**19Z612-APPLICATION DEVELOPMENT LABORATORY**

**STUDY EXERCISE - HTML**

**KAMALI.A**

**22Z436**

**B.E-CSE**

**INTRODUCTION:**

* HTML (Hypertext Markup Language) is the only markup language for creating web pages
* It provides some titles, headings, paragraphs, lists, tables, embedded images, etc., to describe the structure of text-based and multimedia information in HTML documents.
* HTML (Hypertext Markup Language) is a language for publishing text-based and multimedia information on the World Wide Web.
* HTML is a straightforward Computer Coding Language. It was developed in the 90s. HTML is the basis of a web page, and the web page is the basis of a website. HTML uses 'tags' to create web documents.
* HTML is a hypertext markup language, a predetermined set of markup tags used to design web pages.
* HTML is the first language of web designing. CSS is also used along with HTML to improve web page design further. JavaScript is used with HTML to make web pages dynamic.
* HTML is relatively easy to learn because every tag is predefined, so only we need to know the work of tags and their attributes.
* Web browsers (Chrome, Internet Explorer, Firefox, Safari, and other web browsers) are software' to read HTML and display web page design as output.
* You can write HTML in any simple editor, such as Notepad. And other software, such as Adobe Dreamweaver, Sublime, NetBeans, Notepad ++, etc., are mainly used for writing and editing HTML.
* ".html" or ".htm" are the two extensions used to write and save HTML files; we can write HTML code in any text editor and save it as "filename.html" or "filename.htm".

**BASIC HTML TAGS:**

**DOCUMENT TAGS:**

* HTML document tags are integrated into text documents and they are actually a set of directions which directs a browser what to do and what props to use.
* Moreover, the HTML tags are generally written in English or stated with abbreviations like “p”and are distinguished as regular text as they are placed within small brackets.
* Therefore, for paragraphs it is represented as <p>, headings as &lt;h>, bold indicated by <b> etc.
* Document tags contain
* <head> Defines information about the document
* <title> Defines the document title
* <base> Defines a base URL for all the links on a page
* <link> Defines a resource reference
* <meta> Defines meta information
* <body> Defines the document’s body
* <h1> to <h6> Defines header 1 to header 6
* <hr /> Defines a horizontal rule
* <!–> Defines a comment
* <big> Defines big text
* <blockquote> Defines a long quotation
* <body> Defines the document’s body
* <br /> Defines a single line break
* <button> Defines a push button
* <caption> Defines a table caption
* <center> Deprecated. Defines centered text
* <cite> Defines a citation
* <code> Defines computer code text
* Example

<html>

<head>

<title>HTML</title>

</head>

<h1>HTML</h1>

<body>

<p>HTML is the standard markup language for Web pages</p>

</body>

</html>

* Output

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**GROUPING TAGS:**

* In Html you can group several contents together to make sections or subsections in a page.
* Grouping content makes it easier to manage the content.
* It is easier for both the programmer and readers as it looks good while we group similar contents together.
* Attributes:
* id : Provides a unique identifier for an element.
* class : Assigns one or more class names to an element for styling via CSS.

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| **Tag** | **Description** |
| main | Defines the main content area of an HTML document |
| div | Generic container for grouping and styling content, without conveying meaning. |
| span | Inline container for grouping inline elements, primarily used for styling. |
| section | Represents a thematic grouping of content within a document. |
| article | Defines independent, self-contained content like blog posts, articles, etc. |
| header | Contains introductory content or a group of introductory content. |
| footer | Defines the footer of a document or a section, often containing contact info, etc. |
| nav | Section of the page intended for navigation links to other pages or parts. |
| aside | Content related to the main content but considered separate (sidebars, etc.). |
| fieldset | Groups related form elements and labels, creating a box-like container for them. |

* Grouping using Div element
* You can use the <div> tag to group elements in html.
* The <div> tag is the most used grouping element in html.
* The <div> tag stretches to the whole page or the whole container.

