**Module 15) HTML in Full Stack**

1. **HTML Basics :**

**=> Theory Assignment :**

**=> Questions :**

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

**Answer :**

**HTML (HyperText Markup Language)** is the standard markup language used to create and structure content on the web. It defines the layout and organization of web pages using elements like headings, paragraphs, images, links, and lists.

### Purpose of HTML in Web Development :

* **Content Structuring**: HTML organizes content into a coherent structure, making it readable and accessible.
* **Foundation for Web Pages**: It serves as the backbone of web pages, allowing browsers to interpret and display content correctly.
* **Separation of Concerns**: HTML focuses on content structure, while CSS handles presentation and JavaScript manages behavior, promoting maintainability and scalability.

In essence, HTML is essential for creating structured, accessible, and well-organized web pages, forming the foundation upon which modern web development is built.

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

**Answer :**

An HTML document's basic structure comprises essential tags that define its layout and content. Here's a concise overview:

### **Mandatory HTML Tags and Their Purposes :**

<!DOCTYPE html> : Declares the document type and version of HTML (HTML5).

<html lang="en"> : Root element; wraps all content; lang specifies the document language.

<head> : Contains metadata like title, character set, and links to stylesheets.

<meta charset="UTF-8"> : Sets the character encoding for the document.

<title> : Sets the title shown in the browser tab.

<body> : Contains all visible content like text, images, and links.

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

**Answer :**

In HTML, elements are categorized as **block-level** or **inline**, each serving distinct structural purposes in web page layout.

### 1.Block-Level Elements :

**Definition** : Start on a new line and occupy the full width available.

**Characteristics** :

Begin on a new line.

Take up the full width of their parent container.

Can contain both block-level and inline elements.

Commonly used for structuring the main layout of a page.

**Examples** : <div>, <p>, <h1>–<h6>, <ul>, <ol>, <li>, <table>, <section>, <article>

**2.Inline Elements :**

**Definition** : Do not start on a new line and only occupy as much width as necessary.

**Characteristics** :

Flow within the content without breaking to a new line.

Occupy only the space bounded by the tags.

Cannot contain block-level elements.

Typically used for styling parts of text or embedding small elements.

**Examples** : <span>, <a>, <strong>, <em>, <img>, <input>, <label>

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

**Answer :**

**Semantic HTML** uses meaningful tags (like <header>, <nav>, <main>, <article>, <footer>) to define the structure and purpose of web content.

### Importance :

**Accessibility** : Helps screen readers and assistive tools interpret content structure, improving navigation for users with disabilities.

**SEO** : Assists search engines in understanding page layout, enhancing indexing and ranking.

### Examples :

<header>: Introductory content

<nav>: Navigation links

<main>: Main content

<article>: Self-contained content

<footer>: Footer information

Using semantic HTML leads to cleaner code, better accessibility, and improved SEO.

**=> Lab Assignment :**

** Task : Create a simple HTML webpage that includes:**

**o A header (<header>), footer (<footer>), main section (<main>), and aside section (<aside>).**

**o A paragraph with some basic text.**

**o A list (both ordered and unordered).**

**o A link that opens in a new tab.**

**Answer :**

<!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>

<header>

<h1>this is my Portfolio</h1>

</header>

<main>

<section>

<article>

<h2>Introdution</h2>

<p>i am <strong>Arjun prajapati</strong> and my Professional Python full stack developer and <br> i have complete my <b>Web intenship</b> in Brainy beam private limited</p>

</Article>

<article>

<h2>MY skills</h2>

<ol type="A">

<li>python </li>

<li>SQL</li>

<LI>C,C++</LI>

<LI>DJANGO</LI>

<LI>HTML,CSS,JS</LI>

</ol>

</article>

<article>

<h2>My project</h2>

<ul>

<li> <a href="#">Smart home automation </a></li>

<li><a href="#">e commerce website </a></li>

</ul>

</article>

</section>

<aside>

<section> contact : 090909090</section>

</aside>

</main>

<footer>&copy; arjun Python developer

</footer>

</body>

</html>

1. **HTML Forms :**

**=> Theory Assignment :**

**=> Questions :**

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

**Answer :**

**HTML forms** are used to collect user input and submit it to a server for processing.

Key form elements include :

<input> : Captures various types of user data, such as text, passwords, emails, etc., depending on the type attribute.

<textarea> : Allows users to enter multi-line text, suitable for comments or messages.

<select> : Creates a drop-down list for selecting one or more options.

<button> : Triggers form submission or other actions when clicked.

These elements are essential for creating interactive and functional web forms.

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

**Answer :**

In HTML, the GET and POST methods are used to send form data to a server, each serving distinct purposes:

### **GET Method :**

****Purpose** :** Retrieve data from the server.

**How it works**: Appends form data to the URL as query parameters.

****Characteristics** :**

Data is visible in the URL.

Can be cached and bookmarked.

Limited data length (approximately 2048 characters).

Suitable for non-sensitive data retrieval, like search queries.

**POST Method :**

****Purpose** :** Send data to the server to create or update resources.

**How it works**: Sends form data in the body of the HTTP request.

****Characteristics** :**

Data is not visible in the URL.

Cannot be cached or bookmarked.

No data length restrictions.

Ideal for submitting sensitive information, like passwords, or large amounts of data.

### **When to Use Each :**

****Use GET**** :

When retrieving data without causing side effects.

