HTML 5

# Front-End Develop

# (HTML)

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# HTML (Hypertext Markup Language)

It is a markup language, not a programming language. It doesn't contain any logic; it's simply used to indicate elements like text, headers, and so on.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>

</body>
</html>
```

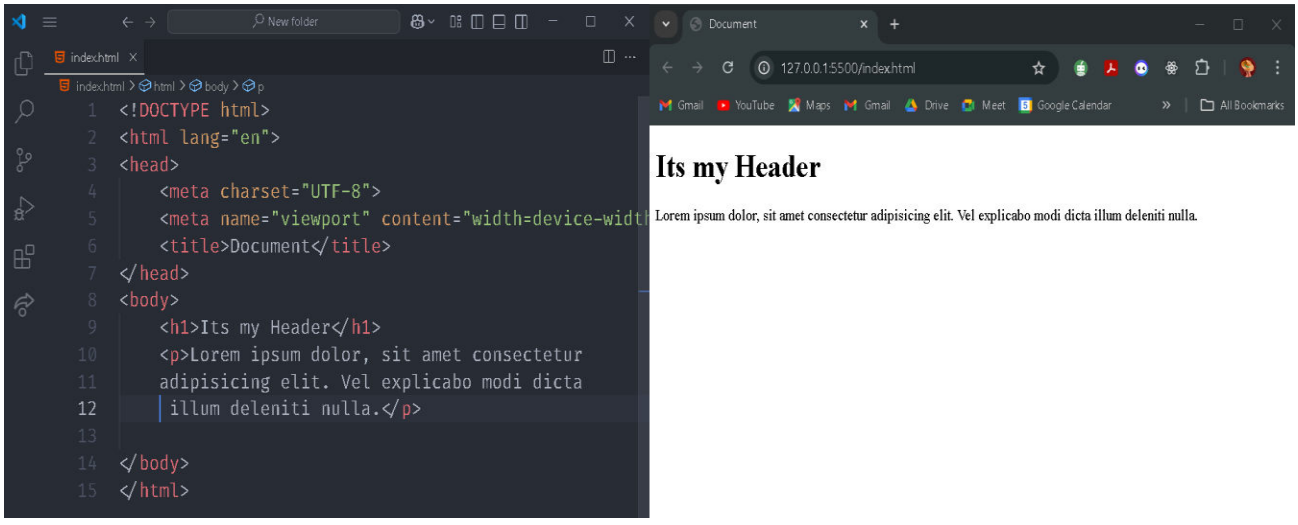
The overall structure of HTML consists of two main tags: `<head>` and `<body>`. It follows a tree-like structure. The `<head>` tag mainly contains definitions such as linking stylesheets, various meta tags, and elements related to SEO. The `<body>` tag represents the main part of the page, where all the content and other tags are placed.

# HTML(tags)

<h1> is known as a heading tag, HTML headings are defined with the <h1> to <h6> tags.

<h1> defines the most important heading. <h6> defines the least important heading.

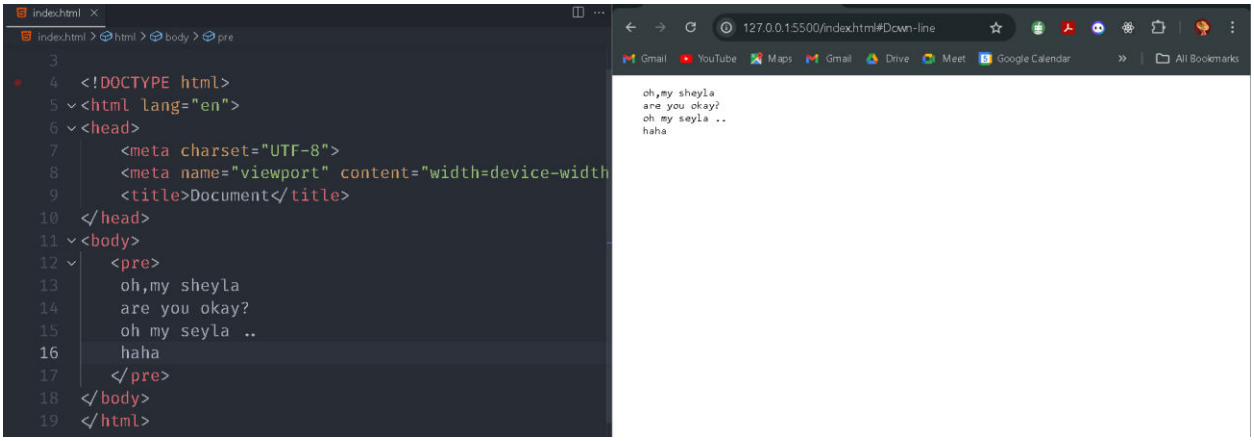
<p> is known as a paragraph tag and is used to create a sentence or a paragraph.