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| Example | Output |
| <html> <body>  <div class="div1">  <h1>In Div1</h1> </div>  <div class="div2">  <h1>In Div2</h1> </div>  </body></html> |  |

* Grouping using Span element
* Span is an inline grouping element.
* The text written before and after the <span>….
* </span>element all will be displayed in a single line.
* Difference between Div and Span Element
* Div and span both are used to group elements in html. The main difference between Div and Span elements is that Div is a block element and Span is an inline element.
* That means the width of the div stretches to the whole page or the whole container, while the width of the Span stretches only to the content inside the Span.

**HEAD TAGS:**

* The <head> tag in HTML is used to define the head portion of the document which contains information related to the document.
* The <head> tag contains other head elements such as <title>, <meta>, <link>, <style> <link> etc. The <head> element is a container for metadata (data about data) and is placed between the <html> tag and the <body> tag.
* Syntax

<head>

<title>Title of the document</title>

</head>

* Metadata is data about the HTML document. Metadata is not displayed.
* Metadata typically define the document title, character set, styles, scripts, and other meta information.
* The following elements can go inside the <head> element:
* <title> (required in every HTML document)
* <style>
* <base>
* <link>
* <meta>
* <script>
* <noscript>
* Example

<!DOCTYPE html>

<html lang="en">

<head>

<title>HTML</title>

</head>

<body>

<h1>This is a heading</h1>

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

</body>

</html>

* Output

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**BODY TAGS:**

* The <body> tag defines the document's body.
* The <body> element contains all the contents of an HTML document, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.
* The <body> must be the second element after the <head> tag or it should be placed between </head> and </html> tags.
* This tag is required for every HTML document and should only use once in the whole HTML document.
* Example

<html>

<head>

<title>HTML</title>

</head>

<body>

<h1>HTML</h1>

<p>CSS</p>

</body>

</html>

* Output

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**TEXT-LEVEL FLOW TAGS:**

* HTML Text Formatting Elements are..
* <b> Tag - Bold text
* <strong> Tag - Important text
* <i> Tag - Italic text
* <em> Tag - Emphasized text
* <mark> Tag - Marked text
* <small> Tag - Smaller text
* <del> Tag - Deleted text
* <ins> Tag - Inserted text
* <sub> Tag - Subscript text
* <sup> Tag - Superscript text
* <p> Tag- defines a paragraph
* <h1> to <h6> Tags- Define HTML headings
* <a> Tag- Defines a hyperlink
* <u> Tag-Underline Text
* <br>Tag-Single line break
* <hr>Tag-Defines a thematic break in an HTML page
* **<a> Tag**
* The <a> tag defines a hyperlink, which is used to link from one page to another.
* <a> element has the href attribute, which indicates the link's destination

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| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <h2>The href Attribute</h2>  <a href="https://www.geeksforgeeks.org/">  Visit GeeksforGeeks</a>  </body>  </html> |  |

* **<h1> to <h6> Tags**
* The <h1> to <h6> tags are used to define HTML headings.
* <h1> defines the most important heading.
* <h6> defines the least important heading.
* h1 default font size is 2 em ,h2 is 1.5 em,h3 is 1.3 em,h4 is 1em,h5 is 0.8em and h6 is 0.7 em.

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| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <h1>HTML</h1>  <h2>HTML</h2>  <h3>HTML</h3>  <h4>HTML</h4>  <h5>HTML</h5>  <h6>HTML</h6>  </body></html> |  |

* **<p> Tag**
* The <p> tag defines a paragraph.
* Browsers automatically add a single blank line before and after each <p> element.

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| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <h2>The p element</h2>  <p>This is KamaliArumugam</p>  <p>My Rollno is 22z436</p>  </body>  </html> |  |

* **<b>,<i> Tags**
* < The <b> tag specifies bold text without any extra importance.
* The <i> tag displays the content in italic.
* The <i> tag is often used to indicate a technical term, a phrase from another language, a thought, a ship name, etc.

