HTML attributes are properties you can add to HTML tags to provide more information or functionality. Here’s a list of the most common HTML attributes, grouped by their functions:

**Text-related HTML Tags**:

**Basic Text Formatting**: **<p>, <b>, <strong>, <i>, <em> <mark> <abbr>**

**Text Modifications**: **<sub>, <del>, <ins>, <u>, <big>**

**Text Containers** : **<span>**

**Quotation and Citation**: **<blockquote>, <q>, <city>**

**Text Direction and Structure**: **<bdo>, <wbr>**

**Special Text Elements**: **<address>, <code>, <kbd>**

**Line Breaks and Horizontal Lines: <br>, <hr>**

**Mathematical Expression:** **<var>**

**For East Asian Tex** : **<ruby>, <rt>, <rp>**

**Bi-directional Isolation**: **<bdi>**

**1. Core Attributes (Common for Most Tags)**

**<h1>.. <h6>, <p>**

* **id**: Specifies a unique identifier for an HTML element.
* **class**: Defines a class for CSS styling or JavaScript targeting.
* **style**: Inline CSS styling for an element.
* **title**: (often shown as a tooltip).
* **lang**: Specifies the language of the element’s content.
* **dir**: Text direction (**ltr** -> for left-to-right, **rtl** -> right-to-left).

**2. Anchor (<a>) Attributes**

* **href**: URL of the linked page.
* **target**: Specifies where to open the linked document (\_blank, \_self, \_parent, \_top).
* **download**: Downloads the linked file instead of navigating to it.
* **rel**: Relationship between the current and linked document (e.g., nofollow or noopener).
* **type**: MIME type of the linked document.

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| .   <a *href*="https://example.com" *target*="\_blank" *rel*="noopener" *download*="example.pdf">Download PDF</a>  . |

**3. Form (<form>, <input>, <textarea>, etc.) Attributes**

<form> <fieldset>, <legend>, <input>, <label>, <textarea>, <button>, <select>, <option>, <optgroup>, <datalist>, <output>, <progress>, <meter>

**<form>**

* **action**: Specifies where to send form data.
* **method**: Defines the HTTP method (GET or POST) for sending data.
* **enctype**: Determines encoding for POST data (useful for file uploads).
* **target**: Controls where to display the server response.
* **autocomplete**: Toggles autocomplete for form fields.
* **novalidate**: Disables HTML5 form validation.
* **name**: Gives the form a name for easier JavaScript reference.
* **rel**: Defines relationship when target = "\_blank" is used, for additional security and privacy.

**<input>**

* **Basic Attributes**: **type** (text, password, checkbox), **Value** , **placeholder**
* **Control Attributes**: **required**, **readonly**, **disabled**, **maxlength**, **min**, **max**, **step**, **pattern**
* **Auto fill and Auto-Focus**: **autocomplete**, **autofocus**
* **Length Control**: **maxlength**, **minlength**, **size**
* **Multiple and List**: **multiple**, **list**
* **Form Association**: **form**, **formaction**, , **accept**

**type = “ ”**

* **text**, **password**, **hidden** ,**checkbox** , **radio**
* **button**, **submit** , **reset**
* **file**: Allows file selection for upload.
* **number**: Numeric input field. [<input type="number" name="age" min="18" max="100"> ]
* **range**: Slider for selecting a range of values.
* **email** , **tel** , **url**
* **search**: Search input field.
* **date** , **month** , **week** , **time** , **datetime-local**
* **color**: Color picker input field.
* **image**: Submit button represented as an image.

**<level>**

* **for = ‘ ’**

**<select>**

* **Essential Attributes**: **id**, **name**
* **Control Display**: **size**, **multiple**
* **Form Behavior**: **required**, **disabled**, **autofocus**, **form**
* **Styling** : **class**

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| .  <select *id*="car" *name*="cars" *size*="4" *multiple* *required* *class*="dropdown-style">  . |

**<option>**

* **value**: The value sent to the server when the option is selected.
* **selected**: Sets the option as the default selected one.
* **disabled**: Prevents the option from being selected.
* **label**: Provides an alternate label for the option text, primarily for accessibility.

**<optgroup>**

* **label**: Defines the label or category name for the group.
* **disabled**: Disables the entire group, making its options unselectable.

**<textarea>**

* **rows**: Number of visible lines.
* **cols**: Width of the <textarea>.
* **name**: Identifies the <textarea> in the form.
* **placeholder**: Displays a hint for the user.
* **maxlength**: Limits the number of characters.
* **readonly**: Makes the field read-only.
* **disabled**: Disables the field.
* **wrap**: Determines how text is wrapped (soft or hard).
* **autofocus**: Automatically focuses on the element.
* **form**: Links the <textarea> to a form.
* **spellcheck**: Enables or disables spell checking.