The HTML <pre> Element

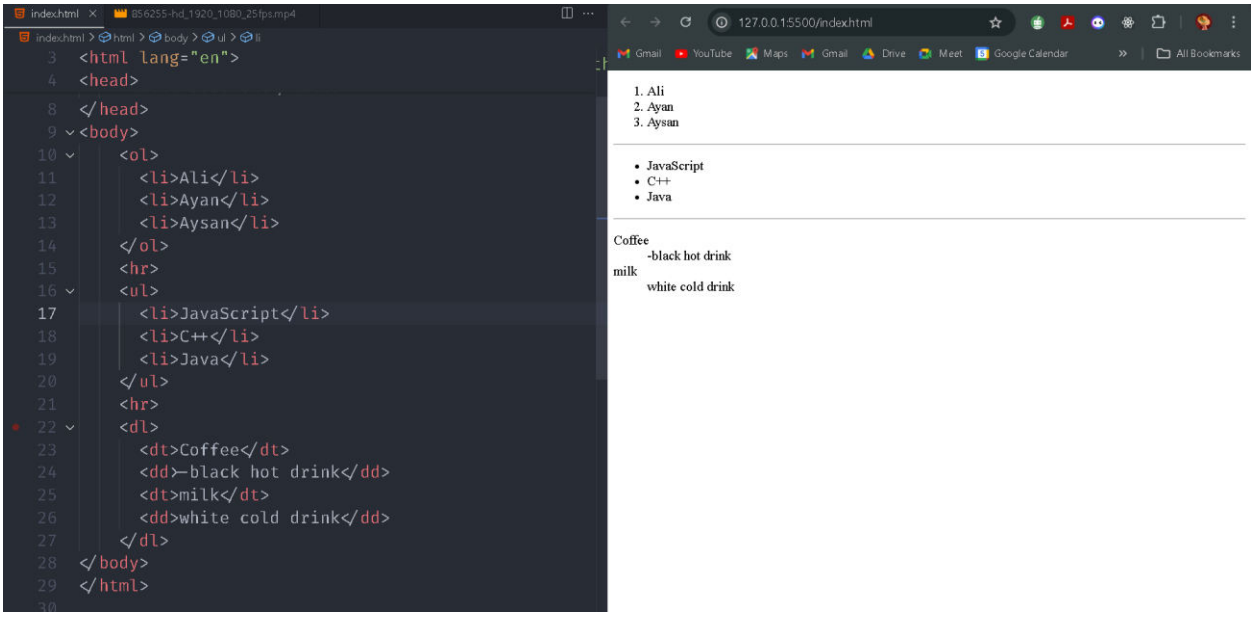
The HTML <pre> element defines preformatted text.

The text inside a <pre> element is displayed in a **fixed-width** font (usually Courier), and it preserves both spaces and line breaks, like when you're about to write a poem…



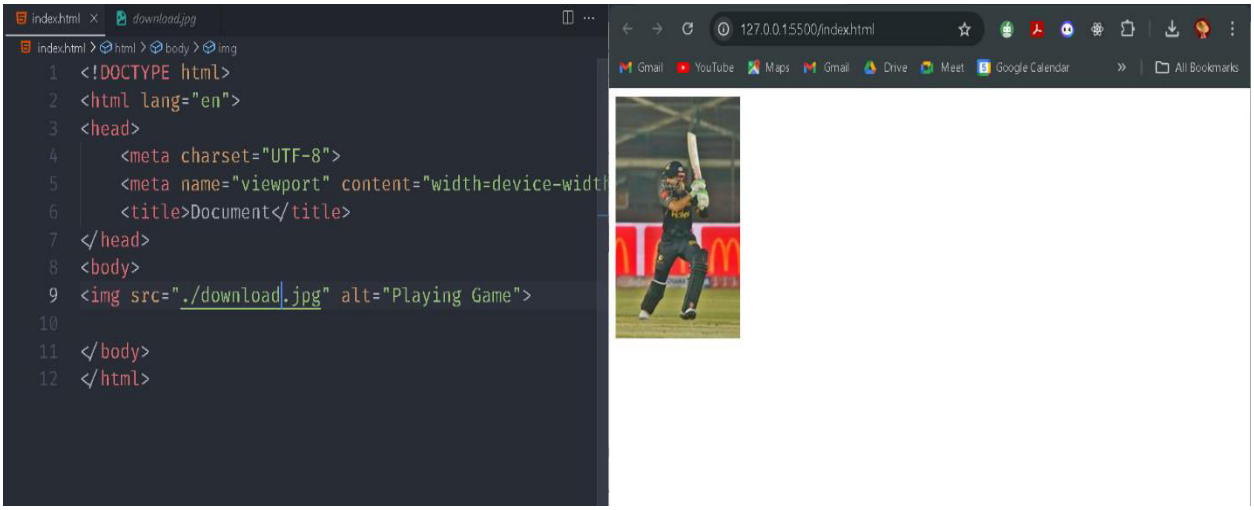
Another group of tags in HTML is lists, which come in two types: numbered and unnumbered. The **<ol>** tag stands for an *ordered list* (numbered), and the **<ul>** tag stands for an *unordered list* (bulleted).
Each of these list types contains inner **<li>** tags, which represent the individual list items.

2.A **description** list is a list of terms, with a description of each term. The **<dl>** tag defines the description list, the **<dt>** tag defines the term (name), and the **<dd>** tag describes each term



The next tag is <img>, which stands for image. This tag is used to display images on a web page. It has two main attributes:

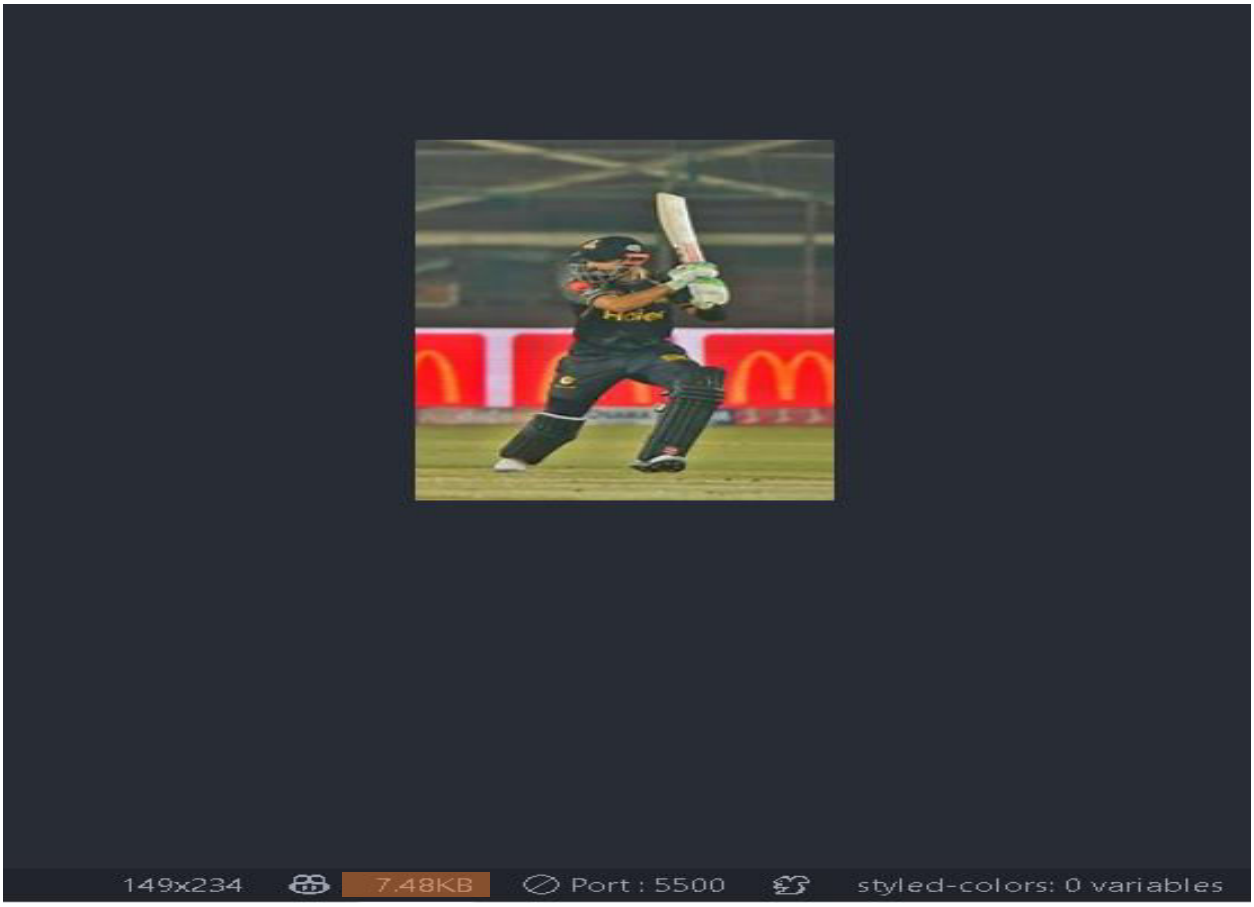
- src (short for source), which specifies the path to the image. This path can point to a file within the project folder or a direct link from the internet (e.g., from Google).
