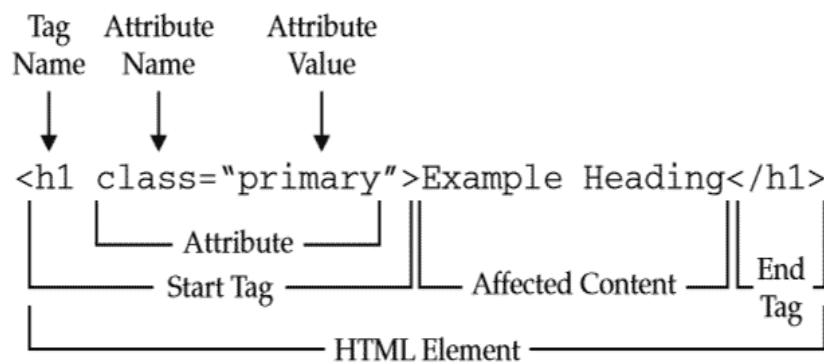# HyperText Markup Language(HTML)

The **HyperText Markup Language** or **HTML** is the standard markup language for documents designed to be displayed in a web browser. It defines the content and structure of web content.

HTML elements are building blocks of web pages, representing different types of content such as headings, paragraphs, links, and images.
Elements are usually made up of two tags: an opening tag and a closing tag.
In this figure <h1> is a starting tag, </h1> is an ending tag and it contains some content between the tags, which form an element.

All HTML elements have attributes that will provide additional information about that particular element. It takes two parameters, ie, a **name** & a **value** which define the properties of the element and are placed inside the element tag.
Attributes are always added to the start tag of an HTML element. Attributes always come in name/value pairs like this: **attribute_name="value"** and attribute values should always be enclosed in quotes.
Example : <img src="img_girl.jpg">

HTML Page Structure:

```html
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>
   <h1>My First Heading</h1>
   <p>My first paragraph.</p>
</body>
</html>
```

- The <!DOCTYPE html> declaration defines that this document is an HTML5 document.
- The <html> element is the root element of an HTML page.
- The <head> contains header information about the webpage, including title, meta tags, and linked stylesheets. It is part of the document's structure but is not displayed on the webpage.
- 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.
- The <h1> element defines a large heading.
- The <p> element defines a paragraph.

HTML Comments:

HTML Comments are used to insert comments in the HTML code. It is a good practice of coding so that the coder and the reader can get help to understand the code. It is a simple piece of code that is ignored by web browsers i.e., not displayed by the browser.

Syntax : <!-- comment -->

HTML Headings:

The **HTML heading tag** is used to define the headings of a page. There are six levels of headings defined by HTML. These 6 heading elements are h1, h2, h3, h4, h5, and h6; with h1 being the highest level and h6 being the least.

- **<h1>** is used for the main heading. (Biggest in size)
- **<h2>** is used for subheadings, if there are further sections under the subheadings then the **<h3>** elements are used.
- **<h6>** for the small heading (smallest one).

HTML Paragraphs:

The **<p>** tag in HTML defines a paragraph. These have both opening and closing tags. So anything mentioned within **<p>** and **</p>** is treated as a paragraph. A paragraph is a block-level element so a new paragraph always begins on a new line, and browsers naturally put some space before and after a paragraph to make it look neat and easy to read.

Syntax:

<p> Content </p>

HTML Text Formatting:

HTML Text Formatting provides various tags for text formatting to enhance the visual presentation of content on a webpage. You can make your text bold, italic, etc. by using some HTML tags.
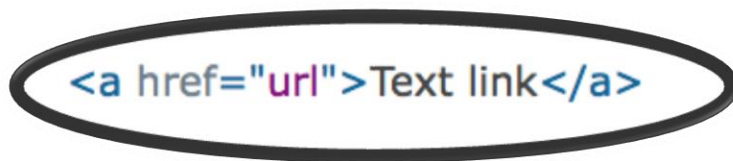
Tags	Descriptions
<i>	Showcases italicized text.
<small>	Renders text in a smaller font size.
<ins>	Highlights added or inserted text.
<sub>	Creates subscript text.
<strong>	Emphasizes text with importance, often in bold.
<b>	Displays text in a bold format.
<mark>	Accentuates text with a background highlight.

<del>	Strikes through text to signify deletion.
<em>	Adds emphasis to text, commonly styled as italic.
<sup>	**Formats text as superscript.**

HTML Links:

HTML Links are connections from one web resource to another. A link has two ends, An anchor and a direction. The link starts at the "source" anchor and points to the "destination" anchor, which may be any Web resource such as an image, a video clip, a sound bite, a program, an HTML document or an element within an HTML document. You will find many websites or social media platforms (Like YouTube, and Instagram) which link an image to a URL or a text to a URL etc. This means that by using the 'a' tag, you can link 1 element of the code to another element that may/may not be in your code.