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| Example | Output |
| <html>  <body>  <p><b>KAMALI</b></p>  <p><i>KAMALI</i></p>  </body>  </html> |  |

* **<br> Tag**
* The <br> tag inserts a single line break.
* The <br> tag is an empty tag which means that it has no end tag.

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| Example | Output |
| <html>  <body>  <h2>GeeksforGeeks</h2>  <p>Hi Geeks! <br>Welcome to GeeksforGeeks</p>  </body>  </html> |  |

* **<small>,<sub>,<sup> Tags**
* <small> -The <small> tag defines Smaller text.
* <sub> - The <sub> tag defines subscript text.
* <sup> - The <sup> tag defines superscript text.

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| Example | Output |
| <html>  <body>  <h2>The small element</h2>  <p><small>HTML</small></p>  <h2>The sub element</h2>  <p>Formula of water is H<sub>2</sub>0</p>  <h2>The sup element</h2>  <p>4<sup>4</sup>is 256</p>  </body>  </html> |  |

* **<u> Tag**
* The content inside is typically displayed with an underline.

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| Example | Output |
| <html>  <body>  <h1>The u Tag</h1>  <p>This is <u> Kamali</u>  </p>  </body>  </html> |  |

**ORDERED LIST:**

* An ordered list starts with the <ol> tag.
* Each list item starts with the <li> tag.
* In an ordered list, each item is displayed along with the numbers or letters instead of bullets.
* Example:

<!DOCTYPE html>

<html>

<body>

<h1>An ordered HTML list</h1>

<ol>

<li>Thirisha</li>

<li>Subha</li>

<li>Kamali</li>

</ol>

</body></html>

* Output:

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* Ordered HTML List - The Type Attribute
* The type attribute of the <ol> tag, defines the type of the list item marker

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* Numbers:

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| Example | Output |
| <html>  <body>  <h2>Ordered List with Numbers</h2>  <ol type="1">  <li>Alfina</li>  <li>Niro</li>  <li>Richa</li>  </ol>  </body>  </html> |  |

* Uppercase Letters:

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| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <h1>Ordered List with Letters</h1>  <ol type="A">  <li>Kamali</li>  <li>22z436</li>  <li>BE-CSE</li>  </ol>  </body>  </html> |  |

* Lowercase Letters:

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| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <h2>Ordered List with Lowercase Letters</h2>  <ol type="a">  <li>Data Structure</li>  <li>Oerating System</li>  <li>Linux</li>  </ol>  </body>  </html> |  |

* Uppercase Roman Numbers:

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| Example | Output |
| <html>  <body>  <h3>Ordered List with Uppercase Roman Numbers</h3>  <ol type="I">  <li>Subha</li>  <li>Thirisha</li>  <li>Kamali</li>  </ol>  </body>  </html> |  |

* Lowercase Roman Numbers:

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| Example | Output |
| <html>  <body>  <h4>Ordered List with Lowercase Roman Numbers</h4>  <ol type="i">  <li>Kaaviyaa</li>  <li>Kamali</li>  <li>Muthu</li>  </ol>  </body>  </html> |  |

**UNORDERED LISTS:**

* An unordered list starts with the <ul> tag.
* Each list item starts with the <li> tag.
* In an unordered list, each item is displayed with a bullet.
* Example

<html>

<body>

<h4>An unordered HTML list</h4>

<ul>

<li>Kaaviyaa</li>

<li>Kamali</li>

<li>Muthu</li>

</ul>

</body>

</html>

* Output

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**DEFINITION LIST/DESCRIPTION LIST:**

* HTML dl tag is abbreviated as a Definition List, which is used to arrange your data items like how items remain placed in any dictionary.
* A description list is a list of items with a description or definition of each item.
* The description list is created using <dl> element.
* The <dl> element is used in conjunction with the <dt> element which specify a term, and the <dd> element which specify the term's definition.
* Example