- alt (short for alternative), which provides alternative text. If the image fails to load, this text is shown instead. Additionally, when the user hovers over the image, this text may appear as a tooltip, offering helpful information.



The dimensions and file size of an image are very important for the speed and performance of a website. There are several ways to optimize or adjust image dimensions:

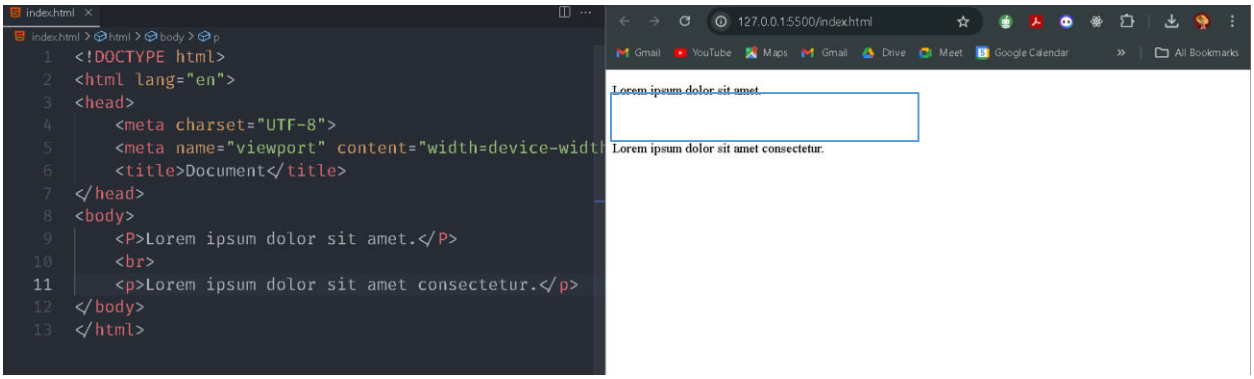
1. **Using attributes inside the <img> tag**:
   You can set the width and height attributes directly in the tag to control how the image is displayed on the page
2. **Using Paint in Windows**:
   You can open the image in Paint and resize it manually to reduce its dimensions and file size, then save it.
3. **Using online tools like [TinyPNG](TinyPNG)**:
   This is a more effective method. TinyPNG compresses the image file without significantly reducing its quality, which helps improve website loading speed and overall performance.

Optimizing images is a best practice for front-end development to ensure faster loading times and a better user experience.

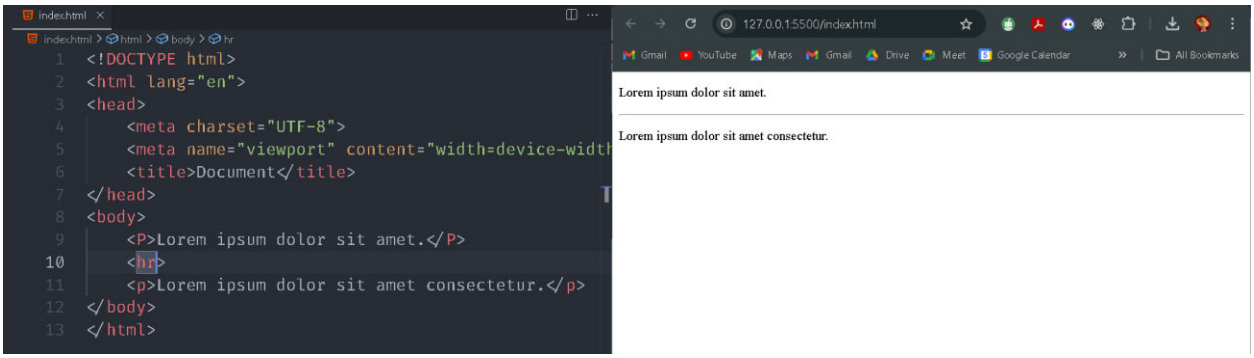


The two tags <br> and <hr> are abbreviations of specific terms and serve different purposes in HTML:

1. **<br> — Break (Line Break):**
   Stands for **"break"** and is used to move the content to a **new line**. It doesn't create any extra spacing or visual element—just breaks the line, similar to pressing "Enter" in a text editor.




**<hr> — Horizontal Rule:**
Stands for **"horizontal rule"** and is used to draw a **horizontal line** across the page. It's often used to visually separate content or sections.



