

# HTML

## Chapter 1

### HTML Introduction

#### What is HTML?

- HTML stands for HyperText Markup Language.
- It is a type of markup language that is typically used to build web pages and other documents that are viewed in web browsers.
- HTML is made up of a collection of tags that are written in an HTML document, and files are commonly saved with the ".html" or ".htm" extension.

#### Features of HTML

- It is easy to learn and use.
- It is platform-independent.
- Images, videos, and audio can be added to a web page.
- It is a markup language.

#### Why to Learn HTML?

HTML is the backbone of web development. It offers the basic building blocks and framework needed to create web pages. Gaining expertise in HTML may lead to a variety of job opportunities in content creation, web development, and web design.

# HTML Page Structure

An HTML page's structure is often made up of many essential elements that help organize and define the webpage's content and layout.

```
<!DOCTYPE html>
```

Declares the document type and version of HTML being used.

```
<html>
```

The root element of the HTML page.

```
<head>
```

Contains meta-information about the HTML document, like the title, character set, etc.

```
<title> Document </title>
```

Sets the title of the HTML page.

```
<body>
```

Contains the content of the HTML page that will be displayed in the browser.

```
<h1>
```

The `<h1>` element defines a second large heading.

```
<p>
```

The `<p>` element defines a paragraph.

## Chapter 2

### HTML Basics

### HTML Tags

• HTML utilizes a variety of tags to arrange and format contents on web pages. Here are some commonly used HTML tags:

- `<!DOCTYPE html>`: Specifies the document type.
- `<a>`: Defines a hyperlink.
- `<abbr>`: Defines the abbreviation or short form of an element.
- `<address>`: Indicates the contact information of a person or an organization.
- `<article>`: Defines an article.
- `<aside>`: Sidebar content.
- `<audio>`: Defines sound content in the HTML page.
- `<b>`: Defines bold text.
- `<blockquote>`: Defines a section that is quoted from another source.
- `<body>`: Contains the content of the HTML page.
- `<br>`: Line break.
- `<button>`: Defines the clickable button.
- `<caption>`: Defines a table caption.
- `<cite>`: define the title of a work.
- `<code>`: Defines a piece of computer code.
- `<div>`: Defines a division or section in an HTML page
- `<em>`: Defines emphasized text.
- `<fieldset>`: Groups related elements in a form.
- `<footer>`: Defines a footer for a HTML page.
- `<form>`: Defines an HTML form.
- `<h1>` to `<h6>`: Defines headings of different sizes.
- `<head>`: Contains meta-information about the document, such as title, scripts, and styles.
- `<header>`: Defines a header for a HTML page.
- `<hr>`: Horizontal line.
- `<html>`: Specifies the document type.
- `<i>`: Display the content in italic style.
- `<iframe>`: Embeds another HTML page.
- `<img>`: Inserts an image.
- `<input>`: Defines an input control.

- `<li>`: Defines a list item.
- `<link>`: Links external resources like stylesheets.
- `<main>`: Specifies the main information of a document.
- `<marquee>`: Create scrolling text or images on a webpage
- `<meta>`: Provides metadata such as character set, author, and viewport settings.
- `<nav>`: Defines a navigation section in HTML page.
- `<ol>`: Defines an ordered list.
- `<option>`: Defines an option in a dropdown list.
- `<p>`: Defines a paragraph.
- `<pre>`: Defines preformatted text.
- `<q>`: Defines a short quotations.
- `<script>`: Defines client-side JavaScript.
- `<section>`: Defines a section in a document.
- `<select>`: Defines a dropdown list.
- `<span>`: Defines a section in a document for styling.
- `<strong>`: Defines bold text.
- `<style>`: Defines CSS styles for the document.
- `<table>`: Defines a table.
- `<tbody>`: Table body group.
- `<td>`: Defines a table data cell.
- `<textarea>`: Defines a multiline input control.
- `<th>`: Defines a table header cell.
- `<thead>`: Table header group.
- `<title>`: Sets the title of the html page.
- `<u>`: Underlined text.
- `<ul>`: Defines an unordered list.
- `<video>`: Embeds video content in the webpage.

