# HTML

* HTML

(1) HTML Level - 1 (part A)

- Introduction to HTML
- HTML elements & Tags
- Paragraph element - Adds automatic space before & after.
- Heading element
- Boiler Plate code (Standard format or skeleton of writing HTML code).

(2) HTML Level - 1 (part B)

- Lists in HTML
- Attributes in HTML
- Anchor element
- Image element
- comments in HTML
- More HTML tags (<b>, <i>, <u>, <sub>, <sup>)
- is HTML case sensitive? NO

## (3) HTML Level - 2

- Inline vs Block
- Div element
- Span element
- HR tag
- Sub and Sup tags
- Semantic markup - markup that relates to the meaning of content.
- Semantic tags
- HTML entities
- Emmets
- Further understanding HTML

ADV =>
(1) meaningful / Layout → structure
(2) SEO friendly
(3) rich table + screen readers
↓
ux improve

## (4) HTML Level - 3

- Tables in HTML
- Semantics in table {<thead>, <tfoot>, <tbody>}
- Colspan & Rowspan attribute
- Forms in HTML
- Input - Form Element
- Placeholder & Labels
- Button element
- Name attribute
- Checkbox - input element
- Radio - input element
- Selects - input element
- Range - input eler
- Text area

For developers —

# MDN Documentation.

## Chapter 0 - Introduction

HTML → Hyper Text Mark Up Language

HTML is the language of the web. It is used to create websites
We use HTML tags to define look & feel of a website

With understanding of these tags and How to put them together, we can create beautiful websites easily!

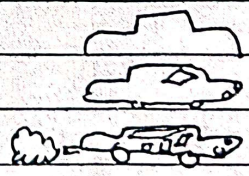
Then Why CSS & JavaScript
HTML is used for defining layout of a page - A barebone page structure

CSS is used to add styling to that barebone page created using HTML

JavaScript is used to program logic for the page layout eg. What happens when a user hovers on a text, When to hide or show elements etc.

A Beautiful analogy

HTML = Car body (only metal)
CSS = Car paint, decoration etc.
JavaScript = Car engine + Interior logic



We will start learning how to build beautiful layouts in this course.

## Installing VS Code

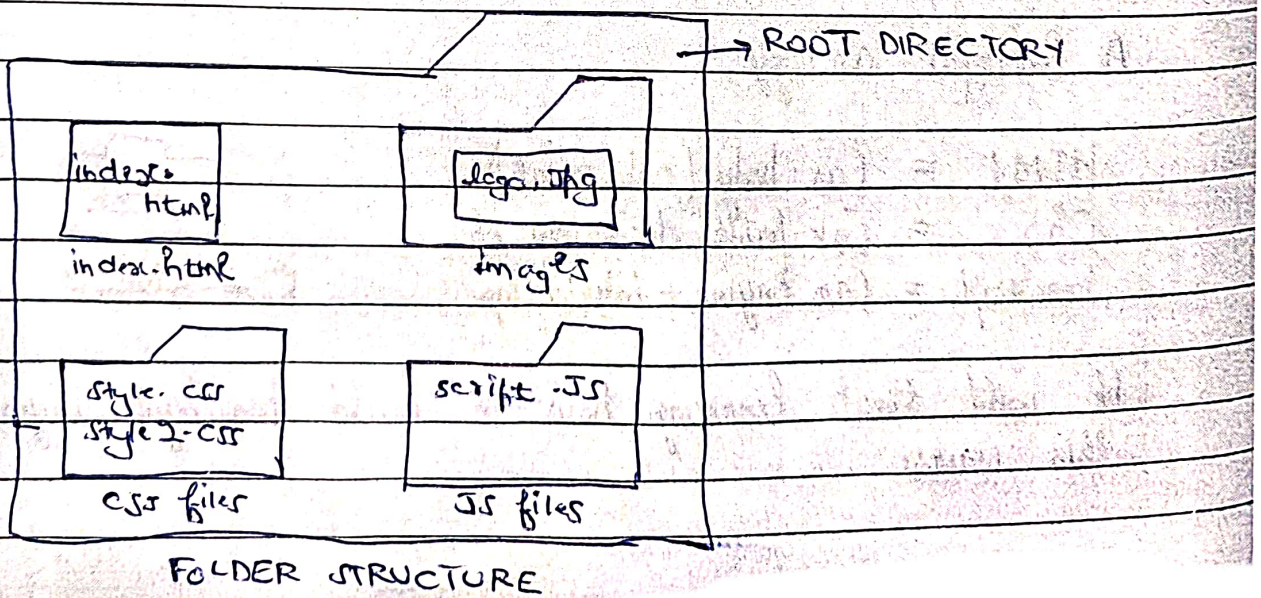
We can use any text editor of our choice. Here I am using VS Code because it is light weight, opensource & from Microsoft.