When data can be included in the URL and is not sensitive.

When bookmarking or sharing the URL is desired.

****Use POST**** :

When submitting data that modifies server state (e.g., creating or updating records).

When handling sensitive information (e.g., passwords, payment details).

When sending large amounts of data or files.

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

**Answer :**

The <label> element in HTML forms associates descriptive text with form controls like <input>, <textarea>, and <select>.

### **Purpose :**

### ****Accessibility**** : Enhances usability for screen reader users by providing context for form fields.

**Usability** : Allows users to click on the label to focus or activate the associated form control, which is particularly helpful for users with motor impairments.

**=> Lab Assignment :**

** Task : Create a contact form with the following fields:**

**o Full name (text input)**

**o Email (email input)**

**o Phone number (tel input)**

**o Subject (dropdown menu)**

**o Message (textarea)**

**o Submit button**

**Additional Requirements :**

**o Use appropriate form validation using required, minlength, maxlength, and pattern.**

**o Link form labels with their corresponding inputs using the for attribute.**

**Answer :**

<!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>

<header>

<h1>Contact US</h1>

</header>

<main>

<label for="full name">Full Name</label>

<input type="text" name="" id="" placeholder="enter your full name" maxlength="15"> <br>

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

<input type="text" name="" id="" placeholder="enter your email" minlength="5" maxlength="12"> <br>

<label for="Phone">Phone</label>

<input type="tel" name="" id="" placeholder="Phone Number"><br>

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

<select name="" id="">

<option value="">Maths</option>

<option value="">Chemistry</option>

<option value="">Biology</option>

</select><br>

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

<textarea name="" id="" >Enter your Query Here</textarea>

<br>

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

</main>

</body>

</html>

**3. HTML Tables :**

**=> Theory Assignment :**

**=> Questions :**

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

**Answer :**

An HTML table organizes data into rows and columns using specific tags:

1. <table> : Defines the table container for all table elements.

2. <thead> : Groups the header content, typically containing column headings.

3. <tr> : Represents a table row, containing a set of cells.

4. <th> : Defines a header cell within a row, usually bold and centered by default.

5. <td> : Specifies a standard data cell within a row.

These elements collectively structure and organize tabular data on a webpage.

**2: What is the difference between colspan and rowspan in tables?**

**Answer :**

colspan and rowspan are HTML table attributes that merge cells horizontally and vertically, respectively.

### **colspan :**

****Purpose**** : Merges cells horizontally across multiple columns.

****Syntax**** : <td colspan="n">

### **rowspan :**

****Purpose**** : Merges cells vertically across multiple rows.

****Syntax**** : <td rowspan="n">

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

**Answer :**

****Avoid using tables for layout** because they :**

****1.Reduce accessibility** :** Screen readers struggle with table-based layouts.

****2.Are inflexible** :** Difficult to adapt for responsive designs.

****3.Complicate maintenance** :** Nested tables are hard to edit and debug.

****4.Increase load times** :** More HTML code leads to slower rendering.

****Better alternatives** :**

****1.CSS Flexbox** :** Ideal for one-dimensional layouts.

****2.CSS Grid** :** Suitable for complex two-dimensional layouts.

**=> Lab Assignment :**

** Task : Create a product catalog table that includes the following columns:**

**o Product Name**

**o Product Image (use placeholder image URLs)**

**o Price**

**o Description**

**o Availability (in stock, out ofstock)**

**Additional Requirements :**

**o Use thead for the table header.**

**o Add a border and some basic styling using inline CSS.**

**o Use colspan or rowspan to merge cells where applicable.**

**Answer :**

<!-- Task : Create a product catalog table that includes the following columns:

o Product Name

o Product Image (use placeholder image URLs)

o Price

o Description

o Availability (in stock, out ofstock)

Additional Requirements :

o Use thead for the table header.

o Add a border and some basic styling using inline CSS.

o 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 border="2px" align="center" cellspacing="10px" cellpadding="10px">

<thead style="background-color: aqua;">

<th>Product Name</th>

<th>Product Image</th>

<th>Price</th>

<th>Description</th>

<th>Availability</th>

</thead>

<tbody style="background-color: burlywood;">

<tr>

<td>Headphone</td>

<td><img src="Headphones.jpeg" alt=""></td>

<td>$12.99</td>

<td>A headset is a device that allows you to listen to audio and communicate with others using a combination of earphones (or speakers) and a microphone. It is typically worn on the head, providing a hands-free experience while talking on the phone, playing games, or participating in virtual meetings.</td>

<td>In Stock</td>

</tr>

<tr>

<td>Earbuds</td>

<td><img src="bot.jpeg" alt=""></td>

<td>$5.66</td>

<td>Offers a good balance of features and price, with a focus on long battery life and Bluetooth 5.1 for seamless connectivity</td>

<td>In Stock</td>

</tr>

<tr>

<td>SSD</td>

<td><img src="ssd.jpeg" alt=""></td>

<td>$24.99</td>

<td>SSD stands for Solid-State Drive. It's a type of computer storage device that uses integrated circuit assemblies to store data persistently. Unlike traditional hard disk drives (HDDs), which use spinning disks and movable read/write heads, SSDs have no moving parts</td>

<td>Out Of Stock</td>

</tr>

</tbody>

</table>

</body>

</html>

Output :

