Chapter - 3

HTML Basics

3.1 Introduction

HTML stands for **Hyper Text Markup Language**, which is the most widely used language on Web to develop web pages. **HTML** was created by Berners-Lee in late 1991 but "HTML 2.0" was the first standard HTML specification which was published in 1995. HTML 4.01 was a major version of HTML and it was published in late 1999. Though HTML 4.01 version is widely used but currently we are having HTML-5 version which is an extension to HTML 4.01, and this version was published in 2012.

What is HTML?

- HTML stands for Hyper Text Markup Language
- HTML is the standard markup language for creating Web pages
- HTML describes the structure of a Web page
- HTML consists of a series of elements
- HTML elements tell the browser how to display the content
- HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

3.2 **HTML Documents**

All HTML documents must start with a document type declaration: `<!DOCTYPE html>`.

The HTML document itself begins with `<html>` and ends with `</html>`.

The visible part of the HTML document is between `<body>` and `</body>`.

Example

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

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

It's a text document saved with the extension .html or .htm that contains texts and some tags written between "< >" which give the instructions needed to configure the web page.
These tags are fixed and definite and will be currently explained in the tutorials when applied and needed.

Every HTML document includes two parts:
- one part that is visible to/in the browser and can't be changed directly and that shows the entire content of the page.
- another part that contains the source code of the page with which we can modify the HTML document. This part is the one we'll work with.

The `<!DOCTYPE>` declaration represents the document type, and helps browsers to display web pages correctly.

It must only appear once, at the top of the page (before any HTML tags).

The `<!DOCTYPE>` declaration is not case sensitive.

The `<!DOCTYPE>` declaration for HTML5 is:

<!DOCTYPE html>

What is an HTML Element?

An HTML element is defined by a start tag, some content, and an end tag:

<tagname> Content goes here... </tagname>

The HTML **element** is everything from the start tag to the end tag:

<h1>My First Heading</h1>
My first paragraph.

3.3 Basic Structure of HTML Documents

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

- The `<!DOCTYPE html>` declaration defines that this document is an HTML5 document
- The `<html>` element is the root element of an HTML page
- The `<head>` element contains meta information about the HTML page
- The `<title>` element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab)
- The `<body>` element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.
- The `<h1>` element defines a large heading
- The `<p>` element defines a paragraph

3.4 HTML Tags:

HTML tags are like keywords which defines that how web browser will format and display the content. With the help of tags, a web browser can distinguish between an HTML content and a simple content. HTML tags contain three main parts: opening tag, content and closing tag. But some HTML tags are unclosed tags.

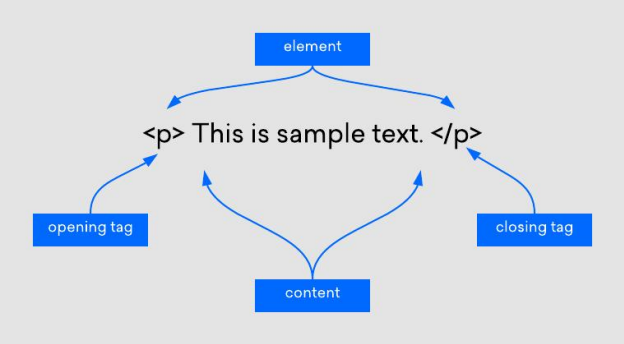
When a web browser reads an HTML document, browser reads it from top to bottom and left to right. HTML tags are used to create HTML documents and render their properties. Each HTML tags have different properties.

An HTML file must have some essential tags so that web browser can differentiate between a simple text and HTML text. You can use as many tags you want as per your code requirement.

- All HTML tags must enclosed within < > these brackets.
- Every tag in HTML perform different tasks.
- If you have used an open tag <tag>, then you must use a close tag </tag> (except some tags)

Syntax:

<tag> content </tag>



In HTML there are two types of tag, they are:

1. Paired Tags (Container Tag)
2. Singular Tags (Empty Tag)

Paired Tags:

Paired tags are a set of two tags with the same name. In each Paired tag set, one is an opening tag, and the other one is the closing tag. The closing tag has a `/` slash, it means that the tag is closed now.

It is necessary to close a paired tag; otherwise, it can result in the malfunctioning of the website. When the content is written within paired tags, then it ensures that the effect of those tags would be limited to only the content between them.

Look at the list of some paired tags in HTML below. Notice that each tag has a closing tag with a slash(/) before the name of the tag.

Example:

```
<i>This text is in italics. </i>
```

Opening Tag	Closing Tag
<html>	</html>
<table>	</table>
<form>	</form>
<head>	</head>
<h1>	</h1>

Unpaired Tags:

Unpaired tags are single tags with no closing tag. These tags are also called **Singular Tags**. These are also called **non-container tags** because they do not contain any content.

It is recommended to close the unpaired/singular tags also. But unfortunately, we do not have the closing tag for those. So, an unpaired tag is closed after adding a slash(/) just before the greater than > sign. For example: `<br />`.

Look below the list of some Unpaired Tags in HTML. Notice the use of slash(/) in the tags, to close them.

