HTML Introduction

What is HTML?

HTML is the standard markup language for creating web pages.

- HTML stands for Hypertext Markup Language.
- Hypertext is more than simple text. Hypertext can works as a link.
- A markup language is a computer language that uses tags to define elements within a document.

History of HTML:

- HTML was initially created by Berners-Lee in late 1991
- "HTML 2.0" was the first standard HTML specification which was published in 1995.
- In late 1999, HTML 4.01 version was published and it was widely used over the web.
- Currently we are having HTML-5 version which was published in 2012.

How HTML works:

HTML consists of collection of markup tags into a text file. When we save this text file with html extension (like sample.html), it becomes html file. This html file can be viewed through a browser (like Firefox/chrome).

The web browser simply read file and translates the tags into visible elements. Every tag has a meaning and it tells the browser to do something.

HTML Page Structure

A basic HTML page structure mainly consists of 4 HTML tags:

- `<!DOCTYPE html>` : This is the Document Type Declaration that informs the web browser about the type and version of HTML used on a web page.
- `<html>` : A Web page begins & end with HTML tag
- `<head>` : It includes the page title, scripts, styles & meta-information about website
- `<body>` : It will contain the main content of the web page.

Example of HTML Page Structure---------------------------

<!DOCTYPE html>

<html>

<head>

<title>This is a sample page title</title>

</head>

<body>

<h1>This is a heading.</h1>

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

</body>

</html>

Document Type Declaration:

A document type declaration (DTD), `<!DOCTYPE html>`, is an instruction to the browser about the type of document. The DTD specifies the rules for the markup language so that the browsers render the content correctly. It is always good to add a declaration to your HTML documents for proper standards.

Html

HTML starting tag `<html>` indicates the browser that it is an HTML document begins and HTML closing tag `</html>` tells the browser that the HTML document is completed.

Header

The header section does not output text inside the browser, it is used to specify information about the web page. It is used to display the page title, scripts, and style for the web page.

Body

This is the main part of the HTML document. The content which we want to display on the browser will be written inside body tags. The HTML body contains different types of content and tags. For example, we have used `<h1>` heading and `<p>`paragraph tags inside body.

HTML Head

HTML Head element mainly contains metadata (data about data) about the HTML Page.

You can place the HTML page title, scripts, styles, and other meta information in the head element. This information is helpful for search engines as well as provides additional data for HTML page.

Type of data in HTML Head element:

- **Title:** HTML Head element contains title of the page that is displayed in browser title bar.
- **Scripts:** All client-side scripts such as JavaScript often included in this Head section
- **Styles**: Internal & External Style rules also included inside Head element
- **Meta**: There are few meta tags such as description & keywords about HTML pages are included inside the head section. These are useful for Search Engines.

The above data placed in the head is never directly visible in the main browser window. Some of the head metadata is helpful for search engines like Google for better document understanding. While styles are used to extend page formatting. Scripts are internally used to enhance HTML web pages functionality & event handling.

Example of HTML Head Element data

```
<!DOCTYPE html>
<html>
<head>
<title> HTML Head Tutorial </title>
<meta name="keywords" content="HTML, CSS, PHP, SEO">
<link rel="stylesheet" type="text/css" href="style.css">
</head>
<body>
This is sample content.
</body>
</html>
```

HTML Elements and Tags

A Website page is made up of multiple HTML elements and HTML element is made of HTML tags.

HTML Tags

HTML tags are like labels or keywords to define web page. These tags tells the browser about the format or structure of the content.

Most of the tags comes in pair. One is called opening tag and other is closing tag. Tags begin with a less-than sign "<" and end with a greater-than sign ">". For example: `<p></p>` tags is used to create paragraph content. While `<h1></h1>` tags are used to create headings.

HTML Element

An element in HTML generally consists of an opening tag, content, and a closing tag. We can see the HTML element as an individual component of web-page.

Start/Opening Tag
HTML elements starts with opening tags. For example: `<p><b><h1>` etc.

End/Closing Tag
HTML elements ends with closing tags. For example: `</p></b></h1>` etc.

Content
We place content between the opening and closing tags.
For example: `<p>`This is sample content.`</p>`

Nested HTML Elements

HTML elements can be nested. This means that the HTML element can contain many other elements inside.
```
<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>
<p>My sample paragraph content.</p>

</body></html>
```

HTML Attributes

HTML Attributes are part of the HTML Tags & elements. These attributes specify some additional style or special information about the HTML tags.