Go to google, type VS code & install it

Note : You can write HTML even in Notepad. Text editors like VS Code just makes these things easier.

* Folder Structure —

1. Root directory → index.html
2. HTML files
3. CSS files
4. JS files
5. Images Folder
6. Other assets
7. Sub directories (For multi-page website, use sub folder to categorize data).




FOLDER STRUCTURE

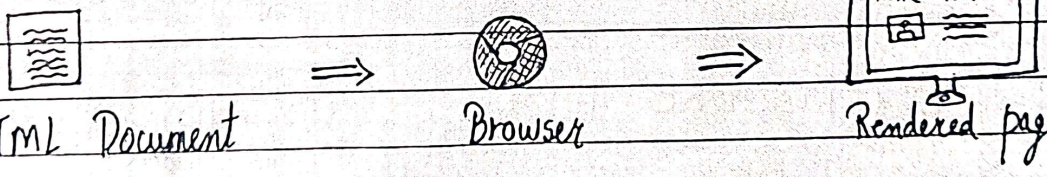
# Chapter 1 - Creating our first website

We start building a website by creating a file named index.html index.html is a special filename which is presented when the website root address is typed.

## A Basic HTML Page

<! Doctype html> → specifies this is an html 5 doc
<html> → root of an HTML page
<head> → Contains page metadata
<title> Harry's Website </title> → Contains title
</head>
<body> → The main body of the page (rendered by the browser)
<h1> This is a heading </h1> → heading tag
 My paragraph  → paragraph tag
</body> → closing body tag
</html> →

A tag is like a container for either content or other HTML tags.




HTML Document ⇒ Browser ⇒ Rendered page

Imp Notes

- Head & body tags are children of HTML tag.
- HTML is the parent of Head & Body tags
- Most of the HTML elements have opening & closing tag with content in between opening & closing tags.
- Some HTML tags have no content. These are called Empty elements eg <br>

↗ We can either use .htm or .html extension

↗ You can use "Inspect Element" or "View Page Source" option from chrome to look into a website's HTML code.

HTML element = Start tag + Content + End tag

Comments in HTML

Comments in HTML are used to mark text which should not be parsed. They can help document the source code:

<!-- HTML Comment -->

Case Sensitivity

HTML is a case insensitive language. <H1> and <h1> tags are the same.

⇒ Index.html - Default name for ~~website's~~ homepage.
- First page user sees when visiting a webpage.
- Important for SEO.

{Usually present in root directory directly}

# Chapter 1 - Practice Set

1. Inspect your favorite website and change something on the page which is displayed.

2. Go to your favorite website and try to view the page source and write the exact lines of code. Does it clone the website? why?

3. Write any HTML code inside a text file. Does it work if you write it using notepad?

# Chapter 2 - Basic HTML Tags

We can add elements inside the body tag to define the page layout.

HTML Element
Everything from starting to the ending tag.

<body> → Opening tag
→ Content ←
</body> → Closing tag

HTML Attributes
Used to add more information corresponding to an HTML tag.
Example : <a href="https://codewithharry.com/">Harry</a>
anchor tag
href attribute

We can either use single or double quotes in attributes

The Heading Tag
Heading tag is used to mark headings in HTML.
From h1 to h6, we have tags for the most important to the least least important heading.

<h1> Most Important heading </h1>
<h2> Another heading H2 </h2>
<h3> Another heading H3 </h3>
<h4> Another heading H4 </h4>
<h5> Another heading H5 </h5>
<h6> Another heading H6 </h6>

Note: We should not use HTML headings to make text thick or bold.

## The Paragraph Tag

Paragraph tags are used to add paragraphs to an HTML page.

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

## The Anchor Tag

The Anchor tag is used to add links to an existing content inside an HTML page.

```
<a href="https://google.com"> Click me </a>
```

## The img Tag

img tag is used to add images in an HTML page

```
<img src="image.jpg">
```

↳ relative url of an image

## Bold, italic and underline tags

We can use bold, italic and underline tags to highlight the text as follows:

```
<b> This is bold </b>
<i> This is italic </i>
<u> This is underline </u>
```

## br tag

The br tag is used to create line breaks in an HTML document.

