HTML Programming Part 1 - Introduction

Introduction:

Websites are created with two main elements, these are visible and non-visible elements. The most noticeable elements of a website are the visible elements of the design, the non-visible elements, or the HTML code (Hyper Text Markup Language) that makes the website work is hidden from the viewer.

HTML code is a program language, and like any language has its own unique syntax, but what is syntax?

syntax |ˈsinˌtaks| noun
The arrangement of words and phrases to create
well-formed statements in a language.

Learning code is just like learning any other language. There are rules to the language, and if these rules are not followed the language does not make sense, and just like different languages, each program language has its own unique syntax.

Basic HTML websites use a series of elements called HTML tags as part of their unique syntax. Some HTML tags are self explanatory such as the title tag **<title>Your Title Goes Here</title>**, but other tags have been simplified and will need to be memorized such as the paragraph tag **<p>Paragraph Goes Here</p>.**

However modern websites have become much more complicated in recent years and rely on a combination of several different types of code to create all the different interactive elements that are used in the design of a web-page. These include Java Scripts which use the script tag **<script>The java script program goes here</script>**. Flash, which uses the Action Script language, is also used in many websites designs to add interactive elements; however Flash is quickly being replaced by new additions to the HTML5 program language which is introducing Flash like functionality to the HTML language.

Many websites also use CSS (Cascading Style Sheets) instead of programming the styles using traditional HTML tags on each page. Instead of *programming* styles individually for each page, style sheets are made and multiple pages can be linked to a single style sheet. More importantly, CSS enables programs to apply styles independently of the HTML code used in each web page which saves times and improves efficiency; therefore one style can be applied to the entire website, and changing the style sheet will affect the look of the entire website.

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Basic HTML Tags:

The table below shows several of the most common HTML Tags that are used by many websites. The table has been formatted to show a typical hierarchy in an HTML website and how these tags might be used in context. Keep in mind that most, but not all tags, have both an open and close tag with information being contained between these two tags; however some tags are singular with all the relevant information being contained within the tag itself.

HTML Tag Type	Open	Close	Singular Tag / Element
Document Type			<!doctype html>
Comment Tags			<!-- comment here -->
HTML	<html>	</html>	
-Head	<head>	</head>	
-Title	<title>	</title>	
-Metadata			<meta>
-Styles	<style>	</style>	
-Body	<body>	</body>	
-Div Tag (generic)	<div>	</div>	
-Heading Tags 1-6	<h1>	</h1>	
-Paragraph	<p>	</p>	
-Bold Text			
-Strong Tag			
-Emphasis Tag			
-Strike Through	<s>	</s>	
-Citation	<cite>	</cite>	
-Quotation	<q>	</q>	
-Line Break			
-Image			<img src=" " alt=" ">
-Link			<link rel=" " href=" ">
-Address	<address>	</address>	

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Writing Code:

HTML code can be generated in a number of different ways using an HTML editor which is a software application for creating web pages. Although the HTML code of a web page can be written with any Text editor, specialized HTML editors can offer added convenience and added functionality for the coder.

There are 3 main types of HTML editors:
text editors, object orientated editors, and WYSIWYG editors.

Text editors:

Simple text editors allow the user to program HTML code by manually typing the code out by hand. This requires an understanding of HTML and any other web technologies the designer wishes to use like CSS and Java Script. Some regular text editors such as Windows Notepad, or Text Edit on Mac also provide the ability to write HTML code and save the document as HTML file with an ".html" extension.

Some professional HTML text editors also include built-in functions or integration with external tools for tasks such as: code checking, code cleanup, spell-checking, and FTP (File Transfer Protocol) functions for uploading a webpage to the internet. text editors intended for writing HTML code usually also provide syntax highlighting which makes writing code easier.

There are also many free online HTML editors which are MAC and PC compatible. The following online editor has a code input field and a live preview. This interface is very useful when learning how to write HTML code because you can see the results of your code instantly.

WYSIWYG Editors:

The exact opposite of coding HTML by hand in a text editor is a WYSIWYG editor (What You See Is What You Get) which focuses on a visual approach to create code. With WYSIWYG editors the content creator will create the website using a Graphic User Interface (GUI). The program will then translate the visual elements into code. Because using a WYSIWYG editor does not require any knowledge of HTML they are easier for a novice user to learn how to use; however these editors are very limited in their capabilities due to the simplicity of the user interface.

