

Module 2

HTML Basics

Theory Assignment :

Q.1: Define HTML. What is the purpose of HTML in web development?

HTML (**Hyper Text Markup Language**) is the standard markup language where it is used to create and structure the content on the web.

Purpose of HTML :

- It Provides the basic structure of a web page.
- It Defines headings, paragraphs, images, links, tables, forms, etc.
- It Works with CSS (for styling) and JavaScript (for interactivity).
- It ensures that web content can be displayed properly across browsers and devices.

Q.2 : Explain the basic structure of an HTML document. Identify the mandatory tags and their purposes.

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>My First Web Page</title>
```

```
</head>
```

```
<body>
```

```
<h1>Hello, World!</h1>
```

```
<p>This is my first web page.</p>
```

```
</body>
```

</html>

Mandatory tags and their purposes:

1. <!DOCTYPE html> - Declares the document type as HTML5.
2. <html> - Root element, wraps the entire HTML content.
3. <head> - Contains metadata (not displayed directly on the page).
 - Example: <title> sets the title of the web page (shown on the browser tab).
4. <body> - Contains all the visible content of the web page (text, images, links, etc).

Q.3 : What is the difference between block-level elements and inline elements in HTML? Provide examples of each.

Block-level elements

- It Always start on a new line.
- It Take up the full width available.
- It can contain other block-level or inline elements.
- Examples: <div>, <h1>–<h6>, <p>, , <table>

Inline elements

- Do not start on a new line.
- It only take up as much width as necessary.
- It usually used inside block-level elements.
- Examples: , <a>, , ,

Q.4 : Discuss the role of semantic HTML. Why is it important for accessibility and SEO? Provide examples of semantic elements.

Role of Semantic HTML:

Semantic HTML uses elements that have meaning and describe the purpose of the content, not just how it looks.

Importance:

1. Accessibility - Screen readers and assistive technologies can better interpret content (e.g., <nav> tells a screen reader it's a navigation menu).
2. SEO (Search Engine Optimization) - Search engines understand page structure better, improving rankings.
3. Readability - Makes code more understandable for developers.

Examples of semantic elements:

- <header> - Defines the header section.
- <nav> - Navigation links.
- <article> - Independent article content.
- <section> - Thematic grouping of content.
- <aside> - Sidebar or additional info.
- <footer> - Footer section.

Lab Assignment

Task :

Create a simple HTML webpage that includes: A header (), footer (), main section (), and aside section (). A paragraph with some basic text. A list (both ordered and unordered). A link that opens in a new tab.

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="UTF-8">
```

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

```
<title>Simple HTML Webpage</title>

</head>

<body>

  <header>

    <h1>Welcome to My Webpage</h1>

    <p>This is the header section.</p>

  </header>

  <main>

    <h2>Main Section</h2>

    <p>

      This is a paragraph inside the main section. HTML helps us structure content

      on the web in a meaningful way.

    </p>

    <h3>Steps to Learn HTML:</h3>

    <ol>

      <li>Understand basic tags</li>

      <li>Practice building small webpages</li>

      <li>Combine with CSS & JavaScript</li>

    </ol>

    <h3>Things You Need:</h3>

    <ul>

      <li>A computer</li>

      <li>A text editor</li>

      <li>A web browser</li>

    </ul>
```

```
<p>
  Visit
  <a href="https://www.w3schools.com" target="_blank">
    W3Schools for HTML tutorials
  </a>.
</p>
</main>
<aside>
  <h3>Quick Note</h3>
  <p>This is an aside section — usually for extra info or sidebar content.</p>
</aside>
<footer>
  <p>&copy; 2025 My Simple Webpage | Created with HTML</p>
</footer>
</body>
</html>
```

HTML Forms

Theory Assignment

Q.1: What are HTML forms used for? Describe the purpose of the input, text area, select, and button elements.

HTML forms are used - to collect user input and send it to a server for processing. Commonly used for login pages, search bars, surveys, registrations, feedback forms, etc.

- Purpose of `<input>` - Can accept different types of data depending on type attribute (text, password, email, number, checkbox, radio, etc.).

Example: `<input type="text" name="username">`

- Purpose of `<text area>` - Used for longer responses like feedback, comments, or messages.