The next tag is <a>, which represents a **link** on a website. It's used to create hyperlinks to other pages, sections, or external websites.

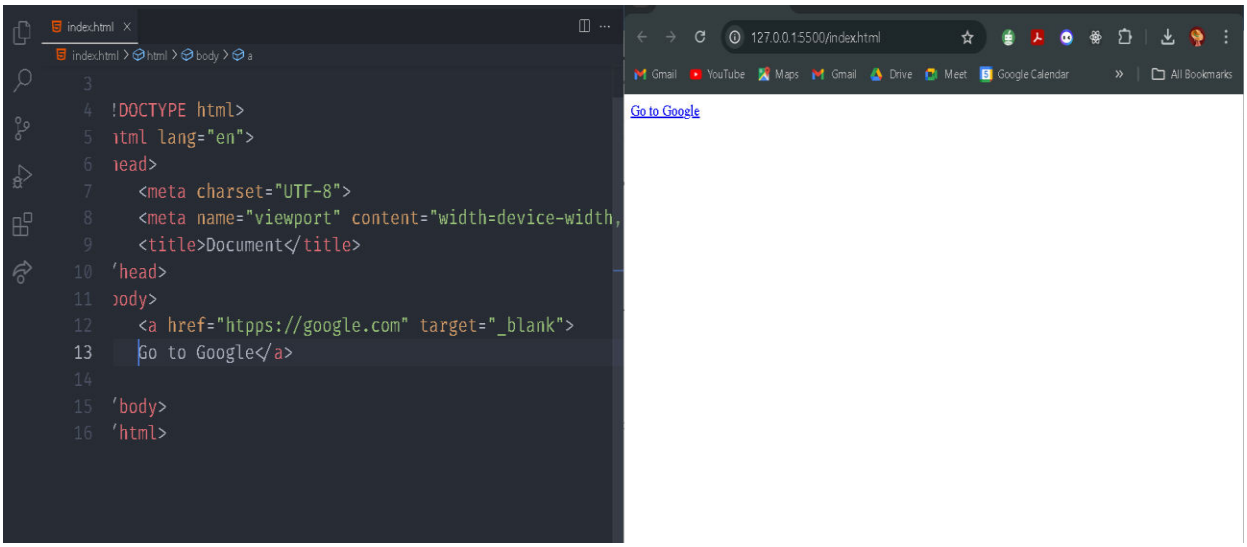
### Common attributes of the <a> tag include:

**href (Hypertext Reference):**
This defines the **destination URL** the link points to. It can be a relative path (e.g., ./page.html) or an absolute URL (e.g., https://example.com).

**target:**
This specifies **where** the linked document will open. Common values include:

_self (default): Opens the link in the **same tab**.

_blank: Opens the link in a **new tab** or window.




The link path in the <a> tag can also point to an **ID** or a **class**, each with specific purposes—especially for navigation within the same page or interaction with JavaScript and CSS.

### Linking to an ID (Anchor Link):

You can use the "href" attribute to point to an element's id within the same page. This is very useful for **scrolling to a section** of the page.

**<sub>, <sup>, , and  tags**

## 1. <sub> – Subscript

Used to display **text below the normal line**. It's commonly used in chemical formulas or mathematical expressions.

## 2. <sup> – Superscript

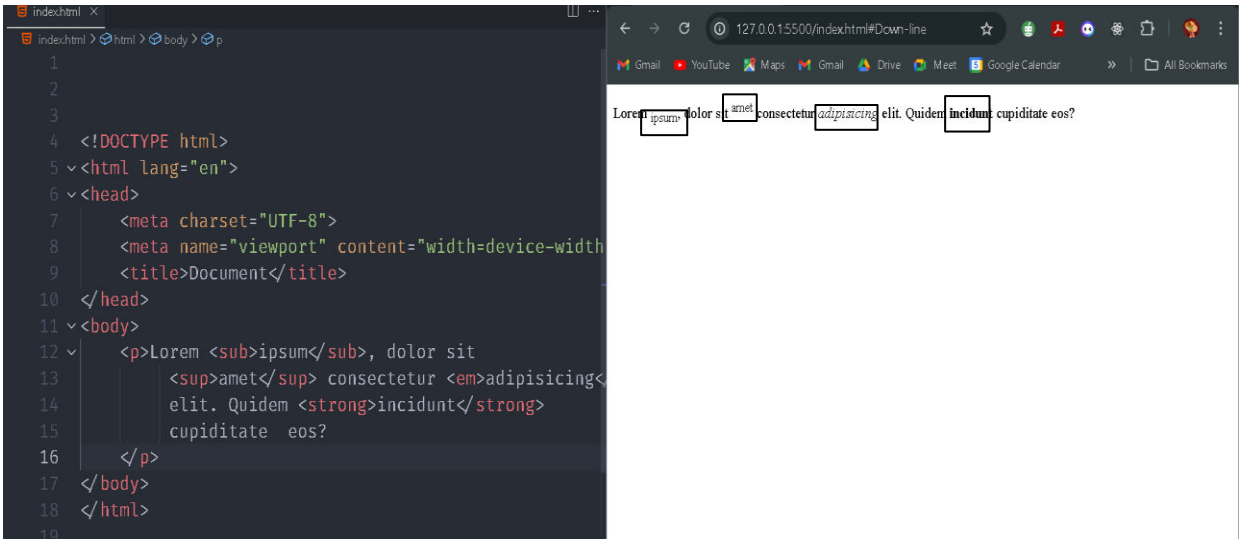
Used to display **text above the normal line**, often used for exponents or footnotes.

## 3.  – Strong Importance

Used to indicate **strong importance or emphasis**. Browsers usually render it as **bold** text.

## 4.  – Emphasis

Used to place **emphasis** on text. Browsers usually render it as *italic* text. It's also helpful for screen readers to convey emphasis.




