

HTML (HyperText Markup Language)

HTML is the standard language used to create web pages. It defines the structure and layout of a web document using various tags and elements. HTML tags tell the browser how to display content on the webpage.

Basic Structure of an HTML Document

Every HTML page follows a basic structure. Here's how an HTML page is laid out:

```
<!DOCTYPE html> <!-- Declaration to inform the browser about the version of HTML
(HTML5) -->
<html>
  <head>
    <title>Page Title</title> <!-- Defines the title that appears on the browser
tab -->
  </head>
  <body>
    <h1>This is a heading</h1> <!-- Main heading of the document -->
    <p>This is a paragraph.</p> <!-- Paragraph element -->
  </body>
</html>
```

<HEAD> Element

The `<head>` element contains metadata about the HTML document like the title, links to CSS, JavaScript, etc. Example:

```
<head>
  <title>My Web Page</title> <!-- Defines the title shown on the browser tab -->
</head>
```

Types of Tags in HTML

Single Tag:

These tags stand alone and do not have a closing tag. Example:

```
<br> <!-- Inserts a line break -->
```

Open-Close Tag:

These tags wrap around content and have both an opening and a closing tag. Example:

```
<p>This is a paragraph</p>
```

Common HTML Tags and Their Uses:

Paragraph Tag `<p>`

Defines a paragraph. Example:

```
<p>This is a paragraph of text.</p>
```

Title Tag `<title>`

Defines the title of the webpage, which is shown on the browser's tab or title bar. Example:

```
<title>My Web Page</title>
```

HTML is Case-Insensitive

HTML tags can be written in either uppercase or lowercase without any difference in how they function.

DOCTYPE Declaration `<!DOCTYPE html>`

Used to declare that we are using the latest version of HTML (HTML5).

Preformatted Text Tag `<pre>`

Preserves the spaces, tabs, and line breaks in the content. Example:

```
<pre>
This text will
be displayed exactly
as written.
</pre>
```

Line Break Tag `
`

Inserts a line break. Example:

```
This is line one.<br>This is line two.
```

Anchor Tag `<a>`

Creates hyperlinks to other web pages. The `href` attribute specifies the destination URL. Example:

```
<a href="https://www.example.com">Click here</a>
```

Text Alignment

You can align paragraphs in different ways:

Right Align:

```
<p align="right">This text is aligned to the right.</p>
```

Justified Align:

```
<p align="justify">This paragraph is justified, making both sides even.</p>
```

Text Formatting Tags

Bold Text:

Example:

```
<b>This text is bold.</b>
```

Italic Text:

Example:

```
<i>This text is italicized.</i>
```

Images in HTML

To display an image, use the `` tag. The `src` attribute specifies the image path, and `alt` provides alternative text in case the image is not found. Example:

```

```

Subscript and Superscript

Subscript (text below the baseline):

```
H<sub>2</sub>O <!-- Outputs H2O -->
```

Superscript (text above the baseline):

```
x<sup>2</sup> <!-- Outputs x2 -->
```

Comments in HTML

Comments are not displayed in the browser and are used for documentation within the HTML code. Example:

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

Lists in HTML

Ordered List:

Displays items in a numbered format. Example:

```
<ol>
  <li>First Item</li>
  <li>Second Item</li>
  <li>Third Item</li>
</ol>
```

Unordered List:

Displays items in a bullet format. Example:

```
<ul>
  <li>First Item</li>
  <li>Second Item</li>
  <li>Third Item</li>
</ul>
```

Tables in HTML

Tables are used to display data in a grid format. Example:

```
<table border="1"> <!-- Creates a table with a border -->
  <tr>
    <th>Header 1</th> <!-- Table header -->
    <th>Header 2</th>
  </tr>
  <tr>
    <td>Data 1</td> <!-- Table data -->
    <td>Data 2</td>
  </tr>
</table>
```

Forms in HTML

Forms are used to take user input and submit data. Example:

```
<form action="submit.php" method="GET"> <!-- Specifies where to send the form data -->
  <input type="text" placeholder="Enter your name" maxlength="30"> <!-- Plain text input -->
  <input type="submit" value="Submit"> <!-- Submit button -->
</form>
```