Module 2 – Mernstack – HTML

• HTML Basics

🡪 Theory Assignment

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

* HTML (HyperText Markup Language) is the standard language for creating web pages.
* It structures content using elements like headings, paragraphs, images, and links.
* Purpose in Web Development:
* Structures web pages with a clear layout.
* Displays content like text, images, and videos.
* Enables navigation through hyperlinks.
* Works with CSS and JavaScript for styling and interactivity.
* Improves SEO with semantic tags.
* Ensures compatibility across devices and browsers.

Question 2: Explain the basic structure of an HTML document. Identify the mandatory.

* tagsand their purposes

<!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></body>

</html>

<!DOCTYPE html>

Declares the document type and version of HTML (HTML5). Ensures browsers render the page correctly.

<html>

The root element that wraps all content on the page.

<head>

Contains metadata (e.g., page title, character encoding, linked styles/scripts) not displayed on the page.

<title>

Specifies the title of the page displayed in the browser tab or search engine results.

<body>

Contains the visible content and elements (text, images, links) displayed in the browser.

Question 3: What is the difference between block-level elements and inline elements

inHTML? Provide examples of each.

1. Block-Level Elements

Start on a new line and take up the full width of their container.

Used for larger structures like paragraphs and sections.

Examples: <div>, <p>, <h1> to <h6>, <ul>, <ol>.

2. Inline Elements

Stay on the same line as surrounding content.

Used for smaller pieces of content like text styling or links.

Examples: <span>, <a>, <img>, <strong>, <em>.

-> Key Difference:

Block-level elements create new "blocks" or sections, while inline elements are part of a line and flow with text.

Question 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 meaningful tags to clearly describe the content's purpose and structure.

It improves the readability of code for developers and helps browsers and assistive technologies understand the content better.

Importance for Accessibility and SEO:

Accessibility:

Semantic tags provide clear roles for screen readers, making web pages more navigable for users with disabilities.

Example: <header> helps identify the page header.

->  SEO: serch engines optimization

Search engines understand and index content more effectively, improving rankings.

Example: <article> signifies a self-contained piece of content.

 Examples of Semantic Elements:

<header>: Defines the header section.

<footer>: Represents the footer.

<article>: For independent, self-contained content.

<section>: Groups related content.

<nav>: Indicates navigation links.

<aside>: For side content, like a sidebar.

🡪 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>

</header>

<main>

        <h2>Main Content</h2>

        <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Dicta aliquid assumenda, mollitia nisi optio totam</p>

<h3>Ordered List:</h3>

        <ol>

            <li>First item</li>

            <li>Second item</li>

            <li>Third item</li>

        </ol>

<h3>Unordered List:</h3>

        <ul>

            <li>Item one</li>

            <li>Item two</li>

            <li>Item three</li>

        </ul>

    </main>

<aside>

        <h2>Side Content</h2>

        <p>This is an aside section with additional information or links.</p>

    </aside>

<footer>

        <p>2024 My Webpage. All rights reserved.</p>

       <p>Visit <a href="https://github.com/PatelAayushii">Example Website</a></p>

    </footer>

</body>

</html>

• HTML Forms

🡪Theory Assignment

Question 1: What are HTML forms used for? Describe the purpose of the input, textarea, select, and buttonelements.

* HTML Forms use the <form> tag to collect user input through various interactive
* controls.
* HTML Forms use the <form> tag to collect user input through various interactive
* controls.
* <input>
* It is used to get input data from the form in various types such as text, password,
* email etc by changing its type.
* <button>
* It defines a clickable button to control other elements or execute a functionality.
* <select>
* It is used to create a drop-down list.
* <textarea>
* It is used to get input long text content.

• Question 2: Explain the difference between the GETand POSTmethods in form submission. When should each be used?

🡪  Both GET and POST method is used to transfer data from client to server in HTTP protocol but Main difference between POST and GET method is that GET carries request parameter appended in URL string while POST carries request parameter in message body which makes it more secure way of transferring data from client to server.

Question 3: What is the purpose of the labelelement in a form, and how does it improve accessibility?

* A <label> is used to create a caption for a form control. It help users who have difficulty clicking on very small regions (such as radio buttons or checkboxes) - because when the user clicks the text within the <label> element, it toggles the radio button or checkbox. This way it improves accessibility.

🡪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 (textarea) • Submit button Additional Requirements: • Use appropriate form validation using required, minlength, maxlength, and pattern. • Link form labels with their corresponding inputs using the forattribute.

🡪

<!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>

    <h1>Contact Us</h1>

    <form action="submit-form.html" method="POST">

        <label for="fullname">Full Name:</label>

        <input

            type="text"

            id="fullname"

            name="fullname"

            required

            minlength="3"

            maxlength="50"

            placeholder="Enter your full name">

        <br>

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

        <input

            type="email"

            id="email"

            name="email"

            required

            placeholder="Enter your email">

        <br>

        <label for="phone">Phone Number:</label>

        <input

            type="tel"

            id="phone"

            name="phone"

            required

            placeholder="Enter your 10-digit phone number">

        <br>

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

        <select id="subject" name="subject" required>

            <option value="">Select a subject</option>

            <option value="general">General Inquiry</option>

            <option value="support">Support</option>

            <option value="feedback">Feedback</option>

        </select>

        <br>

        <label for="message">Message:</label>

        <textarea

            id="message"

            name="message"

            rows="4"

            cols="50"

            required

            minlength="10"

            maxlength="300"

            placeholder="Write your message here..."></textarea>

        <br>

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

    </form>

</body>

</html>

• HTML Tables

* Theory Assignment

Question 1: Explain the structure of an HTML table and the purpose of each of the followingelements:

* The <table> tag defines an HTML table. The basic structure HTML table consists of one

<table> element and one or more <tr>, <th>, and <td> elements. The <tr> element defines a

table row, the <th> element defines a table header, and the <td> element defines a table cell.

HTML Tags Purpose

🡪<table>

Defines the structure for organizing data in

rows and columns within a web page.

🡪 <tr>

Represents a row within an HTML table,

containing individual cells.

🡪 <th>

Shows a table header cell that typically holds

titles or headings.

HTML Tags Purpose

🡪 <td>

Represents a standard data cell, holding

content or data.

🡪 <thead>

Defines the header section of a table, often containing column labels.

Question 2: What is the difference between colspanand rowspanin tables? Provideexamples

🡪colspan (Column Span):

This attribute merges multiple columns into a single cell within the same row.

It is used when you want a cell to stretch horizontally across multiple columns.

🡪rowspan (Row Span):

This attribute merges multiple rows into a single cell within the same column.

It is used when you want a cell to stretch vertically across multiple rows.

colspan is ideal for creating a single header that covers multiple columns (e.g., "January" and "February" under a "2024" header).

rowspan is useful for combining rows where data overlaps vertically (e.g., a merged "Category" column for subcategories listed below).

|  |  |
| --- | --- |
|  |  |

Question 3: Why should tables be used sparingly for layout purposes? What is a betteralternative?

* Tables should be used sparingly for layout because they:
* Confuse assistive technologies, affecting accessibility.
* Are complex, hard to maintain, and inflexible for responsive design.
* Mix structure (HTML) with presentation, violating best practices.
* **Better Alternative**: Use CSS-based layouts like **Flexbox** (for 1D layouts), **CSS Grid** (for 2D layouts), and **media queries** for responsiveness. These are cleaner, more maintainable, and adaptive

🡪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 ofstock) Additional Requirements: • Use theadfor the table header. • Add a border and some basic styling using inline CSS. • Use colspanor rowspanto merge cells where applicable.