Formatting elements were designed to display special types of text:

**<b>** - Bold text , **** - Important text , **<i>** - Italic text , **** - Emphasized text , **<mark>** - Marked text , **<small>** - Smaller text , **<del>** - Deleted text **, <ins>** - Inserted text

HTML **Quotation** and **Citation** Elements :

The HTML **<blockquote>** element defines a section that is quoted from another source this tag has an attribute *cite =*

The HTML **<q>** tag defines a short quotation “ ”

The HTML **<abbr>** tag defines an abbreviation or an acronym, like "HTML", "CSS", "Mr.", "Dr.", "ASAP", "ATM".

The HTML **<address>** tag defines the contact information for the author/owner of a document or an article, the text in the <address> element usually renders in *italic,* and browsers will always add a line break .

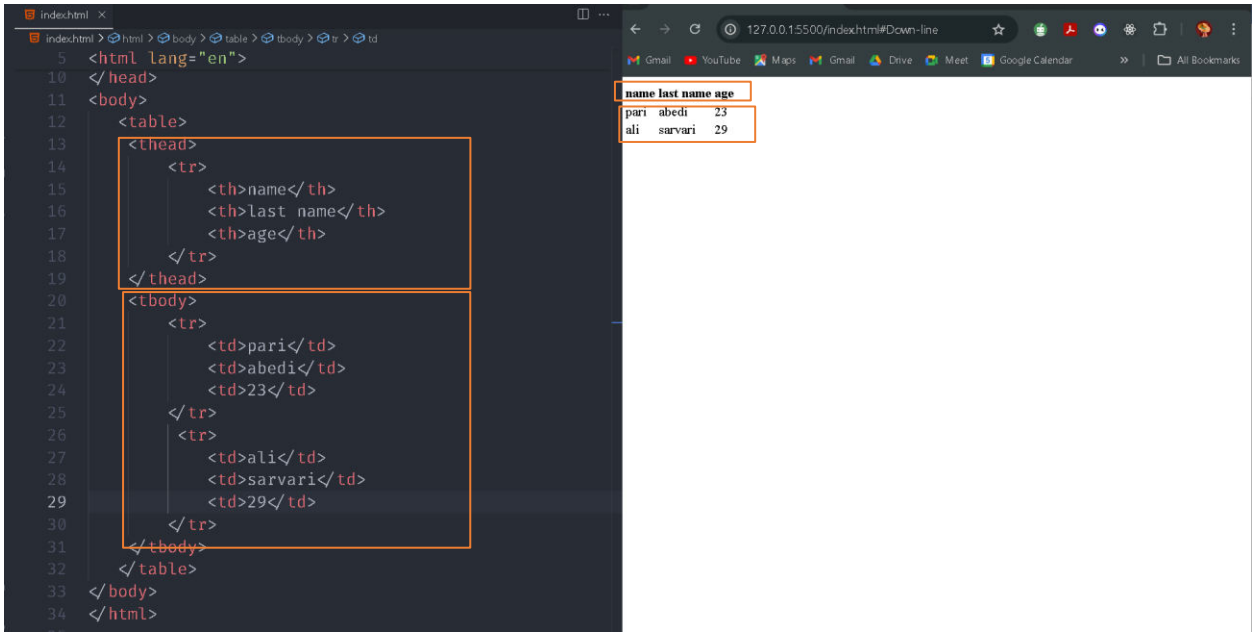
The next tag:

we’re going to discuss is the **<table>** tag. It consists of two main child tags:

**<thead> and <tbody>.**

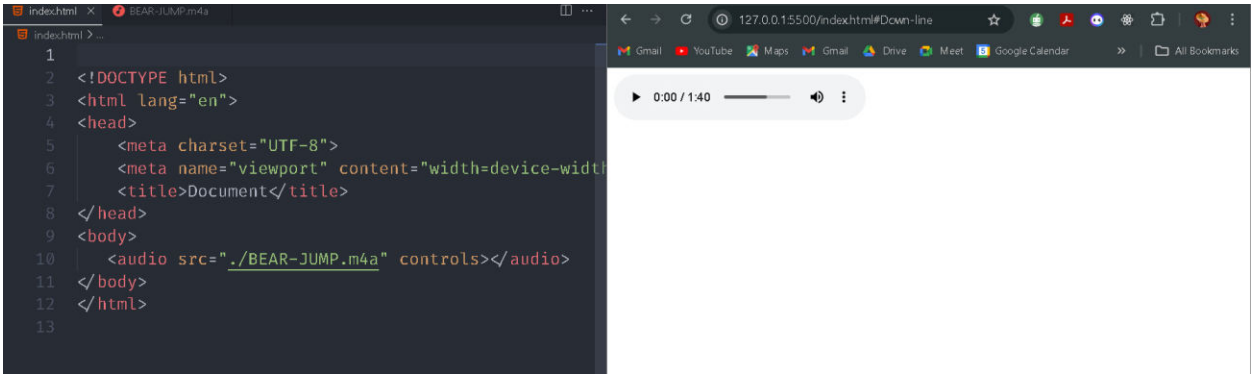
The <thead> section contains one <tr> (table row), which can include multiple <th> (table header) elements. These define the headers of the table columns.

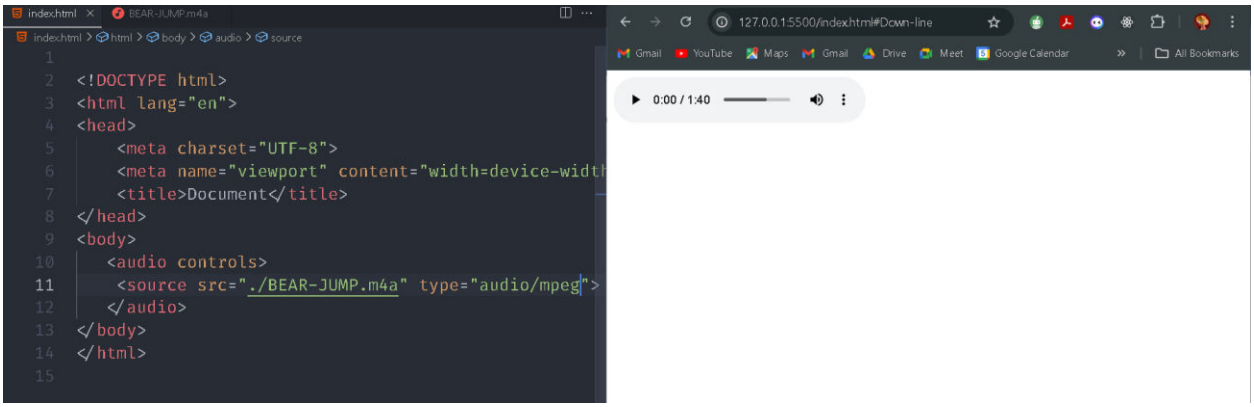
The <tbody> section also includes one or more <tr> elements, each of which can contain multiple <td> (table data) elements. These represent the actual data in the table rows.