Syntax:

```
<a href="url">Text link</a>
```

href : The href attribute is used to specify the destination address
of the link used. "href" stands for Hypertext reference.

Text link : The text link is the visible part of the link.
It is what the viewer clicks on.

Example : Visit

HTML Images:

The HTML <img> tag is used to embed an image in a web page. it contains attributes only, and does not have a closing tag.

The <img> tag has two required attributes:

- src - Specifies the path to the image

- alt - Specifies an alternate text for the image

Syntax:

<img src="url" alt=”alternatetext”>

HTML Tables:

HTML Table is an arrangement of data in rows and columns in tabular format. Tables are useful for various tasks such as presenting text information and numerical data. A table is a useful tool for quickly and easily finding connections between different types of data. Tables are also used to create databases.

Tag	Description
<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
<caption>	Defines a table caption
<colgroup>	Specifies a group of one or more columns in a table for formatting
<col>	Specifies column properties for each column within a <colgroup> element
<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 Lists:

The list is collection of items and they may be ordered or unordered.

There are three types of lists:

Ordered List :

The Ordered list displays the elements in a numbered format. The ** tag** is for an ordered list, an ordered list can be numerical or alphabetical.

Inside the <ol> tag you have to make a list <li> of items that will follow the order.

Syntax:

    Item 1

   ...

   ...

</ol

Unordered List :

The Unordered list displays the elements in a bulleted format. The ** tag** is used to define the unordered list item in an HTML document. It contains the list items <li> element. The <ul> tag requires an opening and closing tag.

Syntax:

   Item 1

   Item 2

Description list:

The Description list displays the elements in the form of a definition. The **<dl> tag** in HTML is used to represent the description list. This tag is used with <dt> and <dd> tags.

HTML Description Lists Tags

- **<dl> tag:** This tag defines the description list.

- **<dt> tag:** This tag defines the data terms inside the list.
- **<dd> tag:** This tag defines the description of data.

Syntax:

<dl> Contents... </dl>

Block and Inline Elements:

Block-level elements typically create "blocks" or large structural sections in a document. They often start on a new line and take up the full width of their container.

Examples:

<div>: Division or container.

<p>: Paragraph.

<h1> - <h6>: Headings.

Inline Elements:

An inline element is the opposite of the block-level element. It does not start on a new line and only take up as much width as necessary. They typically flow within the content, allowing elements to appear on the same line.

Examples:

<span>: Generic inline container.

<a>: Anchor (hyperlink).

<img> : Image.

**
:** Line break.

Class and Id Attribute:

In HTML, classes and IDs are attributes that help you define and style elements or target them for specific functionality in CSS or JavaScript.

Class:

The class attribute is used to assign one or more class names to an HTML element. Multiple elements can share the same class and a single element can have multiple classes.

Syntax: <tag class="classname">Content</tag>

Id:

The id attribute is used to give a unique identifier to a specific HTML element. Each element on a page should have a unique ID.

Syntax: <tag id="identifier">Content</tag>

HTML <script> Tag:

The HTML <script> tag is used to define a client-side script (JavaScript).

HTML Styles:

Style attribute of HTML is used to apply CSS to an HTML element through the inline method.We can add CSS inside the style attribute used within the HTML tag using property and value pair inside the double quotes of the style attribute. If we have multiple property-value pairs, then they are separated by a semicolon (;).

Syntax:

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

List of Properties of the Style Attribute in HTML

- Text color (**color** property).

- Font size (**font-size** property).

- Font weight (**font-weight** property).

- Background color (**background-color** property).

- Padding (**padding** property).

HTML Layout

HTML layout refers to the structure of a web page, achieved through elements like <header>, <nav>, <main>, <article>, <section>, <aside>, and <footer>. These elements help organize content, define the page's sections, and enhance accessibility and SEO.

Header Section
Navigation Bar

Index	Content section

Footer Section

Page Layout Information:

- **Header:** The part of the front end which is used at the top of the page. <header> tag is used to add a header section on web pages.
- **Navigation bar:** The navigation bar is the same as the menu list. It is used to display the content information using hyperlinks. <nav> tag is used to add the nav section(nav elements) in web pages.
- **Index / Sidebar:** It holds additional information or advertisements and is not always necessary to be added to the page.
- **Content Section:** The content section is the central part where content is displayed.<main> tag is used to add the main content of the webpages.
- **Footer:** The footer section contains the contact information and other query related to web pages. The footer section is always put on the bottom of the web pages. The <footer> tag sets the footer on web pages.