Introduction to HTML

Webpages are created using HTML, which stands for HyperText Markup Language.

- **Hypertext** refers to text that acts as a link.
- **Markup Language** is a system for adding layout instructions within documents.

An HTML document is essentially a plain text file that contains both text and HTML codes. When a browser opens the file, it reads the HTML tags to a the layout, display images, and create links to other pages.

Because HTML files are just text, they can be written in any basic text editor.

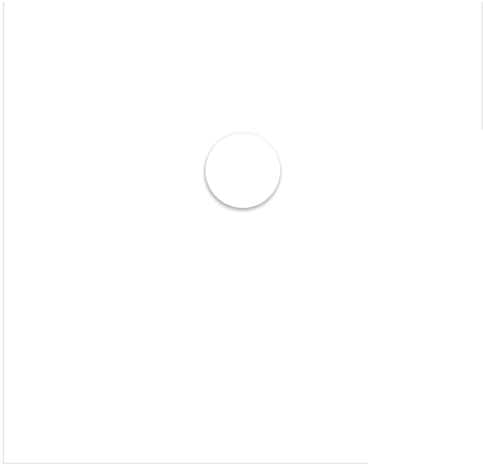
All normal webpages consist of a head and a body.

Head
BodySection

The **head** section of an HTML document contains text and tags that don't directly appear on the page, such as metadata and the title of the page.

The **body** section, on the other hand, holds the content that is visible to users when they view the page.

Every webpage begins and ends with the <html> tag, marking where the document starts and ends.



Here is the basic structure of an HTML page that you will use for any page:

```
<html>
  <head>
    <!-- This section is for the title and technical info of the page. -->
  </head>
  <body>
    This section is for all that you want to show on the page.
  </body>
</html>
```

The body section is where all visible content resides, and it's what users see when they load the page.

In HTML, a letter like "A" is displayed simply as "A" by default. If we want to change its appearance (like making it bold), we use tags.

Tags in HTML are enclosed in < and >.

For example, to display bold text:

Visible Text:

This is an example of **bold** text.

HTML Code:

```
This is an example of <b>bold <\b> text.
```

In the above example, the start tag marks the start of bold text, telling the browser to display the following content in bold. The tag is the en signaling the browser to stop rendering text in bold after that point.

HTML Elements

<!DOCTYPE>

The <!DOCTYPE> declaration defines the type of HTML used in a webpage and ensures consistent rendering across browsers. It must appear as the line in an HTML document. In modern web development, the HTML5 DOCTYPE is:

```
<!DOCTYPE html>
```

<!DOCTYPE> is not an HTML tag but a declaration.

Omitting the DOCTYPE or using an incorrect one can cause inconsistent behavior across browsers.

<html> - The Root Element

The **<html>** tag defines the root of an HTML document and informs the browser that the content inside is HTML. It wraps all the content of the web including the **<head> and <body>** sections.

A basic HTML document starts and ends with the **</html>** tag:

Sustainability & Energy Data

Advance your sustainability and energy transition journey with clarity.

```
<!DOCTYPE html>
<html>
    <head>
        <title>Document Title<title>
    </head>
    <body>
        <p>This is a paragraph.</p>
    <body>
</html>
```

<head> - Document Metadata Container

The <head> tag in an HTML document contains metadata and links to resources that are not directly displayed on the webpage. It is placed insid
<html> tag and before the <body> tag.

Purpose:

The <head> section provides essential information about the document, such as its title, character set, and linked resources (e.g., stylesheets and scrip

Elements Allowed Inside the <head> Element:

The <head> element contains metadata and resources for the HTML document. Here are the elements that can go inside it:

1. <title> ***(required)***

Defines the title of the webpage, displayed in the browser tab or title bar. The <title> tag is required in all HTML documents and it defines the title c
document.