## HTML Elements

HTML elements are the basic components of HTML pages. An HTML element is made up of a start tag, some content, and an end tag. A few elements in HTML are self-closing and empty, which means they contain no content.

**Example:**

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

In this example:

- `<p>` is the start tag.
- `</p>` is the end tag.
- "This is a paragraph" is the content of the paragraph element.

## Nested HTML Elements

Nested HTML elements refer to the structure where one HTML element is placed inside another.

**Example:**

```
<div>  
  <h1> This is a heading </h1>  
  <p> This is a paragraph </p>  
</div>
```

In this example, the `<h1>` and `<p>` element (child) is nested inside the `<div>` element (parent).

## What is an Empty HTML Element?

An empty HTML element is one that does not have a closing tag or content. These elements are also known as "self-closing elements."

**Example:**

```
<br>
```

This is a line break tag, which has no content and no closing tag. It's used to insert a line break

## HTML Attributes

HTML attributes are pieces of information that are added to HTML elements to give additional information or functionality. An HTML element's opening tag specifies attributes, which are made up of a name and a value separated by an equals sign (=) and surrounded in double quotes (").

### src Attribute

The src attribute specifies the URL of an external resource, such as an image or a script.

**Example:**

```

```

### href Attribute

The href attribute specifies the URL of the link's destination, used with <a> tag.

**Example:**

```
<a href=""> Visit my website </a>
```

### width and height Attributes

The width and height attribute is used to specify the width and height of an image.

**Example:**

```

```

### alt Attribute

The alt attribute displays alternative text for elements like <img> if the picture cannot be loaded.

**Example:**

```

```

## Style Attribute

The style attribute enables you to apply inline CSS styles to an element straight from the HTML.

### Example:

```
<h1 style="background-color:aqua; color:white;"> This is a  
heading </h1>  
<p style="background-color:aquamarine; color:red;"> This is a  
paragraph </p>
```

## HTML Comments

HTML comments are text snippets contained by `<!--` and `-->` in an HTML page. They are used for a variety of purposes, including giving explanations, reminders, and comments to developers working on the code.

### Types of Comments

There are two types of comments in HTML:

#### Single-line Comments

Single-line comments in HTML start with `<!--` and end with `-->`. Any information between these is treated as a comment and is not rendered by the web browser.

### Example:

```
<!-- This is a single-line comment -->
```

#### Multi-line Comments

Multi-line comments span multiple lines and are perfect for providing lengthy explanations.

### Example:

```
<!--  
This is a multi-line  
comment. -->
```

# HTML Headings

Headings in HTML are defined using heading tags. The heading levels are indicated by these tags, which go from `<h1>` to `<h6>`, with `<h1>` being the highest level of heading and `<h6>` the lowest.

Here's a quick summary of heading tags:

- The `<h1>` tag represents the page's top-level heading. It often indicates the content's primary title or headline.
- The `<h2>` tag is for headings that are significantly less essential than the `<h1>` headings.

Heading tags are useful not just for arranging content, but also for search engine optimization.

**Example:**

```
<h1> This is heading 1 </h1>
<h2> This is heading 2 </h2>
<h3> This is heading 3 </h3>
<h4> This is heading 4 </h4>
<h5> This is heading 5 </h5>
<h6> This is heading 6 </h6>
```

# HTML Paragraphs

The `<p>` tag is used to define a paragraph within a webpage. A paragraph always begins on a new line, and browsers automatically provide some white space before and after it.

**Example:**

```
<p> Hello, welcome to this HTML tutorial </p>
<p> This is a paragraph </p>
```

# Styling in paragraph

To style paragraphs in HTML, you can use CSS.

```
<p style="background-color:aquamarine; color:red;"> This is a
paragraph </p>
```

## HTML Horizontal Line

The `<br>` tag in HTML allows you to create a horizontal line. It adds a horizontal rule or line to the webpage.