Object Orientated HTML Editors:

Object Orientated editors are somewhere in-between an HTML text editor and a WYSIWYG interface. These programs allow the editing of HTML source code in a more visually organized method based on the objects and assets used in the design of a webpage. These editors also include the option to edit the text-based parameters of selected objects in addition to defining the object parameters using different program palettes or windows.

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Programs such as Adobe Dreamweaver, which is an industry standard web-programming application, offer several different configurations that a user can switch between. The designer view allows the user to control and define elements using program windows and let Dreamweaver generate the HTML code for them, or users can use the code view which includes syntax highlighting and program the HTML code by hand. These features also allow different users, such as a web designer and programer to collaborate with each other easily on the same project.

Try HTML coding for free at: http://www.onlinehtmleditor.net

Try this example. Copy and paste the code below and compare the difference between the HTML code and the live preview that is generated by the online HTML editor. Notice the comments that are in a comment tag **<!-- -->** do not show on the webpage. After analyzing the difference between the code and the preview you should try modifying the code and customize this simple webpage.

```
<!doctype html>
<html>
    <body> <!-- This is the opening tag for the body of the website-->
        <h1>This is a TITLE using a heading tag</h1>
        <p>The body of a paragraph is enclosed between an open and close paragraph tag.</p>
        <p> You can also use other formatting tags within a paragraph such as the <b>BOLD TAG</b>.</p>
        <br><!--This is a line break tag-->
        <p>You can also use the "Line Break Tag" to have a space between paragraphs.</p>
    </body><!--It is important to have both an opening and closing tag for all elements that need them-->
</html>
```

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Code written in a basic Text Editor:

```
<doctype html>
<html>
<body>
<h1>Article Title</h1>
<!--You can add invisible comments to the code of a website.-->
<p>Document text...</p>
<!--This comment will not show in the design of the website-->
<p>A new paragraph continues after a small line break.</p>
<!--This comment will not show either-->
<p>You can format text using a <b>"Bold Tag"</b> inside a "paragraph tag"</p>
<br> <!--A "Line Break" tag adds a large space between paragraphs.-->
<!--You can add invisible comments anywhere you need to.-->
<p>You can use other formatting tags such as a <s>"Strike Tag"</s> to add a line through irrelevant text.</p>
</body>
</html>
```

Code written in an HTML Text Editor:
This example shows syntax highlighting which makes coding easier.

```
<doctype html>
    <html>
        <body>
            <h1>Article Title</h1>
        <!--You can add invisible comments to the code of a website.-->
            <p>Document text...</p>
        <!--This comment will not show in the design of the website-->
            <p>A new paragraph continues after a small line break.</p>
        <!--This comment will not show either-->
            <p>You can format text using a <b>"Bold Tag"</b> inside a "paragraph tag"</p>
            <br> <!--A "Line Break Tag" adds a large space between paragraphs.-->
        <!--You can add invisible comments anywhere you need to.-->
            <p>You can use other formatting tags such as a <s>"Strike Tag"</s> to add a line through irrelevant text.</p>
        </body>
    </html>
```

This is what this code looks like in a web browser:

www.website.com

Article Title

Document text...

A new paragraph continues after a small line break.

You can format text using a **"Bold Tag"** inside a "paragraph tag"