The **<audio>** tag is used to play music or sound on a website. It has a "src" attribute that lets you specify the path to the audio file, similar to how the <img> tag works. It also includes a "controls" attribute, which displays built-in playback options like play, pause, and download for the user.

If you don't want to use an MP3 file, you can include multiple <source> tags inside the <audio> element. Each <source> can define a different audio format using the type attribute, such as audio/ogg or audio/wav. This allows the browser to pick the format it supports best.

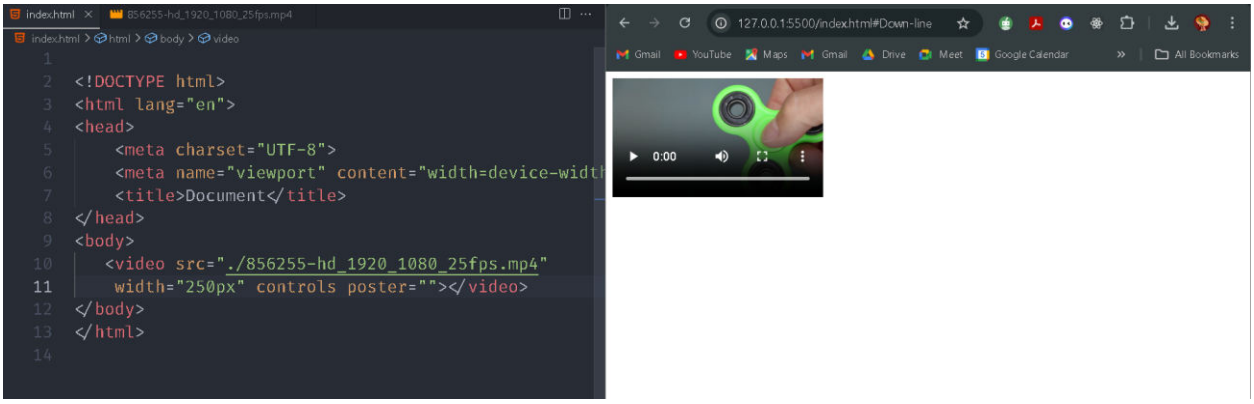


The next tag we're going to look at is the **<video>** tag. It works almost exactly like the <audio> tag, with attributes like "src" for the video file path and "controls" to show playback options such as play, pause, and volume.

However, unlike <audio>, the <video> tag has an additional attribute called "poster". The poster attribute allows you to display an image **before** the video starts playing—essentially acting as a thumbnail or preview.

This makes **<video>** more visually interactive, especially when used for multimedia content on a website.




**Playing a YouTube Video in HTML**

Define an <iframe> element in your web page Let the "src" attribute point to the video URL

Use the width and height attributes to specify the dimension of the player

```
<iframe width="420" height="315"
src="https://www.youtube.com/embed/tgbNymZ7vqY?playlist=tgbNymZ7vqY&loop=1">
</iframe>
```

# Forms

One of the most commonly used parts of HTML is **forms**, which include child tags like <label> and <input>.

The <label> tag is the **text that appears before an input element**, such as a checkbox. It often uses the "for" attribute, which links the label to a specific input by matching its id. This allows the user to click on the label to activate or focus the corresponding input, improving usability.

The <input> tag is the actual element that receives data from the user. It has several important attributes:

- **type**: Specifies the type of input (e.g., text, checkbox, email, radio, password, etc.).
- **name**: Helps with SEO and allows the data to be correctly identified and submitted.
- **id**: Useful for linking to the label and also for applying CSS styles.
- **placeholder**: Displays a hint inside the input box before the user enters data.
- **value**: Sets a default value for the input field.

After input elements, a form may also include a **textarea**, which is used for multi-line text input. The <textarea> tag comes with attributes like:

- name: Identifies the data on submission.
- id: For CSS styling or linking with a label.
- rows and cols: Define the number of visible text lines and the width of the textarea

Two other commonly used types of <input> elements in HTML are **checkboxes** and **radio buttons**.

The difference between them lies in the **number of selections allowed**:

- **Radio buttons** (type="radio") allow the user to **select only one option** from a group.
- **Checkboxes** (type="checkbox") allow the user to **select multiple options**.

Both of these inputs support several important attributes:

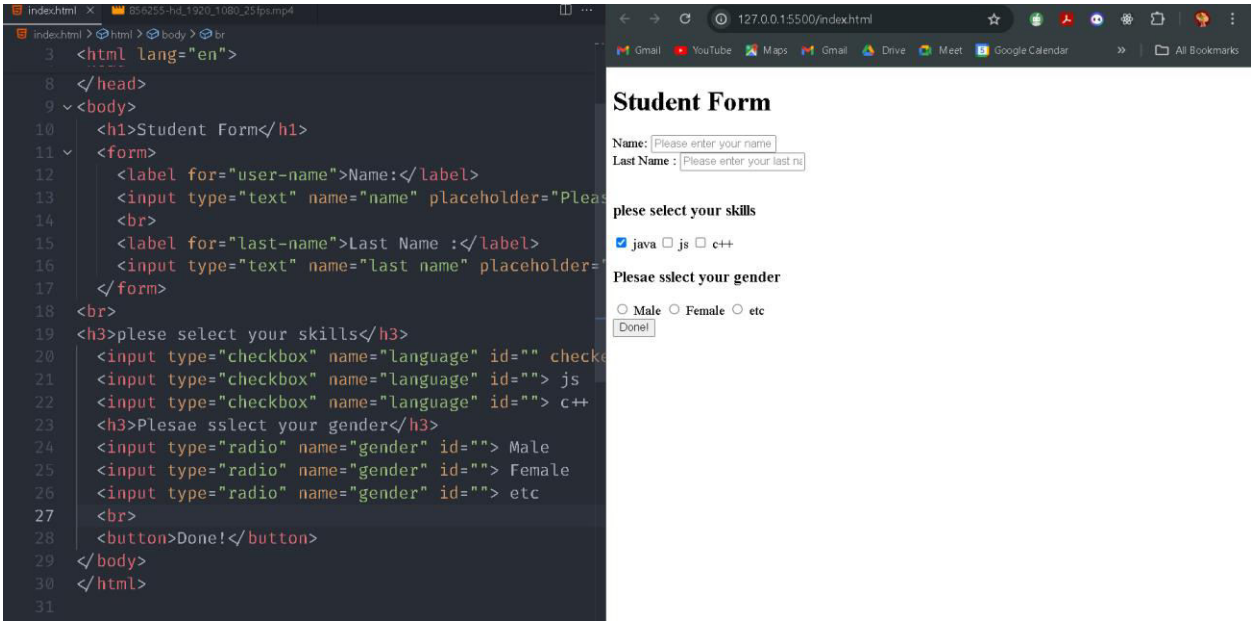
- **type**: Specifies whether the input is a checkbox or radio button.