## big and small tags

We can make the text a bit larger and a bit smaller using big and small tags respectively.

## hr tag

<hr> tag in HTML is used to create a horizontal ruler often used to separate the content.

## Subscript & superscript

We can add subscript and superscripts in HTML as follows:

< sub > this </ sub > is subscript
< sup > this </ sup > is superscript

## pre tag

HTML always ignores extra spaces and newlines. In order to display a piece of text as is, we use pre tag

```
<pre>
    This    is written
    using   pre
    tag
</pre>
```

⇒ Rendered as-is

# Chapter 2 - Practice Set

1. Create an HTML page with a heading (title heading), a primary heading and a subheading.
Which tags did you use?

2. Create a page with 5 wallpaper images taken from the internet

3. Use br and hr tags to display a piece of text with linebreaks.

4. Try to write the following chemical equation using HTML.

$$C + O_2 \longrightarrow CO_2$$

5. Try to write a wikipedia article using HTML.

# Chapter 3 - Creating a page layout

When we use the right tag in right place, it results in a better page layout, better indexing by search engines and better user experience.
We use the following tag to get the job done

<header> → Contains nav tag
<main>
<footer>
} Website layout

Inside the main tag we insert the following tags:

<main> → The main opening tag
<section> → A page section
<article> → a self contained content
<aside> → Content aside from the content (eg Ads etc)
</main> → The main closing tag

Creating a page like this is not necessary but it creates a readable & structured layout.
Also they are useful for SEO.

Link attributes
<a href="/contact"> Contact us </a> → Contact page opens in same tab
<a href="/contact" target="_blank"> Contact us </a>
↳ opens in a new tab

We can put any content inside an anchor tag (images, headings etc are all allowed)

If the page is inside a directory, we need to make sure that we link to the correct page.
↳ Same applies to img tag as well

We can add links to images like this

<a href="/about"><img src='a.jpg' width="120"></a>
↳ Height will be set automatically

The Div tag - BLOCK ELEMENT
div tag is often used as a container for other elements
div is a block level element. [eg- div, p, h1, ul, li]
↳ Always takes full width

The Span tag - INLINE ELEMENT
Span is an inline container. [eg img, a, span, em, strong]
↳ Takes as much width as necessary

* HTML Entities
⇒ HTML entity is a piece of text ("string") that begins with an ampersand (&) and ends with a semi-colon (;).
⇒ Browser interprets and renders them correctly.
- Used to display reserved characters and invisible characters in HTML like (non-breaking spaces).
- Used to display characters that are difficult to type with keyboard.

eg-
< < ""   " &quot
> > & &

# Chapter 3 - Practice Set

1. Create an SEO friendly wesbite using HTML.

2. Create an HTML page which opens google when clicked on an image.

3. Create a website which has your 5 top used websites bookmarked. The links should open in a new tab.

# Chapter 4 - Lists, tables & forms

## Lists

Lists are used to display content which represents a list

Unordered list: Used to list unordered items

```
<ul>
    <li> Home </li>
    <li> About </li>
        :
</ul>
```

Ordered list: used to list ordered items

```
<ol>
    <li> Phone </li>
    <li> PC </li>
    <li> Laptop </li>
</ol>
```

display: inline

LI (list items) have their display property set to "list-item" by default which makes them bulleted list item.

## Tables

The <table> tag is used to define tables in HTML.
It is used to format & display tabular data.

tr tag: used to display table row
td tag: used to display table data

th tag: used in place of table data for displaying table headers

We can define as many table rows as we want.

To add a caption to the table, we use <caption> tag inside table.

thead tag: used to wrap table head (caption & tr with th)
tbody tag: used to wrap the table body.

Colspan attribute
This attribute is used to create cells spanning multiple columns.

```
<th Colspan = "3"> Harry </th>
                    ↳ Spans 3 Columns
```

HTML forms
An HTML form is used to collect input from the user
form tag is used for the same

```
<form>
-- Element of the form --
</form>
```

There are different form elements for different kinds of user input

- input element: Can be of type text, checkbox, radio, button and submit. We also have a 'file' type.
- textarea element: Defines a multi line text input. Cols and rows attributes can be used to size the textarea.
- select element: Defines a drop down list.

NOTE => Action attribute => specifies URL to which the form data should be sent when submitted.

