

## HTML Elements:

- **Definition:**
  - An HTML element is a component of an HTML document.
  - It consists of a start tag, some content, and an end tag.
  - Example: `<p>This is a paragraph.</p>`
- **Structure:**
  - **Start Tag:** The opening tag, enclosed in angle brackets (`< >`).
  - **Content:** The text, images, or other elements placed between the start and end tags.
  - **End Tag:** The closing tag, which is the same as the start tag but with a forward slash (`/`) before the element name.
  - **Empty Elements:** Some elements don't have content and are called empty elements or self-closing tags. These elements usually have only a start tag. Examples: `<br>`, `<hr>`, `<img>`, `<input>`. In HTML5, adding a trailing slash is optional, but it's required in XHTML (`<br />`).
- **Types of Elements:**
  - **Block-Level Elements:**
    - Start on a new line and take up the full width of their parent container.
    - Examples: `<div>`, `<p>`, `<h1>` to `<h6>`, `<ul>`, `<ol>`, `<li>`, `<form>`, `<table>`.
  - **Inline Elements:**
    - Do not start on a new line and only take up as much width as necessary.
    - Examples: `<a>`, `<span>`, `<img>`, `<strong>`, `<em>`, `<input>`.
- **Nesting Elements:**
  - HTML elements can be nested within each other to create complex structures.
  - It's crucial to nest elements correctly, ensuring that the inner element's end tag comes before the outer element's end tag.
  - Example:

HTML

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

## HTML Attributes:

- **Definition:**
  - Attributes provide additional information about HTML elements.
  - They are specified in the start tag of an element.
  - Attributes consist of a name and a value, separated by an equal sign (=).
  - The value is usually enclosed in double quotes (").
  - Example: `<a href="https://www.example.com">Visit Example</a>`
- **Structure:**
  - `attribute_name="attribute_value"`
- **Common Attributes:**
  - **href (Anchor Element):**
    - Specifies the URL of the link.
    - Example: `<a href="https://www.example.com">`.
  - **src (Image Element):**
    - Specifies the source URL of the image.
    - Example: ``.
  - **alt (Image Element):**
    - Provides alternative text for an image, which is displayed if the image cannot be loaded or for accessibility purposes.
    - Example: ``.
  - **id:**
    - Specifies a unique ID for an element.
    - Used for CSS styling and JavaScript manipulation.
    - Example: `<p id="myParagraph">`.
  - **class:**
    - Specifies one or more class names for an element.
    - Used for CSS styling.
    - Example: `<div class="container">`.
  - **style:**
    - Specifies inline CSS styles for an element.
    - Example: `<p style="color: blue;">`.
  - **title:**
    - Specifies extra information about an element, displayed as a tooltip when the mouse hovers over the element.
    - Example: `<a href="#" title="Learn more">`.
  - **width and height (Image Element):**
    - Specifies the width and height of an image in pixels.
    - Example: ``.
  - **value (Input Element):**
    - Specifies the value of an input field.
    - Example: `<input type="text" value="Default text">`.
  - **type (Input Element):**

- Specifies the type of input field (e.g., text, password, checkbox, radio).
  - Example: `<input type="text">`.
- **name (Input Element):**
  - Specifies the name of an input field, used when submitting form data.
  - Example: `<input type="text" name="username">`.
- **Global Attributes:**
  - Global attributes can be used on any HTML element.
  - Examples: `id`, `class`, `style`, `title`, `lang`, `data-*`.
  - `data-*` attributes allow you to store custom data private to the page or application.

### Key Considerations:

- **Case Insensitivity:** HTML tags and attributes are generally case-insensitive (e.g., `<P>` is the same as `<p>`). However, it's best practice to use lowercase for consistency.
- **Quotation Marks:** Attribute values should be enclosed in quotation marks, especially when they contain spaces.
- **Whitespace:** Extra whitespace between attributes or within attribute values is generally ignored.