

Unit 1: Introduction to HTML

HTML (HyperText Markup Language) is the standard language for creating web pages. It provides the structure and content of a webpage, which can then be styled using CSS and made interactive with JavaScript.

1.1 Getting Started with a Simple Web Page

What is HTML?

HTML is a markup language used to create web pages. It consists of elements that define the structure and content of a webpage.

Basic Structure of an HTML Document:

```
<!DOCTYPE html>
<html>
<head>
  <title>My First Web Page</title>
</head>
<body>
  <h1>Welcome to My Web Page</h1>
  <p>This is a paragraph.</p>
</body>
</html>
```

<!DOCTYPE html>: Declares the document type and version of HTML.

<html>: The root element of the HTML document.

<head>: Contains meta-information about the document (e.g., title, links to CSS).

<title>: Sets the title of the webpage (displayed in the browser tab).

<body>: Contains the visible content of the webpage.

1.2 Block and Inline Elements

Block Elements: Elements that start on a new line and take up the full width available. Examples: <div>, <p>, <h1> to <h6>, , , , <table>.

Inline Elements: Elements that do not start on a new line and only take up as much width as necessary. Examples: , <a>, , , ,
.

Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>Block vs Inline Elements</title>
</head>
```

```

<body>
  <h1>Block vs Inline Elements</h1>

  <!-- Block-level Elements -->
  <h2>Block-Level Elements</h2>
  <p>This is a paragraph (block-level).</p>
  <div>This is a div (block-level).</div>

  <!-- Inline Elements -->
  <h2>Inline Elements</h2>
  <p>This is a paragraph with <span>span (inline)</span> and <a href="#">link (inline)</a>.</p>

  <!-- Mixed Example -->
  <h2>Mixed Example</h2>
  <div>This is a div (block-level) with <span>span (inline)</span> and <a href="#">link (inline)</a>.</div>
</body>
</html>

```

1.3 Presentation and Phrase Elements

Presentation Elements: Used to define how text should be displayed. Examples: `<b>` (bold), `<i>` (italic), `<u>` (underline), `<s>` (strikethrough).

Phrase Elements: Used to add semantic meaning to text. Examples: `<strong>` (strong importance), `<em>` (emphasis), `<code>` (code snippet), `<mark>` (highlighted text).

Example:

```

<!DOCTYPE html>
<html>
<head>
  <title>Presentation and Phrase Elements</title>
</head>
<body>
  <h1>Presentation and Phrase Elements</h1>

  <!-- Presentation Elements -->
  <h2>Presentation Elements</h2>
  <p><b>Bold Text</b> using &lt;b>&gt;.</p>
  <p><i>Italic Text</i> using &lt;i>&gt;.</p>
  <p><u>Underlined Text</u> using &lt;u>&gt;.</p>
  <p><s>Strikethrough Text</s> using &lt;s>&gt;.</p>

  <!-- Phrase Elements -->
  <h2>Phrase Elements</h2>
  <p><strong>Strong Importance</strong> using &lt;strong>&gt;.</p>
  <p><em>Emphasized Text</em> using &lt;em>&gt;.</p>
  <p><code>Code Snippet</code> using &lt;code>&gt;.</p>
  <p><mark>Highlighted Text</mark> using &lt;mark>&gt;.</p>
</body>
</html>

```

1.4 Empty and Non-empty Elements

Empty Elements: Elements that do not have closing tags or content. Also called unpaired tags. Examples: `<br>` (line break), `<img>` (image), `<hr>` (horizontal rule), `<input>`.

Non-empty Elements: Elements that have both opening and closing tags and can contain content. Also called Paired tags. Examples: `<p>`, `<div>`, `<h1>`, `<a>`.

Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>Empty and Non-Empty Elements</title>
</head>
<body>
  <h1>Empty and Non-Empty Elements</h1>

  <!-- Non-Empty Elements -->
  <h2>Non-Empty Elements</h2>
  <p>This is a paragraph (non-empty element).</p>
  <div>This is a div (non-empty element).</div>
  <a href="#">This is a link (non-empty element).</a>

  <!-- Empty Elements -->
  <h2>Empty Elements</h2>
  <p>This is a line break: <br> (empty element).</p>
  <p>This is an image:  (empty
element).</p>
  <p>This is a horizontal rule: <hr> (empty element).</p>
  <p>This is an input field: <input type="text" placeholder="Enter text"> (empty element).</p>
</body>
</html>
```

1.5 HTML Character Entities

Used to display special characters that are reserved in HTML or not available on the keyboard.