<html>

<body>

<dl>

<dt>HTML</dt>

<dd>is a markup language</dd>

<dt>Java</dt>

<dd>is a programming language and platform</dd>

<dt>JavaScript</dt>

<dd>is a scripting language</dd>

<dt>SQL</dt>

<dd>is a query language</dd>

</dl>

</body>

</html>

* Output

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**TABLE TAGS:**

* The <table> tag defines an HTML table.
* An HTML table consists of one <table> element and one or more <tr>, <th>, and <td> elements.
* An HTML table may also include <caption>, <colgroup>, <thead>, <tfoot>, and <tbody> elements.
* <tr> Tag
* The <tr> tag defines a row in an HTML table.
* A <tr> element contains one or more <th> or <td> elements

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| Example | Output |
| <html><body>  <h1>The tr element</h1>  <table>  <tr>  <th>Rollno</th>  <th>Name</th>  </tr>  <tr>  <td>22z436</td>  <td>Kamali</td>  </tr>  </table>  </body>  </html> |  |

* <td> Tag
* The <td> tag defines a standard data cell in an HTML table.
* The text in <td> elements are regular and left-aligned by default.

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| Example | Output |
| <html>  <body>  <h1>The td element</h1>  <table>  <tr>  <td>22z436</td>  <td>Kamali</td>  </tr>  <tr>  <td>21z363</td>  <td>3sha</td>  </tr>  </table>  </body>  </html> |  |

* <th> Tag
* Table heading can be defined using <th> tag.
* Headings, which are defined in <th> tag are centered and bold by default

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| Example | Output |
| <html>  <body>  <h1>The th element</h1>  <table>  <tr>  <th>Rollno</th>  <th>Name</th>  </tr>  <tr>  <td>22z436</td>  <td>Kamali</td>  </tr>  <tr>  <td>22z363</td>  <td>3sha</td>  </tr>  </table>  </body>  </html> |  |

* <caption> Tag
* The <caption> tag defines a table caption.
* The <caption> tag must be inserted immediately after the <table> tag.
* By default, a table caption will be center-aligned above a table.

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| Example | Output |
| <html><body>  <h1>The caption element</h1>  <table>  <caption>College</caption>  <tr>  <th>Rollno</th>  <th>Name</th>  </tr>  <tr>  <td>22z436</td>  <td>Kamali</td>  </tr>  </table></body></html> |  |

* <colgroup> Tag
* The <colgroup> element is used to style specific columns of a table.
* The <colgroup> element should be used as a container for the column specifications.
* Each group is specified with a <col> element.
* The span attribute specifies how many columns that get the style.
* <thead>,<tbody>,<tfoot> Tags
* The <thead> tag is used to group header content in an HTML table.
* The <tbody> tag is used to group the body content in an HTML table.
* The <tfoot> tag is used to group footer content in an HTML table.
* These elements will not affect the layout of the table by default.

**TABLE BORDERS**

* Add a Border
* To add a border, use the CSS border property on table, th, and td elements.

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| Example | Output |
| <html>  <style>  table, th, td {  border: 1px solid black;  }  </style>  <body>  <h2>Table With Border</h2>  <table style="width:50%">  <tr>  <th>Firstname</th>  <th>Lastname</th>  </tr><tr>  <td>Kala</td>  <td>A</td>  </tr>  </table>  </body>  </html> |  |

* Collapsed Table Borders
* To avoid having double borders like in the example above, set the CSS border-collapse property to collapse.

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| Example | Output |
| <html>  <style>  table, th, td {  border: 1px solid black;  border-collapse: collapse; }  </style><body>  <h2>Collapsed Borders</h2>  <table style="width:50%">  <tr>  <th>Firstname</th>  <th>Lastname</th>  </tr>  <tr>  <td>Jill</td>  <td>Smith</td>  </tr>  </table>  </body>  </html> |  |

* Style Table Borders
* If you set a background color of each cell, and give the border a white color (the same as the document background), you get the impression of an invisible border.
* Round Table Borders
* With the border-radius property, the borders get rounded corners.