You can use other formatting tags such as a ~~"Strike Tag"~~ to add a line through irrelevant text.
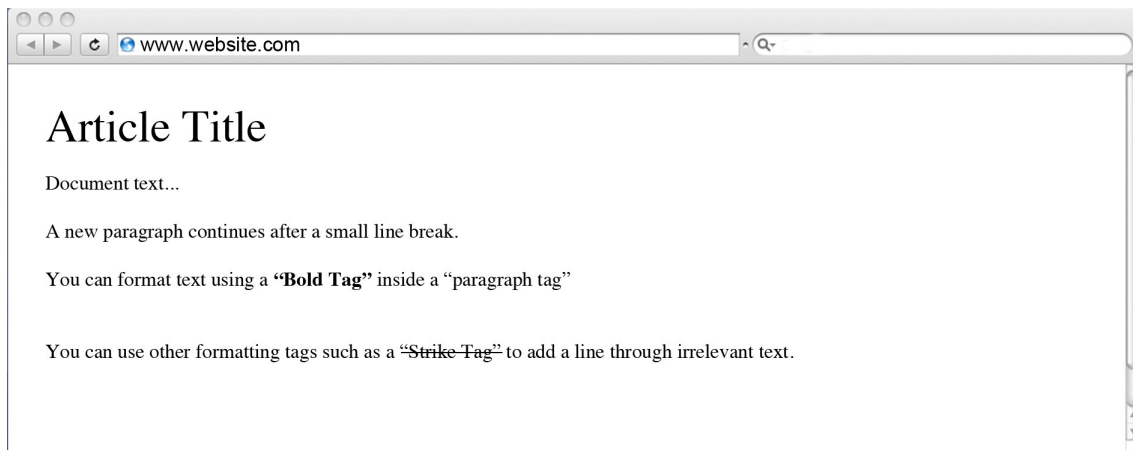
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HTML Comment Tag | <!-- -->:

The comment tag **<!-- -->** is used for creating comments within your HTML code. This is a very useful tool for both new and experienced coders to make notations which will help the coder remember what different sections of code are for.

The comment tag **<!-- -->** is not actually an HTML element (it is specified elsewhere in the HTML specifications). However, comments are an integral part of any HTML document. Comments can only be seen in code view and are not displayed to the end users. These comments can assist the author in understanding the code. This is particularly useful if there is a lot of code. Comments can also help other authors understand the code used in a specific webpage. This can be helpful when multiple web developers work collaboratively on the HTML code of a website. Comments also serve as a reminder to web programs about what various parts of the HTML code are for in a document that they have not updated for a long time.

Syntax:

The comment tag **<!-- -->** does not have a separate opening and closing tag. Instead the comment tag is written as **<!-- Comment Here -->** with the comments inserted inside the tag. Note that the exclamation mark is only used at the start tag and the comment are inserted into the empty space.

Example:

```
<!--This comment can be inserted anywhere but it will not display to the user who is viewing your website.-->
```

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Document Type Declaration | <!doctype html>:

The document type declaration (DTD) **<!doctype html>** is used to specify which language and code version the document is using so that an internet browser can render (display) the website correctly. The document type declaration does not represent an HTML element; however it is an important prerequisite for all HTML documents.

Since the document type declaration does not represent an HTML element it is not actually a document tag; however the term "tag" is a generally used term that tends to be applied generically across the web. Therefore describing document types as a document tag is generally accepted even though this description is technically incorrect. The general document type declaration is **<!doctype html>**.

Below is a list of several older DOCTYPE declarations:
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN">
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">

Syntax:

The Document Type Declaration is written as **<!doctype>** with the specified language being inserted within the declaration.

The **<!doctype>** declaration must be at the top of the page, before any other HTML code and is case sensitive. Since the document type declaration is not a tag there is no end tag required for document type declarations.

Example:

```
<!doctype html>
<!--This declaration indicates that the website is programmed using standardized HTML code-->
<html>
    <body>
        <p>Page content...</p>
    </body>
</html>
```

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HTML Tag | \<html> \</html>:

The HTML tag **\<html>** represents the root (start) of an HTML document. It is the container that all other HTML elements are placed.

Note: that the **\<html>** tag does not contain the **\<!doctype>** declaration. This is because the document type declaration needs to be the very first element of code in a website; furthermore, the declaration is also not an HTML element. Therefore it cannot be inclosed between the **\<html>** tags with other HTML elements.

Syntax:

The HTML tag is written as **\<html> \</html>** with all other HTML elements enclosed between the start and end tags. The HTML tag **\<html>** is the first HTML element in an HTML document, and is only preceded by the document type declaration.

The very first tag within the HTML tag **\<html>** should always be the head tag **\<head>** tag which is then followed by a body tag **\<body>**. Although a website can function without a head tag, it is an important part of any properly formatted website.