Example: `<text area name="message" rows="4" cols="30"></text area>`

- Purpose of `<select>` - Dropdown menu allowing users to choose from multiple options.

Example: `<select name="country">`

`<option value="india">India</option>`

`<option value="usa">USA</option>`

`</select>`

- Purpose of `<button>` - It can submit a form (`type="submit"`) or reset it (`type="reset"`) or just be a normal button (`type="button"`).

Example: `<button type="submit">Submit</button>`

Q.2 : Explain the difference between the GET and POST methods in form submission. When should each be used?

GET Method:

- Appends form data to the URL (e.g., `example.com/form?name=Aditi&age=20`).
- Data is visible in the browser address bar.
- Best for non-sensitive data (e.g., search queries, filters).
- Limited data size.
- Can be bookmarked or shared.

POST Method:

- Sends form data in the HTTP request body (not visible in URL).
- More secure than GET (but should still use HTTPS for sensitive data).
- Suitable for sensitive or large amounts of data (e.g., passwords, payment info, file uploads).
- Cannot be bookmarked.

GET Method is used for simple searches or filters.

POST Method is used for login forms, registrations, and sensitive transactions.

Q.3: What is the purpose of the label element in a form, and how does it improve accessibility?

Purpose of <label> :

- Defines a text label for form controls like <input>, <text area>, or <select>.
- Makes the form more user-friendly and accessible

It improves accessibility by :

Clickable Area - Clicking the label also focuses/selects the associated input field.

Screen Readers - Assistive technologies read the label text, so visually impaired users understand what each input field is for.

Improves Usability - Users don't need to click directly inside small input boxes.

Lab Assignment

Task : Create a contact form with the following fields: Full name (text input) , Email (email input), Phone number (tel input) , Subject (dropdown menu) , Message (text area), Submit button

Additional Requirements: Use appropriate form validation using required, min length, max length, and pattern. Link form labels with their corresponding inputs using the for attribute.

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

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

  <title>Contact Form</title>

</head>

<body>

  <h2>Contact Form</h2>

  <table>

    <form action="#" method="post">

      <label for="Full name">Full name:</label>

      <input type="text" id="Full name" name="Full name" required
minlength="5" required maxlength="100">

      <br><br>

      <label for="Phone no">Phone no:</label>

      <input type="number" id="Phone no" name="Phone no" required
length=[0-9]{10}>

      <br><br>

      <label for="Email">Email:</label>

      <input type="text" id="Email" name="Email" required minlength="5"
required maxlength="100">

      <br><br>

      <label for="Subject">Subject:</label>
```



```
<select id="Subject" name="Subject">
  <option value="Subject">Select a Subject</option>
  <option value="Department">AI</option>
  <option value="Department">IT</option>
  <option value="Department">CS</option>
</select>

<br><br>

<label for="Message">Message:</label>
<textarea id="Message" name="Message"></textarea>
<br><br>

<button type="Submit">Submit</button>

</form>

<script src="script.js"></script>
</table>
</body>
</html>
```

HTML Tables

Theory Assignment

Q.1 : Explain the structure of an HTML table and the purpose of each of the following elements: <table>, <tr>, <th>, <td>, and <thead>.

Structure of HTML table:

```
<table border="1">
```

```
  <thead>
```

```
    <tr>
```

```
      <th>Name</th>
```

```
      <th>Age</th>
```

```
      <th>City</th>
```

```
    </tr>
```

```
  </thead>
```

```
  <tr>
```

```
    <td>Aditi</td>
```

```
    <td>22</td>
```

```
    <td>Mumbai</td>
```

```
  </tr>
```

```
  <tr>
```

```
    <td>Dhwani</td>
```

```
    <td>22</td>
```

```
    <td>Pune</td>
```

```
  </tr>
```

```
</table>
```

1) <table>- It Defines the table itself.

- All rows, headers, and cells go inside this tag.

2) <tr> (Table Row) - Defines a row in the table.

-contains table headers (<th>) or data cells (<td>).

3) <th> (Table Header Cell) - Defines a header cell in a table.

-By default, text inside <th> is bold and centered.

-Used in the first row or first column to describe the data.

4) <td> (Table Data Cell) -It defines a standard data cell in a table.

-It contains actual data values.

5) <thead> (Table Head) - Groups the header content of the table.

-It usually contains rows (<tr>) with <th>.

-It Helps in separating the header from the body of the table

Q.2 : What is the difference between colspan and rowspan in tables? Provide examples.

1) Colspan - Expands a cell across multiple columns.

Example :