- **name**: Helps identify the group of inputs and is also important for SEO and form data processing.
- **value**: Defines the value that will be submitted when the option is selected. In JavaScript, it can be used to determine which button the user clicked.
- **checked**: If this attribute is present, the input will be **pre-selected** (checked) by default when the page loads.

Lastly, there are two other important elements in HTML forms: **select boxes** and **button elements**.

- A **select box** is created using the **<select>** tag and contains one or more **<option>** elements as its children. Each <option> has a "value" attribute, which determines what data will be submitted when that option is selected. As mentioned earlier, this value can also be accessed and used in JavaScript to detect the user's selection.
- A **button** is created using the **<button>** tag and includes a type attribute. Common values for type include:
    - submit: Submits the form.
    - reset: Resets the form fields.
    - button: A general-purpose button, often used with JavaScript.

Buttons can also include text or even icons inside the tag content, allowing for more flexible design compared to <input type="submit">.

These elements help enhance the interactivity and usability of web forms, allowing users to select from predefined options or trigger actions with a button click.



At the end, let's take a look at the basic structure of an HTML5 page. It usually starts with a **header** that can include a **navigation bar**. After that, we have the **main** part of the page, which includes some **articles**. These articles are separate from each other and not connected in meaning.

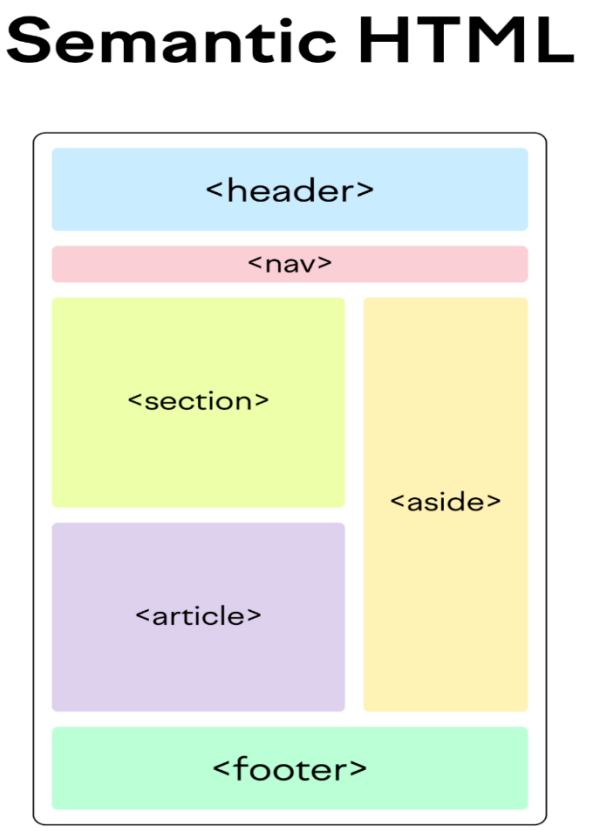
Next to the main part, there's an **aside** section. This is usually used for extra content, like links or ads, and it appears beside the main content.

At the bottom, we have the **footer**, which can include several **sections**. These sections, like the articles, hold different content, but unlike articles, they don’t have to be related in meaning.

This is the general layout of an HTML5 page. But keep in mind, you could also use regular ** ** or **** tags instead of these semantic elements, and the appearance of the website wouldn’t really change.

### Semantic HTML Benefits

- Makes the code more readable
- Helps with SEO (Search Engine Optimization)
- Improves accessibility for screen readers



# Div & Span ?

** and  in HTML – Simple Explanation:**

** ** is a block-level element. It's used to group larger sections of content together. Think of it like a container or a box that can hold paragraphs, images, or even other divs. It starts on a new line and stretches across the full width of its parent.

> *Example use:* Wrapping a whole section of your webpage like a sidebar, footer, or a card.

**** is an inline element. It's used for styling or grouping small parts of text inside a line, without breaking the flow. Think of it as a highlighter for short phrases or words.

