Specifies if and how the audio should be loaded when the page loads ('auto', 'metadata', 'none').

<source> tag : allows you to specify alternative video/audio/image files which the browser may choose from, based on browser support or viewport width. The browser will choose the first <source> it supports.

3. **SVG:** SVG stands for 'Scalable Vector Graphics'. It is used to define graphics for the Web.
   SVG can be embedded in HTML in several ways:
   - **Inline SVG:** Directly writing the SVG XML code within HTML.

```
<body>
    <h2>Inline SVG</h2>
    <svg height="100" width="100">
        <circle cx="50" cy="50" r="40" stroke="black" stroke-width="5"
        fill="blue" />
    </svg>
</body>
```


```
<body>
    <h2>inline svg-rectangle</h2>
    <svg width="200" height="100">
        <rect width="200" height="100"
        style="fill:rgb(204, 255, 0);stroke-width:8;stroke:rgb(0,0,0)
        " />
    </svg>
</body>
```



   - **Using an <img> tag:** Point the src attribute to an SVG file.

```
<body>
    <img src="image.svg" alt="svg image">
</body>
```

   - **Using CSS:** Setting SVG as a background image in a CSS file.

```
<style>
    .background{
        background-image: url(image.svg);

}
</style>
```

SVG Attributes:

Attributes	Description
width and height	To set the dimensions.
viewBox	To set the coordinate system.
fill and stroke	To set the colors

4. **iframes (inline frames):** Allow you to embed external content within your current page.

iFrame Attributes:

Attributes	Description
src	Specifies the URL of the page to embed.
width and height	Define the dimensions.
frameborder	Indicates whether to display a border.
scrolling	Controls the scrollbars.
name	For targeting the iFrame in JavaScript.

Example1: Embedding a YouTube Video

```
<body>
    <h2>iframe-Youtube</h2>
    <iframe width="320" height="300" src="https://www.youtube.com/embed/
    HisYsqqszq0?si=09gKuKTQ1-lQMVys" title="my video player">
    </iframe>
</body>
```

iframe-Youtube

Example1: Embedding Google Maps.

```
<body>
    <h2>iframe-googlemap</h2>
    <iframe src="https://www.google.com/maps/embed?
    pb=!1m18!1m12!1m3!1d60308.65371237113!2d72.78420700000002!3d19.
    138741500000005!2m3!1f0!2f0!3f0!3m2!1i1024!2i768!4f13.
    1!3m3!1m2!1s0x3be7b618b6d891dd%3A0x91f8a857c731d132!2sAndheri%20West%
    2C%20Mumbai%2C%20Maharashtra%20400047!5e0!3m2!1sen!2sin!4v17056731445
    00!5m2!1sen!2sin" width="300" height="200">
    </iframe>
</body>
```

iframe-googlemap

5. **Plug-ins:**

The <object> element defines an embedded object within an HTML document.
It was designed to embed plug-ins (like Java applets, PDF readers, and Flash Players) in web pages, but can also be used to include HTML in HTML:

```
<body>
    <h2>plug-in</h2>
    <object width="100%" height="500px" data="index.html"></object>
</body>
```

plug-in

Employee Information

ID	Name	Position	Salary
1	John	Developer	$80,000
2	Bob	Designer	$70,000
3	Henry	Manager	$90,000
Total Employees			3

The <embed> element also defines an embedded object within an HTML document.

```
<embed width="100%" height="500px" src="index.html">
```

HTML CSS AND JAVASCRIPT

- **HTML Head Element:**

The HTML <head> element is a container for the following elements: <meta>, <title>, <style>, <link>, <script>.

The <meta> element is typically used to specify the character set, page description, keywords, author of the document, and viewport settings.

The metadata will not be displayed on the page, but is used by browsers (how to display content or reload page), by search engines (keywords), and other web services.

```
<head>
    <meta charset="UTF-8">  <!-- Character encoding -->
    <meta name="viewport" content="width=device-width, initial-scale=1.0">  <!-- Responsive design -->
    <meta name="description" content="Web development">     <!-- Description for search engines -->
    <meta name="keywords" content="HTML, CSS, JavaScript">  <!-- Keywords for search engines -->
    <meta name="author" content="Nishu Patil">  <!-- Author name -->
    <title>MY WEBPAGE</title>
</head>
```

- **HTML CSS:**

The <style> tag is used to define style information for a single HTML page:

```
<style>
    body{
        background-color: pink;
    }
</style>
```