Most of the time attributes are specified as pairs. For example: `attribute="value"`

Syntax of HTML Attributes

Attributes are always specified within a start tag. First, we need to specify the name of the attribute and then, we assign a value to it (name="value")

Example: `<h1 title="My Title"> My Heading </h1>` tag.

The title Attribute

Each HTML Tag allows some specific attributes. Some HTML Attributes are used by many different elements. For example, Title attribute can be used in almost every HTML element.

HTML Title attribute is used to display some titles to users when they mouse over that element. For example: Example: `<h1 title="My Title"> My Heading </h1>` tag.

In above example, when user will take his mouse to `"My Heading"` text a Title (like tooltip) `"My Title"` will be visible to user.

The lang Attribute

HTML lang attribute is used to declare the language of html page content. This attribute is very helpful for screen readers and search engines.

Example: `<html lang="en-US"></h1>` tag.

The align Attributes

HTML align attribute can be used in paragraphs, images and few other tags for horizontal alignment. This align attribute can have 3 main values (left, right and

centre). By using those values you can align a paragraph content into left, right or centre in the browser window.

<p align="left">This content is left aligned</p>

<p align="center">This content is aligned center</p>

<p align="right">This text is right aligned</p>

HTML width & height Attributes

You can set HTML images height & width using these HTML attributes. Images are defined using HTML images are defined with the

tag. There is another attribute called "src" in this tag. It is used to specify the path of the image.

Example: `<img src="tutorialsclass-logo.jpg" width="200" height="300">`

The style Attribute

HTML style attribute is one of the most used attributes to specify the style rules for different HTML elements. Using style attribute, we can set border, color, font size, background color, and many other styles.

Example: `<p style="color:red;">` This is Tutorials `Class</p>`

HTML Example with various Attributes---------------------

```
<!DOCTYPE html>
<html>
<body>

<h1 title="My Title"> My Heading </h1>
<p align="center">This content is aligned center</p>
<p style="color:red;"> This is Tutorials Class's red content</p>
<img src="tutorialsclass.jpg" width="300" height="200" alt="Alternate Text" title="Tutorials" />
<a href="http://tutorialsclass.com"> Go to Tutorials Class Website </a>

</body>
</html>
```

HTML Headings

HTML specifies six levels of headings. All heading element has its own font size and spacing before and after the heading.

Headings are defined with the `<h1>` to `<h6>` tags.

`<h1>` defines the most important (highest level) heading. `<h6>`defines the least important heading.

Example of All HTML Headings Levels:

```
<h1>Heading level 1</h1>
<h2>Heading level 2</h2>
<h3>Heading level 3</h3>
<h4>Heading level 4</h4>
<h5>Heading level 5</h5>
<h6>Heading level 6</h6>
```

Why HTML Headings Are Important?

HTML Heading tags are important for users as well as Search Engines.

- Heading tags helps users to pay attention to the main headings.
- Search engines (such as Google) also use your headings to understand the important components of your website.
- We should use HTML headings to define headings content only. It should not be used just to make text big or bold.

Complete HTML Example with Headings

```
<!DOCTYPE html>
<html>
<head>
    <title>HTML Headings Example</title>
</head>

<body>
    <h1>First Heading</h1>
    This is simple content

    <h2>Second Heading</h2>
    This is simple content
</body>
</Html>
```

HTML Paragraphs

HTML paragraph tags are used to define the text paragraphs.

When we create any document, we divide text content into multiple paragraphs. Similarly, HTML documents can be divided into HTML paragraphs.

HTML `<p>` the tag defines a paragraph. This Paragraph tag automatically adds some margin (white space) before and after a paragraph.

HTML Paragraphs – Complete HTML Program Example

```
<html>
<head>  </head>
<body>

<p>This is a first paragraph. You can add any kind of text here. </p>
<p>This is a second paragraph. This is some sample text. </p>

</body>
</html>
```

HTML Styles

HTML is primarily used to defines the structure of the web page While Cascaded style sheets (CSS) are a language that is used for the presentation of HTML Page.

Using CSS in HTML, we can change colors, fonts and other kinds of formatting on a web page. There are many different ways to include CSS in an HTML page. We will see a simple way to apply CSS Rules in the HTML Document.

Syntax

You can use style attributes to apply CSS in any HTML page.

```
style="property:value;"
```

HTML Background Color

We can set background colors for various HTML Elements.
The background-color property is used to define the background color.

Example of HTML Styles – Background Color
```
<body style="background-color:lightblue;">
```

```
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
```

HTML Text Color

We can change the color of the text using color properties in any HTML element.

