WEB DEVELOPMENT

INTRODUCTION TO HTML

- Web development encompasses all the actions, updates, and operations required to build, maintain and manage a website to ensure its performance, user experience, and speed are optimal. These actions are but not limited to: web design, web content development, client-side/server-side scripting, database design among others.

- **HTML** is the most basic building block of the web. It defines the meaning and structure of web content.
- HTML (**h**yper**t**ext **m**arkup **l**anguage) is the code that is used to define the structure of a web page and its content.
- For example, content could be structured within a set of paragraphs, a list of bulleted points, or using images and data tables e.t.c

- HTML consists of a series of elements, which you use to enclose, or wrap, different parts of the content to make it appear a certain way, or act a certain way. These elements can be applied to pieces of text to give them different meaning in a document, structure a document into logical sections, and embed content such as images and videos into a page.
- To do this HTML uses two things: tags and attributes.

- **Tags** are used to mark up the start of an HTML element and they are usually enclosed in angle brackets. An example of a tag is: .
- Most tags must be opened and closed in order to function.
- **Attributes** contain additional pieces of information. Attributes take the form of an opening tag and additional info is placed inside.
- An example of an attribute is:

  <img src="mydog.jpg" alt="A photo of my dog.">

- In this instance, the image source (src) and the alt text (alt) are attributes of the <img> tag.

Golden Rules To Remember

- The vast majority of tags must be opened (<tag>) and closed (</tag>) with the element information such as a title or text resting between the tags.
- When using multiple tags, the tags must be closed in the order in which they were opened.

For example:

This is really important!

HTML Editors

Now that we've gotten the basic theory out of the way. It's time to learn how to build our first website.

First off, we must ensure that we have the right tools. Most important, we need an HTML editor.

There are many choices on the market. Some of the most popular are: Sublime Text3, Notepad++,Visual Studio Code

Getting Started

- Planning
- Writing Code
- Testing
- Hosting / Publishing

Creating Your First HTML Webpage

First off, you need to open your HTML editor, where you will find a clean white page on which to write your code.

From there you need to layout your page with the following tags.

Basic Construction of an HTML Page

These tags should be placed underneath each other at the top of every HTML page that you create.

<!DOCTYPE html> — This tag specifies the language you will write on the page. In this case, the language is HTML 5.

<html> — This tag signals that from here on we are going to write in HTML code.

<head> — This is where all the metadata (data that describes data) for the page goes.

<body> — This is where the content of the page goes.

```
<html>
    <head>
        <title>This is your title</title>
    </head>

    <body>
        <h1>This is your header</h1>
        <p>This is your paragraph</p>
    </body>
<html>
```

Further Tags

Inside the <head> tag, there is one tag that is always included: <title>, but there are others that are just as important:

<title>

This is where we insert the page name as it will appear at the top of the browser window or tab.

<meta>

This is where information about the document is stored: character encoding, name (page context), description.

Let's try out a basic <head> section:

```
<head>
<title>My First Webpage</title>
<meta charset="UTF-8">
<meta name="description" content="This field contains information about
your page. It is usually around two sentences long.">.
<meta name="author" content="Conor Sheils">
</header>
```

Adding Content

Next, we will make <body> tag.

The HTML <body> is where we add the content of the website.

This includes text, images, tables, forms and everything else.

Creating Your Heading

Let's try it out. On a new line in the HTML editor, type:

```
<h1>Welcome to My Page</h1>
```

Lets save the file. We will save this file as "index.html" in a new folder called "my webpage."

Open the file in your browser.

Congratulations! You've created your first web page!!

How To Add Text In HTML

Adding text to our HTML page is simple using an element opened with the tag <p> which creates a new paragraph. We place all of our regular text inside the element <p>.

Let's try it out. On a new line in the HTML editor, type the following HTML code:

```
<p>Welcome to <em>my</em> brand new website. This site will be my <strong>new<strong> home on the web.</p>
```

Don't forget to hit save and then refresh the page in your browser to see the results.

When we write text in HTML, we also have a number of other elements we can use to control the text or make it appear in a certain way.

In the above example we have used the tags and .

 - Emphasised Text. Usually used as image captions

 - Strong. Similarly to bold, to highlight key text

Others include:

<i> - Italic. To denote text

<small> - Small Text. To shrink the text

<u> - Underlined Text. Used for links or text highlights

How To Add Links In HTML

Almost everything you click on while surfing the web is a link and takes you to another page within the website you are visiting or to an external site.

Links are included in an attribute opened by the anchor tag <a>.

The <a> (or anchor) opening tag is written in the format:

```
<a href="https://www.google.com/">Google</a>
```

The first part of the attribute - **href** points to the page that will open once the link is clicked.

The text between the <a> tag is the text which will be displayed on the browser.

Lets try it out. Save and refresh your browser.

How To Add Images In HTML To Your Website

In today's modern digital world, images are everything. The <img> tag has everything you need to display images on your site. Much like the <a> anchor element, <img> also contains an attribute.

The attribute features information for your computer regarding the source, height, width and alt text of the image.

The <img> tag normally is written as follows:

```
<img src="yourimage.jpg" alt="Describe the image" height="X" width="X">
```

The src attribute contains a URL pointing to the image you want to embed in the page.