Examples:

`<`; for `<`

`>`; for `>`

`&`; for `&`

` `; for a non-breaking space.

Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>HTML Character Entities</title>
</head>
<body>
```

<h1>HTML Character Entities</h1>

<p>Here are some commonly used HTML character entities:</p>

Less than symbol: < (using &lt;)

Greater than symbol: > (using &gt;)

Ampersand symbol: & (using &amp;)

Double quotes: " (using &quot;)

Single quote: ' (using &apos;)

Non-breaking space: (using &nbsp;)

Copyright symbol: © (using &copy;)

Registered trademark symbol: ® (using &reg;)

<p>Example: 10 > 5 is true, and 5 < 10 is also true.</p>

</body>

</html>

1.6 HTML List, Table, Links (Internal and External)

Lists: Collections of items in a particular list format.

1. Unordered List: with items.

Example:

<!DOCTYPE html>

<html>

<head>

<title>Unordered List Example</title>

</head>

<body>

<h1>Unordered List Example</h1>

<!-- Unordered List with default bullet points -->

<h2>Fruits</h2>

Apple

Banana

Orange

Mango

<!-- Unordered List with circle bullet points -->

<h2>Vegetables</h2>

<ul type="circle">

Carrot

Broccoli

Spinach

Potato


```

<!-- Unordered List with square bullet points -->
<h2>Colors</h2>
<ul type="square">
  <li>Red</li>
  <li>Green</li>
  <li>Blue</li>
  <li>Yellow</li>
</ul>
</body>
</html>

```

2. Ordered List: with items.

Example:

```

<!DOCTYPE html>
<html>
<head>
  <title>Ordered List with Type Attribute</title>
</head>
<body>
  <h1>Ordered List with Type Attribute</h1>

  <!-- Ordered List with default type (numbers) -->
  <h2>Default Ordered List (type="1")</h2>
  <ol>
    <li>First item</li>
    <li>Second item</li>
    <li>Third item</li>
  </ol>

  <!-- Ordered List with uppercase letters -->
  <h2>Ordered List with Uppercase Letters (type="A")</h2>
  <ol type="A">
    <li>First item</li>
    <li>Second item</li>
    <li>Third item</li>
  </ol>

  <!-- Ordered List with lowercase letters -->
  <h2>Ordered List with Lowercase Letters (type="a")</h2>
  <ol type="a">
    <li>First item</li>
    <li>Second item</li>
    <li>Third item</li>
  </ol>

  <!-- Ordered List with uppercase Roman numerals -->
  <h2>Ordered List with Uppercase Roman Numerals (type="I")</h2>
  <ol type="I">

```

```

    <li>First item</li>
    <li>Second item</li>
    <li>Third item</li>
</ol>

<!-- Ordered List with lowercase Roman numerals -->
<h2>Ordered List with Lowercase Roman Numerals (type="i")</h2>
<ol type="i">
    <li>First item</li>
    <li>Second item</li>
    <li>Third item</li>
</ol>
</body>
</html>

```

3. Definition List: <dl> with <dt> (term) and <dd> (definition).

```

<!DOCTYPE html>
<html>
<head>
    <title>Definition List Example</title>
</head>
<body>
    <h1>Definition List Example</h1>

    <!-- Definition List -->
    <h2>Programming Terms</h2>
    <dl>
        <dt>HTML</dt>
        <dd>HyperText Markup Language - Used to create web pages.</dd>

        <dt>CSS</dt>
        <dd>Cascading Style Sheets - Used to style web pages.</dd>

        <dt>JavaScript</dt>
        <dd>A programming language used to make web pages interactive.</dd>

        <dt>API</dt>
        <dd>Application Programming Interface - A set of rules for building software applications.</dd>
    </dl>
</body>
</html>

```

Tables: Created using <table>, <tr> (table row), <th> (table header), and <td> (table data).