Example of HTML Text color

```
<h1 style="color:black;">This is a heading</h1>
<p style="color:red;">This is a paragraph.</p>
```

HTML Fonts

The font-family property is used to defines the font types for an HTML elements.

Example of HTML Font

```
<h1 style="font-family:arial;">This is a heading</h1>
<p style="font-family:Times New Roman;">This is a paragraph.</p>
```

HTML Text Size

The font-size property defines the text size for an HTML element.

Example of HTML Text Size

```
<h1 style="font-size:15px;">This is a heading</h1>
<p style="font-size:20px;">This is a paragraph.</p>
```

HTML Text Alignment

The text-align property is used to set horizontal text alignment for an HTML element.

Example of HTML Text Alignment

```
<h1 style="text-align:right;">right heading</h1>
<p style="text-align:center;">This is a paragraph.</p>
```

HTML Formatting

HTML Formatting tags are used to format the appearance of the text on your web page.

When you use MS Word processor, you format text as bold, italic, or underlined. Similarly, HTML Formatting tags helps you to format text in different ways.

HTML Formatting Tags List

Formatting Tags	Example & Syntax
Bold & Strong Tag	`<b>`Sample Text`</b>` `<strong>`Sample Text`</strong>`
Italic & Emphasized Tag	`<i>`Sample Text`</i>` `<em>`Sample Text`</em>`
Small Tag	`<small>`Sample Text`</small>`
Marked (Highlighted) Tag	`<mark>`Sample Text`</mark>`
Deleted (Removed) Tag	`<del>`Sample Text`</del>`
Inserted (Added) Tag	`<ins>`Sample Text`</ins>`
Subscript Tag	`<sub>`Sample Text`</sub>`
Superscript Tag	`<sup>`Sample Text`</sup>`

HTML Links

Links are used to connect multiple HTML pages.

A Website is a collection of web pages and these web pages are connected with each other using HTML links. User can visit one page to another HTML web page by clicking on the links.

More Information About Links:

- HTML links are also called Hyperlinks.
- Link can be in the form of text as well as images or other media
- You can provide a link to any section of the same page, any other page within a website or any external website as well.

HTML Links Syntax

We can create HTML links using anchor `<a>` tag.
For example: `<a href="http://www.bing.com"> Bing Search </a>`

The href attribute is used to specify link address of the web page. The text between the anchor tags "Bing search" is visible to the user. User can click on this and it will take you to another page.

Example of HTML Link using anchor tag:

`<a href="http://google.com" target="_blank">Go to Tutorials Class</a>`

HTML Links Target:

We can set HTML Links Target to open into the new window or same window. The target attribute is used with one of the following values:

Example of HTML Target Attribute: `<a href="page2.html" target="_top">` Link with New Window `</a>`

HTML Target Attribute Values List

Target Value	Purpose
_blank	It opens linked page in a new window or tab
_self	It opens linked page in the same window/tab in which we clicked on link. (This is default link target)
_parent	It opens linked page in the parent frame
_top	It opens linked page in the full body of the window
framename	It opens linked page in a named frame

```
<html>
<body>

<a href="page1.html">Example of Relative Link</a>
<a href="http://google.com" target="_blank">Example of Absolute Link</a>

</body>
</html>
```

HTML Images

You can insert HTML images in a web page.

Images plays an important part to make a web page attractive and beautiful. You can add multiple images with variety of sizes in HTML page. Some of the mostly used image formats and extensions are: .jpg, .png, .jpeg & .gif.

```html
<html>
<head>
<title>Example of Image Tag & Attribute</title> </head>
<body>
<p>This is a test paragraph.</p>
<img src="myimage.jpg">
<br>
<img src="pictures/myphoto.jpg">
<br>
<img src="test.png" alt="Test Photo Alternate Text">
<br>
<img src="www.example.com/photo.jpg" height="300" width="500" >
<br>
<img src="www. example.com/photo.jpg" border="5px" >
<br>
<img src="www. example.com/photo.jpg" align="right" >
</body>
</html>
```

HTML Tables

HTML Tables are used to organise information into rows and columns.

In HTML tables you can arrange data such as text, images or links. Using Tables you can get better formatting of data.

List of Table Tags

Attribute	Description	Syntax & Example
Table Tag	Used to define table. All other table tags and data placed within Table tag.	`<table></table>`
Table Heading	Used to define table heading row. Mostly used for first table row.	`<th></th>`
Table Row	Used to define each table row.	`<tr></tr>`
Table Data	Used to define table data in cells	`<td></td>`

```
<html>
<body>
<table border="1">
 <tr>
  <th>ID</th>
  <th>Name</th>
  <th>Subject</th>
 </tr>
 <tr>
  <td>101</td>
  <td>Robin</td>
  <td>Maths</td>
 </tr>
 <tr>
  <td>102</td>
  <td>John</td>
  <td>English</td>
 </tr>
</table>
</body></html>
```

HTML Table Tag & Attributes

You can make some changes in Table styles using given attributes.

