MODULE 2-FRONTEND-HTML

HTML basics

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

- HTML (HyperText Markup Language) is the standard markup language used to create and design the structure of web pages.
- Purpose of HTML in web development:-
- 1. Structure:-
  - HTML provides the basic structure of a webpage, organizing content into elements like headings, paragraphs, lists, tables, etc.
- 2. Content presentation:-
  - It defines *what* content appears on the web page, while CSS (Cascading Style Sheets) is used to control *how* it looks.
- 3. Embedding media:-
  - HTML allows embedding images, videos, audio, and other multimedia content.
- 4.hyperlinks:-
  - HTML enables linking to other web pages or websites using anchor (<a>) tags, which forms the basis of navigation on the web.
- 5. Forms and output:-

- HTML supports forms for user input (e.g., login forms, search boxes, etc.).

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

- Basic structure of HTML document:-
  - <!DOCTYPE html>
  - <html>

```
<head>
 <title>My First Web Page</title>
</head>
<body>
 <h1>Welcome to My Website</h1>
 <p>This is a paragraph</p>
</body>
</html>
```

- Mandatory tags and their purpose:-
  - <!DOCTYPE html>
    - Declares the document type and version of HTML (HTML5 here). Helps the browser interpret the document correctly.
  - <html>
    - Root element of an HTML document. All other elements are nested inside it.

- <head>
    - Contains meta-information about the document (e.g., title, character set, linked CSS/JS files). Not displayed on the web page.
- <title>
    - Sets the title of the web page (shown in the browser tab). Must be inside <head>.
- <body>
    - Contains the actual content of the webpage, such as text, images, links, etc.

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

- Block-level elements:-
    - Always start on a new line and take up the full width available (from left to right of the parent container).
    - Used to structure large sections of content.
    - Other block-level and inline elements.
    - Ex:- ,<p>,<h1> to <h6>,<ul>,<ol>,<li>,<section>,<article>,<header>, <footer>
- Inline elements:-
    - Do not start on a new line; they only take up as much width as needed.

- Used to format small portions of content inside block-level elements.
- Only other inline elements or text.
- Ex:-,<a>,,<b>,,<i>,<img>,

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

- Semantic HTML uses HTML tags that clearly describe the meaning and structure of the content. Unlike generic tags like or , semantic tags provide context to browsers, developers, screen readers, and search engines.
- Importance of semantic tags:-
  - 1. Accessibility:-
    - Helps screen readers and assistive technologies understand the content.
    - Improves the browsing experience for users with disabilities.
  - 2. SEO:-
    - Search engines use semantic tags to understand page structure and index content better.
    - Tags like <article>, <header>, and <footer> help identify what content is most important.
  - 3. Code readability and maintainability:-

- Makes the HTML code cleaner, easier to read, and more organized.
- Developers can quickly understand what each section of a page is for.

- Ex:- <header>, <nav>, <main>, <section>, <article>, <aside>

HTML forms

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 in web applications for functions
  - User registration
  - Login
  - Feedback collection
  - Searching
  - Data submission
- Key elements of forms:-
  - 1.<input>
    - Used to accept single-line input from users.
    - Can be customized using the type attribute (e.g., text, password, email, checkbox, radio, etc.).
  - 2.<textarea>
    - Used to accept multi-line input from users (e.g., comments, messages).
    - Not limited in length or lines like <input>.
  - 3.<select>
    - Creates a dropdown menu.

- Used to let users choose one or more options.

➢ 4. <button>

- Used to create a clickable button.
- Typically used to submit the form or trigger JavaScript actions.

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

- **GET method:-**
  - ➢ Appended to the URL as query parameters.
  - ➢ Data is visible in the browser address bar.
  - ➢ Limited to about 2000 characters (depends on browser/server).
  - ➢ Ideal for retrieving or searching data where security is not a concern.
  - ➢ Yes – the URL can be saved or shared.
  - ➢ Possible – GET requests can be cached by browsers.
- **POST method:-**
  - ➢ Sent in the request body, not visible in the URL.
  - ➢ Can send larger amounts of data, including files.
  - ➢ Ideal for sending sensitive or large data, like login forms, passwords, file uploads.
  - ➢ No – since data is not in the URL.
  - ➢ Not cached by default.

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

- The <label> element in HTML is used to define a label for a form control. It provides a text description for the form field, helping users understand what information is expected.
- Key purpose of <label>:-
  - ➢ Describes input fields
  - ➢ Clickable association
  - ➢ Improves accessibility

HTML Tables

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, like a spreadsheet. It is made up of several elements that define the table's layout and content.
- <table>
  - The main element that wraps the entire table.
  - All other table-related tags go inside this element.
- <tr>
  - Stands for Table Row.
  - Defines a horizontal row of cells in the table.
- <th>
  - Stands for Table Header.
  - Used to define column or row headers.
  - Text inside is bold and centered by default.
  - Semantically important – screen readers use it for context.
- <td>
  - Stands for Table Data.
  - Defines regular cells that contain data.
- <thead>

- Groups the header section of a table (usually contains <th>).
- Helps with styling and accessibility.
- Useful when tables have separate sections like <thead>, <tbody>, and <tfoot>.

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

- **Colspan:-**
  - Merges two or more columns horizontally into a single cell.
  - When you want one cell to stretch across multiple columns in the same row.
  - Ex:-

```
<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>
```

- **Rowspan:-**
  - Merges two or more rows vertically into a single cell.
  - When you want one cell to stretch across multiple rows in the same column.
  - Ex:-

```
<table border="1">
 <tr>
  <th rowspan="2">Name</th>
  <th>Subject</th>
 </tr>
 <tr>
  <td>Math</td>
 </tr>
</table>
```

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

- Here the problems with using tables:-
  - Not Semantic
  - Poor Accessibility
  - Hard to Maintain

- Slow Loading
- Inflexible for Responsive Design

- **Better alternative:-**
  - CSS (Cascading Style Sheets) is the modern and recommended way to design and structure web page layouts.