Example:

```
<!doctype html>
<html>
<!--All of the HTML elements are enclosed between the start and end HTML tags.-->
    <body>
        <p>Page content...</p>
<!--The visible design elements, or page content, are placed within the body tags.-->
    </body>
</html>
```

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Head Tag | <head> </head>:

The head tag **<head>** represents the document head, or the initial HTML element, of an HTML document. The head tag **<head>** contains other HTML tags that contain metadata, styles, and other HTML elements which are important elements in a well structured website; however these elements are not part of the visible design of the webpage. Metadata is added to the document head **<head>** to provide information about the document such as: a title, description, search keywords etc. A typical HTML document could contain a title tag **<title>** tag, and one or more meta tags **<meta>**, a script tag **<script>**, and a style tag **<style>**, which are enclosed within the head tag **<head>** element.

Note: Most metadata is not displayed in the browser, although the title **<title>** will usually appear in the browser's title bar. The main purpose of information in the Head Tag **<head>** is to improve the functionality of the page.

Syntax:

The head tag **<head>** tag is written as **<head> </head>** with the metadata content enclosed between the start and end tags. The head tag **<head>** tag is placed between the opening and closing HTML tags **<html>** tags.

Most HTML documents will have a title tag **<title>** within the head tag **<head>**.

Example:

```
<!doctype html>
<html>
    <head>
        <title> The websites title goes here. </title>
<!--Change the title of the document to your first and last name for this activity-->
<!--Information in the head tag does not display in the design of a web page-->
<!--Most internet browsers will show the page "title" in the top portion of the browsers tool bar.-->
    </head>
    <body>
        <p>Page content...</p>
    </body>
</html>
```

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Body Tag | <body> </body>:

The body tag **<body>** is used for creating the main body, or content area of a website. This element represents the main section of the website where almost all of the visible elements of a design are located. Since most content displayed on a typical web-page is contained within the opening and closing body tags **<body>** the start (or opening) tag is usual closer to the top of the document while end (or closing) tag is located near the bottom section of code.

The body of a website is categorized as a "sectioning root", and the elements contained within the body are categorized as "flow content".

Note: HTML documents can only have one body tag **<body>** element.

Syntax:

The body tag is written as **<body>   </body>** with the document's content inserted between the start and end tags.

The body tag **<body>** is located after the head tag **<head>**, and should always be the second HTML element in a document.

Example:

```
<!doctype html>
<html>
    <head>
        <title> The website title goes here. </title>
<!--Change the title of the document to your first and last name for this activity-->
    </head>
<!--The body tag comes after the head tag and is the second html element in the document.-->
    <body>
        <p>Page content...</p>
    </body>
</html>
```

This example demonstrates how body tag **<body>** appears within an HTML document. Notice that none of the content outside of the body tag **<body>** appear as a visible element in the design of the page in this example.

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Heading Tags 1 - 6 | <h "#" > </h "#" >:

The heading tag **<h "#" >** is used to define important information in an HTML document, such as article titles, section titles, etc.. The HTML standard includes 6 different levels of headings, which are ranked by importance. The ranking of the heading tag **<h "#" >** is defined by a number within the tag; **<h1>** has the highest rank, whereas **<h6>** has the lowest rank.

The 6 heading tags are: **<h1>, <h2>, <h3>, <h4>, <h5>, and <h6>**.

Note: The size of the heading text decreases as the number in the tag increases. Think of first heading tag or H1 as being the first or most important element, and each subsequent number being second, third, forth, fifth and sixth place in order of its importance in the document.

Syntax:

The heading tag is written as **<h "#" > </h "#" >** with the heading text inserted between the start and end tags. There are a total of 6 heading tags.

Example:

```
<!doctype html>
<html>
    <head>
        <title> The website title goes here </title>
<!--Change the title of the document to your first and last name for this activity-->
    </head>
<!--All 6 levels of Heading tags are shown in this example relative to the size of the standard paragraph text size.-->
    <body>
        <h1>Heading 1</h1>
            <p>Standard paragraph text....</p>
        <h2>Heading 2</h2>
            <p>Standard paragraph text....</p>
        <h3>Heading 3</h3>
            <p>Standard paragraph text....</p>
        <h4>Heading 4</h4>
            <p>Standard paragraph text....</p>
        <h5>Heading 5</h5>
            <p>Standard paragraph text....</p>
        <h6>Heading 6</h6>
            <p>Standard paragraph text....</p>
    </body>
</html>
```

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Paragraph Tag | \<p>   \</p>:

The paragraph tag **\<p>** represents a paragraph of text within an HTML document. Paragraphs are usually rendered with a small space between each paragraph, but this is dependent on the default settings of the browser. Browsers do not always render a space between paragraphs; however this is the normal convention.