**<button> Attributes:**

* **type**: Defines the button's behavior (**submit, reset, button**).
* **name**: Names the button, often used for form data.
* **value**: Specifies the value associated with the button.
* **disabled**: Disables the button.
* **autofocus**: Automatically focuses the button when the page loads.
* **form**: Associates the button with a specific form.
* **formaction**: Defines the action URL to send the form data to when the button is clicked.
* **formenctype**: Specifies the encoding type for the form data.
* **formmethod**: Specifies the HTTP method (GET or POST) for form submission.
* **formnovalidate**: Disables form validation during submission.
* **formtarget**: Specifies where to display the response after form submission.
* **accesskey**: Defines a keyboard shortcut to activate the button.
* **title**: Provides additional information about the button.
* **lang**: Specifies the language for the button’s text.
* **style**: Applies inline CSS styles to the button.

**4. Table Attributes**

**<table>** , **<thead> , <tbody>** , **<tfoot> , <tr> , <th> , <td> , <caption> , <colgroup> ,** **<col>** , **<form>**

**<table>**

* **border**: Defines table border width.
* **cellpadding**: Sets padding within cells (deprecated).
* **cellspacing**: Sets space between cells (deprecated).
* **width** and **height**: Define table dimensions.
* **align**: Aligns the table horizontally (left, right, center).
* **bgcolor**: Sets the background color (deprecated).
* **summary**: Adds a summary description for accessibility.
* **frame**: Defines table border parts.( void, above, below, hsides, lhs, rhs, vsides, box, and border)
* **rules**: Controls lines between rows and columns.( none, groups, rows, cols, and all.)

**<td>**:

* **colspan**, **rowspan**, **headers**, **align**, **valign**, **bgcolor**, **width**, **height**

**<th>**:

* **scope**, **colspan**, **rowspan**, **headers**, **align**, **valign**, **abbr**

**<tr>**:

* **align**, **bgcolor**, **valign**

**5. Image (<img> , <figure> , <figcaption>, <canvas>) Attributes**

* **src**: URL of the image source.
* **alt**: Alternative text if the image cannot be displayed.
* **width** and **height**: Specifies the image dimensions.
* **loading**: Controls the loading behavior (lazy or eager)

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| .  <img *src*="image.jpg" *alt*="Beautiful landscape" *width*="300" *height*="200" *loading*="lazy" />  . |

**6. Media (<audio>, <video> , <source> <track> <embed> ,<object>) Attributes**

* **src**: Source of the media file.
* **controls**: Shows controls (play, pause, volume).
* **autoplay**: Automatically starts the media when the page loads.
* **loop**: Loops the media file.
* **muted**: Mutes the media by default.
* **preload**: Specifies if/how the media should be preloaded (auto, metadata, none).

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| .  <video *src*="video.mp4" *controls* *autoplay* *muted* *loop* *width*="400"></video>  . |

**7. List (<ol>, <ul>, <li>) Attributes**

* **<ol>**
  + **type**: Specifies the type of the list (**1, A, a, I, i**).
  + **start**: Sets the starting number in an ordered list.
  + **reversed**: Reverses the numbering order of the list.
* **<ul>**:
  + **type**: (Deprecated) Defines the bullet style (**circle, disc, square**).
* **<li>**

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| .  <ol *type*="A" *start*="3" *reversed*>         <li>Third Item</li>         <li>Second Item</li>        <li>First Item</li>  </ol>  . |

**6. Progress [**<progress id="fileProgress" value="30" max="100"></progress>]

* **value**: Specifies the current progress value (typically between min and max).
* **max**: Defines the maximum value of the progress (default is 1).
* **min**: Defines the minimum value of the progress (default is 0).
* **id**: A unique identifier for the element.
* **name**: Specifies a name for the element, useful in forms.
* **class**: Allows for styling the element using CSS.
* **style**: Provides inline styling to customize the appearance.

**6. Global Event Attributes**

* **onclick**: Triggers JavaScript when an element is clicked.
* **onchange**: Runs JavaScript when an input element's value changes.
* **onmouseover**, **onmouseout**: Triggered when the mouse enters or leaves an element.
* **onfocus**, **onblur**: Triggered when an element gains or loses focus.

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| .  <button *onclick*="alert('Button clicked!')">Click Me</button>    <input *type*="text" *onchange*="console.log('Text changed')" *onfocus*="*this*.style.backgroundColor='yellow'">  . |

**7. Meta Tag (<meta>) Attributes**

* **charset**: Character encoding for the HTML document.
* **name**: Defines the name of metadata (e.g., description, viewport).
* **content**: Value associated with name or http-equiv.
* **http-equiv**: Provides HTTP headers in the meta data (e.g., refresh, content-type).

