Part 1. XHTML

"XHTML" stands for *Extensible HyperText Markup Language*. You have heard of HTML. XHTML is the modern reformulation of HTML using the rules of XML. The rules of XML are more consistent than the rules of HTML. This makes XHTML very easy to learn. Here are the primary rules you need to know:

1. XHTML consists of *nested* tags. For example, we can say that "paragraphs are nested inside of a document." Another way to say this is "a document contains paragraphs." XHTML has a tag for the body of a document, **<body>**, and another tag for paragraphs, **<p>**.

Based on our knowledge that paragraphs are always contained in the body of a document, which of the following is correct?

(A)	(B)

<body>
  ** **
    This is a paragraph of text.
  ** **
</body>
	** **
	  <body>
	    This is a document.
	  </body>
	** **

The way that we show nesting visually in an XHTML document is by indenting nested tags using spaces or tab characters. *Which of the following is easier to understand?*

(A)	(B)

<body>
** **
First paragraph.
** **
** **
Second paragraph.
** **
** **
Third paragraph.
** **
</body>
	<body>
	  ** **
	    First paragraph.
	  ** **
	  ** **
	    Second paragraph.
	  ** **
	  ** **
	    Third paragraph.
	  ** **
	</body>

2. Tags are always enclosed in "<" and ">":

<html>   <body>   <p>   <b>   <i>   <img>

The reason that tags are enclosed in "**<**" and "**>**" is so that the web browser can tell that these are tags and not simply words that are part of the content of your web page.

3. If you open a tag, you must close it using the slash character "/" . This is required for *all* tags in XHTML. This differs from HTML. In HTML, sometimes a closing slash is required, and sometimes not. Because the rules of XHTML require that *every* tag be closed with a "**/**", you don't have to remember extra rules. This makes XHTML very easy to learn. Here is the code of a well-formed XHTML document showing the opening and closing tags, with indentation used to show the nesting:

```
<html>
  <body>
    <p>
      This is the first paragraph.
    </p>
    <p>
      This is the second paragraph.
    </p>
    <p>
      This is the third paragraph.
    </p>
  </body>
</html>
```

You can see that "**<p>**" is used to start a paragraph, the words contained in the paragraph are then nested inside the paragraph, and then the closing tag with a slash, "**</p>**" is written to signal the end of that paragraph. The next paragraph starts with another "**<p>**". Paragraphs contain words, so the words are simply nested between the opening and closing paragraph tags.

But what about web elements like images ? There are no words nested inside of images, so for these kinds of tags the closing slash is simply placed at the end of the tag just before the final "**>**":

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Here is how the image tag might look in a real XHTML document:

<img src="images/myVacationPicture-01.jpeg" alt="My vacation" **/>**

4. Here are the XHTML tags that we will learn to use in this workshop:

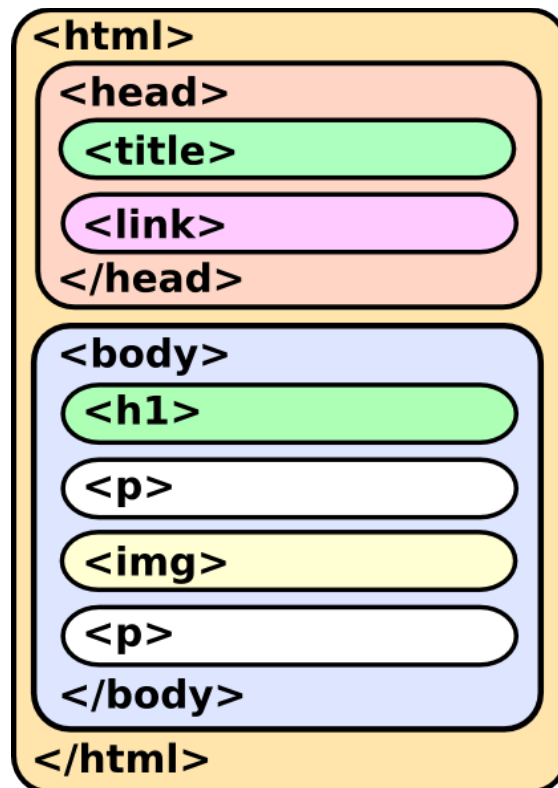|	*TAG*	*MEANING*
①	\<html\> ... \</html\>	The \<html\> element is required to open and close an XHTML document. \<html\> should be on the first row and \</html\> should be on the last row of your web page code.
②	\<head\> ... \</head\>	The \<head\> element contains the title element, \<title\>, and any \<link\> elements, among others.
③	\<title\> **Title of Web Page** \</title\>	Contains the title of your web page.
④	\<link ... /\> *example:* \<link rel="stylesheet" title="Default Style" href="css/main.css" type="text/css" media="screen" /\>	We will use the \<link\> element to indicate the Cascading Style Sheet (CSS) file to be used with our web page.
⑤	\<body\> ... \</body\>	The \<body\> element contains the main content of your web page. It can contain paragraphs \<p\>, headings \<h...\>, images \<img\>, and other document elements.
⑥	\<h1\> **Heading** \</h1\> \<h2\> **Subheading** \<h2\> \<h3\> ***Sub-subheading*** \</h3\>	Heading tags. \<h1\>s are for primary headings, \<h2\>s are for subheadings, and \<h3\>s are for sub-subheadings.
⑦	\<p\> Paragraph text ... \</p\>	Paragraph tag.
⑧	\<a\> ... \</a\> *example:* *\<a href="http://www.zefrank.com/snowflake/"\> Make a snowflake \</a\>*	The anchor tag allows you to create hypertext links to other web pages, or other sections in the current web page.
⑨	\<img ... /\> *example:* \<img src="images/myDog.jpeg" alt="My pet dog" /\>	The image tag lets you place images in your document.
⑩	\<b\> **bold** \</b\>	The bold tag lets you create a span of bold text.
⑪	\<i\> *italicization* \</i\>	The italicization tag lets you create a span of italicized text.