The <link> tag is commonly used to link external stylesheets to an HTML document. It's a self-closing tag.

```
<head>
    <meta charset="UTF-8">  <!-- Character encoding -->
    <meta name="viewport" content="width=device-width, initial-scale=1.0">  <!-- Responsive design -->
    <link rel="stylesheet" type="text/css" href="styles.css">
    <title>MY WEBPAGE</title>
</head>
```

- **HTML JavaScript:**

The <script> tag is used to include JavaScript code or files in an HTML document. Unlike the <link> tag, the <script> tag must be closed with a </script> tag.

```
<body>
    <h2>Use JavaScript to Change Text</h2>
    <p>This example writes "Hello JavaScript!" into an HTML element with
    id="demo":</p>

    <p id="first"></p>

    <script>
    document.getElementById("first").innerHTML = "Hello JavaScript!";
    </script>
</body>
```

Use JavaScript to Change Text

This example writes "Hello JavaScript!" into an HTML element with id="demo":

Hello JavaScript!

You can create external js (script.js) file and add it to HTML file by providing name of js file in src of <script> tag.

```
script.js
1   document.getElementById("first").innerHTML = "Hello JavaScript!";
2
```

```
    <script src="script.js" type="text/javascript"></script>
</body>
```

➢ **Adding Favicon :**

A favicon is a small image displayed next to the page title in the browser tab.
You can use any image you like as your favicon. You can also create your own favicon on sites like https://www.favicon.cc or https://favicon.io/.

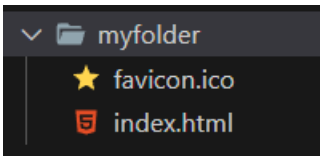
A common name for a favicon image is **"favicon.ico".**

✓ **Step 1: Create/Choose Favicon**

Make a square image, usually 16x16 or 32x32 pixels, in **.ico** format or create a favicon from the given websites.

✓ **Step 2: Upload Favicon**

Place the **.ico** file in your website's root directory, where index.html is located.

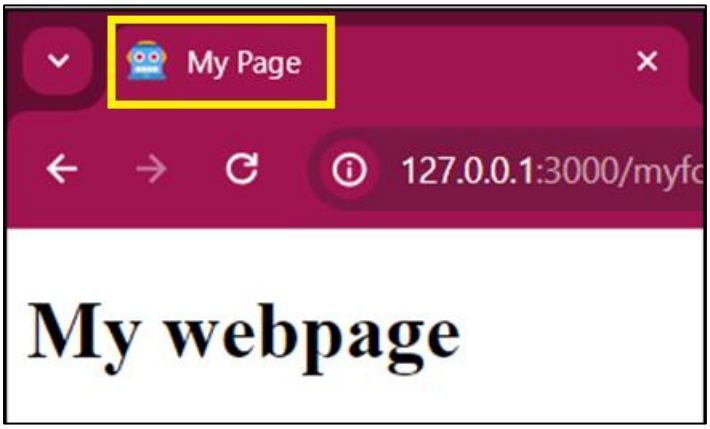


✓ **Step 3: Update HTML**

Add a <link> element to your "index.html" file, after the <title> element, like this:

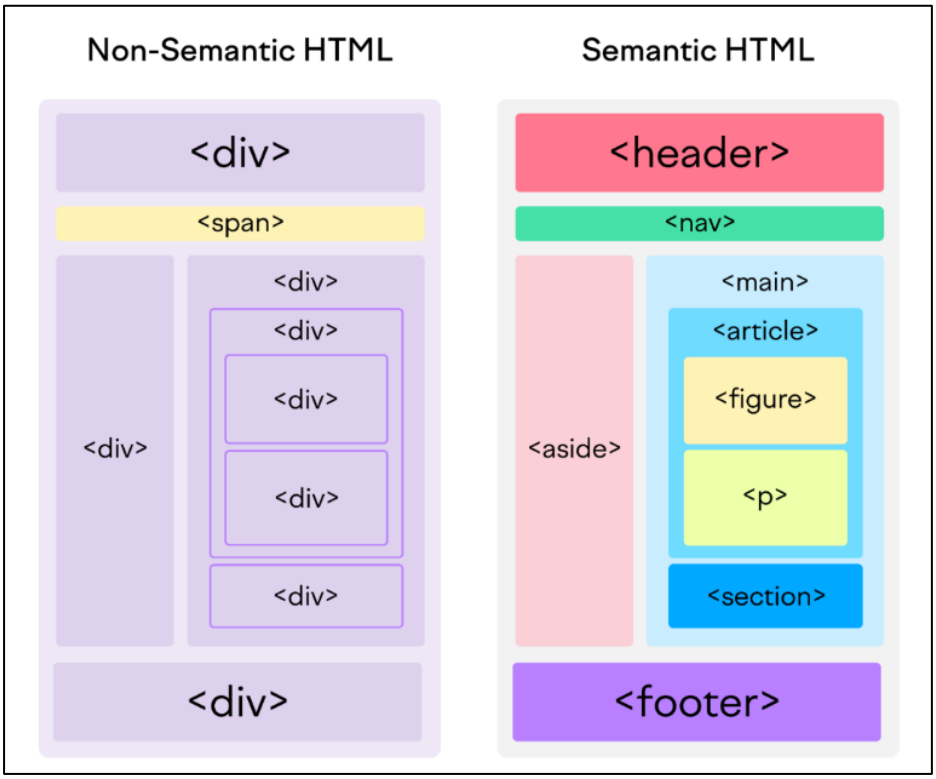
```
    <title>My Page</title>
    <link rel="icon" type="image/x-icon" href="favicon.ico">
</head>
```