```
<table border="1">
```

```
<tr>
```

```
<th colspan="2">Student Info</th>
```

```
</tr>
```

```
<tr>
```

```
<td>Name</td>
```

```
<td>Aditi</td>
```

```
</tr>
```

</table>

2) Rowspan - Expands a cell across multiple rows.

Example:

```
<table border="1">
```

```
<tr>
```

```
<th rowspan="2">Name</th>
```

```
<td>Aditi</td>
```

```
</tr>
```

```
<tr>
```

```
<td>Dhwani</td>
```

```
</tr>
```

```
</table>
```

Q.3 : Why should tables be used sparingly for layout purposes? What is a better alternative?

-Earlier, old websites used tables for page layouts (menus, content blocks, etc.).

- Problems with using tables for layout:

1. Not responsive - Hard to adapt for mobile screens.
2. Poor accessibility - Screen readers struggle with layout tables.
3. More HTML code - Slows down development and makes code harder to maintain.
4. Styling limitations - Difficult to apply modern designs.

Better Alternative will be ,

Use CSS with <div> and Flexbox/Grid for layout.

- Flexbox - Best for one-dimensional layouts (row or column).
- CSS Grid - Best for two-dimensional layouts (rows + columns).

Lab Assignment

Task: Create a product catalog table that includes the following columns: Product Name, Product Image (use placeholder image URLs) , Price, Description , Availability (in stock, out of stock)

Additional Requirements: Use thead for the table header. Add a border and some basic styling using inline CSS. Use colspan or rowspan to merge cells where applicable.

```
<!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>

  <table style="border: 2px solid #333; border-collapse: collapse; width: 100%; text-align: center; font-family: Arial, sans-serif;">

    <thead style="background-color: #f2f2f2;">

      <tr>

        <th style="border: 1px solid #333; padding: 8px;">Product Name</th>

        <th style="border: 1px solid #333; padding: 8px;">Product Image</th>

        <th style="border: 1px solid #333; padding: 8px;">Price</th>

        <th style="border: 1px solid #333; padding: 8px;">Description</th>

        <th style="border: 1px solid #333; padding: 8px;">Availability</th>

      </tr>

    </thead>

    <tbody>

      <tr>

        <td style="border: 1px solid #333; padding: 8px;">Wireless Headphones</td>
```

```

<td rowspan="2" style="border: 1px solid #333; padding: 8px;">
    
</td>

<td style="border: 1px solid #333; padding: 8px;">$59.99</td>

<td style="border: 1px solid #333; padding: 8px;">Noise-cancelling, over-ear design
with 20 hours battery life.</td>

<td style="border: 1px solid #333; padding: 8px;">In Stock</td>
</tr>

<tr>

<td style="border: 1px solid #333; padding: 8px;">Bluetooth Earbuds</td>

<td style="border: 1px solid #333; padding: 8px;">$39.99</td>

<td style="border: 1px solid #333; padding: 8px;">Compact, water-resistant earbuds
with charging case.</td>

<td style="border: 1px solid #333; padding: 8px;">Out of Stock</td>
</tr>

<tr>

<td style="border: 1px solid #333; padding: 8px;">Smartwatch</td>

<td style="border: 1px solid #333; padding: 8px;">$129.99</td>

<td style="border: 1px solid #333; padding: 8px;">Fitness tracking, heart rate monitor,
and GPS.</td>

<td style="border: 1px solid #333; padding: 8px;">In Stock</td>
</tr>

<tr>

<td style="border: 1px solid #333; padding: 8px;">Gaming Mouse</td>

<td style="border: 1px solid #333; padding: 8px;">

    

</td>

<td style="border: 1px solid #333; padding: 8px;">$49.99</td>

```

`<td colspan="2" style="border: 1px solid #333; padding: 8px;">Ergonomic design with customizable RGB lighting — In Stock</td>`

`</tr>`

`</tbody>`

`</table>`

`</body>`

`</html>`