**Html Basics**

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

**HTML (HyperText Markup Language)** is the standard language used to create and design the structure of web pages. It provides a set of tags or elements that define the content and layout of a web page, such as headings, paragraphs, links, images, and other multimedia.

**Purpose of HTML in web development:**

* It structures the content on a webpage.
* It defines elements such as text, links, images, tables, forms, etc.
* It serves as the foundation for other web technologies like CSS (for styling) and JavaScript (for interactivity).
* It ensures content is accessible on different browsers and devices.

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

A basic HTML document includes the following mandatory structure:

<!DOCTYPE html>

<html>

<head>

<title>Page Title</title>

</head>

<body>

<h1>Welcome to My Website</h1>

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

</body>

</html>

**Mandatory tags and their purposes:**

* <!DOCTYPE html>: Declares the document type and HTML version (HTML5).
* <html>: Root element that wraps all content on the web page.
* <head>: Contains metadata like title, character encoding, links to stylesheets, etc.
* <title>: Sets the title of the web page (shown in browser tab).
* <body>: Contains all visible content of the web page (text, images, buttons, etc.).

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

**Block-level elements:**

* Occupy the full width available.
* Start on a new line.
* Can contain other block-level or inline elements.

**Examples:**

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

**Inline elements:**

* Occupy only as much width as necessary.
* Do not start on a new line.
* Typically contain text or other inline elements.

**Examples:**

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

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

**Semantic HTML** uses meaningful tags that describe the purpose of the content inside them. Unlike non-semantic tags like <div> or <span>, semantic tags clearly communicate the role of the content to browsers, developers, and assistive technologies.

**Importance:**

* **Accessibility**: Helps screen readers and other assistive tools understand the structure of the page.
* **SEO (Search Engine Optimization)**: Search engines can better understand and index your content, improving ranking.
* **Maintainability**: Makes the code easier to read and maintain.

**Examples of semantic elements:**

* <header>: Defines the header section.
* <nav>: Defines navigation links.
* <main>: Represents the main content.
* <article>: Represents a self-contained piece of content.
* <section>: Groups related content.
* <footer>: Represents the footer section.

**Html Form**

**Question 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 are essential for features like registration forms, login pages, feedback forms, and online orders.

**Key Form Elements and Their Purpose:**

* **<input>**:  
  Used to create various types of input fields such as text, password, email, number, checkbox, radio buttons, etc.  
  Example:
* <input type="text" name="username" />
* **<textarea>**:  
  Used to create a multi-line text input for longer input like comments or messages.  
  Example:
* <textarea name="message"></textarea>
* **<select>**:  
  Used to create a dropdown list of options. It works with nested <option> tags.  
  Example:
* <select name="country">
* <option value="in">India</option>
* <option value="us">USA</option>
* </select>
* **<button>**:  
  Used to create a clickable button that can submit the form or trigger JavaScript.  
  Example:
* <button type="submit">Submit</button>

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

| **Feature** | **GET** | **POST** |
| --- | --- | --- |
| **Data in URL** | Appended to the URL as query strings | Sent in the body of the request |
| **Visibility** | Visible in browser address bar | Hidden from URL |
| **Use for** | Simple searches, bookmarking | Secure or large data submissions |
| **Size limit** | Limited (due to URL length) | Can handle large amounts of data |
| **Security** | Less secure | More secure (sensitive data hidden) |

**When to use:**

* Use **GET** when:
  + You are retrieving data (e.g., search forms).
  + The data is not sensitive.
* Use **POST** when:
  + Submitting sensitive data (e.g., login forms).
  + Uploading files or submitting large amounts of text.

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

The **<label> element** is used to define a label for form controls like <input>, <select>, etc.

**Purpose:**

* Provides a clickable text that focuses or activates the related form control.
* Improves **user experience** by making forms easier to use.
* Enhances **accessibility** by allowing screen readers to read the label when focusing on the control.

**How to use:**

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

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

Here, for="email" associates the label with the input whose id is "email".

**Html Table**

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

An **HTML table** is used to display data in rows and columns. It is built using a combination of specific tags:

**Main Elements and Their Purposes:**

* **<table>**:  
  This is the **container** element for the entire table. It wraps all rows, headers, and data cells.  
  Example: <table> ... </table>
* **<tr> (Table Row):**  
  Defines a single **row** in the table. It can contain <th> (header cells) or <td> (data cells).  
  Example: <tr> ... </tr>
* **<th> (Table Header):**  
  Represents a **header cell**. Usually bold and centered by default.  
  Used inside a <tr> to label columns or rows.  
  Example: <th>Product Name</th>
* **<td> (Table Data):**  
  Represents a **standard data cell** within a row.  
  Example: <td>iPhone 15</td>
* **<thead> (Table Head):**  
  Groups the **header content** in a table. Often used for styling and for screen readers.  
  Example:
* <thead>
* <tr>
* <th>ID</th>
* <th>Name</th>
* </tr>
* </thead>

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

* **colspan**:  
  Merges **multiple columns** into one cell.
  + Example: A cell that spans **two columns**:
* <td colspan="2">Merged Cell</td>
* **rowspan**:  
  Merges **multiple rows** into one cell.
  + Example: A cell that spans **three rows**:
* <td rowspan="3">Merged Cell</td>

**Example Table:**

<table border="1">

<tr>

<th>Name</th>

<th colspan="2">Contact Info</th>

</tr>

<tr>

<td>John</td>

<td>Email</td>

<td>Phone</td>

</tr>

</table>

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

Using tables for **layout** (e.g., designing page structure) is **not recommended** because:

* **Poor accessibility**: Screen readers may misinterpret the structure.
* **Not responsive**: Tables do not adapt well on mobile devices.
* **Hard to maintain**: Making design changes in table-based layouts is difficult.
* **Mixes content and presentation**, which goes against best web development practices.

**Better Alternative:**

Use **CSS (Cascading Style Sheets)** with modern **HTML elements** like:

* <div> for containers
* Flexbox (display: flex)
* Grid layout (display: grid)

These tools provide more flexible, responsive, and accessible designs.