Example

```
<head>
   <title>HTML Reference</title>
</head>
```

2. <style>

Contains internal CSS styles for the document, specify how HTML elements should render in a browser

Example:

```
<style>
    body {
          font-family: Arial, sans-serif;
      }
    p {color:blue;}
</style>
```

3. <base>

Example:

```
<base href="https://www.example.com/">
```

4. <link>

Links external resources like stylesheets or favicons.

Example:

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

5. <meta>

Provides metadata about the document, like character encoding, viewport settings, and descriptions.

Example:

```
<meta charset="UTF-8>>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta name="description" content="This is a sample webpage.">
```

6. <script>

Adds or links JavaScript code for interactivity or functionality.

Example:

```
<script src="script.js"></script>
```

7. <noscript>

Provides fallback content for users with JavaScript disabled.

Example:

```
<noscript>
    <p>JavaScript is not enabled in your browser.</p>
</noscript>
```

Headings

The <h1> to <h6> tags are used to define HTML headings.

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

```
<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>
```


- Line Break

The
 tag is typically used in situations where you want to add a line break without creating a new paragraph.

Empty tag: It does not require an end tag (i.e., there is no closing </br>).

```
<p>This is the first line.<br>
This is the second line.</p>
```

In this example, the text "**This is the second line**" will appear directly below "**This is the first line**" because of the
 tag.

<hr>- Horizontal Line

The <hr> tag in HTML is used to create a horizontal line in a webpage.

Empty tag: Like the
 tag, <hr> is an empty (self-closing) tag, so it does not require a closing tag (</hr>).

```
<p>This is the first section of content.<p><hr>
<p>This is the second section of content, after the Horizontal Line.</p>
```

In this example, the <hr> tag creates a horizontal line between the two paragraphs, visually separating them, like below

Formatting Tags

In HTML, formatting tags are used to change the appearance or style of text within a webpage. These tags allow you to emphasize certain parts of co
such as making text bold, italic, or underlined.

Here's an overview of common formatting tags in HTML:

1. <b> - Bold Text

The <b> tag is used to make text bold. While it visually emphasizes the text, it does not convey any semantic meaning about the importance of the text

This is **bold** text.

2. - Strong Text

The tag is used to give emphasis to text, and it typically renders the text in bold. It also has semantic meaning, indicating that the content strong importance.

```
This is <strong>very important </strong> text.
```

This is **very important** text.

3. <i> - Italic Text

The <i> tag is used to make text italic. It is often used for emphasis or for text in a different language, but it doesn't carry semantic meaning by itself.

```
This is <i>italic </i> text.
```

This is *italic* text.

4. - Emphasized Text

tag is used to emphasize text. It renders the text in italics by default and conveys that the content should be stressed. This tag is semantically importa

```
This is an <em>important </em > point.
```

This is an *important* point.

5. <u> - Underlined Text

The <u> tag is used to underline text. It is typically used for annotations or special emphasis.

```
This is <u>underlined </u> text.
```

This is underlined text.

6. <sub> - Subscript Text

The <sub> tag is used to display text as a subscript, which is typically used for mathematical formulas or chemical notations.

```
Water has the chemical formula H<sub>2</sub>O.
```

Water has the chemical formula H_2O.

7. <sup> - Superscript Text

The <sub> tag is used to display text as a superscript, commonly used for footnotes or exponents in math.

```
The value of 2<sup>3</sup> is 8.
```

The value of 2^3 is 8.

8. <strike> - Strike-through Text

The <strike> or <s> tag (though deprecated in favor of <del>) was used to show text with a line through it, indicating something that has been deleted longer relevant.

This is ~~incorrect~~ correct.

9. <del> - Deleted Content

The <del> tag in HTML is used to represent deleted content or text that has been removed from the document.

```
This is the original text, and this is <del>deleted</del> text.
```

This is the original text, and this is ~~deleted~~ text.

The <del> tag is often paired with the <ins> tag, which represents inserted content.

```
This is the original text, and this is <del>deleted</del> <ins>added</ins> text.
```

This is the original text, and this is ~~deleted~~ added text.