For example, above simple html table program have a border attribute that draws border around the table. Here, is the list of common table attributes.

HTML Table Attributes

Attribute	Description	Syntax & Example
Border	used to specify border around the table & cells	`border="2"`
Cell Padding	specify amount of spacing between cell border and cell content.	`cellpadding="5"`
Cell Spacing	specify amount of spacing between two adjacent cells.	`cellspacing="3"`
Width	used to set the width of the table.	`width="80%"`
align	used to set the alignment of table horizontally.	`align="centre"`
bgcolor	used to set the background color of the table.	`bgcolor="blue"`
background	used to set image in the table background.	`background="image.jpg"`

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Basic HTML Layout using Tables</title>
</head>
<body>
```

```
<table width="90%" border="1"  align="center"
cellspacing="3" cellpadding="5">
  <tr>
    <td colspan="2" bgcolor="green">
      <h1>Website Title or Tagline</h1>
    </td>
  </tr>

    <td bgcolor="lightblue" width="30%">
      <b>Fruit Menu</b>
      Orange<br />
      Banana<br />
      Apple<br />
      Grapes
    </td>
    <td bgcolor="orange" width="60%" height="200">
       This is the main content area.
    </td>
  </tr>
  <tr>
    <td colspan="2" bgcolor="skyblue" align="center">
     Footer area
    </td>
  </tr>
</table>
</body>
</html>
```

HTML Lists

HTML List Tags are used to specify information in the form of list.

HTML Lists are very useful to group related information together. Often List items looks well-structured and they are easy to read for users. A list can contain one or more list elements.

HTML Lists Type

HTML offers three type of lists. Following Table will give you brief description about them.

List Type	Description	Tags used
Unordered List	used to group a set of items without any order.	,
Ordered List	used to group a set of items, in a specific order.	,
Definition List	used to display some definition term (dt) & definition's description (dd)	<dl>,<dt>,<dd>

Unordered lists

Unordered lists are used to list set of items when they have no special order or sequence. It is also called as bulleted list.

HTML Unordered List attribute's

List Style Type	Description	Example & Syntax
disc	Starts a list using discs type bullets (default)	<ul type="disc">
circle	Starts a list using circle type bullets	<ul type="circle">
square	Starts a list using square type bullets	<ul type="square">
none	Starts a list without bullets	<ul type="type:none">

Example of Unordered List with Different List Styles

```
<html>
<title> Unordered List Example Test </title>
<body>

<h2>Unordered List of Fruits with Disc Bullets</h2>
<ul type="disc">
  <li>Apple</li>
  <li>Banana</li>
  <li>Mango</li>
</ul>

<h2>Unordered List of Colors with Circle Bullets</h2>
<ul type="circle">
  <li>Red</li>
  <li>Green</li>
  <li>Blue</li>
</ul>

<h2>Unordered List of Fruits with Square Bullets</h2>
<ul type="square">
  <li>Apple</li>
  <li>Banana</li>
  <li>Mango</li>
</ul>

<h2>Unordered List of Colors without bullets</h2>
<ul type="none">
  <li>Black</li>
  <li>Green</li>
  <li>Blue</li>
</ul>
</body>
</html>
```

Ordered List Style Type Attribute

HTML offers three type of lists. Following Table will give you brief description about them.

HTML Ordered List Style Type Attribute

List Style Type	Description	Example and Syntax
Numbers	Starts a list using numbers (default)	<ol type="1">
Uppercase letters	Starts a list using uppercase letters	<ol type="A">
Lowercase letters	Starts a list using lowercase letters	<ol type="a">
Uppercase roman numbers	Starts a list using uppercase roman numbers	<ol type="I">
Lowercase roman numbers	Starts a list using lowercase roman numbers	<ol type="i">

```
<html>
<title> Ordered List Example -  </title>
<body>

<h2>Ordered List of Fruits with Numbers </h2>
<ol type="1">
  <li>Banana</li>
  <li>Apple</li>
  <li>Grapes</li>
</ol>

<h2>Ordered List of Fruits with Uppercase letters</h2>
<ol type="A">
  <li>Apple</li>
  <li>Banana</li>
  <li>Mango</li>
</ol>