Our fifth rule is:

5. Tags should always be typed in *lower case*.

1.2. Nested Structure in XHTML Documents

Now that we have a good idea about the XHTML *elements* which we have called *tags*, we need to understand the *structure* of an XHTML document. In other words, we need to understand how the tags should be arranged and nested inside of other tags.

A good way to understand XHTML elements (i.e., tags) is to **think of them as containers**. The **<html>** "container" holds your web document, which is divided into two parts, a header, **<head>**, and the body, **<body>**, of the document. The header contains the document title and a link to your CSS style sheet. The body contains your paragraphs and images, as illustrated below:

```
<html>
    <head>
        <title>
        <link>
    </head>
    <body>
        <h1>
        <p>
        <img>
        <p>
    </body>
</html>
```

As an analogy, think of a house with rooms in it. The **<html>** container is analogous to the whole house. The first room you enter in a house is the entrance hall.

The **<head>** tag is like the foyer or entrance hall of the house. In the entrance hall, you might see some pictures hanging on the walls. In our **<html>** "house", we hang a **<title>** and **<link>** tag in the **<head>** room.

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In a real house, the next room you enter is the living room. The **<body>** tag is like the living room. In our **<html>** "house", we hang our web story and pictures on the walls of this living room which we call the **<body>** tag.

1.3. Element Attributes

One additional thing we need to learn is that ***XHTML tags can have attributes***. What are attributes? Suppose that XHTML had a *person* tag. Every person has unique attributes: name, gender, eye color, type of hair, favorite singer, etc. In XHTML, a "person" tag might look like this:

<person name="Andrea" gender="female" eyecolor="blue" hairtype="curly" favsinger="Mariah Carey" **/>**

Pay attention to the rules used to write the attributes: first we type the name of the attribute, then an equal sign, and then we put the value in quotation marks:

<div align="center">

eyecolor = "blue"

</div>

| The **name** of the attribute | **equal sign** | The **value** of the attribute **in quotation marks**. |

In XHTML, it is very important to type attributes and values just as shown above. Don't forget to type the quotation marks around the value!

1.4. Important Attributes of the <link>, <a>, and <img> tags

In our web pages, we only need to use a few attributes on the following three types of tags:

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① **<link>** : First, we need to set up the link tag to describe the CSS style sheet as follows:

<link rel="stylesheet" title="Default Style" href="css/MyFirstStyleSheet.css" type="text/css" media="screen" **/>**

Notice the **href** (*hypertext reference*) attribute which gives the name of the file that we want to link. You don't have to remember the attributes of the **<link>** tag. You can just copy what is shown above, changing the name of the CSS file if necessary.

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② **<a>** : Anchor tags. All anchor tags, like the **<link>** tag above, need have an **href** attribute which specifies a file or web resource that we want to link to:

<a href="http://www.csszengarden.com/"**>** Click here to visit this really cool site! ****

The text between the anchor start **<a>** and end **** will become a link in the web document.

You can also use an image **<img>** tag nested between **<a>** and **** to create an image link:

<a href="http://www.csszengarden.com/"**>**
 <img src="images/Lassie.jpeg" alt="my pet dog" **/>**
****

③ **<img>** : Image tags. To display a picture in a web document, you use the **src** attribute inside an **<img>** tag. XHTML also requires that you include an **alt** "alternate" attribute to describe the picture in words for people who may not be able to see it, such as blind people who may use a audio web browser to visit your web site:

 <img src="images/Lassie.jpeg" alt="my pet dog" **/>**

Appendix. MyFirstWebpage and MyFirstStyleSheet

MyFirstWebpage.html

```html
<html>
 <head>
  <title>
   Web Design is Fun!
  </title>
  <link rel="stylesheet" title="Default Style" href="css/MyFirstStyleSheet.css" type="text/css" media="screen" />
 </head>
 <body>
  <p>
   This is my first web page.
  </p>
  <img src="images/RoseLeavesInAutumn.jpeg" alt="Rose leaves in the fall." />
  <p>
   Web design is fun!
  </p>
 </body>
</html>
```

MyFirstStyleSheet.css

```css
body{

    font-family:sans-serif;
    font-size:25pt;
    font-weight:bold;
    color:blue;
    background-color:orange;

}
```