

HTML

What is HTML ?

- HTML stands for Hyper Text Markup Language
 - NOT a programming language
 - Markup language used for building web pages [Content]
-

Tags in HTML

- Element names surrounded by angle brackets
- Normally comes in pairs (start tag and end tag)
- End tag is normally the same, but with forward slash
- Some tags close themselves

```
<h1>Title</h1>, <p>Paragraph</p>, <button>Button</button>
```

HTML Structure

```
<!DOCTYPE html> <!-- Declares HTML5 document -->
<html lang="en"><!-- Root element -->
  <head><!-- Metadata and links -->
    <meta charset="UTF-8"><!-- Info for search engines -->
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <meta http-equiv="X-UA-Compatible" content="ie=edge">
    <title>HTML 5 Boilerplate</title>
    <link rel="stylesheet" href="style.css">
  </head>
  <body><!-- Visible content -->
    <script src="index.js"></script>
  </body>
</html>
```

Head:

The head section contains metadata, which simply means data about data. This means information in the head tag is not displayed on the page but the information is used by browsers and by search engines.

Some of the common elements that are included within the head tag include:

- **<title>**: This element is used to define the title of the document, which is displayed in the browser's title bar and is often used by search engines to describe the page.
- **<meta>**: This element is used to define metadata about the document, such as the character encoding, description of the page, keywords, and author.
- **<link>**: This element is used to link to external resources, such as stylesheets or scripts, that are used to format or enhance the page.
- **<script>**: This element is used to define JavaScript code that is executed on the page.

HTML Comments

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

<!-- <p>This is Single Line Comment </p> -->

<p>This is a paragraph too.</p>

<p>This is a paragraph.</p>
<!--
<p>This is Multi Line Comment </p>

-->
<p>This is a paragraph too.</p>
```

HTML Elements

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

<tagname>Content goes here...</tagname>

Block and Inline Elements

Block elements

- Start on a new line
- Take up full available width

Examples: <p>, <h1> to <h6>, <div>

Inline elements

- Do not start on a new line
- Only take up necessary width

Examples: <a>, , <button>

Types of Tags and its Classification

Basic Tags

- `<!DOCTYPE>`
Declares the document type and version of HTML being used. For HTML5, it's written as `<!DOCTYPE html>` and helps browsers render the page correctly.
- `<html>`
The root element that wraps the entire HTML document. All other elements are nested inside it.
- `<head>`
Contains metadata about the document, such as its title, character encoding, linked stylesheets, and scripts. This section is not visible on the webpage.
- `<title>`
Sets the title of the document, which appears in the browser tab or window title.
- `<body>`
Encloses all the visible content of the web page, including text, images, links, and other elements.
- `<h1>` to `<h6>`
Define headings, with `<h1>` being the most important (usually the main title) and `<h6>` the least. They help structure content and improve accessibility and SEO.
- `<p>`
Represents a paragraph of text. Browsers automatically add spacing before and after paragraphs.
- `
`
Inserts a line break within text, useful for breaking lines without starting a new paragraph.
- `<hr>`
Creates a horizontal rule or line, often used to visually separate sections of content.
- `<!-- ... -->`
Adds comments in the HTML code. These are not displayed in the browser and are useful for notes or explanations within the code.

Text Formatting Tags - Used to style and emphasize text within your content.

- `` – Bold text (non-semantic)
- `` – Important text (semantic bold)
- `<i>` – Italic text (non-semantic)
- `` – Emphasized text (semantic italic)
- `<mark>` – Highlights text with a background color

Forms and Input Tags - Essential for collecting user data and creating interactive forms.

- `<form>` – Defines a form container
- `<input>` – Creates input fields (text, checkbox, radio, etc.)
- `<label>` – Associates text labels with form controls
- `<textarea>` – Multi-line text input
- `<button>` – Clickable button (submit, reset, or custom)

Images, Audio & Video Tags - Used to embed media content into your webpage.

- `` – Displays an image
- `<audio>` – Embeds audio content
- `<video>` – Embeds video content

- `<source>` – Specifies media sources for `<audio>` or `<video>`
- `<track>` – Adds subtitles or captions to media

List Tags - Organize content into ordered or unordered lists.

- `` – Unordered list (bullets)
- `` – Ordered list (numbers)
- `` – List item
- `<dl>` – Description list
- `<dt>` / `<dd>` – Term and description in a description list

Styles and Semantics Tags - Used for styling and giving meaning to content structure.

- `<style>` – Embeds CSS styles
- `<link>` – Links external stylesheets
- `` – Inline container for styling
- `<div>` – Block-level container for layout
- `<section>` – Semantic block for grouping related content
- `<a>` - Add Links of external pages and html docs

Table Tags - Create and structure tabular data.

- `<table>` – Defines a table
- `<tr>` – Table row
- `<td>` – Table cell (data)
- `<th>` – Table header cell
- `<thead>` / `<tbody>` / `<tfoot>` – Group table sections

Tags Overview of Common Use Cases:

Tag	Description
<code><h1></code> – <code><h6></code>	Headings (H1 = largest, H6 = smallest)
<code><p></code>	Paragraph
<code></code>	Bold text (inline)
<code><i></code>	Italic text (inline)
<code><a></code>	Anchor/link
<code></code>	Image
<code></code>	Unordered list
<code></code>	Ordered list
<code></code>	List item

<code><form></code>	Form container
<code><input></code>	Input field
<code><textarea></code>	Large text box
<code><select></code>	Drop-down list
<code><option></code>	Select options
<code><button></code>	Clickable button
<code><div></code>	Section or container
<code><!-- comment --></code>	Comment (ignored by browser)

Reference :

<https://developer.mozilla.org/en-US/docs/Web/HTML/Reference/Elements>

<https://www.geeksforgeeks.org/html/html-tags-a-to-z-list/>

https://www.w3schools.com/tags/ref_byfunc.asp

HTML Attributes

- HTML attributes provide additional information about HTML elements.
- Attributes usually come in name/value pairs like: name="value"

Some Common Tags with Attributes:

- The **width** and **height** attributes of `` provide size information for images
- The **alt** attribute of `` provides an alternate text for an image
- The **style** attribute is used to add styles to an element, such as color, font, size, and more
- The **lang** attribute of the `<html>` tag declares the language of the Web page
- The **title** attribute defines some extra information about an element
- **target="_blank"** → Opens link in a new tab.
- **placeholder** - Hint text inside input