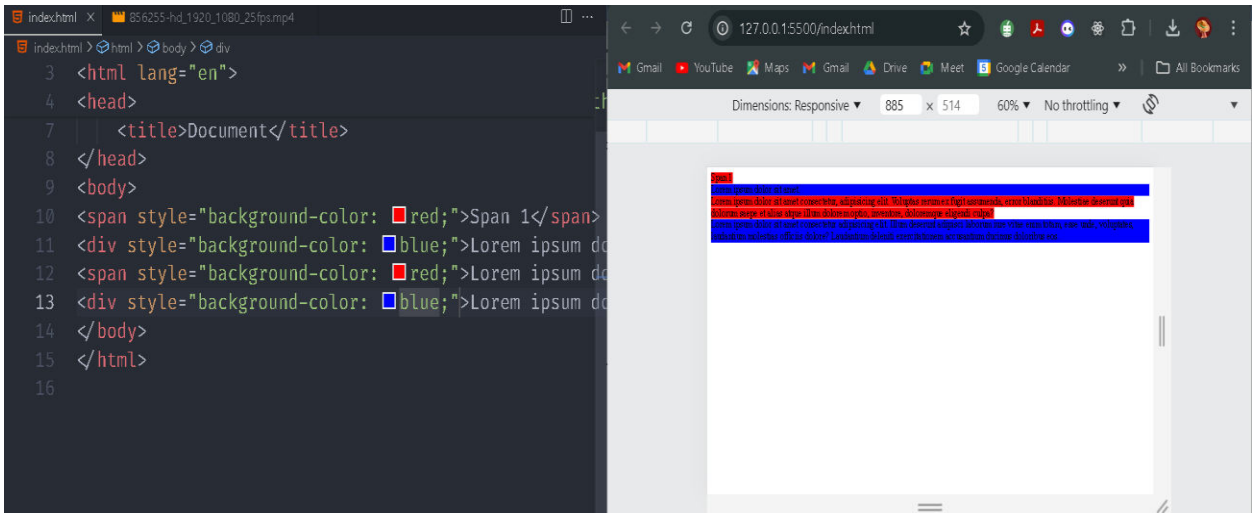
> *Example use:* Changing the color of one word in a paragraph without affecting the whole paragraph.

**In short:**

Use  for big blocks of content.

Use  for small pieces of text inside a line.

They don't have any meaning on their own—they're just containers. But they're very useful for layout and styling, especially with CSS.



## Class & id?

In HTML, class and id are **attributes** that help you style elements with CSS or interact with them using JavaScript.

- **id** is used to identify **one unique element** on the page. Each id must be **different** from others.  id like a **unique name**
- **class** is used to group **multiple elements** together that share the same style or behavior. class like a **label for a group**


## The **<head>** Section in HTML

The <head> section of an HTML document contains important meta-information about the webpage that is not displayed directly on the page but is crucial for SEO, responsiveness, and proper page rendering.

Important Meta Tags:

1. **Meta Description**
   This tag provides a brief summary of the webpage content. It helps search engines understand what the page is about and often appears as the snippet below the page title in search results.

   <meta name="description" content="A short description of the webpage content for SEO purposes.">

2. **Viewport Meta Tag**
   This tag is essential for responsive design. It ensures the website displays correctly on different devices such as mobiles, tablets, and desktops by controlling the page's dimensions and scaling.

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

3. **Meta Charset**
   Defines the character encoding for the HTML document, ensuring correct display of text and symbols. UTF-8 is the most commonly used charset.

   <meta charset="UTF-8">

4. **Meta Author**
   Specifies the author of the webpage or website. This can be helpful for SEO and identifying the content creator.

   <meta name="author" content="Author Name">

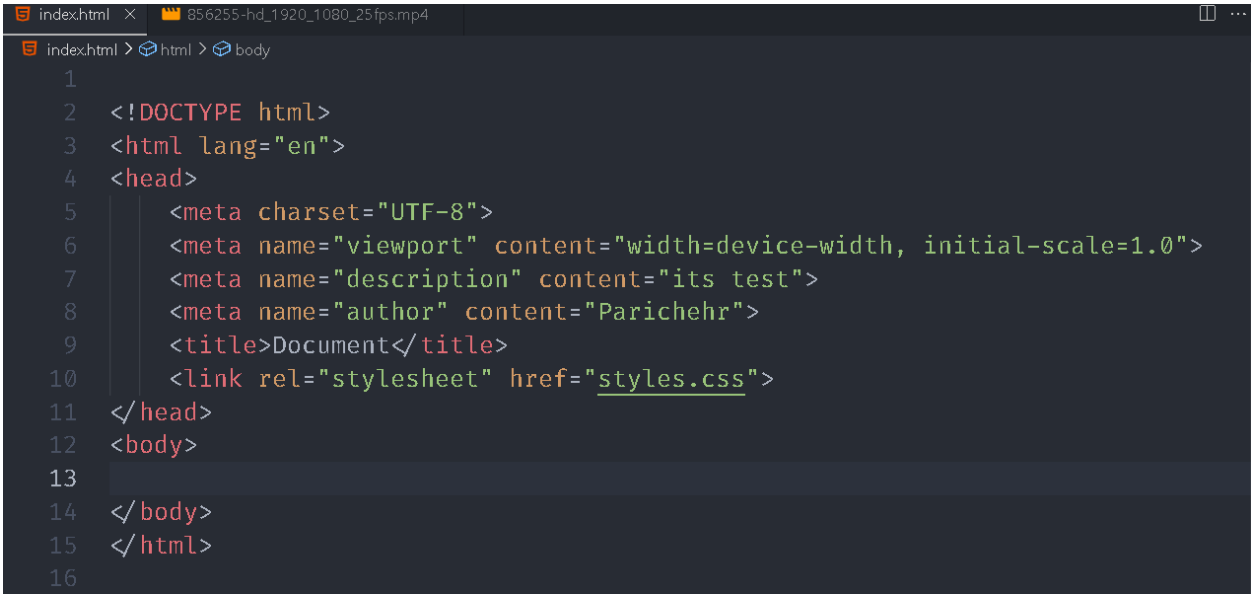
Other Common Elements in <head>:

- **Adding a Website Logo and title (Favicon)**
  To show a small icon in the browser tab, you can link to a favicon image:

  <link rel="icon" href="path/to/favicon.ico" type="image/x-icon">
  <title>My website</title>

- **Linking CSS Stylesheets**
  External CSS files are linked in the <head> to style the webpage:

  <link rel="stylesheet" href="styles.css">




NOTS:

1.HTML will collapse all the white space

2.With LoremIpsum we can write a fake sentences

3.Emmets can make coding easier (ul>li*5 → creates 5 list items inside a ul)

4. Self-closing tags are HTML tags that don't need a separate closing tag.

5.***<!--*** ***-->*** it's how we can make a comment in HTML

6. All HTML elements can have attributes; Attributes provide additional information about elements