Note: The paragraph tag **\<p>** should only be used when there are no other more appropriate tags that could be used. For example, the address tag **\<address>** is more suitable for providing contact details, and the footer tag **\<footer>** is more appropriate for footer content such as copyright notices.

Syntax:

The paragraph tag **\<p>** tag is written as **\<p>   \</p>** with the text of the paragraph inserted between the start and end tags.

Example:

```
<!doctype html>
<html>
   <head>
      <title> The website title goes here </title>
<!--Change the title of the document to your first and last name for this activity-->
   </head>
   <body>
      <p>This is a paragraph.</p>
<!--There is a small space between the two paragraphs in this document.-->
      <p>This is a new paragraph.</p>
   </body>
   <footer> Copyright notice </footer>
<!--Compare the paragraph tag and footer tag. You should notice that the text in both tags looks identical.-->
</html>
```

This document will show how different tags can display information on a website to the end user. Using the correct tags, even though the visual appearance of the content may look the same is important when writing effective HTML code.

Think about this: If you can include a copyright notice using a paragraph tag **\<p>** why would you use a footer tag **\<footer>** instead? Why would you not just use a paragraph tag **\<p>** for everything?

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Line Break Tag |
:

The line break tag **
** is used for creating a break element in an HTML document. The **
** element is classified as a "void element" since it has no content. This also means that there is no end tag.

Note: The line break tag **
** should only be used for line breaks that are actually part of the content, such as a line break in a poem or address. It should not be used for separating thematic groups in a string of text. Thematic groups should be separated by using multiple paragraph tags **<p>**.

Syntax:

The line break tag is written as **
** at the point where the line break should occur. The line break is a singular element, and does not have different open and close variations like most other tags.

Example:

```
<!doctype html>
<html>
    <head>
        <title> The website title goes here </title>
<!--Change the title of the document to your first and last name for this activity-->
    </head>
    <body>
        <p>This is a paragraph.</p>
        <p>This is a new paragraph that has no break element before it.</p>
        <br>
        <p>This is a new paragraph with a line break element before it.</p>
    </body>
</html>
```

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Bold Tag | :

The bold tag **** is used to create bold text in an HTML document.

Note: The bold tag **** should only be used to make text bold without conveying any extra importance such as in article abstracts, where the beginning of an article is also set in bold text. If text needs to stand out due to it's importance the strong tag **<strong>** should be used instead. Alternatively, the emphasis tag **<em>** can also be used to draw attention to important text.

Syntax:

The bold tag is written as ** ** with the text desired text inserted between the start and end tags.

Example:

```
<!doctype html>
<html>
    <head>
        <title> The website title goes here </title>
<!--Change the title of the document to your first and last name for this activity-->
    </head>
    <body>
        <p>Article Abstract: <strong>Theoretical Product Comparison</strong> </p>
        <p>The <b>"Product 1"</b> out performed the <b>"Product 2"</b> in all of our tests.</p>
        <p>Emphasis tags can also be used to draw attention to <em>important information</em>.</p>
    </body>
</html>
```

This example shows the differences between using the:
bold tag **<b>**, strong tag **<strong>**, and emphasis tag **<em>**.

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Strike Tag | \<s> \</s>:

The strike tag **\<s>** represents text that is no longer accurate or has become irrelevant. Browsers usually render text in a strike tag **\<s>** with a line through the middle of the text. This resembles text that has been "crossed out".

Syntax
The strike tag **\<s>** is written as **\<s>   \</s>** with the irrelevant or inaccurate text inserted between the start and end tags.

Example:

```
<!doctype html>
<html>
    <head>
        <title> The website title goes here </title>
<!--Change the title of the document to your first and last name for this activity-->
    </head>
    <body>
        <p>The <em>"Product Name"</em> is now just <s>$50</s> $20! </p>
<!--This example shows how different formatting tags are used within a paragraph tag.-->
    </body>
</html>
```