```
<!DOCTYPE html>
<html>
<head>
  <title>Simple HTML Table Example</title>
</head>
<body>
  <h1>Simple HTML Table Example</h1>

  <!-- Table -->
  <table border="1" cellspacing="2" cellpadding="10">
    <tr>
      <th>Name</th>
      <th>Age</th>
      <th>City</th>
    </tr>
    <tr>
      <td>John Doe</td>
      <td>25</td>
      <td>New York</td>
    </tr>
    <tr>
      <td>Jane Smith</td>
      <td>30</td>
      <td>Los Angeles</td>
    </tr>
    <tr>
      <td>Mike Johnson</td>
      <td>28</td>
      <td>Chicago</td>
    </tr>
  </table>
</body>
</html>
```

Links:

1. **Internal Links:** Links to other sections of the same page using # (e.g.,).

```
<!DOCTYPE html>
<html>
<head>
  <title>Internal Links Example</title>
</head>
<body>
  <h1>Internal Links Example</h1>

  <!-- Navigation Links -->
  <h2>Jump to Section:</h2>
  <ul>
```

```

    <li><a href="#section1">Go to Section 1</a></li>
    <li><a href="#section2">Go to Section 2</a></li>
    <li><a href="#section3">Go to Section 3</a></li>
</ul>

<!-- Section 1 -->
<h2 id="section1">Section 1</h2>
<p>This is the content of Section 1.</p>
<p><a href="#top">Back to Top</a></p>

<!-- Section 2 -->
<h2 id="section2">Section 2</h2>
<p>This is the content of Section 2.</p>
<p><a href="#top">Back to Top</a></p>

<!-- Section 3 -->
<h2 id="section3">Section 3</h2>
<p>This is the content of Section 3.</p>
<p><a href="#top">Back to Top</a></p>

<!-- Top of the Page -->
<h2 id="top">Top of the Page</h2>
<p>This is the top of the page. Use the links above to navigate to different sections.</p>
</body>
</html>

```

2. **External Links:** Links to other web pages (e.g.,).

```

<!DOCTYPE html>
<html>
<head>
  <title>External Links Example</title>
</head>
<body>
  <h1>External Links Example</h1>
  <p>Here are some useful external links:</p>
  <!-- External Links -->
  <ul>
    <li><a href="https://www.google.com" target="_blank">Visit Google</a></li>
    <li><a href="https://www.wikipedia.org" target="_blank">Visit Wikipedia</a></li>
    <li><a href="https://www.github.com" target="_blank">Visit GitHub</a></li>
  </ul>

  <p>Click on any of the links above to open them in a new tab.</p>
</body>
</html>

```

1.7 Multimedia Contents (Image, Audio, Video, and YouTube Player)

Image:

```

```

Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>Image Example</title>
</head>
<body>
  <h1>Image Example</h1>

  <!-- Image -->
  <p>Here is an image:</p>
  

  <p>This is a placeholder image displayed using the <code>&lt;img&gt;</code> tag.</p>
</body>
</html>
```

Audio:

```
<audio controls><source src="audio.mp3" type="audio/mpeg"></audio>
```

```
<!DOCTYPE html>
<html>
<body>
<audio controls autoplay unmuted loop>
<source src="horse.ogg" type="audio/ogg">
<source src="horse.mp3" type="audio/mpeg">
Your browser does not support the audio element.
</audio>
</body>
</html>
```

Video:

```
<video controls><source src="video.mp4" type="video/mp4"></video>
```

```
<!DOCTYPE html>
<html>
<body>
<video width="320" height="240" autoplay unmuted loop>
<source src="movie.mp4" type="video/mp4">
<source src="movie.ogg" type="video/ogg">
Your browser does not support the video tag.
</video>
</body>
</html>
```

YouTube Player:

Embed using <iframe>:

```
<iframe width="560" height="315" src="https://www.youtube.com/embed/VIDEO_ID" frameborder="0"
allowfullscreen></iframe>
```

Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>YouTube Player Example</title>
</head>
<body>
  <h1>YouTube Player Example</h1>
  <!-- YouTube Video Embed -->
  <h2>Embedded YouTube Video</h2>
  <p>Watch a YouTube video:</p>
  <iframe
    width="560"
    height="315"
    src="https://www.youtube.com/embed/dQw4w9WgXcQ"
    title="YouTube video player"
    frameborder="0"
    allow="accelerometer; autoplay; clipboard-write; encrypted-media; gyroscope; picture-in-picture"
    allowfullscreen>
  </iframe>
</body>
</html>
```

1.8 Form Elements

Forms are used to collect user input.

Common Form Elements:

- Text Input: `<input type="text">`
- Password Input: `<input type="password">`
- File Input: `<input type="file">`
- Radio Buttons: `<input type="radio">`
- Checkboxes: `<input type="checkbox">`
- Textarea: `<textarea></textarea>`
- Hidden Input: `<input type="hidden">`
- Select Dropdown: `<select><option>Option 1</option></select>`
- Button: `<button type="button">Click Me</button>`
- Date Input: `<input type="date">`
- Email Input: `<input type="email">`

Form Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>College Registration Form</title>
</head>
<body>
  <h1 align="center">College Registration Form</h1>

  <!-- Registration Form -->
```

```
<form action="/submit" method="post">
  <!-- Personal Details -->
  <h2>Personal Details</h2>
  <label for="name">Full Name:</label>
  <input type="text" id="name" name="name" placeholder="Enter your full name" required><br><br>

  <label for="email">Email:</label>
  <input type="email" id="email" name="email" placeholder="Enter your email" required><br><br>

  <label for="phone">Phone Number:</label>
  <input type="tel" id="phone" name="phone" placeholder="Enter your phone number"
required><br><br>

  <label for="dob">Date of Birth:</label>
  <input type="date" id="dob" name="dob" required><br><br>

  <label for="gender">Gender:</label>
  <select id="gender" name="gender" required>
    <option value="">Select Gender</option>
    <option value="male">Male</option>
    <option value="female">Female</option>
    <option value="other">Other</option>
  </select><br><br>

  <!-- Address Details -->
  <h2>Address Details</h2>
  <label for="address">Address:</label><br>
  <textarea id="address" name="address" rows="4" cols="50" placeholder="Enter your address"
required></textarea><br><br>

  <label for="city">City:</label>
  <input type="text" id="city" name="city" placeholder="Enter your city" required><br><br>

  <label for="state">State:</label>
  <input type="text" id="state" name="state" placeholder="Enter your state" required><br><br>

  <label for="pincode">Pincode:</label>
  <input type="text" id="pincode" name="pincode" placeholder="Enter your pincode" required><br><br>

  <!-- Academic Details -->
  <h2>Academic Details</h2>
  <label for="course">Course:</label>
  <select id="course" name="course" required>
    <option value="">Select Course</option>
    <option value="btech">B.Tech</option>
    <option value="mba">MBA</option>
    <option value="mca">MCA</option>
    <option value="bsc">B.Sc</option>
  </select><br><br>

  <label for="year">Year of Admission:</label>
```

```

        <input type="number" id="year" name="year" placeholder="Enter year of admission"
required><br><br>

        <!-- Submit Button -->
        <input type="submit" value="Submit">
    </form>
</body>
</html>

```

Example2 Form:

```

<form action="/submit" method="post">
    <label for="name">Name:</label>
    <input type="text" id="name" name="name"><br>
    <label for="email">Email:</label>
    <input type="email" id="email" name="email"><br>
    <label for="password">Password:</label>
    <input type="password" id="password" name="password"><br>
    <button type="submit">Submit</button>
</form>

```

All students should perform this program:

```

<!DOCTYPE html>
<html>
<head>
    <title>Sample Web Page</title>
</head>
<body>
    <h1>Welcome to My Web Page</h1>
    <p>This is a <strong>paragraph</strong> with <em>inline elements</em>.</p>
    <ul>
        <li>Item 1</li>
        <li>Item 2</li>
    </ul>
    
    <a href="https://example.com">Visit Example</a>
    <form action="/submit" method="post">
        <label for="username">Username:</label>
        <input type="text" id="username" name="username"><br>
        <button type="submit">Submit</button>
    </form>
</body>
</html>

```