

Module 2 – Frontend – HTML

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

HTML stands for Hyper Text Markup Language. It's not a programming language but a **markup language** that uses tags (like <h1>, <p>, <a>) to wrap content and give it structure and semantic meaning .

Purpose of HTML in Web Development

1. Semantic Meaning

By using appropriate tags (e.g., <header>, <article>, <footer>), HTML communicates the intent of content, improving **accessibility** and **SEO**

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2. Separation of Concerns

HTML handles content structure, CSS manages styling, and JavaScript controls behavior. This separation makes sites easier to maintain and evolve

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3. Hyperlinking

HTML's fundamental feature, hypertext, enables linking pages within and across websites,

forming the web's backbone net-informations.com+5developer.mozilla.org+5phoenixnap.com+5.

4. **Embedding & Forms**

Modern HTML (especially HTML5) supports audio, video, graphics (<canvas>), interactive elements (forms, inputs).

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

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="UTF-8">
```

```
<title>Page Title</title>
```

```
</head>
```

```
<body>
```

```
<h1>Welcome to My Website</h1>
```

```
<p>This is a Paragraph. </p>
```

```
</body>
```

Tag	Purpose
<!DOCTYPE html>	Ensures consistent rendering across modern browsers
<html lang="...">	Defines the root of the document and sets language for accessibility
<head>	Holds essential metadata: title, SEO info, encoding, scripts, styles
<meta charset="UTF-8">	Prevents garbled or misinterpreted text
<title>	Displays in tabs; vital for SEO and user navigation
<body>	Contains everything the user sees and interacts with

3.What is the difference between block-level

element and inline elements in HTML? Provide examples of each.

1. Block-level elements

Definition: Block-level element take up the full width available and always start on a new line.

Example:

<div>
<p>
<h1> to </h1>
, ,
<table>
<section>, <article>

2. Inline Elements

Definitions: inline elements only take up as much width as necessary and do not start on a new line.

Example:

<a>
,

<label>, <input>

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

1. Accessibility ☐☐

Screen readers and other assistive tools rely on semantic tags to understand and navigate content. For example:

- `<nav>` signals navigation sections
- `<header>` and `<footer>` denote page boundaries
- `<main>` indicates the primary content

This becomes especially useful for keyboard navigation and supports **WCAG** compliance

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2. SEO Optimization 🔍

Search engines like Google interpret semantic tags to identify content hierarchy. Tags such as `<article>`, `<section>`, and `<nav>` help crawlers distinguish key parts, improving indexing and potentially boosting rankings. They also enable “rich snippets” .

3. Code Readability & Maintainability 💻

Semantic elements make HTML easier to read and style compared to nested `<div>`s. Developers can quickly understand the structure and purpose of sections .

✓ Core Semantic Elements & Their Roles

Element	Purpose
<header>	Introductory content or site-level elements
<nav>	Main navigation links
<main>	Primary content of the document
<article>	Self-contained content, like a blog post
<section>	Thematic grouping of related content
<aside>	Sidebar or secondary content
<footer>	Contact info, copyright, site-wide footer
<figure> + <figcaption>	Self-contained media with captions
<details> + <summary>	Collapsible content sections

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 server it to a server for processing. They are commonly used in:

- . user registration
- . Login pages
- . Contact forms
- . surveys
- . search bars
- . File uploads

Forms are created using the <form> tag, and include various input elements to collect different types of data.

Common Form Elements and Their Purpose

Element	Purpose	Example Use Case
<input>	Single-line input, selection, upload	Username, emails, checkboxes
<textarea>	Multi-line textual input	Comments, descriptions
<select>	Dropdown or list selection	Choosing a country, category

Element	Purpose	Example Use Case
<button>	Form submission, reset, or JS action	Submit form, clear, run code

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

Situation	Use GET	Use POST
Searching/filtering GET websites	<input checked="" type="checkbox"/> Yes	<input type="radio"/> No
Retrieving public data	<input checked="" type="checkbox"/> Yes	<input type="radio"/> Possible, but less suitable
Bookmarkable/filterable URLs	<input checked="" type="checkbox"/> Yes	<input type="radio"/> No
Sending sensitive or large data	<input type="radio"/> No (URL visible/limited)	<input checked="" type="checkbox"/> Yes (in body, unlimited size)
Creating/updating database records	<input type="radio"/> No	<input checked="" type="checkbox"/> Yes (non-idempotent action)
File uploads	<input type="radio"/> No	<input checked="" type="checkbox"/> Yes

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

Purpose of <label>

1. Programmatic association

A <label> explicitly links text (the prompt) to a form control like <input>, <textarea>, or <select>. With the for="control-id" attribute (or by wrapping the control), screen readers announce the label when the control gains focus, helping visually impaired users understand its purpose

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2. Larger clickable/tappable area

Clicking or tapping the label automatically focuses or toggles the associated control. This is especially helpful for small targets like checkboxes and radio buttons—benefiting users with limited dexterity [w3.org+1reddit.com+1](#).

✓ Accessibility Benefits

- Required for assistive compatibility

Web accessibility standards (WCAG 2.1 Level A) mandate labels on all form controls like text fields, selects, radios, and checkboxes

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- Improved navigation

Without labels, screen readers may rely on heuristics that can misinterpret layout—leading to confusion. Explicit association ensures reliable reading order and context

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- Better UX for all

Users benefit from being able to click the label text to focus a control, reducing the need to precisely click small form elements

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- label instead of proper <label> tags can reduce accessibility and usability [webaim.org+1webaim.org+1.](#)
- compliance) and ease-of-use.
- Use explicit (for + id) or implicit nesting consistently.
- Avoid misusing labels or relying solely on placeholders or titles.

HTML Table

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. The structure is made up of several key elements, each with a specific purpose.

Element	Role
<table>	Wrapper for the entire table structure.
<tr>	Defines a row of cells (horizontal grouping).
<th>	Header cell, bold & centered. Used for labels.
<td>	Data cell, contains the

Element

Role

<thead>

actual
content/data.

Groups header
rows (<tr> with
<th>) for
semantic
meaning and
styling.

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

In HTML tables, colspan and rowspan are attributes applied to <td> or <th> cells to merge them across multiple columns or rows:

Attribute

Attribute

Spans Across

Example

colspan Columns (→ horizontal) <th colspan="3">...

rowspan Rows (↓ vertical) <td rowspan="2">...

Attribute

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

1. Accessibility

Screen readers interpret `<table>` as tabular data. If used for layout, users might hear confusing info like "row 1, column 3", which disrupts comprehension

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From r/HTML:

"It's also harder to make a responsive layout... Focus on grid or flex, it's very powerful." [reddit.com+6reddit.com+6reddit.com+6](#)

2. Rigid and inflexible

Table layouts tightly couple structure and appearance, making edits hard. Swapping elements or redesigning requires changing complex markup [dummies.com](#).

3. Poor responsiveness

Tables don't adapt well to varying screen sizes, making them unsuitable for mobile-first design

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4. Maintenance headache

Attribute

Large, nested tables lead to bloated, hard-to-read code. Even minor updates can break layouts

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5. SEO & performance hit

Tables can degrade load times and hurt search engine readability.

Content may appear less important if navigation is loaded first

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