Note: you dont have to remember all the tags, you will automatically memorize them with practice

Embedding Videos

Video tag is used to play videos in HTML

```
<Video src='harry.mp4'> Error </video>
```

Attributes for video

We can use:

- Width: To adjust width of a vido (Height automatically adjusts)
- We can use autoplay/loop to autoplay or loop the video.

* Description List

```
<dl>
    <dt> Banana </dt>
    <dd> A yellow coloured fruit. </dd>

    <dt> Apple </dt>
    <dd> A red colored fruit. </dd>
</dl>
```

dl => description list
dt => description term
dd => data description

* <abbr title=" "> ---- </abbr>
  - used to add abbreviations in our HTML document.
* <q> ... </q>
* <blockquote cite=" "> ---- </blockquote>

# Chapter 4 - Practice Set

1. Create an HTML page with video embedded inside it.
2. Replace this video in 1 with a YouTube video.
3. Create an HTML form for a travel website to book a vacation
4. Create a table displaying score of cricket players in a match using HTML.

* iframe tag `<iframe src=" "> </iframe>`
  - used to embed another document / webpage in our webpage.

* Embed tag `<embed type="text/html" src=" ">`
  - to embed external resources such as webpage, audio, video in our webpages.

* Address tag `<address> <address>`
  - used to define the contact information of author/ owner of a document.
  - contact information can be email address, physical address, phone number etc.

* `<time>` time tag
  - used to define a specific time (or datetime)
  - datetime attribute - used to translate time into machine readable format.

// `<time datetime="2013-08-30">--:--</time>`

# Chapter 5 - SEO

We will focus only on HTML standpoint of SEO. We will not be looking into keyword building and content optimization aspect of SEO

Types of SEO
- On page SEO → can be done by HTML developers
- Off page SEO

HTML SEO
HTML developers can implement SEO using the following techniques :

1. Set the title very nice & to the point
2. Set the meta description

   `<meta name = "description" content = "...">`

3. Set a nice URL slug
4. Set the meta keywords tag.
5. Set the meta author tag.

   `<meta name = "author" content = "Harry">`

6. Set a faricon

7. Compress images & other resources

8. Remove unused HTML/CSS & Js files + Compress them

9. Add alt text to images

HTML
Importamt sources
-> mdn documentation / devdocs.io
-> web.archive.org

BROWSERS = Take diiferent files and renders them into website.

HTML - essential
CSS - not essential
JavaScript - not essential

HyperText Markup language
HyperText = pieces of text which links to other documents in a website.
Markup Language = done through HTML tags.

HTML Attributes
Used to add more information to the tags

html is not case sensitive
link can be add in both singke quotes or double quotes depending on presence of quotes in website link
heading tags denote importance for the particulare heading and <h7> or above does not do anything
using semantic tags: readable, seo, great user experience
main, _main, blank all are similat to blank - new window is opened and getting refreshed every time
_blank every time a new window gets opened
some website does not allow embedding

When you clone a website's source code, you are copying the code that defines the structure, layout, and content of the website. However, the code may not include all of the resources and dependencies that are required for the website to function correctly, such as images, videos, JavaScript files, or database connections.
Additionally, the original website may have been designed and optimized for a specific browser or device, and attempting to render an exact copy of the website on a different browser or device may result in display issues, performance problems, or other unexpected behavior.

<html lang="en">
The line of code you provided is an HTML tag that specifies the language of the HTML document.helps text readers/ tells search engine that page is for english speakers.
In this case, the language is set to English, as indicated by the "en" value for the "lang" attribute. This information can be used by search engines and web browsers to better understand the content of the page and to display it correctly for users.
    "fr" for French, "es" for Spanish, and "de" for German.

Absolute vs relative links
In HTML, there are two types of links that can be used to connect one webpage to another: absolute links and relative links.
An absolute link specifies the full URL (Uniform Resource Locator) of the webpage or file being linked to, including the protocol (http, https, ftp, etc.), domain name, and file path. For example:

```
<a href="https://www.example.com/about.html">About Us</a>
```

In this case, "https://www.example.com/about.html" is the absolute URL of the "About Us" page.

A relative link, on the other hand, specifies the file path relative to the location of the current HTML document. Relative links are shorter and often easier to maintain than absolute links, especially when you are linking to other pages within your own website. For example:

```
<a href="about.html">About Us</a>
```

```
<meta http-equiv="X-UA-Compatible" content="IE=edge">
```

Specifically, the "http-equiv" attribute indicates that the value of the tag should be treated as an HTTP header, and the "X-UA-Compatible" value indicates that the tag is used to set the compatibility mode for Internet Explorer. The "content" attribute specifies the actual compatibility mode value.
In this case, the value "IE=edge" means that the webpage should be rendered in the latest version of Internet Explorer that the user's browser supports, rather than using an earlier version of IE that may be installed on their system. This can help ensure that the webpage is displayed correctly and consistently across different browsers and devices.