10. <code> - Code Text

The <code> tag is used to represent computer code or programming syntax. It is displayed in a monospace font by default.

```
The code for printing in Python is <code>print("Hello, world!")<code>.
```

The code for printing in Python is `print("Hello, world!")`.

11. <pre> - Preformatted Text

The <pre> tag preserves the formatting (like spaces and line breaks) of the text inside it. It is commonly used for displaying code or text where formatt important.

```
<pre>
This text will
preserve           spaces
and new lines.
</pre>
```

```
and new lines.
```

12. <mark> - Mark Text

The <mark> tag is used to highlight text, typically to indicate something important or that matches a search term. It renders the text with a y background by default.

```
This is <mark>highlighted</mark> text.
```

This is highlighted text.

13. <small> - Small Text

The <small> tag reduces the size of the text, often used for legal disclaimers or fine print.

```
This is some <small>small text</small>.
```

This is some small text.

14. <big> - Big Text

The <big> tag makes text larger than normal. However, it's often recommended to use CSS for such formatting.

```
This is some <big>big text<big>.
```

This is some big text.

15. <font> Font tag

The <font> tag in HTML was used to define the font style, size, and color of text on a webpage. However, it is deprecated in HTML5, meaning it is no l recommended for use in modern web development. Instead, CSS (Cascading Style Sheets) should be used for styling and formatting text.

```
<font size="3" color="red" face="Arial">This is a sample text</font>
```

This is a sample text

16. <p> Paragraph

The <p> tag in HTML is used to define a paragraph of text.

```
<p>This is the first paragraph. It introduces the content of the page.</p>
<p>This is the second paragraph. It continues the explanation with more details.</p>
```

This is the first paragraph. It introduces the content of the page.

This is the second paragraph. It continues the explanation with more details.

HTML lists are used to display a list of items in a structured format. There are three types of lists in HTML:

1. Unordered List (<ul>)

An unordered list is used when the order of the items doesn't matter. Each list item is marked with a bullet point.

```
<ul>
  <li>First item</li>
  <li>Second item</li>
  <li>Third item</li>
</ul>
```

- First item
- Second item
- Third item

2. Ordered List (<ol>)

An ordered list is used when the order of the items is important. Each list item is numbered.

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

1. First item
2. Second item
3. Third item

3. Description Lists (<dl>)

Description list is used to define terms and their descriptions. It consists of pairs of <dt> (define term) and <dd> (describes term).

```
<dl>
  <dt>HTML</dt>
  <dd>HyperText Markup Language</dd>

  <dt>CSS</dt>
  <dd>Cascading Style Sheets</dd>
</dl>
```

HTML
: HyperText Markup Language

CSS
: Cascading Style Sheets

Hyperlinks

In HTML, hyperlinks are created using the <a> (anchor) tag. Hyperlinks allow users to navigate from one page to another or link to a specific section v
the same page.

Basic Syntax:

```
<a href="URL">Link Text</a>
```

- **href:** The href attribute defines the destination URL.
- **Link Text:** The clickable text that will appear on the webpage.

```
<a href="https://aksharacs.netlify.app/php">PHP Tutorial</a>
```

This creates a hyperlink to the "**https://aksharacs.netlify.app/php**" page with the link text "**PHP Tutorial**"

PHP Tutorial

2. Local Links

Link to a specific section of the same page (anchor link):

```
<a href="#top">Go to Top</a>
```

This creates a link that scrolls the page to a section with the id="top".

Go to Top

Tables

HTML tables are used to organize and display data in a grid-like format, with rows and columns. The basic structure of an HTML table is created several key tags:

1. **<table>:** This tag defines the table.
2. **<th>:** This tag defines a table header cell, which typically displays text in bold and centered.
3. **<tr>:** This tag defines a table row.
4. **<td>:** This tag defines a table data cell, where the actual data is placed.

```
<table border="1">
  <tr>
    <th>Name</th>
    <th>Age</th>
    <th>City</th>
  </tr>
  <tr>
    <td>Akshara</td>
    <td>5</td>
    <td>Basar</td>
  </tr>
  <tr>
    <td>Suraj</td>
    <td>2</td>
    <td>Hyderabad</td>
  </tr>
</table>
```

This will create a table with borders, displaying names, ages, and cities in a structured format.