The alt attribute is supposed to be a textual description of the image, for use in situations where the image cannot be seen/displayed or takes a long time to render.

How To Make an HTML List

In web design, there are 3 different types of lists which you may wish to add to your site.

1. Ordered List – this is an ordered list of items

   Uses the <ol> tag

   Inside the <ol> tag we list each item on the list inside <li> tags.

```
<ol>
<li>An item </li>
<li>Another item </li>
<li>Another goes here </li>
</ol>
```

Unordered List

The second type of list that you may wish to include is an <ul> unordered list. This is better known as a bullet point list and contains no numbers.

This uses the <ul> tag

```
<ul>
<li>This is </li>
<li>An Unordered </li>
<li>List </li>
</ul>
```

Definition List

Finally, you may wish to include a definition list <dl> on your page. An example of a <dl> list is as follows:

```
<dl>
<dt>Item</dt>
<dd>The definition goes
here</dd>
</dl>
```

HTML tables

A very common task in HTML is structuring tabular data, and it has a number of elements and attributes for just this purpose.

A table is a structured set of data made up of rows and columns (tabular data).

The content of every table is enclosed by these two tags: <table></table>.

Inside this tag, we structure the table using the table rows, <tr>, and cells, <td> tags respectively.

```
<table>
<tr>
<td>Row 1 - Column 1</td>
<td>Row 1 - Colunm 2 </td>
<td>Row 1 - Column 3 </td>
</tr>
</table>
```

HTML Forms

Forms are used to add content and interact with other users on websites. It represents a document section containing interactive controls for submitting information.

Every web form must be wrapped in <form> tags.

The <input> element is used to create a variety of different types of input fields for form users to interact with. Common input type values are text, password, radio buttons, checkboxes and submit.

```
<form action="" method="" >
  <input type="email" name="email" id="email" required />
  <input type="submit" value="Subscribe!" />
</form>
```

Semantic Markup

Semantic markup is the use of a markup language such as HTML to convey information about the meaning of each element in a document through proper selection of markup elements, and to maintain complete separation between the markup and the visual presentation of the elements contained in the document.

We write semantic markup by selecting and using HTML tags properly, and by selecting tags that convey something about the information marked by the tags.

- **header**: A container to be used for a web page header which typically contains the site logo, heading elements, and site navigation.
- **footer**: A container to be used for a web page footer which typically contains authorship, contact, and copyright information in addition to navigational links and a link back to the top of the web page.
- **main**: A high-level element used to contain all of the content that is unique to a single web page and not repeated across multiple web pages.
- **nav**: An element to contain blocks of site navigation links. This element is typically placed in the page header and footer, and may also be used in an aside (sidebar) element as well.

- **section**: The section element is used to mark off sections of a document, such as chapters or major sections of a long form post.
- **aside**: Use to identify content that is related to the main content on the page but not part of the primary flow of the document. For example, the aside element may contain a glossary definition of a term that appears in a blog post or it may contain advertisements related to the contents of the page.
- **article**: The article element is used to identify a block of content suitable for reuse and syndication in other settings, such as a blog post or technical article.

HTML Styles – CSS

CSS (Cascading Style Sheets) is the code that styles web content.

CSS is a style sheet language. CSS is what you use to selectively style HTML elements.

Using CSS

CSS can be added to HTML documents in 3 ways:

- Inline - by using the style attribute inside HTML elements
- Internal - by using a <style> element in the <head> section
- External - by using a <link> element to link to an external CSS file

Inline CSS

An inline CSS is used to apply a unique style to a single HTML element.

An inline CSS uses the style attribute of an HTML element.

The following example sets the text color of the <h1> element to blue, and the text color of the <p> element to red:

```
<h1 style="color:blue;">A Blue Heading</h1>

<p style="color:red;">A red paragraph.</p>
```

Internal CSS

An internal CSS is used to define a style for a single HTML page.

An internal CSS is defined in the <head> section of an HTML page, within a <style> element.

```
<!DOCTYPE html>
<html>
<head>
<style>
body {background-color: grey;}
h1   {color: blue;}
p    {color: red;}
</style>
</head>
<body>

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

</body>
</html>
```

External CSS

An external style sheet is used to define the style for many HTML pages. To use an external style sheet, add a link to it in the <head> section of each HTML page:

```
 <!DOCTYPE html>
<html>
<head>
  <link rel="stylesheet" href="styles.css">
</head>
<body>

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

</body>
</html>
```

The external style sheet can be written in any text editor. The file must not contain any HTML code, and must be saved with a .css extension.

Here is what the "styles.css" file looks like:

```
body {
  background-color: powderblue;
}
h1 {
  color: blue;
}
p {
  color: red;
}
```

These are just a few examples of the properties one can change using CSS. There are so many other properties including but not limited to:

- font-family
- Font-size
- Border
- Padding
- Margin

In conclusion; HTML is the most basic building block of the Web. It defines the meaning and structure of web content.

It defines the very foundation of websites.

With passion and dedication, there are endless possibilities to what you can build and achieve.

As you embark on your solo ventures or collaborative projects, keep in mind that this course is merely the foundation. The world of web development is vast and constantly evolving, offering limitless opportunities for exploration and growth.

Best of luck, and may your future endeavors be as captivating as the web pages you create. Happy coding!