**HTML Attributes**

**1. What are HTML Attributes?**

**Definition:**

* Attributes provide **extra information to HTML tags** that influence **behavior, appearance, and interaction**.
* They act as a **bridge between HTML and CSS/JS/frameworks**.

**Purpose:**

* Enable **styling** via CSS (class, id)
* Enable **interaction** via JS (id, data-\*)
* Provide **tag-specific functionality** (src, href, alt, placeholder)
* Support **frameworks** like **Bootstrap** or **TailwindCSS**

**Syntax:**

<tagname attributename="value">Content</tagname>

**Example:**

<h1 class="heading primary">My Title</h1>

Here:

* <h1> → tag name
* class="heading primary" → attribute-value pair
* My Title → content of the tag

**2. Types of Attributes**

| **Type** | **Description** | **Common Examples** |
| --- | --- | --- |
| **Global** | Can be applied to **any HTML element** | class, id, style, title, lang, hidden |
| **Local / Specific** | Used with **specific tags only** | src, href, alt, value, type, for, placeholder, width, height, name |

**Why Important:**

* Without attributes, HTML is **static** and cannot interact or be styled effectively.

**3. Key Attributes & Usage**

**A. class Attribute**

* Not unique; can assign **same class to multiple elements**.
* Used for **CSS styling, framework styling (Bootstrap/Tailwind), JS selection**.
* Can have **multiple class names** (space-separated).

**Example:**

<div class="alert alert-success">Success Message</div>

<p class="highlight">Highlighted Text</p>

* **Behavior:** Only **changes appearance** by default, no JS behavior unless used with scripts.

**B. id Attribute**

* **Unique per element**; only one occurrence per page.
* Used for **targeting elements in JS** or for **specific CSS rules**.

**Example:**

<input id="user-email" type="email" placeholder="Enter Email">

* Can select in **CSS:** #user-email { border: 2px solid red; }
* Can select in **JS:** document.getElementById('user-email').value

**C. Local / Tag-specific Attributes**

**Examples & Usage:**

1. **Image Tag**

<img src="logo.png" alt="Company Logo" width="100">

* src → image source URL
* alt → alternative text (important for SEO & accessibility)
* width → sets image width

1. **Anchor Tag**

<a href="https://example.com" title="Visit Example">Visit</a>

* href → link destination
* title → tooltip text

1. **Input Tag**

<input type="text" placeholder="Enter your name" name="username">

* type → input type (text, email, password)
* placeholder → shows hint text inside input
* name → form data key

**4. Attribute-Driven Interaction**

**How Attributes Work With CSS & JS:**

1. **CSS**: Select elements using class or id for styling.
2. **JavaScript**: Select and manipulate elements using id or class.
3. **Frameworks**: Bootstrap and Tailwind heavily rely on **class attributes** for styling.

**Example:**

<button class="btn btn-primary" id="myBtn">Click Me</button>

* Styling via class (btn btn-primary)
* JS access via id (myBtn)

**5. Common Interview Questions**

1. **Why use class instead of id (and vice versa)?**
   * class → for multiple elements with same styling
   * id → for a unique element for JS manipulation or unique CSS
2. **Show an example of using id in JavaScript**

<button id="btn">Click</button>

<script>

document.getElementById("btn").onclick = function() {

alert("Button Clicked!");

};

</script>

1. **How Bootstrap/Tailwind use attributes for styling?**
   * Class names define **pre-made styles** (btn, text-center, bg-blue-500)
2. **Difference between Global and Local attributes**
   * Global → usable **anywhere**
   * Local → usable **only on specific tags**
3. **Explain attribute-value pair**

<img src="logo.png">

* src = attribute
* "logo.png" = value