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| Example | Output |
| <html>  <style>  table, th, td {  border: 1px solid black;  border-radius: 10px;  }  </style>  <body>  <h2>Table With Rounded Borders</h2>  <table style="width:50%">  <tr>  <th>Firstname</th>  <th>Lastname</th>  </tr>  <tr>  <td>Kamali</td>  <td>A</td>  </tr>  </table>  </body></html> |  |

* Other Borders

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**HTML ATTRIBUTES**

* All HTML elements can have attributes
* Attributes provide additional information about elements
* Attributes are always specified in the start tag
* Attributes usually come in name/value pairs like: name="value"
* Attributes are,
* Action Attribute
* Accept Attribute
* width and height Attributes
* src Attribute
* alt Attribute
* lang Attribute
* style Attribute
* title Attribute
* href Attribute
* style Attribute
* lang Attribute
* The title Attribute
* Form Attribute
* accept-charset Attribute
* charset Attribute
* checked Attribute
* cols Attribute
* HTML action Attribute
* The action attribute specifies where to send the form-data when a form is submitted.

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| Example | Output |
| <html>  <body>  <h1>The action element</h1>  <form action="/action\_page.php">  <label for="fname">First name:</label>  <input type="text" id="fname" name="fname"><br><br>  <label for="lname">Last name:</label>  <input type="text" id="lname" name="lname"><br><br>  <input type="submit" value="Submit">  </form></body>  </html> |  |

* HTML accept Attribute
* The accept attribute specifies the types of files that the server accepts (that can be submitted through a file upload).
* Note: The accept attribute can only be used with <input type="file">.

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| Example | Output |
| <html><body>  <h1>The input accept attribute</h1>  <form action="/action\_page.php">  <label for="img">Select image:</label>  <input type="file" id="img" name="img" accept="image/\*"><br>  <input type="submit">  </form></body></html> |  |

* The width and height Attributes
* The <img> tag should also contain the width and height attributes, which specify the width and height of the image (in pixels).

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| Example | Output |
| <html>  <body>  <h2>Width and Height Attributes</h2>  <img src="lotus.jpeg" width="200" height="200">  </body>  </html> |  |

* The src Attribute
* The <img> tag is used to embed an image in an HTML page.
* The src attribute specifies the path to the image to be displayed:
* There are two ways to specify the URL in the src attribute:

1. Absolute URL
2. Relative URL

* Absolute URL - Links to an external image that is hosted on another website. Example: src="https://www.w3schools.com/images/img\_girl.jpg".
* Relative URL - Links to an image that is hosted within the website. Here, the URL does not include the domain name. If the URL begins without a slash, it will be relative to the current page. Example: src="img\_girl.jpg". If the URL begins with a slash, it will be relative to the domain. Example: src="/images/img\_girl.jpg"

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| Example | Output |
| <html>  <body>  <h2>The src Attribute</h2>  <img src="rose.jpeg" width="200" height="200">  </body>  </html> |  |

* The href Attribute
* The <a> tag defines a hyperlink.
* The href attribute specifies the URL of the page the link goes to.
* Example

<!DOCTYPE html>

<html>

<head>

</head>

<body>

<h2>The href Attribute</h2>

<a href="https://www.w3schools.com">Visit W3Schools

</a>

</body>

</html>

* Output

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* The alt Attribute
* The required alt attribute for the <img> tag specifies an alternate text for an image, if the image for some reason cannot be displayed. This can be due to a slow connection, or an error in the src attribute, or if the user uses a screen reader.

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| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <h2>The alt Attribute</h2>  <img src="earth.jpg" alt="rose" width="200" height="200">  </body>  </html> |  |

* If we try to display an image that does not exist,the value of the alt attribute will be displayed instead.