```
<a href="https://www.w3schools.com">Visit W3Schools</a>

```

Forms Overview

Type	Description
text	Normal text input
email	Validates email format
password	Hides input characters
number	Accepts only numbers
date	Date picker input

```
<form>
  <div>
    <label>First Name</label>
    <input type="text" placeholder="Enter your name" />
  </div>

  <div>
    <label>Email</label>
    <input type="email" placeholder="Enter your email" />
  </div>

  <div>
    <label>Password</label>
    <input type="password" />
  </div>

  <button>Submit</button>
</form>
```

Element	Description
<textarea>	Multiline text input
<select> + <option>	Drop-down menu

```
<select>
  <option value="small">Small</option>
  <option value="medium">Medium</option>
  <option value="large">Large</option>
</select>
```

Lists Overview

Unordered List ()

Displays bullet points.

```
<ul>
  <li>Apples</li>
  <li>Bananas</li>
  <li>Grapes</li>
</ul>
```

2. Ordered List ()

Displays numbered lists.

```
<ol>
  <li>Usain Bolt</li>
  <li>Ronaldo</li>
  <li>Messi</li>
</ol>
```

The <div> Element

- Stands for **division**.
- Used to group elements into sections.
- Has **no special meaning** — purely for structure/layout.
- Commonly used with CSS for design.

Tips

- Always use proper indentation and comments for clarity.
- Use Emmet abbreviations in VS Code to speed up typing (!, ul>li*3, etc.).
- Use Live Server for instant preview.
- Add alt text to images for accessibility.
- Add https:// in external links to avoid errors.
- Group inputs with <div> for cleaner layout.
- Practice by building small pages (About, Contact, etc.) to reinforce concepts.

Quick Summary

Concept	Purpose
HTML	Structure/content
CSS	Style/design
JavaScript	Logic/behavior
Tags	Define content types
Attributes	Give extra details
Block vs Inline	Layout difference
Forms	Gather user input
Lists	Display bullet or numbered items
Divs	Group and organize sections
Images	Add visuals to a page

Mini-Project

Personal Portfolio Website (HTML Only)

 Project: Personal Portfolio Website (HTML Only)

 **Goal:**

Build a **multi-page personal portfolio** using only **HTML**.

You'll apply **all HTML concepts** — structure, text formatting, links, images, lists, forms, and attributes — in a real-world project.

Folder Structure

Create a folder named:

personal-portfolio

Inside it, create **4 HTML files**:

1. `index.html` – Home Page
2. `about.html` – About Me Page
3. `projects.html` – Projects Page
4. `contact.html` – Contact Page

You'll link them together using `<a>` navigation links.

◆ Page Requirements

1 Home Page (`index.html`)

Purpose: Introduce yourself and give quick access to other pages.

Include:

- Page title and metadata in `<head>`.
- A **navigation bar** with links to all pages.
- A **welcome message** with your name and short intro.
- A **profile image** of yourself or a placeholder.
- A **list of your core skills** (unordered list).
- External links to your **GitHub** or **LinkedIn** (open in new tab).
- A small **footer** with your name and copyright.

Concepts used: headings, paragraphs, lists, links, images, divs, attributes.

2 About Page (`about.html`)

Purpose: Describe who you are in more detail.

Include:

- A **back/home navigation link**.
- A short **biography paragraph** (why you're learning web dev, goals, etc.).
- A **list of hobbies or interests** (unordered list).

