

HTML

Introduction:

HTML is also known as Hyper Text Markup Language. It was first developed by Tim Berners-Lee in 1991. It is updated to a different version, but HTML5 is the latest version. It is the markup language, not a programming language that is used to manage content on the web. It manages text, image, link and media in a web using elements and tags which is interpreted on the browser. It is also a static language because it combines with CSS and JavaScript to make it interactive and stylish. In 2025, more than 95% of websites use HTML along with CSS and JavaScript for web development.

Roles of HTML:

- HTML is the backbone of every webpage.
- It sets the content and structure of every content using tags and attributes in a webpage.
- It is not complete, but it works as a baseline for designing with behavioral activities.

Importance of HTML:

- It gives a skeleton structure to the webpage.
- It makes the content readable on devices and associated technologies.
- HTML5 introduced the concept of semantic tags, which improve SEO and clarity of content.
- It gives multimedia elements to improve the experience of the user.
- It combines with CSS and JS to make the best responsive and dynamic website.

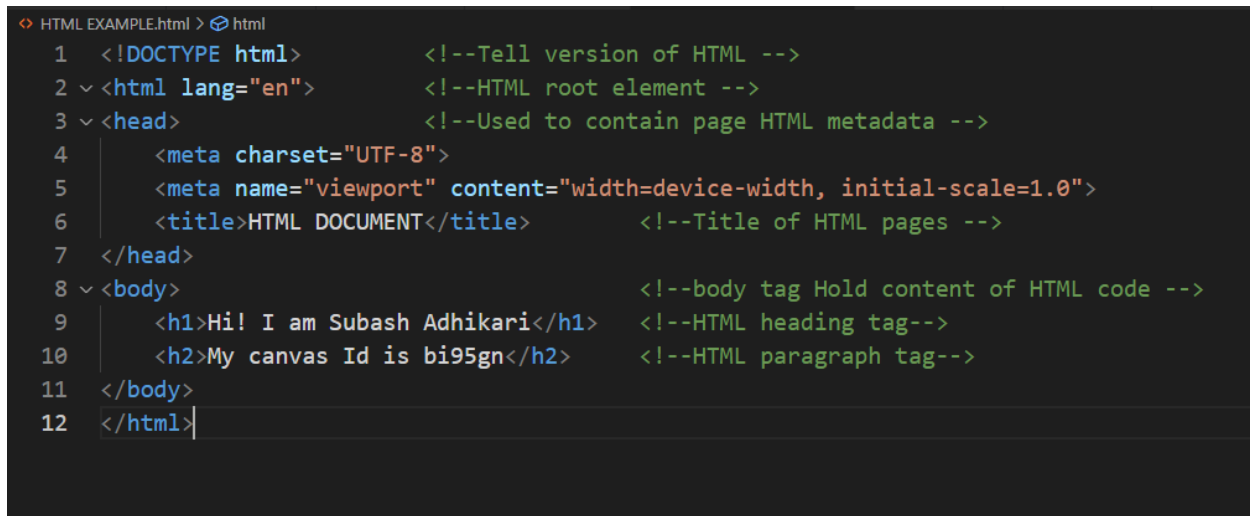
How does HTML work?

The basic and essential component of the HTML page is made up of different building blocks like doctype declaration, HTML, Head, Title and Body elements. An HTML file is always saved as “.html” or “.htm” extension. Once the file is saved with using HTML extension is directly opened in the browser. A web browser can directly read an HTML file and convert the tags into a visual component to show on a webpage.

HTML page structure:

Basically, HTML document is made up of two components, which are head and body. A head contains metadata like title, scripts and links. Body holds all the contents like image video and text and makes it visible on webpage.

Let's take an example:



```
1 <!DOCTYPE html>           <!--Tell version of HTML -->
2 <html lang="en">           <!--HTML root element -->
3 <head>                     <!--Used to contain page HTML metadata -->
4   <meta charset="UTF-8">
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">
6   <title>HTML DOCUMENT</title>      <!--Title of HTML pages -->
7 </head>
8 <body>                     <!--body tag Hold content of HTML code -->
9   <h1>Hi! I am Subash Adhikari</h1> <!--HTML heading tag-->
10  <h2>My canvas Id is bi95gn</h2>  <!--HTML paragraph tag-->
11 </body>
12 </html>
```