Now, save the "index.html" file and reload it in your browser. Your browser tab should now display your favicon image to the left of the page title.



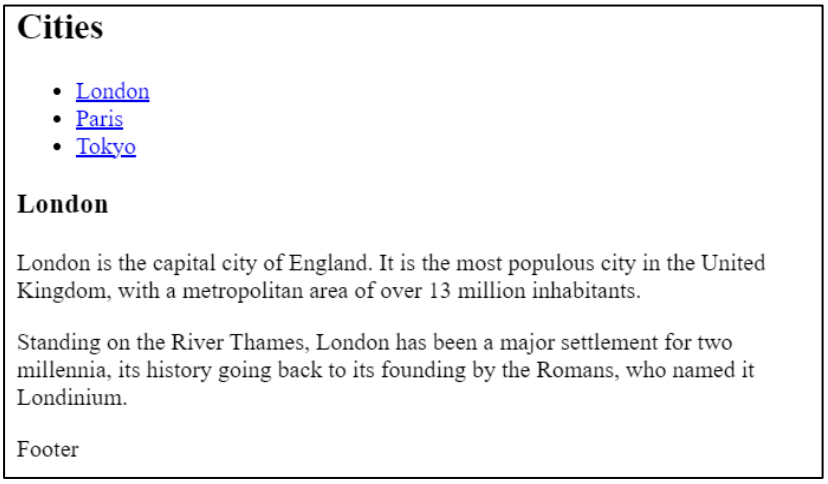
OTHER TAGS AND ENTITIES

1. **Semantic tags:**
   HTML5 introduced a range of semantic tags that provide meaning to the structure of web content.
   - <header>: Used to represent the top section of a web page, often containing headings, logos, and navigation.
   - <nav>: Signifies a navigation menu on a web page.
   - <article>: Indicates a self-contained piece of content, such as a blog post or news article.
   - <section>: Represents a thematic grouping of content on a web page.
   - <aside>: Typically used for sidebars or content that is tangentially related to the main content.
   - <footer>: Represents the footer of a web page, usually containing copyright information and contact details.
   - <figure> and <figcaption>: Used for embedding images, diagrams, or charts, along with a caption.
   - <main>: Signifies the main content area of a web page.
   - <time>: Used to represent time-related information, like dates and times.

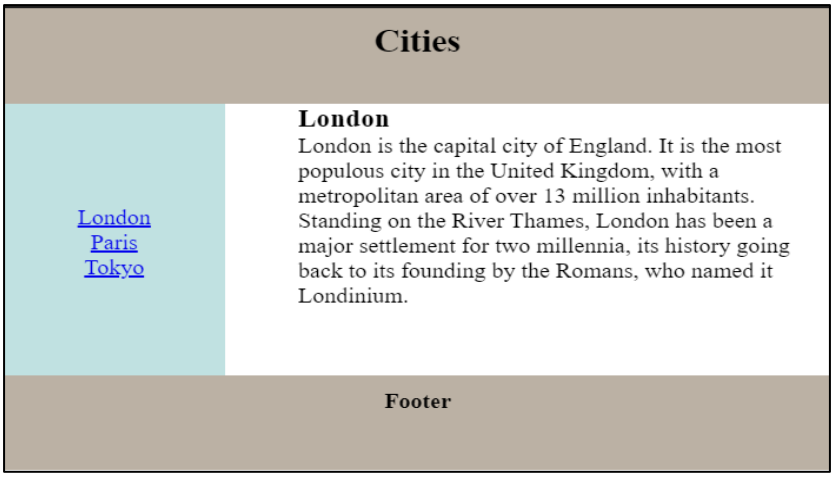


Example:

```
<body>
    <header>
       <h2>Cities</h2>
      </header>

      <section>
        <nav>
          <ul>
            <li><a href="#">London</a></li>
            <li><a href="#">Paris</a></li>
            <li><a href="#">Tokyo</a></li>
          </ul>
        </nav>

        <article>
          <h1>London</h1>
          <p>London is the capital city of England. It is the most
          populous city in the  United Kingdom, with a metropolitan area
          of over 13 million inhabitants.</p>
          <p>Standing on the River Thames, London has been a major
          settlement for two millennia, its history going back to its
          founding by the Romans, who named it Londinium.</p>
        </article>
      </section>

      <footer>
        <p>Footer</p>
      </footer>
</html>
```