- A **list of achievements or goals** (ordered list).
- Use at least one **bold** and **italic** word in your description.

Concepts used: headings, paragraphs, lists, text formatting (``, `<i>`).

3 Projects Page (projects.html)

Purpose: Display the projects you've worked on or want to showcase.

Include:

- Navigation link to go back home.
- At least **3 project entries**, each with:
 - A **title** (heading)
 - A **short description**
 - A **list** of tools or technologies used
 - A **link** (real or dummy) to "View Project"
- Include **one image** related to any project.
- Optionally add a **horizontal line** (`<hr>`) between projects.

Concepts used: headings, paragraphs, links, lists, images, divs, hr.

4 Contact Page (contact.html)

Purpose: Collect messages or feedback from visitors.

Include:

- Navigation link to go back home.
- A **form** with:
 - Input for **name**
 - Input for **email**
 - Input for **subject**
 - A **textarea** for message
 - A **select/dropdown** asking "How did you find me?"

- A **submit button**
- A **logo or image** at the bottom (can be an HTML5 logo or your logo).
- A **footer** with your email or copyright.

Concepts used: form, input types, textarea, select, option, button, image.

◆ General Requirements (for all pages)

- Each file must start with `<!DOCTYPE html>` and proper `<html>`, `<head>`, `<body>`.
 - Use **consistent navigation** (same links on every page).
 - Use **comments** (`<!-- -->`) to separate sections.
 - Use **divs** to group related sections (like header, main, footer).
 - Every image must include an **alt attribute**.
 - Include at least one **external link** (opens in new tab).
 - Include at least one **local link** (to another HTML file).
 - Use both **ordered and unordered lists** across the website.
 - Include at least **one self-closing tag** (``, `
`, or `<hr>`).
-

🎯 Bonus Challenges (Optional, for deeper learning)

If you finish the main requirements, try adding:

- A **table** (e.g., your education or skill levels).
 - A “**Resume Download**” link (dummy link).
 - An **HTML comment block** at the top describing your project.
 - A **favicon** (small icon in browser tab).
 - One **inline style** (like `<h1 style="color: blue;">` just to experiment).
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✅ Checklist for You to Tick While Building

Concept	Covered?
Proper HTML structure (<code><doctype></code> , <code><head></code> , <code><body></code>)	<input type="checkbox"/>
Headings (<code><h1></code> – <code><h6></code>)	<input type="checkbox"/>
Paragraphs (<code><p></code>)	<input type="checkbox"/>
Bold & Italic text (<code></code> , <code><i></code>)	<input type="checkbox"/>
Lists (<code></code> , <code></code> , <code></code>)	<input type="checkbox"/>
Links (<code><a></code> , <code>target="_blank"</code>)	<input type="checkbox"/>
Images (<code></code> , <code>alt</code> , <code>width</code>)	<input type="checkbox"/>
Forms (<code><form></code> , <code>input</code> , <code>textarea</code> , <code>select</code> , <code>button</code>)	<input type="checkbox"/>
Attributes (<code>src</code> , <code>href</code> , <code>placeholder</code> , <code>value</code> , <code>target</code> , etc.)	<input type="checkbox"/>
Divs for grouping sections	<input type="checkbox"/>
Comments (<code><!-- --></code>)	<input type="checkbox"/>
Self-closing tags	<input type="checkbox"/>
Footer with copyright	<input type="checkbox"/>