### Syntax:

```
<hr>
```

### Example:

```
<h2> HTML </h2>
<p> HTML stands for Hyper Text Markup Language. HTML is the
standard markup language for creating Web pages. HTML describes the
structure of a Web page. HTML consists of a series of elements.
HTML elements tell the browser how to display the content. </p>
<hr>
<h2> CSS </h2>
<p> CSS stands for Cascading Style Sheets. It is a style sheet
language which is used to describe the look and formatting of a
document written in markup language. It provides an additional
feature to HTML. It is generally used with HTML to change the style
of web pages and user interfaces. </p>
```

## HTML Line break

The `<br>` tag in HTML creates a line break. This is an empty tag, which means it has no closing tag and is used to insert a single line break into the text.

### Syntax:

```
<br>
```

### Example:

```
<h2> HTML tutorial </h2>
<p> Hello, <br> welcome to this <br> HTML tutorial for
beginners </p>
```

## HTML Anchor Tag

HTML anchor tags `<a>` are used to create hyperlinks on web pages. It lets you connect to other websites, resources, or particular sections of the same website.

### Syntax:

```
<a href="your path"> link name </a>
```

### Attributes

Attributes	Description
download	Specifies that when a user clicks on the hyperlink, the target is downloaded.
href	Specifies the URL of the page that the link points to.
rel	Specifies the relationship between the current and linked document.
target	Specifies where to open the linked document

### Target Attribute Values

- **\_blank:** Opens the linked document in a new window or tab.
- **\_top:** Opens document in the full body of the window.
- **\_self:** Opens document in the same window or tab.
- **\_parent:** Opens the linked document in the parent frame.

Links in browsers commonly follow these rules:

- **Active links:** Underlined and red.
- **Visited links:** Underlined and purple.
- **Unvisited links:** Underlined and blue.

### Example:

```
<a href=""> Visit my website </a>
```

## HTML pre Tag

The `<pre>` tag in HTML defines preformatted text. It displays text exactly as it is typed in HTML code, including spaces, line breaks, and other formatting. It is mostly used for code snippets.

### Syntax:

```
<pre> content </pre>
```

### Example:

```
<pre>
#include <stdio.h>
int main() {
    printf("Hello, World!");
    return 0;
}
</pre>
```

## HTML Lists

HTML uses lists to organize and structure content on web pages.

There are three main types of lists:

- Unordered List
- Ordered List
- Description List

### Unordered List

Unordered lists are used to display a list of items with bullet points. The Unordered list is defined using the `<ul>` tag. Every item in the list starts with the `<li>` tag.

### Example:

```
<ul>
  <li> Red </li>
  <li> Black </li>
  <li> White </li>
</ul>
```

## Ordered Lists

Ordered lists display items in numerical or alphabetical order. An ordered list starts with the `<ol>` tag. Every item in the list starts with the `<li>` tag.

**Example:**

```
<ol>
  <li> HTML </li>
  <li> CSS </li>
  <li> JavaScript </li>
</ol>
```

## Description List

A description list consists of a set of terms and their descriptions. The `<dl>` (Definition List) tag is used to generate the Definition List. It encloses one or more pairs of `<dt>` (Definition Term) and `<dd>` (Definition Description) tag.

**Example:**

```
<dl>
  <dt> HTML </dt>
  <dd> HTML is the standard markup language for creating Web
pages. </dd>
  <dt> CSS </dt>
  <dd> CSS stands for Cascading Style Sheets and it is used to
stylize elements written in HTML. </dd>
  <dt> JavaScript </dt>
  <dd> JavaScript is a programming language used to make websites
dynamic and interactive. </dd>
</dl>
```

## HTML Tables

HTML tables are used to present data on web pages in a structured manner. Tables are created using the `<table>` tag, with other tags such as `<tr>` for rows, `<th>` for table headers, and `<td>` for table data cells.

**Example:**

```
<table>
  <tr>
    <th> Name </th>
    <th> Age </th>
    <th> Gender </th>
  </tr>
  <tr>
    <td> Rahul </td>
    <td> 21 </td>
    <td> Male </td>
  </tr>
  <tr>
    <td> Koushik </td>
    <td> 20 </td>
    <td> Male </td>
  </tr>
</table>
```

## Colspan and Rowspan

### Rowspan

The rowspan attribute allows a table cell to span multiple rows.