Figure 1: Sample of HTML syntax

- **<!DOCTYPE html>**
This is a declaration type that is used to define that the document is made in an HTML5 document.
- **<html>...</html>**
It is a container for HTML element. All the elements used in HTML are inside it.
- **<head>...</head>**
The head tag is the background element for the webpage which works behind the UI and is not visible on the front end of the webpage.
Here are some of the elements that are always inside the head:
 - <title>...</title>**: The text between the tag title is displayed in the browser tab.
 - <meta>**: It shares the information like the character set.
 - <link>**: It will link the external resources or stylesheets.
 - <style>**: It will embed internal CSS style
 - <script>**: It will carry or embed the JavaScript code in the web page
- **<h1>**: It is a first-level heading tag.
- **<h2>**: It is a second-level heading tag.
- **<body>...</body>**: The body tag keeps all the visible content of a webpage. In other words, it is also taken as front front-end part which is displayed in the browser.

HTML Element and HTML Tag:

HTML tag is the keyword that is written inside the angle bracket "<>" that requests the browser to operate based on the type of content. On the other hand, HTML elements are similar to tags but are a complete structure including an opening tag, content (if needed) and closing tag (if needed).

Let's take an example:

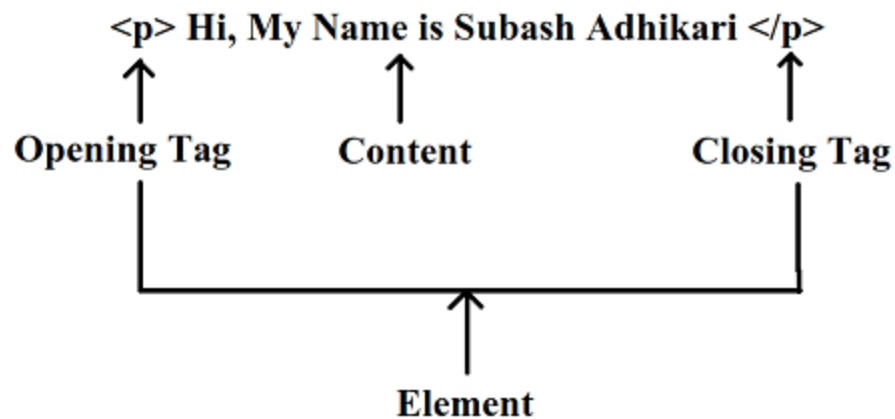


Figure 2: HTML Element and Tags

Where,

`<p>` - Opening Tag

"Hi, I am Subash Adhikari" - content

`</p>` - Closing Tag

Here are some of the HTML tags,

S.N	Tag	Syntax	Description
1	<code><html></code>	<code><html>....</html></code>	Root of HTML document
2	<code><head></code>	<code><head>...</head></code>	Contain metadata about the webpage
3	<code><body></code>	<code><body>...</body></code>	Contain visible frontend content in the webpage
4	<code><h1></code> to <code><h6></code>	<code><h1>...</h1></code> to <code><h6>...</h6></code>	Heading tags from 1 to 6, where h1 is the largest and 6 is the smallest
5	<code><address></code>	<code><address>...</address></code>	Denote the contact info
6	<code><a></code>	<code>...</code>	Denote as an anchor tag for creating a hyperlink
7	<code><audio></code>	<code><audio>...</audio></code>	If you want to add sound or audio in a webpage
8	<code></code>	<code>...</code>	Used to make text bold
9	<code>
</code>	<code>
</code>	Used to insert break in documents
10	<code><button></code>	<code><button type ="button"></code>	Denote the clickable button
11	<code><caption></code>	<code><caption align ="value"></code> <code>...</caption></code>	Denote the caption of the table
12	<code><center></code>	<code><center>...</center></code>	Align text in center alignment
13	<code><div></code>	<code><div>...</div></code>	Used to divide webpage (header, footer, videos, images, etc.)
14	<code></code>	<code></code> <code>...</code>	Used to create attractive fonts in a webpage
15	<code><footer></code>	<code><footer>...</footer></code>	Denote the section containing footer info
16	<code><header></code>	<code><header>...</header></code>	Denote the section containing header info
17	<code><iframe></code>	<code><iframe</code> <code>src="URL"></iframe></code>	Denote the rectangular frame for displaying separate docs
18	<code></code>	<code><img src="URL"</code> <code>alt="some text"></code>	Used to add an image to a webpage
19	<code><input></code>	<code><input type="value" ...></code>	Used to declare input, allowing user to input data