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| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <img src="img\_typo.jpg" alt="Girl witha jacket">  </body>  </html> |  |

* The style Attribute
* The style attribute is used to add styles to an element, such as color, font, size, and more.

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| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <h1>The style Attribute</h1>  <p>The style attribute is used to add styles to an element, such as color:</p>  <p style="color:black;">HTML</p>  </body>  </html> |  |

* The lang Attribute
* You should always include the lang attribute inside the <html> tag, to declare the language of the Web page.
* This is meant to assist search engines and browsers.
* Example

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| <html lang="en">  <body>  ...  </body>  </html> |

* Country codes can also be added to the language code in the lang attribute. So, the first two characters define the language of the HTML page, and the last two characters define the country.
* Example

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| <html lang="en-US">  <body>  ...  </body>  </html> |

* The title Attribute
* The title attribute defines some extra information about an element.
* The value of the title attribute will be displayed as a tooltip when you mouse over the element

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| Example | Output |
| <html>  <body>  <h1 title="I'm a header">The title Attribute</h1>  <p title="I'm a tooltip">Mouse over this paragraph, to display the title attribute as a tooltip.</p>  </body>  </html> |  |

* HTML form Attribute
* The form attribute specifies the form the element belongs to.
* The value of this attribute must be equal to the id attribute of a <form> element in the same document.
* The form attribute can be used on the following elements:

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* HTML <button> Tag
* The <button> tag defines a clickable button.
* Inside a <button> element you can put text (and tags like <i>, <b>, <strong>, <br>, <img>, etc.).
* That is not possible with a button created with the <input> element!

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| Example | Output |
| <html>  <body>  <h4>The button Element</h4>  <button type="button" onclick="alert('Hello world!')">Click Me!</button>  </body>  </html> |  |

* HTML <input> Tag
* The <input> tag specifies an input field where the user can enter data.
* The <input> element is the most important form element.
* The <input> element can be displayed in several ways, depending on the type attribute.
* The different input types are as follows:
* <input type="button">
* <input type="checkbox">
* <input type="text"> (default value)
* <input type="time">
* <input type="url">
* <input type="week">….

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| --- | --- |
| Example | Output |
| <html>  <body>  <h1>The input element</h1>  <form action="/action\_page.php">  <label for="fname">  First name:</label>  <input type="text" id="fname" name="fname">  <br>  <br>  <label for="lname">Last name:</label>  <input type="text" id="lname" name="lname">  <br>  <br>  <input type="submit" value="Submit">  </form>  </body>  </html> |  |

* HTML <label> Tag
* The <label> tag defines a label for several elements:
* <input type="checkbox">
* <input type="color">
* <input type="date">
* <input type="datetime-local">
* <input type="email">
* <input type="number">
* <input type="password">
* <input type="radio">…
* Screen reader users (will read out loud the label, when the user is focused on the element)
* Users who have difficulty clicking on very small regions (such as checkboxes) - because when a user clicks the text within the <label> element, it toggles the input (this increases the hit area).

|  |  |
| --- | --- |
| Example | Output |
| <!DOCTYPE html>  <html>  <body>  <h1>The label element</h1>  <p>Click Any One</p>  <form action="/action\_page.php">  <input type="radio" id="html" name="fav\_language" value="HTML">  <label for="html">HTML</label><br>  <input type="radio" id="css" name="fav\_language" value="CSS">  <label for="css">CSS</label><br>  <input type="radio" id="javascript" name="fav\_language" value="JavaScript">  <label for="javascript">JavaScript</label><br><br>  <input type="submit" value="Submit">  </form>  </body>  </html> |  |

CONCLUSION

* Understanding HTML tags and attributes is crucial for web development.
* This report covered the basics, providing examples of headings, images, paragraphs, links, and more.
* Practice and experimentation will deepen your understanding of HTML and enhance your web development skills.