**Example:**

```
<table border="1">
  <tr>
    <th rowspan="3"> Frontend Roadmap </th>
  </tr>
  <tr>
    <td> HTML </td>
    <td> CSS </td>
    <td> JavaScript </td>
  </tr>
  <tr>
    <td> Bootstrap </td>
    <td> React.js </td>
    <td> Tailwind css </td>
  </tr>
</table>
```

# Colspan

The colspan attribute allows a table cell to span multiple columns.

Example:

```
<table border="1">
  <tr>
    <th colspan="3"> Frontend Roadmap </th>
  </tr>
  <tr>
    <td> HTML </td>
    <td> CSS </td>
    <td> JavaScript </td>
  </tr>
  <tr>
    <td> Bootstrap </td>
    <td> React.js </td>
    <td> Tailwind css </td>
  </tr>
</table>
```

## Chapter 3

### HTML Inline and Block Elements

Elements in HTML are divided into two primary categories: block-level elements and inline elements. These categories explain how elements are presented and interact with each other on the page.

#### HTML Inline Elements

Inline elements do not start on a new line and take up only as much width as required. The `<span>` tag is an example of an inline element.

Example:

```
<p>This is<span style="border:1px solid black;">inline
element</span></p>
```

The inline elements in HTML are as follows:

- <a>
- <bdo>
- <cite>
- <i>
- <label>
- <q>
- <small>
- <sup>
- <abbr>
- <big>
- <code>
- <img>
- <map>
- <samp>
- <span>
- <textarea>
- <acronym>
- <br>
- <dfn>
- <input>
- <object>
- <script>
- <strong>
- <time>
- <b>
- <button>
- <em>
- <kbd>
- <output>
- <select>
- <sub>
- <tt>

## Block-level Elements

Block-level elements usually start on a new line and take up the entire available width. The <p> and <div> tag is an example of an block-level element.

### Example:

```
<p style="border: 1px solid black;"> Block-level elements take up the entire available width. </p>
```

The block-level elements in HTML are as follows:

- <address>
- <article>
- <aside>
- <blockquote>
- <canvas>
- <dd>
- <div>
- <dl>
- <dt>
- <fieldset>
- <figcaption>
- <figure>
- <footer>
- <form>
- <header>
- <h1>-<h6>
- <hr>
- <li>
- <main>
- <nav>
- <noscript>
- <ol>
- <ul>
- <pre>
- <p>
- <section>
- <table>
- <video>

## Chapter 4 HTML Forms

HTML forms are an important aspect of web development because they allow users to interact with websites by entering and submitting information. In HTML, forms are created using the <form> element.

**Example:**

```
<form>
  <label for="name"> Name: </label>
  <input type="text" id="name" name="name" required>
  <label for="email"> Email: </label>
  <input type="email" id="email" name="email" required>
  <textarea name="message" cols="30" rows="4"> </textarea>
  <input type="submit" value="submit">
</form>
```

## Form elements

The HTML `<form>` elements are as follows:

- `<label>`
- `<input>`
- `<select>`
- `<option>`
- `<textarea>`
- `<fieldset>`
- `<legend>`

### HTML `<input>` tag

It is used to collect form input data in a variety of formats, including text, password, email, and so on.

**Example:**

```
<input type="text" id="name" name="name">
```

### HTML `<label>` Tag

It defines the label for `<form>` elements.

**Example:**

```
<label for="name"> Name: </label>
<input type="text" id="name" name="name">
```

### HTML `<select>` and `<option>` Tag

It is used to create a drop-down menu.

**Example:**

```
<label for="cars"> Cars: </label>
<select id="cars">
  <option value="lamborghini"> Lamborghini </option>
  <option value="ferrari"> Ferrari </option>
</select>
```

## HTML <textarea> Tag

It is used to get lengthy text inputs.

**Example:**

```
<textarea name="message" cols="30" rows="4"> Write  
Something... </textarea>
```

## Chapter 5

### HTML Miscellaneous

### HTML Iframes

The HTML iframes are used to embed another HTML page into the current HTML page. It is also known as inline frame.

### Attributes

- **src:** It is used to specify the URL of the page to embed.
- **width and height:** It is used to define the size of the iframe.
- **scrolling:** It is used to control the scrollbars.

**Example:**

```
<iframe src="" title="name" height="500" width="500"></iframe>
```