HTML Assignment

* Theory Questions:

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

* HTML stands for Hyper Text Markup Language. It’s the standard language used to create and structure content on the web.
* Purpose of HTML in Web Development:
* Organizes text, images, videos, and other media into a readable format.
* Uses tags like <h1>, <p>, <img>, and <a> to tell browsers how to display content.
* Enables linking between pages and sections using hyperlinks.
* Allows integration of audio, video, and interactive content.
* Works with CSS (for styling) and JavaScript (for interactivity) to build complete web experiences.

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

* Basic Structure of an HTML Document
* <!DOCTYPE html>

<html>

<head>

<title>Page Title</title>

</head>

<body>

<h1>Hello, World!</h1>

<p>This is a paragraph.</p>

</body>

</html>

* HTML Tags and their Purposes
* <!DOCTYPE html> = Declares the document type and version of HTML (HTML5 here). Helps browsers render the page correctly.
* <html> = Root element that wraps the entire HTML content.
* <head> = Contains metadata about the document (like title, character set, links to CSS, etc.).
* <title> = Sets the title of the webpage shown in the browser tab.
* <body> = Holds all the visible content of the webpage—text, images, buttons, etc.

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

* Block Level Element = Block-level elements occupy the full width of their parent container and always start on a new line.
* Examples: <div> = Generic container for grouping elements

<p> = Paragraph

<h1> to <h6> = Headings

<ul> / <ol> = Unordered/Ordered lists

<li> = List item

<section>, <article>, <header>, <footer> = Semantic layout elements

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

* Semantic HTML refers to using HTML tags that clearly describe their meaning and purpose in the context of the content they contain. Instead of generic tags like <div> or <span>, semantic tags tell browsers, developers, and assistive technologies what kind of content is inside.
* Accessibility:
* Screen readers and assistive technologies rely on semantic tags to interpret and navigate content.
* For Example, <nav> tells a screen reader “this is a navigation menu,” helping users with visual impairments move through the page more easily.
* SEO:
* Search engines use semantic tags to better understand page structure and content hierarchy.
* Tags like <article>, <header>, and <footer> help Google and others index your site more accurately, improving visibility in search results.
* Example:
* <header> = Introductory content or navigation links
* <nav> = Navigation menu
* <main> = Main content of the document
* <section> = Thematic grouping of content
* <article = Independent, self-contained content
* <aside> = Sidebar or tangential content
* <footer> = Footer content like copyright or links

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

* HTML forms are used to collect **user input** and send it to a server for processing. They’re essential for:
* User registration and login
* Search functionality
* Surveys and feedback
* E-commerce checkout
* File uploads and more
* <input> = Collects single-line user data like text, email, password, number, etc. It’s highly versatile with different (type) attributes (text, checkbox, radio, file, etc).
* <textarea> = Allows users to enter **multi-line** text, such as comments or messages. Ideal for longer input.
* <select> = Creates a dropdown menu for users to choose from predefined options. Often paired with <option> tags.
* <button> = Triggers an action—usually to **submit** the form. Can also be used for resetting or custom JavaScript actions.

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

|  |  |  |
| --- | --- | --- |
| Feature | Get | Post |
| 1. Data Location | URL query string | Request body |
| 1. Visibility | Visible in address bar | Hidden from address bar |
| 1. Security | Less secure | More secure |
| 1. Data Size | Limited | Unlimited |
| 1. Use Case | Retrieve data | Submit or update data |

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

* The <label> tag is used to define a text description for a form control like an <input>, <textarea>, or <select>. It tells users what the form field is for.
* The <label> element is essential for users who rely on assistivetechnologies, like screen readers. Here's how it helps:
* Clear Identification: Screen readers read the label aloud when the user focuses on the form field, helping them understand its purpose.
* Larger Click Targets: Clicking on the label also activates the associated input, which is especially helpful for checkboxes and radio buttons.
* Better Navigation: Labels provide context, making it easier for users to navigate and fill out forms accurately.

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

* Structure:
* <!DOCTYPE html>

<html>

<head>

<title>Page Title</title>

</head>

<body>

<h1>Hello, World!</h1>

<p>This is a paragraph.</p>

</body>

</html>

* <table> = The container that defines the entire table. It wraps all rows and columns.
* <tr> = Stands for “table row.” It defines a horizontal row of cells.
* <th> = Table header cell. Used inside <tr> to label columns. Text is bold and centered by default.
* <td> = Table data cell. Holds actual data inside a row. Appears under headers.
* <thead> = Groups the header section of the table. Helps browsers and screen readers understand the table’s structure.

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

|  |  |  |
| --- | --- | --- |
| Attribute | Purpose | Direction |
| colspan | Merges multiple columns into one cell | Horizontal |
| rowspan | Merges multiple rows into one cell | Vertical |

* Example of colspan:

<table border="1">

<tr>

<th colspan="2">Name & Age</th>

</tr>

<tr>

<td>Harshil</td>

<td>25</td>

</tr>

</table>

* Example of rowspan:

<table border="1">

<tr>

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

<td>Harshil</td>

</tr>

<tr>

<td>Raj</td>

</tr>

</table>

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

* Poor Accessibility:  
  Tables are meant for displaying tabular data. When used for layout, screen readers and assistive technologies can misinterpret the structure, making navigation confusing for users with disabilities.
* Rigid and Inflexible:  
  Tables don’t adapt well to different screen sizes or devices. They’re hard to make responsive, which is a must in modern web design.
* Messy Code**:**  
  Layout tables often require deeply nested rows and columns, making the HTML harder to read, maintain, and debug.
* SEO Impact:  
  Search engines prefer semantic HTML. Using tables for layout can obscure the true meaning of your content, potentially affecting rankings.
* Slower Load Times**:**  
  Complex table structures can increase page size and slow down rendering, especially on mobile devices.
* Better Alternative is CSS