With CSS:



2. **Blockquote:** The HTML <blockquote> tag defines a section that is quoted from another source.

```
<body>
    <p>Here is a quote from WWF's website:</p>
<blockquote cite="http://www.worldwildlife.org/who/index.html">
WWF works to help local communities conserve the natural resources they
depend upon; transform markets and policies toward sustainability; and
protect and restore species and their habitats. Our efforts ensure that
the value of nature is reflected in decision-making from a local to a
global scale.
</blockquote>
</body>
```

<q>: Defines a short quotation.

```
<body>
    <p>WWF's goal is to: <q>Build a future where people live in harmony
    with nature.</q></p>
</body>
```

WWF's goal is to: "Build a future where people live in harmony with nature."

3. **Abbreviation:**<abbr> tag defines an abbreviation or an acronym, like "HTML", "CSS", "Mr.", "Dr.", "ASAP", "ATM".
Marking abbreviations can give useful information to browsers, translation systems and search-engines.

```
<body>
    <p>The <abbr title="World Health Organization">WHO</abbr> was
    founded in 1948.</p>
</body>
```

The WHO was founded in 1948.

4. **<cite>** for Work Title: <cite> tag defines the title of a creative work (e.g. a book, a poem, a song, a movie, a painting, a sculpture, etc.).
The text in the <cite> element usually renders in *italic*.

```
<body>
   <h2>HTML cite element</h2>
    <img src="starry_night.jpg" width="220" height="200" alt="Starry night">
    <p><cite>The Starry Night</cite> by Vincent van Gogh. Painted in 1889.</p>
</body>
```

HTML cite element

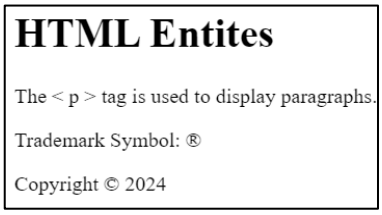
The Starry Night by Vincent van Gogh. Painted in 1889.

Note: A person's name is not the title of a work.

5. **Entities:** Reserved characters in HTML must be replaced with entities.
A commonly used HTML entity is the non-breaking space:
A non-breaking space is a space that will not break into a new line.
Examples: 10 km/h
10 PM

Result	Description	Name	Number
	non-breaking space		
<	less than	&lt;	&#60;
>	greater than	&gt;	&#62;
&	ampersand	&amp;	&#38;
"	double quotation mark	&quot;	&#34;
'	single quotation mark	&apos;	&#39;
¢	cent	&cent;	&#162;
£	pound	&pound;	&#163;
¥	yen	&yen;	&#165;
€	euro	&euro;	&#8364;
©	copyright	&copy;	&#169;
®	trademark	&reg;	&#174;

```
<body>
    <h1>HTML Entites</h1>
    <p>The &lt; p &gt; tag is used to display paragraphs.</p>
    <p>Trademark Symbol: &reg;</p>
    <footer>Copyright &copy; 2024</footer>
</body>
```



Note: Entity names are case sensitive.

List of Character Entity References:
https://en.wikipedia.org/wiki/List_of_XML_and_HTML_character_entity_references

There are symbol entities as well as emoji entities:

Symbols: https://www.w3schools.com/html/html_symbols.asp

Emojis: https://www.w3schools.com/html/html_emojis.asp

➢ Conclusion:

In conclusion, HTML (Hypertext Markup Language) stands as the fundamental building block of the World Wide Web, serving as the backbone for creating and structuring content on the internet. Its simplicity and versatility make it accessible for both beginners and experienced developers, facilitating the creation of diverse and interactive web pages. HTML, in conjunction with CSS and JavaScript, forms the cornerstone of web development, enabling the design of visually appealing, responsive, and dynamic websites. As technology evolves, HTML continues to adapt with new specifications and features, ensuring its relevance in the ever-changing landscape of the digital world. With its widespread adoption and ongoing development, HTML remains an indispensable tool for anyone involved in creating content for the web.