20	<i>	<i>...</i>	Make text italic
21	<label>	<label>...</label>	Used to keep text label
22		 list item 	Denote the list element
23		...	Denote an ordered list
24		...	Denote an unordered list
25	<marquee>	<marquee>...</marquee>	Used to create scrolling text
26	<nav>	<nav> Links...</nav>	Create navigation element
27	<option>	<option>...</option>	Used to make a selectable option in a dropdown menu
28	<p>	<p>...</p>	Denote paragraph
29	<script>	<script> Script content ...</script>	Used to denote the client-side script
30	<source>	<source src="" type="">...</source>	Used to attach multimedia files
31		...	Create inline container for content
32	<table>	<table>...</table>	Arrange data in rows and columns
33	<th>	<th>...</th>	Denote table header
34	<td>	<td>...</td>	Denote table data
35	<u>	<u>...</u>	Used to underline content
36	<link>	<link rel="stylesheet" href="style.css">	Used to link external source (stylesheet, icons, etc.)
37	<!-- -->	<!-- -->	Write Comment

Table : List of HTML tags, syntax and description

HTML Attributes:

Attributes are the additional info about the element that is placed inside the opening tag of the HTML tag written as name="value". It is used to set and adjust the appearance and functionality of the element. Each attribute in HTML has a name and a value which is written as name="value".

Syntax:

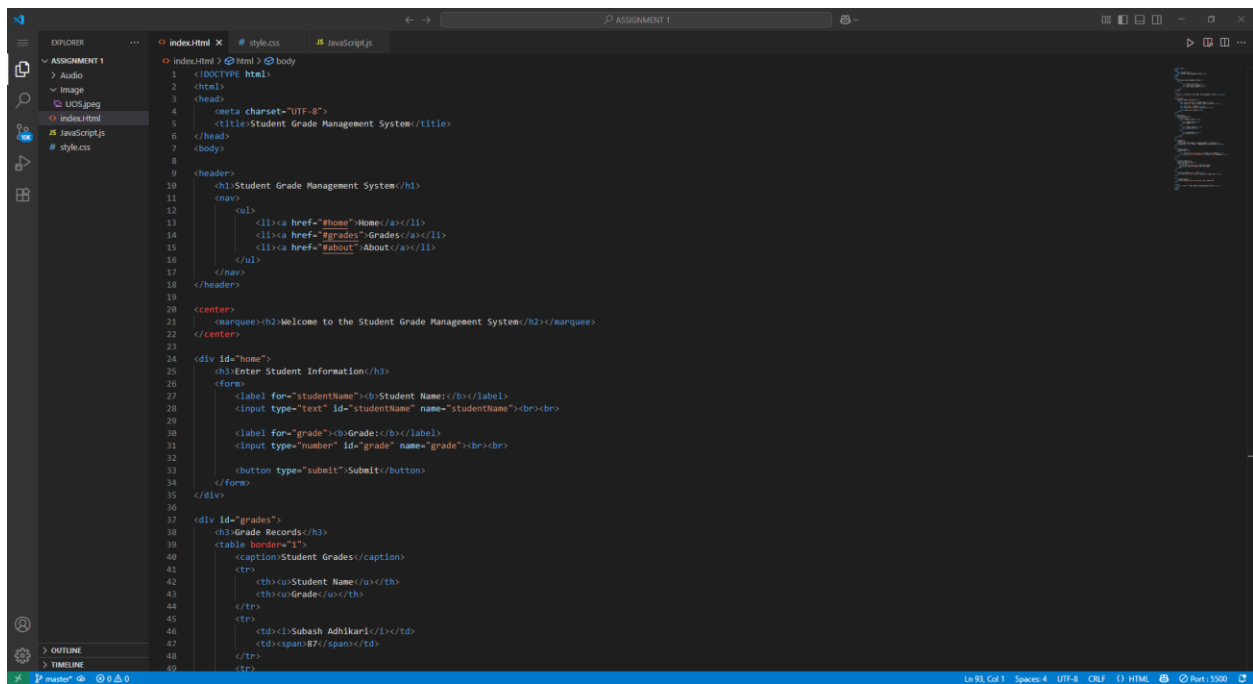
<tagname attribute_name="attribute_value"> written text / info </tagname>

example:

```
HTML EXAMPLE.html > html > body
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <title>Subash Adhikari - bi95gn</title>    <!--Title of HTML pages -->
7  </head>
8  <body>
9          <!--HTML image tag-->
10         <!--HTML image from web tag-->
12 </body>
13 </html>
```