Example:
`<br> , <hr>`

Opening Tag
<hr>
<meta>
<input>

Tags Based on their utility

We can differentiate tags based on the purpose they used. Basically we have four types here

List Of HTML Tags

Tag	Description
<!--...-->	Describe a comment text in the source code.
<!doctype>	Defines a document type.
<a>	Specific a anchor (Hyperlink)Use for link in internal/external web documents.
<address>	Describes an address information.
<audio>	Specific audio content.
<b>	Specific text weight bold.
<blockquote>	Specifies a long quotation.
<body>	Defines a main section(body) part in HTML document.
 	Specific a single line break.
<button>	Specifies a press/push button
<caption>	Define a table caption
	Specifies a text is display in center align
<col>	Specifies a each column within a <colgroup> element in table
<colgroup>	Defines a group of one or more columns inside table
<dir>	Define a directory list
	Define a division part
<footer>	Defines a footer section containing details about the author, copyright, contact us, sitemap, or links to related documents.
<form>	Defines a form section that having interactive input controls to submit form information to a server.
<frame>	Defines frame window.
<h1> to <h6>	Defines a Headings level from 1 to 6 different sizes.
<head>	Defines header section of HTML document.
<header>	Defines as a container that hold introductory content or navigation links.
<hr />	Represent a thematic break between paragraph-level tags. It is typically draw horizontal line.
<html>	Define a document is a HTML markup language
<i>	Defines a italic format text
<iframe>	Defines a inline frame that embedded external content into current web document.
<img>	Used to insert image into a web document.
<input>	Define a get information in selected input.
<label>	Used to caption a text label with a form <input> element.
	Define a list item either ordered list or unordered list.
<link>	Used to load an external stylesheets into HTML document.

<mark>	Used to highlighted (marked) specific text.
<meta>	Used to provide structured metadata about a web page.
** **	Defines an ordered list of items.
<option>	Represents option items within a `<select>`, `<optgroup>` or `<datalist>` element.
<p>	Used to represents a paragraph text.
<progress>	Represents the progress of a task.
<script>	Defines client-side JavaScript.
<section>	Used to divide a document into number of different generic section.
<strike>	Represents strikethrough text.
****	Represents strong emphasis greater important text.
<style>	Used to add CSS style to an HTML document.
<sub>	Represents inline subscript text.
<sup>	Represents inline superscript text.
<table>	Used to defines a table in an HTML document.
<tbody>	Used for grouping table rows.
<td>	Used for creates standard data cell in HTML table.
<textarea>	Create multi-line text input.
<tfoot>	Used to adding a footer to a table that containing summary of the table data.
<th>	Used for creates header of a group of cell in HTML table.
<thead>	Used to adding a header to a table that containing header information of the table.
<tr>	Defines a row of cells in a table.
<u>	Represents underlined text.
** **	Defines an unordered list of items.
<video>	Used to embed video content.

Html Comments:

HTML comments are used to add notes or annotations within an HTML document that are not displayed in the web browser. They are useful for documenting code, providing instructions, or temporarily hiding code without deleting it. HTML comments are enclosed within the <!-- and --> tags.

Syntax: `<!-- Write your comments here -->`

- Notice that there is an exclamation point (!) in the start tag, but not in the end tag.
- Comments can be used to hide content.
- Comments are also great for debugging HTML, because you can comment out HTML lines of code, one at a time, to search for errors.
- Comments can be used to hide parts in the middle of the HTML code.
  - Ex: `<p>This <!-- great text --> is a paragraph.</p>`

Types Of HTML Comments:

1. Single line comment:
   - `Ex: <!-- <p>This is another paragraph </p> -->`
2. Multi line comment:
   - Ex:
```
<!--
    <p>This paragraph is commented out.</p>
    <p>This paragraph is commented out.</p>
-->
```
3. Using <comment> tag:
   a) `Ex. <comment> This is comment</comment>`

HTML attributes:

- HTML Attributes are added in tag to provide the more additional information about how the tag should be appear or behaviour.
- 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"**

<element attribute_name="attribute_value"></element>

In HTML, there are two types of attributes:

1. **Global Attributes / General purpose Attributes :** Global attributes can be used with any HTML element, regardless of its type. They provide common functionality and are widely applicable across different elements. Here are some commonly used global attributes:

   - **class:** Used to specify one or more CSS classes for an element, allowing you to apply styling or select elements using CSS or JavaScript.

     Syntax: **<element class="class_name">Content</element>**

   - **id:** Used to specify a unique identifier for an element, allowing you to uniquely identify and manipulate the element using JavaScript or CSS.

     Syntax: **<element id="unique_identifier">Content</element>**

   - **style:** Used to specify inline CSS styles for an element, allowing you to apply specific styles directly to the element.

     Syntax: **<element style="property: value;">Content</element>**

   - **title:** Used to provide a tooltip or a brief description of an element that is displayed when the user hovers over it.

     Syntax: **<element title="tooltip_text">Content</element>**

2. **Element-Specific Attributes**: Element-specific attributes are specific to particular HTML elements and provide functionality specific to those elements. Here are some examples of commonly used element-specific attributes:

   - **href:** Used in the <a> (anchor) element to specify the URL or destination of a link. **Syntax: Link**
   - **src:** Used in the <img> or <video> elements to specify the URL or source file of an image or video. **Syntax: <img src="image_url" alt="alternative_text">**
   - **alt:** Used in the <img> element to provide alternative text that is displayed if the image cannot be loaded or for accessibility purposes.
     Syntax: <img src="image_url" alt="alternative_text">
   - **type:** Used in the <input> element to specify the type of content expected in an input field, such as text, password, email, etc. **Syntax: <input type="text">**
   - **value:** Used in the <input> element to specify the default value of an input field. **Syntax: <input type="text" value="default_value">**