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

The line of code you provided is a meta tag in HTML that is used to define the viewport of a webpage, which determines how the webpage is displayed on different devices and screen sizes.

HEAD TAG - CONTAINS METADATA

```
<meta charset="UTF-8">
```

META TAGS CONTAIN META DATA ABOUT WEBPAGE an is PLACED INSIDE HEAD TAG OF A HTML DOCUMENT
This ensures every character on website gets rendered successfully.
<meta charset="UTF-8">" is a meta tag that specifies the character encoding of an HTML document.
Character encoding is a system that assigns numeric codes to characters in order to represent them in digital format. UTF-8 is a widely used character encoding that can represent most characters in the world, including those used in various languages and scripts.
By including this meta tag in your HTML document, you are telling the web browser to use UTF-8 encoding when displaying the content of the page. This

ensures that special characters and symbols are displayed correctly and the text is properly encoded for search engines and other tools.

DESCRIPTION LIST
dl - descriptionl list
dd - definition term    dd - definition description

SEMANTIC TAGS
A semantic element clearly describes its meaning to both the browser and the developer.
using semantic : readable, seo, great user experience
Examples of non-semantic elements:  and  - Tells nothing about its content.
Examples of semantic elements: <form>, <table>, and <article> - Clearly defines its content

SELF-CLOSING tags
In HTML, a self-closing tag is a tag that does not have a separate closing tag. Instead, the tag is closed with a forward slash ("/") immediately before the closing angle bracket (">").
Self-closing tags are used for elements that do not have any content or child elements, such as images, line breaks, and input fields.

BOLD VS STRONG
BOld is used for visual representation of text, makes the text bold.
Strong is used to show importance of the text by making it bold or highlighting it semantically.
In HTML, both the <b> and  tags are used to apply bold formatting to text. However, they have slightly different meanings and uses.
The <b> tag is used to indicate that text should be displayed in a bold font. It does not carry any particular semantic meaning and is typically used for styling purposes only. For example, you might use the <b> tag to make a particular word or phrase stand out in a paragraph.
The  tag, on the other hand, is used to indicate that text is particularly important or significant. In addition to applying bold formatting, it also carries semantic meaning, indicating that the text is of greater importance than the surrounding text. For example, you might use the  tag to highlight a warning or important note in a document.

Italics vs emphasis
In HTML, both the <i> and  tags are used to apply italic formatting to text. However, they have slightly different meanings and uses.
The <i> tag is used to indicate that text should be displayed in an italic font. It does not carry any particular semantic meaning and is typically used for styling purposes only. For example, you might use the <i> tag to indicate a book or movie title within a sentence.
The  tag, on the other hand, is used to indicate that text should be emphasized. In addition to applying italic formatting, it also carries

semantic meaning, indicating that the text is important or should be emphasized in some way. For example, you might use the  tag to highlight a key point or emphasize a word for added impact.

Strong vs emphasis
In HTML, both the  and  tags are used to indicate emphasis on text. However, they have slightly different meanings and uses.
The  tag is used to indicate that text is of strong importance or significance. It typically applies bold formatting to the text and is used to make the text stand out from surrounding text. For example, you might use the  tag to highlight a critical point in a document or to indicate a warning.
The  tag, on the other hand, is used to indicate that text should be emphasized. It typically applies italic formatting to the text and is used to draw attention to a particular word or phrase. For example, you might use the  tag to emphasize a particular word in a sentence to add emphasis or convey tone.

HTML5
Additon pf semantic tags
Multimedia support
Better SEO
Improved forms: HTML5 introduced several new form elements like <input type="date">, <input type="time">, <input type="email">, <input type="tel">, and <input type="url">, which make it easier to create forms that are more user-friendly and more secure.
Mobile device support

<!DOCTYPE html>
The <!doctype html> declaration tells the web browser that the HTML document is written in HTML5 and should be rendered according to the HTML5 specification. It also ensures that the web page is rendered consistently across different web browsers.

BOILER PLATE CODE
This is the standard format or skeleton of writing HTML Code.
In computer programming, boilerplate code or boilerplate refers to sections of code that have to be included in many places with little or no alteration.