HTML BASIC

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

**Answer:**

**HTML (Hypertext Markup Language)** is the standard language used to create and design the structure of web pages. It uses a system of **tags** to define elements such as headings, paragraphs, links, images, and other content.

**Purpose of HTML in web development:**

* It provides the basic structure of a web page.
* It allows web browsers to display content in a readable and organized way.
* It enables linking between web pages through hyperlinks.
* HTML works together with **CSS** (for styling) and **JavaScript** (for interactivity) to build complete web applications.

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

**Answer:**

A basic HTML document includes the following mandatory tags:

<html>

<head>

<title>Page Title</title>

</head>

<body>

<h1>Hello, World!</h1>

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

</body>

</html>

**Explanation of tags:**

* <!DOCTYPE html>: Declares the document type and version of HTML (HTML5 here).
* <html>: Root element that wraps the entire HTML document.
* <head>: Contains meta-information like the title, character set, and links to stylesheets or scripts.
* <title>: Sets the title of the web page (shown in the browser tab).
* <body>: Contains the visible content of the web page such as headings, text, images, and links.

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

**Answer:**

**Block-level elements**:

* Start on a new line and take up the full width available.
* Used for larger structures like paragraphs or sections.

**Examples**:

* <div>, <p>, <h1> to <h6>, <ul>, <ol>, <li>, <section>, <article>

**Inline elements**:

* Do not start on a new line; they flow within a block.
* Used for styling or linking small parts of text.

**Examples**:

* <span>, <a>, <strong>, <em>, <img>, <label>

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

**Answer:**

**Semantic HTML** uses tags that clearly describe the **meaning** of the content inside them, making web pages more understandable for both humans and machines.

**Importance**:

* **Accessibility**: Helps screen readers and assistive technologies better interpret and navigate content for users with disabilities.
* **SEO (Search Engine Optimization)**: Search engines understand the structure and purpose of the content more accurately, improving indexing and ranking.

**Examples of semantic elements**:

* <header>: Defines the top section of a page.
* <nav>: Indicates navigation links
* <main>: Represents the main content of the document.
* <article>: Independent, self-contained content.
* <section>: Groups related content.
* <footer>: Represents the bottom section or contact info.

HTML Forms

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

**Answer:**

**HTML forms** are used to **collect user input** and send it to a server for processing. Forms are essential for actions like user registration, login, searching, submitting feedback, etc.

**Elements and their purposes:**

* **<input>**: A versatile element used to create different types of user inputs, such as text fields, checkboxes, radio buttons, and more (e.g., type="text", type="email", type="password").
* **<text area>**: Allows users to enter **multi-line text** (e.g., comments or messages).
* **<select>**: Creates a **drop-down list** from which users can choose one (or multiple) options using nested <option> tags.
* **<button>**: Used to **submit a form**, **reset a form**, or trigger JavaScript actions depending on the type attribute (type="submit", type="reset", type="button").

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

**Answer:**

HTML forms can submit data using two main HTTP methods: **GET** and **POST**.

| **Feature** | **GET Method** | **POST Method** |
| --- | --- | --- |
| Data visibility | Data is appended in the URL (visible) | Data is sent in the request body (hidden) |
| Use case | For retrieving data (search, filters) | For submitting sensitive or large data (login, registration) |
| Data length | Limited by URL length | No significant limit |
| Security | Less secure (data in URL) | More secure (data hidden from URL) |
| Bookmarking | Can be bookmarked with parameters | Cannot be bookmarked easily |

**When to use:**

* Use **GET** for simple searches or filters (e.g., search engines).
* Use **POST** for secure or sensitive operations like login, signup, and submitting forms with large text data.

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

**Answer:**

The **<label>** element defines a **text label** for a form input element (like <input>, <textarea>, or <select>).

**Purpose:**

* Associates descriptive text with a specific input field.
* Makes forms more **user-friendly** and **accessible**, especially for screen readers.

**Accessibility Benefits:**

* Screen readers announce the label when the user focuses on the input, helping visually impaired users understand the form.
* Clicking on a <label> also focuses the associated input, improving usability.

**Example:**

html

CopyEdit

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

<input type="email" id="email" name="email">

Here, the for attribute in <label> matches the id of the input, linking them together.

HTML Tables

**Question 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 is used to display data in **rows and columns**. Here's a breakdown of its structure and the key elements:

* **<table>**: The container element that defines the entire table.
* **<tr> (Table Row)**: Defines a **row** in the table.
* **<th> (Table Header)**: Defines a **header cell** in the table. Text in <th> is usually bold and centered by default.
* **<td> (Table Data)**: Defines a **data cell** within a row.
* **<thead>**: Groups the **header content** (usually containing <th> elements) of a table.

**Example:**

html

CopyEdit

<table>

<thead>

<tr>

<th>Name</th>

<th>Age</th>

</tr>

</thead>

<tr>

<td>John</td>

<td>25</td>

</tr>

</table>

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

**Answer:**

Both colspan and rowspan are attributes used to **merge cells** in a table:

* **colspan**: Allows a cell to **span multiple columns**.
* **rowspan**: Allows a cell to **span multiple rows**.

**Examples:**

**Colspan:**

html

CopyEdit

<table border="1">

<tr>

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

</tr>

<tr>

<td>John</td>

<td>25</td>

</tr>

</table>

*Explanation:* The first header cell spans two columns.

**Rowspan:**

html

CopyEdit

<table border="1">

<tr>

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

<td>John</td>

</tr>

<tr>

<td>25</td>

</tr>

</table>

*Explanation:* The "Name" header spans two rows.

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

**Answer:**

Using **tables for layout** is considered **bad practice** in modern web design for several reasons:

* **Not responsive**: Tables do not adapt well to different screen sizes.
* **Hard to maintain**: Layouts made with tables are complex and hard to edit.
* **Poor accessibility**: Assistive technologies may have difficulty interpreting tables used only for layout.
* **Outdated method**: It mixes content structure with presentation, which goes against modern web standards.

**Better alternative:**

* Use **CSS** for layout, with tools like:
  + **Flexbox**: For flexible, one-dimensional layouts.
  + **CSS Grid**: For powerful two-dimensional layouts.
  + **Media queries**: For responsive design.