Name	Age	City
Akshara	5	Basar
Suraj	2	Hyderabad

The <form> Element

HTML forms are used to collect user input.

The <form> element defines an HTML form:

```
    ....form elements....
</form>
```

HTML forms contain form elements. These elements are different types of input elements, checkboxes, radio buttons, submit buttons, and more.

Form Attributes

Apart from common attributes, here are the most frequently used form attributes:

Attribute	Description
action	Backend script ready to process your passed data.
method	Method to be used to upload data. The most frequently used are GET and POST methods.
target	Specify the target window or frame where the result of the script will be displayed. It takes values like _blank, _self, _parent, etc.
enctype	Specifies how the browser encodes the data before it sends it to the server.

HTML Form Controls

There are various form controls that you can use to collect data through an HTML form. These include:

- Text Input Controls
- Checkbox Controls
- Radio Box Controls
- Select Box Controls
- File Select Boxes
- Hidden Controls
- Clickable Buttons
- Submit and Reset Buttons

1. Single-line Text Input Controls

Single-line text input controls are used when the user needs to input just a single line of text. This is commonly used for fields like names, search box any short text input.

How it works: This control is created using the <input> tag, with the `type="text"` attribute.

```
<label for="name">First Name:</label>
<input type="text" id="name" name="name" placeholder="Enter your first name">
```

2. Password Input Controls

Password input controls are similar to single-line text inputs, but they mask the characters typed by the user. This is typically used for entering passv or sensitive information.

How it works: This control is created using the <input> tag, with the `type="password"` attribute.

```
<label for="password">Password:</label>
<input type="password" id="password" name="password" placeholder="Enter your password">
```

3. Multiple-Line Text Input Controls

When the user is required to input more than a single sentence (like a description, comments, or address), a multiple-line text input control is needed is done using the <textarea> tag.

How it works: The <textarea> tag allows the user to type multiple lines of text.

```
<textarea id="comments" name="comments" rows="4" cols="50" placeholder="Enter your comments here"></textarea>
```

4. Checkbox Controls

Checkboxes allow users to select one or more options from a set. They are ideal when there are multiple selections available.

How it works: Checkboxes are created using the <input> tag, with the `type="checkbox"` attribute.

```
<label for="cooking">Cooking</label>
<input type="checkbox" id="cooking" name="hobbies" value="cooking">

<label for="sports">Sports</label>
<input type="checkbox" id="sports" name="hobbies" value="sports">
```

5. Radio Button Controls

Radio buttons allow users to select only one option from a group of options. They are used when there is a fixed set of choices, and only one opt allowed to be selected.

How it works: Radio buttons are created using the <input> tag, with the `type="radio"` attribute. All radio buttons in a group must share the same attribute.

```
<label for="male">Male</label>
<input type="radio" id="male" name="gender" value="male">

<label for="female">Female</label>
<input type="radio" id="female" name="gender" value="female">
```

6. Select Box Controls (Dropdown)

Select boxes, also known as dropdown menus, allow users to choose from a list of options. This is useful when you want to provide many choices wi taking up too much space on the form.

How it works: Select boxes are created using the <select> and <option> tags.

```
<label for="subject">Choose a Subject:</label>
<select id="subject" name="subject">
  <option value="math">Math</option>
  <option value="physics">Physics</option>
  <option value="chemistry">Chemistry</option>
</select>
```

7. File Upload Box

A file upload box allows users to upload files from their computer. This is useful when users need to upload images, documents, or other files as part form submission.

How it works: File inputs are created using the <input> tag with the `type="file"` attribute.

```
<label for="profile">Upload Profile Picture:</label>
<input type="file" id="profile" name="profile_picture" accept="image/*">
```

8. Date Picker Controls

Date pickers allow the user to select a date from a calendar interface, making it easier to select dates without manual input.