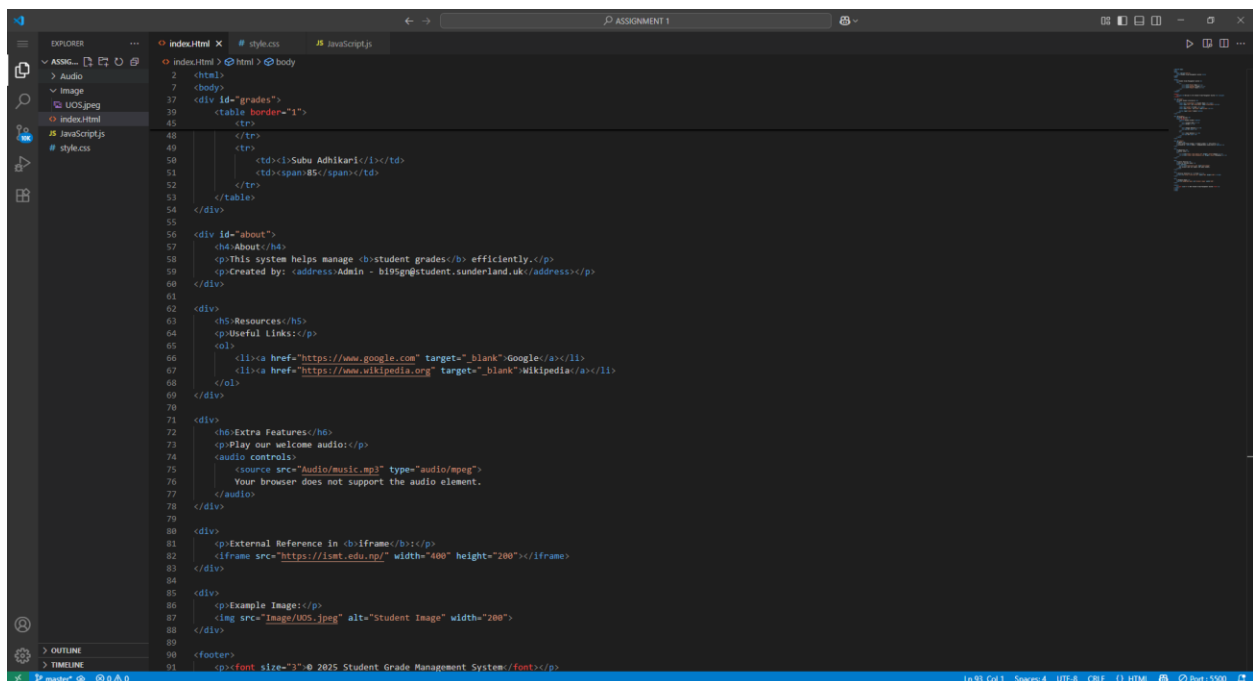
Figure 3: HTML Attributes

Example / Evidence:



