# HTML Complete Reference

### 1. What is HTML?

#### Definition:

HTML (HyperText Markup Language) is the standard language used to create and design documents on the web. It is a markup language that structures content on web pages by defining elements such as headings, paragraphs, links, images, tables, and more.

#### History:

HTML was first developed by Tim Berners-Lee in 1991 as part of his vision for the World Wide Web. The first version of HTML was relatively simple, but over the years, it has evolved with newer versions adding more functionality and flexibility, including features such as multimedia support, responsive web design, and web forms.

### 2. HTML Structure

HTML documents have a standardized structure that ensures proper rendering in web browsers. The basic structure of an HTML document is as follows:

#### HTML Document Structure:

<!DOCTYPE html>

<html>

<head>

<title>Page Title</title>

</head>

<body>

<!-- Content Goes Here -->

</body>

</html>

* <!DOCTYPE html>: This declaration defines the document type and version of HTML being used. It helps the browser understand how to interpret the page.
* <html>: This is the root element of the document, containing all other elements.
* <head>: The <head> section contains metadata about the document, such as the title and links to stylesheets or scripts.
* <title>: Defines the title of the page that appears in the browser's title bar or tab.
* <body>: The <body> contains all the visible content that appears on the web page, such as text, images, links, etc.

#### HTML Tags and Elements:

HTML is built using **tags** and **elements**. Tags are the basic building blocks, and elements consist of a tag and its content.

* Example: <p>This is a paragraph</p>
  + <p> is the opening tag, and </p> is the closing tag. The content "This is a paragraph" is the element's content.

#### HTML Attributes:

HTML tags can have **attributes**, which provide additional information about an element. Attributes are placed within the opening tag and are written in a name="value format. Examples include:

* id: Uniquely identifies an element.
* class: Groups multiple elements for styling.
* src: Specifies the source of an image.

Example:

<img src="image.jpg" alt="Description of image" />

### 3. Basic Tags

HTML includes many tags that help structure content. Below are some of the most commonly used tags:

* **Paragraph <p>**: Used for creating a paragraph of text.
* <p>This is a paragraph of text.</p>
* **Headings <h1> to <h6>**: These tags are used to define headings of various levels. <h1> is the most important (largest), and <h6> is the least important (smallest).
* <h1>This is a primary heading</h1>
* <h2>This is a secondary heading</h2>
* **Line Break <br>**: This tag inserts a line break within the content, similar to pressing the "Enter" key in a text editor.
* This is the first line.<br>
* This is the second line.

### 4. Creating a Simple Web Page

Example of a basic HTML page:

<!DOCTYPE html>

<html>

<head>

<title>My First Web Page</title>

</head>

<body>

<h1>Welcome to My Web Page</h1>

<p>This is a simple HTML page.</p>

</body>

</html>

### 5. HTML Syntax

#### Case Sensitivity:

HTML tags are not case-sensitive, meaning <p> and <P> are considered the same. However, it is recommended to use lowercase for readability and consistency.

#### Closing Tags:

Most HTML tags must be properly closed to ensure the document is valid. For example, <p> must be closed with </p>. Some tags, like <br>, <img>, and <hr>, are self-closing, meaning they do not require a closing tag.

#### Nesting:

HTML elements can be nested inside one another. When nesting, ensure that you correctly open and close tags.

Example:

<h1>Title of the Page</h1>

<p>This is a <strong>bold</strong> text inside a paragraph.</p>

# HTML Tags and Attributes Reference

## 1. ****Formatting Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <b> | Bold text | None |
| <i> | Italicized text | None |
| <u> | Underlined text | None |
| <strong> | Important text (typically bold) | None |
| <em> | Emphasized text (typically italicized) | None |
| <mark> | Marked or highlighted text | None |
| <small> | Smaller text | None |
| <sub> | Subscript text (below baseline) | None |
| <sup> | Superscript text (above baseline) | None |
| <del> | Deleted or struck-through text | None |
| <ins> | Inserted text (underlined) | None |

## 2. ****Text Content Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <p> | Paragraph text | None |
| <h1>, <h2>, <h3>, <h4>, <h5>, <h6> | Header tags (h1 is the largest) | None |
| <blockquote> | Block-level quote | None |
| <q> | Inline quote | None |
| <br> | Line break | None |
| <hr> | Horizontal rule (line) | None |
| <code> | Code snippet | None |
| <pre> | Preformatted text | None |

## 3. ****List Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <ul> | Unordered list (bulleted) | type |
| <ol> | Ordered list (numbered) | type, start |
| <li> | List item | None |
| <dl> | Description list | None |
| <dt> | Description term in a description list | None |
| <dd> | Description definition in a description list | None |

### type Attribute for Lists

* **For <ul>**: Defines the bullet style. Values:
  + disc (default)
  + circle
  + square
* **For <ol>**: Defines the list numbering style. Values:
  + 1 (default, numbers)
  + A (uppercase letters)
  + a (lowercase letters)
  + I (uppercase Roman numerals)
  + i (lowercase Roman numerals)

### start Attribute for Ordered List (<ol>)

* **Defines the starting point of the ordered list.**
  + e.g., <ol start="5"> starts counting from 5.