How it works: Date pickers are created using the <input> tag with the `type="date"` attribute.

```
<input type="date" id="dob" name="dob">
```

9. Button Controls

Buttons in HTML forms can be used to trigger actions like submitting or resetting the form. There are different types of buttons, such as **submit**, **reset** **normal button**.

How it works: Buttons are created using the <input> tag or <button> tag with various `type` attributes.

```
<!-- Submit Button -->
<input type="submit" value="Submit">

<!-- Reset Button -->
<input type="reset" value="Reset">

<!-- Normal Button -->
<button type="button" onclick="alert('Button clicked!')">Click Me</button>
```

10. Hidden Input Controls

Hidden inputs are used when you need to send data that the user does not see. They are often used to send additional metadata to the server, such as IDs, session tokens, or form states.

How it works: Hidden inputs are created using the <input> tag with the `type="hidden"` attribute.

```
<input type="hidden" name="user_id" value="12345">
```

REGISTRATION FORM

```
<form name="reg" action="registrationb.php" method="post" enctype="multipart/form-data">
  <table class="regtbl">
    <tr>
      <td>User Name:</td>
      <td><input type="text" name="uname" id="uname" placeholder="Enter user Name" /></td>
    </tr>
    <tr>
      <td>Password:</td>
      <td><input type="password" name="pwd" id="pwd" placeholder="Enter password" /></td>
    </tr>
    <tr>
      <td>Name:</td>
      <td><input type="text" name="name" id="name" placeholder="Enter Student Name" /></td>
    </tr>
    <tr>
      <td>Gender:</td>
      <td><input type="radio" name="gender" value="M" />Male</td>
      <td><input type="radio" name="gender" value="F" />Female</td>
    </tr>
    <tr>
      <td>Phone No:</td>
      <td><input type="text" name="phno" id="phno" placeholder="Enter Phone Number" /></td>
    </tr>
    <tr>
      <td>Age:</td>
      <td><input type="text" name="age" id="age" placeholder="Enter Age" /></td>
    </tr>
    <tr>
      <td>E-mail:</td>
      <td><input type="text" name="email" id="email" placeholder="Enter Email" /></td>
    </tr>
```

```
      <td><input type="checkbox" name="skills" value="c" />C</td>
      <td><input type="checkbox" name="skills" value="java" />Java</td>
      <td><input type="checkbox" name="skills" value="c++" />C++</td>
    </tr>
    <tr>
      <td>Address:</td>
      <td><textarea name="address" id="address" placeholder="Enter Address"></textarea></td>
    </tr>
    <tr>
      <td>Favorite Movie:</td>
      <td><input type="text" name="movie" id="movie" placeholder="Enter your Favorite Movie" /></td>
    </tr>
    <tr>
      <td>Favorite Subject:</td>
      <td><input type="text" name="subject" id="subject" placeholder="Enter your Favorite Subject" /></td>
    </tr>
    <tr>
      <td>Favorite Singer:</td>
      <td><input type="text" name="singer" id="singer" placeholder="Enter your Favorite Singer" /></td>
    </tr>
    <tr>
      <td>Date of Birth:</td>
      <td><input type="date" name="dob" id="dob" /></td>
    </tr>
    <tr>
      <td>Upload Profile Picture:</td>
      <td><input type="file" name="profile_picture" accept="image/*" /></td>
    </tr>
    <!-- Hidden Field for additional data (e.g., user type) -->
    <tr>
      <td><input type="hidden" name="user_type" value="student" /></td>
    </tr>
    <tr>
      <td></td>
      <td>
        <input type="submit" value="Register" name="Submit" style="width:80px" />
        <div style="height:21px; width:100%; margin:0; padding:0; position:relative;"></div>
        <button id="reSet" type="reset" class="btn btn-primary" value="Reset" style="width:80px">Reset</butto
      </td>
    </tr>
  </table>
</form>
```