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| .  <meta *charset*="UTF-8">   <meta *name*="description" *content*="A description of this webpage.">  <meta *name*="viewport" *content*="width=device-width, initial-scale=1.0">  . |

Great question! HTML5 introduced several new tags to improve the structure and semantics of web pages. These new tags make HTML code more readable and help define the purpose of each section. Here are some of the key updated tags in HTML5:

**Replaces : <div>**

1. **<section>** 
   * Usage: For grouping related content, like sections of a blog post or chapters in an article. Think of it as a thematic grouping of content within a page.
2. **<header>** 
   * Usage: Used for the header of a page or section, typically containing introductory content, navigation, or branding elements like a logo.
3. **<footer>** 
   * Usage: For footer information at the end of a page or section, often containing contact info, copyright, or navigation links.
4. **<article>** 
   * Usage: Used for self-contained content, like blog posts, articles, news stories, or forum posts, that could be shared or reused independently.
5. **<aside>** 
   * Usage: For content indirectly related to the main content, like sidebars, ads, or pull quotes. It’s typically used for supplementary content.
6. **<nav>** 
   * Usage: For navigation links, like the main site menu or links within a page. This helps screen readers identify navigation sections.
7. **<figure>** and **<figcaption>** for images and captions)
   * Usage: For media content, like images or videos, along with an optional caption using <figcaption>. This tag provides better semantics for multimedia.
8. **<main>** (for main content)
   * Usage: For the main content of the page, which is unique and central. Only one <main> element should be on a page, typically excluding headers, footers, and sidebars.
9. **<mark>** 
   * Usage: Highlights text, such as search results. It’s commonly used to emphasize text that’s relevant in a specific context.

**Heading (CSS Attributes ) :**

* 1. **Basic Text Styling**
* **color**: Sets the text color.
* **font-size**: Controls the font size.
* **font-family**: Sets the font type.
* **font-weight**: Adjusts the thickness (weight) of the font.
* **font-style**: Sets the font style, such as italic.
* **text-transform**: Transforms text to uppercase, lowercase, or capitalize.
* **text-decoration**: Adds decoration, like underline or line-through.
  1. **Text Alignment and Spacing**
* **text-align**: Aligns text within its container (e.g., left, right, center, justify).
* **line-height**: Sets the space between lines.
* **letter-spacing**: Controls the space between letters.
* **word-spacing**: Controls the space between words.
  1. **Background and Borders**
* **background-color**: Sets the background color of the heading.
* **border**: Adds a border around the heading.
* **border-radius**: Adds rounded corners to the border.
* **padding**: Adds space between the text and the border.
* **margin**: Controls the space outside the heading, separating it from other elements.
  1. **Advanced Effects**
* **text-shadow**: Adds a shadow to the text.
* **opacity**: Sets the transparency level of the heading
* **white-space**: Controls how white spaces and line breaks are handled.
  1. **Font Shorthand**
* **font**: Shorthand property to set font-style, font-weight, font-size, line-height, and font-family together. "font: italic bold 24px/1.2 Arial, sans-serif;"
  1. **Text Overflow**
* **Overflow**  and **text-overflow**: **Manages how overflowed text is displayed within limited width.**

**Paragraph (CSS Attributes)**

**1. Text and Font Styling**

* **color**: Sets the text color.
* **font-size**: Defines the font size.
* **font-family**: Sets the font type.
* **font-weight**: Specifies the font thickness (e.g., normal, bold).
* **font-style**: Controls the font style (e.g., italic, oblique).
* **text-align**: Aligns the text (e.g., left, center, right, justify).
* **text-transform**: Changes text case (e.g., uppercase, lowercase, capitalize).
* **text-decoration**: Adds underline, line-through, or overline to text.
* **text-shadow**: Adds shadow effects to the text.
* **line-height**: Controls the space between lines.
* **letter-spacing**: Adjusts the space between characters.
* **word-spacing**: Adjusts the space between words.

**2. Background and Border Styling**

* **background-color**: Sets the background color.
* **background-image**: Sets a background image.
* **background-position**: Specifies the position of the background image.
* **background-size**: Defines the size of the background image.
* **background-repeat**: Controls if/how the background image repeats.
* **border**: Adds a border around the paragraph (width, style, color).
* **border-radius**: Rounds the corners of the border.
* **padding**: Adds space between the content and the border.

**3. Spacing and Layout**

* **margin**: Sets space outside the paragraph, separating it from other elements.
* **padding**: Adds space inside the paragraph, between the content and the border.
* **width**: Defines the width of the paragraph.
* **height**: Defines the height of the paragraph.
* **text-indent**: Indents the first line of text in the paragraph.
* **display**: Controls how the paragraph displays (e.g., block, inline).
* **position**: Defines the positioning method (e.g., static, relative, absolute, fixed).
* **float**: Allows the paragraph to float to the left or right within its container.
* **clear**: Controls the behavior of elements around floated paragraphs.

**4. Overflow and Visibility**

* **overflow**: Controls what happens to content that overflows the paragraph’s box (e.g., hidden, scroll, auto).
* **visibility**: Sets the visibility of the paragraph (e.g., visible, hidden).
* **opacity**: Controls the transparency level of the paragraph.

**5. Advanced Effects**

* **box-shadow**: Adds shadow effects to the paragraph’s box.
* **cursor**: Defines the cursor style when hovering over the paragraph.
* **transform**: Applies transformations like rotate, scale, and skew.
* **transition**: Creates smooth animations for certain CSS properties.
* **animation**: Allows animations to be applied to the paragraph.

**6. Typography Shorthand Properties**

* **font**: A shorthand property for setting font-style, font-weight, font-size, line-height, and font-family.
* **text-overflow**: Controls how overflowed text is displayed when it doesn't fit into the paragraph box.