## 4. ****Link Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <a> | Anchor (hyperlink) | href, target, title, rel, download, type |

## 5. ****Image Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <img> | Image | src, alt, width, height, title, loading, usemap |

### usemap Attribute for <img>

* **Defines an image map (interactive regions within an image).**

### loading Attribute for <img>

* **Controls lazy loading for images**:
  + lazy: Delays loading the image until it's in the viewport.
  + eager: Loads the image immediately.

## 6. ****Table Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <table> | Table container | border, cellspacing, cellpadding, width, height, align, summary |
| <tr> | Table row | None |
| <td> | Table data cell | colspan, rowspan, align, valign, width, height |
| <th> | Table header cell | colspan, rowspan, scope, align, valign |
| <thead> | Group header rows | None |
| <tbody> | Group body rows | None |
| <tfoot> | Group footer rows | None |

### Table Specific Attributes

* **border**: Defines the width of the table border (e.g., <table border="1">).
* **cellspacing**: Sets the space between cells (e.g., <table cellspacing="5">).
* **cellpadding**: Sets the space between cell content and cell border (e.g., <table cellpadding="5">).
* **width and height**: Defines the width and height of the table or table cells.
* **align**: Specifies the horizontal alignment of the table or table cell (e.g., left, right, center).
* **summary**: Provides a summary of the table’s content (for accessibility).

## 7. ****Form Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <form> | Form container | action, method, name, target, enctype, autocomplete, novalidate |
| <input> | Input control (text, password, checkbox, etc.) | type, value, name, placeholder, checked, disabled, readonly, min, max, step, required |
| <textarea> | Multi-line text input | rows, cols, placeholder, required |
| <button> | Button | type, onclick, name, value, disabled |
| <select> | Drop-down list | name, multiple, size, required |
| <option> | Option in a select list | value, selected, disabled |
| <label> | Label for a form control | for |
| <fieldset> | Group form elements | None |
| <legend> | Caption for a <fieldset> | None |

### type Attribute for <input>

* **Specifies the type of input** (e.g., text, password, email, checkbox, radio, submit, reset, file).

## 8. ****Semantic Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <header> | Defines a header section for a document or section | None |
| <footer> | Defines a footer section for a document or section | None |
| <article> | Represents a self-contained piece of content | None |
| <section> | Defines a section of content | None |
| <nav> | Defines a navigation section | None |
| <aside> | Represents content aside from the main content | None |
| <figure> | Represents content like images, charts, etc. | None |
| <figcaption> | Caption for a <figure> element | None |

## 9. ****Media Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <audio> | Audio content | src, controls, autoplay, loop, muted, preload |
| <video> | Video content | src, controls, autoplay, width, height, loop, muted, poster, preload |
| <source> | Defines media resources for <audio> or <video> | src, type |
| <track> | Text tracks (e.g., subtitles) | kind, src, label, srclang |

### poster Attribute for <video>

* **Defines an image to be shown as a placeholder before the video plays.**

### preload Attribute for <audio> and <video>

* **Defines how the media should be loaded**:
  + auto: Loads the media when the page loads.
  + metadata: Loads only the metadata (e.g., duration, dimensions).
  + none: Does not load the media until it's played.

## 10. ****Script Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <script> | Embeds JavaScript code | src, type, async, defer, integrity, crossorigin |
| <noscript> | Content for browsers that do not support scripts | None |

## 11. ****Meta Tags****

| **Tag** | **Description** | **Attributes** |
| --- | --- | --- |
| <meta> | Metadata for the document | name, content, charset, http-equiv, property |
| <link> | Links external resources (e.g., stylesheets) | rel, href, type, sizes, media, hreflang, crossorigin |
| <title> | Title of the document | None |

**List of common HTML character entities:**

**Basic HTML Entities:**

* &nbsp; → Non-breaking space
* &lt; → Less than sign (<)
* &gt; → Greater than sign (>)
* &amp; → Ampersand (&)
* &quot; → Double quote (")
* &apos; → Single quote (')

**Special Characters:**

* &copy; → Copyright symbol (©)
* &reg; → Registered trademark symbol (®)
* &euro; → Euro symbol (€)
* &pound; → Pound symbol (£)
* &yen; → Yen symbol (¥)
* &dollar; → Dollar sign ($)
* &cent; → Cent symbol (¢)
* &#8377; - Indian Rupee (₹)

**Mathematical Symbols:**

* &plusmn; → Plus-minus symbol (±)
* &times; → Multiplication symbol (×)
* &divide; → Division symbol (÷)
* &equals; → Equals sign (=)
* &ne; → Not equal sign (≠)
* &le; → Less than or equal to (≤)
* &ge; → Greater than or equal to (≥)

**Greek Letters:**

* &alpha; → Greek letter alpha (α)
* &beta; → Greek letter beta (β)
* &gamma; → Greek letter gamma (γ)
* &delta; → Greek letter delta (δ)
* &epsilon; → Greek letter epsilon (ε)

**Arrow Symbols:**

* &larr; → Left arrow (←)
* &rarr; → Right arrow (→)
* &uarr; → Up arrow (↑)
* &darr; → Down arrow (↓)
* &harr; → Left-right arrow (↔)

**Other Symbols:**

* &hearts; → Heart symbol (♥)
* &spades; → Spade symbol (♠)
* &clubs; → Club symbol (♣)
* &diams; → Diamond symbol (♦)

This is a small selection, but there are many more HTML entities for different symbols, characters, and emojis. If you'd like a more extensive list or specific entities, let me know!