<h2>Ordered List of Colors with Lowercase letters</h2>
<ol type="a">
  <li>Red</li>
  <li>Green</li>
  <li>Blue</li>
</ol>

</body>
</html>
```

Definition Lists

Definition list is used to list items along with a description of each item.

Ordered list is created using HTML <dl> tag. Between <dl> tag, we use <dt> to define the terms and <dd> to describe that term.

Nested HTML Lists

When we used list inside list, it is called Nested List. We will see a example which will have different lists including Nested list as well.

Example of Definition Lists

```
<!DOCTYPE html>
<html>
<body>

<h2>A Nested List</h2>
<ul>
  <li>Red</li>
  <li>Black
    <ul>
    <li>Light Black</li>
    <li>Dark Black</li>
    </ul>
  </li>
  <li>Blue</li>
  <li>Green</li>
</ul>

<h2>Unordered List</h2>
<ul type="circle">
  <li>Red</li>
  <li>Green</li>
  <li>Blue</li>
</ul>

<h2>Numbered Ordered List </h2>
<ol type="1">
  <li>Bannana</li>
  <li>Apple</li>
  <li>Grapes</li>
</ol>

<h2>Uppercase Ordered List</h2>
<ol type="A">
  <li>Red</li>
```

```
  <li>Green</li>
  <li>Blue</li>
</ol>

<h2>Definition List</h2>
<dl>
   <dt>Computer</dt>
   <dd>Computer is an electronic device that is designed to work with Information.</dd>
   <dt>HTML</dt>
   <dd>HyperText Markup Language (HTML) is the standard markup language for creating web pages
and web applications.</dd>
</dl>

</body>
</html>
```

HTML Forms

HTML Forms are used to collect some data from users on a webpage.

Forms contain special control elements like input text box, check boxes, radio-buttons and submit buttons. Using form elements, you can take different type of data from users. This data can be used for different purposes.

Form Element

HTML `<form>` tag is used to defines an HTML form. All other form elements are defined inside this tag. Different types of form elements includes: input text elements, check boxes, radio buttons, submit buttons and many more.

```
<form>
<input type="text" />
</form>
```

Form – Attributes List

Attributes	Description	Syntax & Example
action	defines URL of the program or page where action will be performed on form data.	action="page2.php"
method	specify the HTTP method to send form data. (Get/Post)	method="get" or "post"
target	specify the target window or frame when form submitted	target="_blank" or "self"

Form – Input type element

Attribute	Description	Syntax & Example
Text Box	used to define text box that allow user to enter some text.	`input type="text"`
Radio Button	defines radio button that allow users to select any one option or choice	`input type="radio"`
Checkbox	defines checkbox that allow users to select multiple option or choices	`input type="checkbox"`
Button	defines normal buttons for users for some action	`input type="button"`
Reset Button	defines button that reset form data when user click on it.	`input type="submit"`
Submit Button	defines Form submission button that submit form data when user clicks on it	`input type="reset"`

Form – Submit & Reset Button

Type of buttons: There are 3 commonly used buttons in Form:

- **Simple button** defines the regular button with no action. We can add some specific action later using JavaScript. Example: `<input type="button">`
- **Submit button** defines the submit button. When user click on submit button, it will submit form to transfer data. Example: `<input type="submit">`
- **Reset button** is used to create reset button. When user click on reset button, all form data will reset to default values. Example: `<input type="reset">`

Attributes

- `value` specify the button value.
- `name` defines a unique name for every button to identify later.

```html
<html>
<head>
<title>HTML Forms Element Example - TutorialsClass.com </title>
</head>
<body>
<form action="page2.php" method="get" target="_blank" >
User Name: <input type="text" name="username" value="Enter your Name" >
<br><br/>
Mobile:  <input type="text" name="mobile">
<br/><br/>
Select Your Country:
<input type="radio" name="nationality" value="india"> India
<input type="radio" name="nationality" checked value="australia"> Australia
<br/><br/>
Select Your Hobby:
<input type="checkbox" name="hobbies" value="singing"> Singing
<input type="checkbox" name="hobbies" value="dancing"> Dancing
<input type="checkbox" name="hobbies" value="book-reading" checked> Book Reading
<br/><br/>
Select Your City:
<select name="dropdown">
<option value="" selected>Select your favorite city</option>
<option value="newdelhi" selected>New Delhi</option>
<option value="newyork">New York</option>
<option value="paris">Paris</option>
</select>
<br/><br/><br/>
<input type="button" value="Button">
<input type="reset" value="Reset Form">
<input type="submit" value="Submit">
</form>
</body>
</html>
```