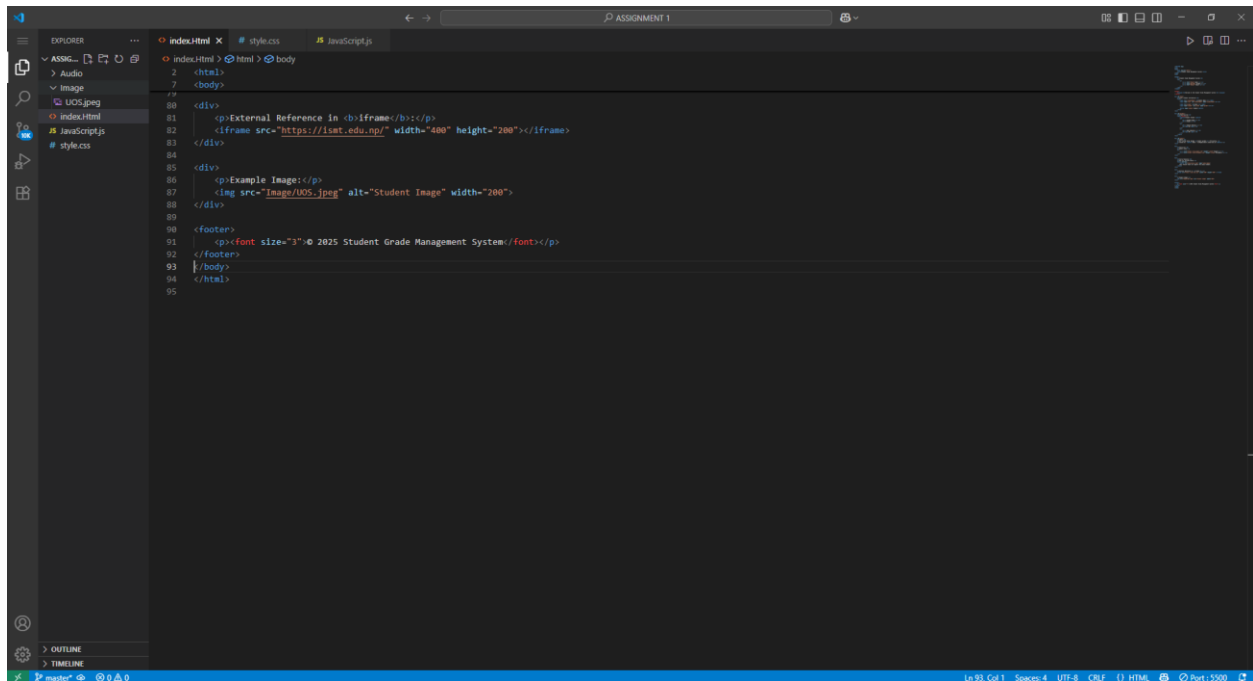
```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <meta charset="UTF-8">
5   <title>Student Grade Management System</title>
6 </head>
7 <body>
8
9 <header>
10  <h1>Student Grade Management System</h1>
11  <nav>
12    <ul>
13      <li><a href="#home">Home</a></li>
14      <li><a href="#grades">Grades</a></li>
15      <li><a href="#about">About</a></li>
16    </ul>
17  </nav>
18 </header>
19
20 <center>
21  <marquee><h2>Welcome to the Student Grade Management System</h2></marquee>
22 </center>
23
24 <div id="home">
25  <h3>Enter Student Information</h3>
26  <form>
27    <label for="studentName"><b>Student Name:</b></label>
28    <input type="text" id="studentName" name="studentName"><br><br>
29    <label for="grade"><b>Grade:</b></label>
30    <input type="number" id="grade" name="grade"><br><br>
31    <button type="submit">Submit</button>
32  </form>
33 </div>
34
35 <div id="grades">
36  <h3>Grade Records</h3>
37  <table border="1">
38    <caption>Student Grades</caption>
39    <tr>
40      <th><b>Student Name</b></th>
41      <th><b>Grade</b></th>
42    </tr>
43    <tr>
44      <td><b>Subash Adhikari</b></td>
45      <td><b>87</b></td>
46    </tr>
47  </table>
48 </div>
```

Figure 4: Screenshot of HTML codes



```
49  <tr>
50    <td><b>Suba Adhikari</b></td>
51    <td><b>85</b></td>
52  </tr>
53 </table>
54 </div>
55
56 <div id="about">
57  <h4>About</h4>
58  <p>This system helps manage <b>student grades</b> efficiently.</p>
59  <p>Created by: <address>Admin - bi95gn@student.sunderland.uk</address></p>
60 </div>
61
62 <div>
63  <h5>Resources</h5>
64  <p>Useful Links:</p>
65  <ol>
66    <li><a href="https://www.google.com" target="blank">Google</a></li>
67    <li><a href="https://www.wikipedia.org" target="blank">Wikipedia</a></li>
68  </ol>
69 </div>
70
71 <div>
72  <h5>Extra Features</h5>
73  <p>Play our welcome audio:</p>
74  <audio controls>
75    <source src="Audio/music.mp3" type="audio/mpeg">
76    Your browser does not support the audio element.
77  </audio>
78 </div>
79
80 <div>
81  <p>External Reference in <b>iframe</b></p>
82  <iframe src="https://isat.edu.ng/" width="400" height="200"></iframe>
83 </div>
84
85 <div>
86  <p>Example Image:</p>
87  
88 </div>
89
90 <footer>
91  <p><font size="12">© 2025 Student Grade Management System</font></p>
```

Figure 5: Screenshot of HTML codes



```
1 <html>
2 <html> <body>
3 <body>
4
5 //
6
7 <div>
8   <p>External Reference in <b>iframe</b></p>
9   <iframe src="https://ismt.edu.np/" width="400" height="200"></iframe>
10 </div>
11
12 <div>
13   <p>Example Image:</p>
14   
15 </div>
16
17 <footer>
18   <p><font size="3">© 2025 Student Grade Management System</font></p>
19 </footer>
20 </body>
21 </html>
```

Figure 6: Screenshot of HTML codes



Figure 7: Screenshot of Output Screen