Module 2 – Frontend – HTML

**HTML Basics**

***Theory Assignment:***

**• Question 1:**

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

🡪 HTML, or Hypertext Markup Language, is the standard markup language used for creating web pages and web applications.

🡪 It provides the fundamental structure and content of a webpage.

**Question 2:**

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

🡪 <!DOCTYPE html>:

* + **Purpose**: This is not an HTML tag but a document type declaration. It informs the web browser about the version of HTML the document is using, ensuring proper rendering. For modern HTML5, it's simply <!DOCTYPE html>.
* <html>:
  + **Purpose**: This is the root element of every HTML document. All other HTML elements, except for the <!DOCTYPE> declaration, are nested within this tag. It signifies the beginning and end of the HTML document.
* <head>:
  + **Purpose**: This section contains metadata about the HTML document, which is not directly visible on the web page itself but provides important information for browsers and search engines. Common elements within <head> include:
    - <meta>: Defines metadata like character set (charset), viewport settings, and author information.
    - <title>: Specifies the title of the document, which appears in the browser's title bar or tab.
    - <link>: Links external resources like CSS stylesheets.
    - <script>: Embeds or links to JavaScript files.
* <body>:
  + **Purpose**: This section contains all the visible content of the web page, including text, images, links, videos, and other interactive elements. Everything displayed to the user in the browser window is placed within the <body> tags.

**• Question 3:**

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

🡪 A block-level element always starts on a new line, and the browsers automatically add some space (a margin) before and after the element.

A block-level element always takes up the full width available (stretches out to the left and right as far as it can).

(Ex: Two commonly used block elements are: <p> and <div>).

🡪 An inline element does not start on a new line.

🡪An inline element only takes up as much width as necessary.

(Ex.<span> element)

**• Question 4:**

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

🡪 The role of semantic elements in HTML5 is to provide meaning and structure to the content of a web page, making it more understandable for both humans and machines.

🡪 Semantic HTML elements are crucial for both accessibility and SEO because they provide clear meaning and structure to web content, making it easier for both assistive technologies and search engines to understand and process the information.

🡪(Ex: <header>, <nav>, <main>, <article>, <aside>, and <footer>)

**HTML Forms**

**Theory Assignment:**

**• Question 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 on web pages. This input can then be sent to a server for processing, enabling functionalities such as user logins, sign-ups, search queries, contact forms, and e-commerce transactions.

🡪Input: <input>:

This is the most versatile form element, used to create various interactive controls depending on its type  attribute. Examples include single-line text fields (type="text").

🡪 <text area>:

This element defines a multi-line text input area, typically used for collecting longer user inputs like comments, reviews, or messages.

🡪 <select>:

This element creates a drop-down list or a scrollable list of options. Users can choose one or multiple options from the list, which are defined by nested <option> elements.

🡪 <button>:

This element creates a clickable button. Its behaviour is determined by its type of attribute, which can be submit (to submit the form), reset (to reset form fields to their initial values), or button (for general-purpose buttons often used with JavaScript to trigger custom actions).

**• Question 2:**

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

🡪GET: GET is used for retrieving data like searching, filtering, or paging.

POST: POST is used for submitting forms, modifying data, or creating new resources.

🡪 When to Use Each:

* **Use GET when:**
  + Retrieving data from the server (e.g., search queries, filtering results, pagination).
  + Data is non-sensitive and can be easily shared or bookmarked.
  + Requests are idempotent (don't modify server state).
* **Use POST when:**
  + Submitting data to the server that creates or modifies resources (e.g., form submissions for registration, login, creating a new post, uploading files).
  + Handling sensitive information (e.g., passwords, credit card details).
  + Sending large amounts of data.
  + Requests are not idempotent (cause side effects on the server).

**• Question 3:**

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

🡪 The <label> element in HTML serves to associate text labels with form controls, enhancing both usability and accessibility.

🡪It improves accessibility by providing a clear and programmatic connection between the text description and the input field, allowing screen readers to announce the purpose of each field to users.

**-:HTML Tables: -**

**• Question 1:**

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

🡪

<table>:

This is the outermost container element for the entire table. All other table-related elements are nested within the <table> tags. It defines the beginning and end of the table structure.

* <tr>:

This element defines a table row. Each <tr> tag represents a horizontal row within the table and serves as a container for either table header cells (<th>) or table data cells (<td>).

* <th>:

This element defines a table header cell. <th> cells are typically used to label columns or rows, providing semantic meaning and often rendered in bold and centred by default, distinguishing them from regular data cells.

* <td>:

This element defines a table data cell. <td> cells contain the actual data content of the table. They are the standard cells where the information is displayed.

* <thead>:

This element groups the header content of a table. It is used to semantically separate the header rows from the main body of the table (<tbody>) and the footer (<tfoot>). This allows for better structuring and can be beneficial for styling and accessibility. The <thead> typically contains one or more <tr> elements, which in turn contain <th> elements.

**• Question 2:**

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

🡪 colspan:

colspan is used to merge cells horizontally, making a single cell occupy the space of multiple columns.

Example:

<table>  
 <tr>  
 <th colspan="2">Product Details</th>  
 </tr>  
 <tr>  
 <td>Product Name</td>  
 <td>Price</td>  
 </tr>  
</table>

🡪 rowspan:

rowspan is used to merge cells vertically, making a single cell occupy the space of multiple rows.

Example:

<table>  
 <tr>  
 <td rowspan="2">Category</td>  
 <td>Item 1</td>  
 </tr>  
 <tr>  
 <td>Item 2</td>  
 </tr>  
</table>

**• Question 3:**

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

🡪 Tables should be used sparingly for layout purposes because their primary function is to present tabular data, not to control page structure or visual presentation. Using tables for layout introduces several disadvantages:

**-Accessibility Issues:**

**-Code Complexity and Maintainability:**

**-Performance:**

🡪A better alternative for layout purposes is to use CSS (Cascading Style Sheets) in conjunction with semantic HTML elements.

* **Semantic HTML elements**

like <div>, <section>, <article>, <header>, <footer>, and <aside> provide logical structure to your content without imposing specific visual styles.