REACHING ON SCIENCE

WEB DEVELOPMENT COURSE

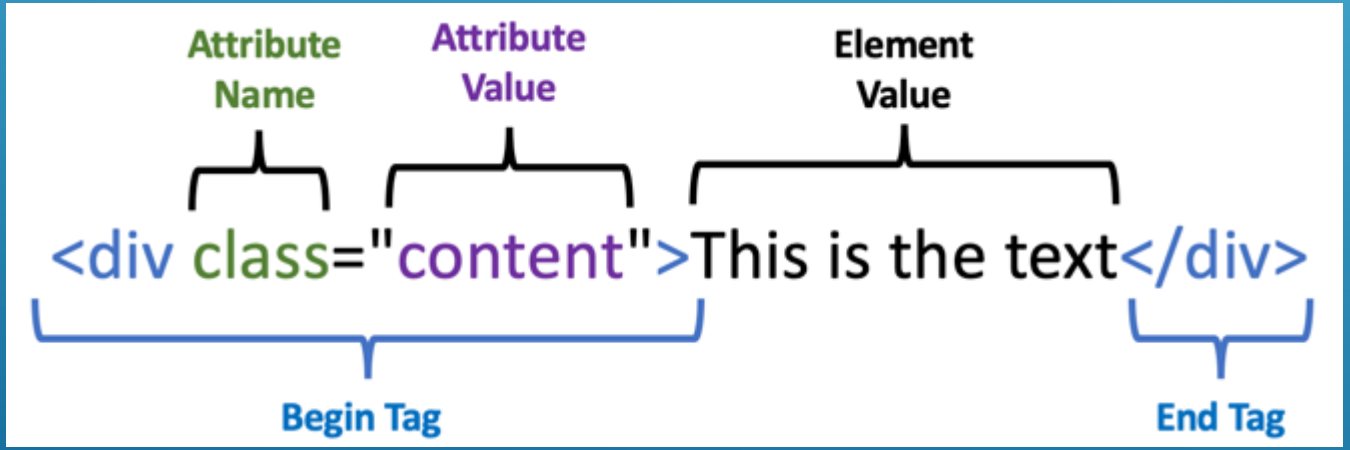
LESSON 3 : INTRODUCTION TO HTML

HOW HTML WORKS?

HTML (**H**yper**t**ext **M**arkup **L**anguage) is an XML-compliant system of annotating documents with 'tags'. It is used specifically to create content for web pages and web applications, which can then be shared over a network. HTML uses a markup system composed of elements which represent specific content. *Markup* means that with HTML you declare *what* is presented to a viewer, not *how* it is presented. Visual representations are defined by Cascading Style Sheets (CSS) and realized by browsers. This is the language that defines the structure of a webpage. Think as if the webpage was a human body ,and HTML was the skeleton. HTML is a markup language which means it uses tags and elements. It has gone through many migrations and the current standard is HTML 5.

ELEMENTS AND TAGS

HTML is composed of a tree-structure of things called "elements". Just like a tree, HTML files have a single root (think of a trunk), many branch elements that contain other elements, and finally leaves of the tree that contain the text that we display on a page. Elements are usually composed of pairs of tags - begin tags and end tags. Here are the main parts of an element:



- The begin tag is the start of the element. It always starts with a “less then” character and ends with a “greater than” character.
- The begin tag can have many attributes which are name-value pairs
- The name-value pairs are composed of attribute names, followed by an equal sign, followed by the attribute values surrounded by double quotes
- The begin and end tags surround the element text. This is usually the leaf element or other branch elements
- The element text is followed by an end tag. Note that the end tag has the same characters as a begin tag but it also has a forward slash after the less-than character.

What is difficult to understand is that elements can contain other elements which in turn can contain other elements. Here is an example of this tree structure ,see below:

```
<root>
   <branch>
      <branch>
         <branch>This is the leaf text.</branch>
      </branch>
   </branch>
<root>
```

It is also interesting to note that it does not matter where you put newlines (carriage returns) between the branch elements. HTML will render the same within the browser. The following is the same as the markup in the previous slide:

```
<root><branch><branch>
        <branch>This is the leaf text.</branch>
</branch></branch><root>
```

If you are new to markup languages, this terminology of “elements” and “attributes” and the rules will seem a bit odd at first. However, as you begin to use it you will learn to appreciate how allowing us to be flexible with the way spaces are used when we create the HTML files to be convenient. It allows us to use consistent rules for how to display the test on a web page.

EMPTY ELEMENTS

There are some places in an HTML file where the contents of the element is empty. For these elements there is no end element and you add a forward slash before the greater then. Examples of empty elements:

```
<br/> <!-- newline break -->
<img src="myimage.jpg"/> <!-- image with no text value -->
<input type="text" id="firstName" name="firstName"/> <!-- input field -->
```

HTML FILE STRUCTURE

HTML files all have a consistent structure of elements and attributes. In this lab we will take a look at this structure and see how the elements work together to describe the way a web page is laid out and rendered.

Here is a standard template we will be using for our example webpages.

```
<!DOCTYPE html>
<html lang="en">
   <head>
      <meta charset="utf-8"/>
      <title>A simple HTML document</title>
    </head>
   <body>
      <p>Hello World!<p>
   </body>
</html>
```

DOCTYPE

There are many varieties and versions of HTML files. This line indicates that this file conforms to the most common modern format: HTML 5.

html

This is the root element. The begin tag should be the second line of the file and the end tag the last line of the file. The html element contains two parts. The first is the head that hold the title and data about the content and the body has the page content itself. The `lang=en` tells web crawlers that the language of this web page is English.

body

The body element contains the page content itself. The elements within the body elements hold the structure of the web page and the text that is rendered within each element.

BLOCK AND INLINE ELEMENTS

1. **Block elements** always starts on a new line and takes up the full width available. Block elements stretch out to the left and right as far as the layout permits. Block elements are used to arrange large regions of page layout.

2. **Inline elements** do not start on a new line and it only take up as much width as necessary. They are frequently used to change the way individual words are displayed within text blocks. For example you can use an inline element to change the font or color of a few words within a line of text.

One of the tricky things about learning HTML layout is to understand the rules of how block and inline elements work together.