

WEB222 - Web Programming Principles

Week 5: Introduction to HTML

Agenda

- What is HTML?
- Document structure/overview
- HTML5 Structural Elements
- Important HTML elements and using them
- Image and Hyperlink

What is HTML

- HTML (HyperText Markup Language) is the set of markup symbols or codes inserted in a file intended for display on a World Wide Web browser page.
 - **Hypertext** is text with hyperlinks.
 - The **markup** tells the Web browser how to display a Web page's words and images for the user.
- The markup symbols/indicators are often called "**tags**", which are enclosed in angle brackets
 - Most html tags come in pairs e.g. <p> and </p>
 - <p> : the opening tag / start tag
 - </p> : the closing tag / end tag
 - In between these tags you can add **text-based content**.
 - There are some tags that are not paired – these tags are known as **empty tags**, such as or

Basic HTML Document Structure

```
<html>
<head>
    <title>WEB222</title>
</head>
<body>
    <h1>Basic HTML Document Structure</h1>
    <p>This is a paragraph.</p>
    <p>Here are links to
        <a href="https://ict.senecacollege.ca/">School of ICT</a>
        and
        <a href="http://www.senecacollege.ca/">Seneca College.</a>
    </p>
</body>
</html>
```

- HTML.html

Note: to view a HTML page source code: Ctrl+u

Getting Started – Visual Studio Code

1. Create a directory called "Example1"
2. Open "Visual Studio Code" (download: <https://code.visualstudio.com/>)
3. Click the files icon (), choose "Open Folder" and select your "Example1" directory
4. Click the "new file" icon next to "EXAMPLE 1" in the "EXPLORER" pane (left)
 - (It will appear when you hover over "EXAMPLE 1")
5. Create a new file called "ex1.html"

Getting Started – Visual Studio Code

6. Add the following simple code to your ex1.html file:

```
<html>
  <head>
    <title>Example 1</title>
  </head>
  <body>
    <h3>Hello!</h3>
  </body>
</html>
```

Getting Started – Visual Studio Code

6. Open a browser (Chrome, Firefox, Safari, IE, etc...)
 7. Choose File -> Open File (mac: **cmd + o**, win: **ctrl + o**) and choose your new ex1.html file

"Hello!" – Success
 8. Go back to Visual Studio Code and change the message to read "Hello World!"
 9. Go back to your browser and "force refresh" the page (mac: **shift + cmd + r**, win: **ctrl + f5**)

"Hello World!" – Success
- Note: Alternatively, Notepad++ is also a good tool for editing HTML documents.

Tags vs Elements

- The terms tag, element & attribute are used throughout the web site. You should note the difference between these terms.
 - HTML elements:
 - An HTML Element is everything from the start tag to the end tag,
 - Html documents are defined by **HTML** elements
 - e.g.
 - `<p>Some text</p>` - is referred to as an **element**, including start tag - content - end tag
 - `<p>` and `</p>` - are referred to as **tags**.

Attributes

- An attribute is used to define the characteristics of an element, and it is placed inside the opening tag.
- e.g.
 - <p **id="a3" name="a3" class="highlight"**>Some text</p>
 - Id, name and class are examples of **attributes**
- All attribute are made up 2 parts: **name** and **value**.
- Note:

The new HTML standard (HTML5) does not require quotes around attribute values, but we suggest to do so.

HTML Global Attributes

- Also called HTML core attributes,
- can be used on any HTML element.
- e.g.

```
<h2 title="Hello HTML!">Titled Heading Tag Example</h2>
<div class="className1 className2">
    <p id="xyz123">This para explains what is HTML</p>
    <p style="font-family:arial; color:#FF0000;">Some text...</p>
</div>
```

[globalAttributes.html](#)



About HTML5

- **HTML5 is the latest standard that defines HTML.**
 - HTML: created in 1990 and standardized as HTML 4 in 1997.
 - xHTML (XML + HTML) became a [W3C](#) Recommendation in 2000.
 - HTML5 is a candidate recommendation of W3C as of 2012.
- **HTML5 comes with a number of new elements, attributes, and behaviors.**
 - Providing new semantic, graphics, and multimedia elements.
 - designed to deliver rich web content without the need for additional plugins.
- **A larger set of technologies that allows more diverse and powerful Web sites and applications.**
 - **New form elements and new API's** to make it easier to build web applications.
 - **Supporting cross-platform**, designed to work on types of hardware (PCs, Tablets, Phones, TVs, etc.)

Basic HTML5 Document Structure

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <title>WEB222</title>
  <link href="css/mystyle.css" rel="stylesheet"/>
  <script src="js/myscript.js"></script>
</head>
<body>
  <h1>Basic HTML Document Structure</h1>
  <p>This is a paragraph.</p>
  <p>Here are links to
    <a href="https://ict.senecacollege.ca/">School of ICT</a> and
    <a href="http://www.senecacollege.ca/">Seneca College.</a>
  </p>
</body>
</html>
```

Template for creating HTML5 file

- HTML5 template file: HTML5-template.html
 - <script></script> tags are used to enclose JavaScript file.
 - <link> tag is used to enclose CSS file
- Note: for the WEB222 course
 - You must use lower case for all HTML tags and attribute names
 - You must use HTML5 document type and "UTF-8" charset for all web pages

HTML Structural Elements

html tag	Description
<!DOCTYPE>	Specifies the document type (is HTML5)
<html>	Specifies an html document
<head>	Specifies information about the document
<title>	Specifies the document title
<meta>	Specifies meta information
<link>	Specifies a resource reference
<script>	Specifies a script
<style>	Specifies a style definition
<body>	Specifies the body element
<!--...-->	Specifies a comment

HTML Heading Tags

Heading tags	Description	Example
<h1>	Specifies a heading level 1	<h1>.....</h1>
<h2>	Specifies a heading level 2	<h2>.....</h2>
<h3>	Specifies a heading level 3	<h3>.....</h3>
<h4>	Specifies a heading level 4	<h4>.....</h4>
<h5>	Specifies a heading level 5	<h5>.....</h5>
<h6>	Specifies a heading level 6	<h6>.....</h6>

Heading Tag Examples

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <title>WEB222</title>
</head>
<body>
  <h1>HTML Heading - Level 1</h1>
  <h2>HTML Heading - Level 2</h2>
  <h3>HTML Heading - Level 3</h3>
  <h4>HTML Heading - Level 4</h4>
  <h5>HTML Heading - Level 5</h5>
  <h6>HTML Heading - Level 6</h6>
</body>
</html>
```

- [tags-headings.html](#)

Presentation Tags

Tags	Description	Example
<p>	Specifies a paragraph.	<p>.....</p>
<blockquote>	Specifies a long quotation. It will indent the right and left margins both on the display and in print form.	<blockquote>.....</blockquote>
<pre>	Specifies preformatted text, e.g. keep white space.	<pre>.....</pre>
 	Inserts a single line break.	<hr />
<hr>	Specifies a horizontal rule.	<mark>
<mark>	Highlight parts of a text.	

tags-paragraph+.html

Whitespace & HTML Entities

- Whitespace characters
 - spaces, tabs, and newlines
 - HTML treats them as **a single space**.
- HTML Entities
 - Reserved characters in HTML must be replaced with character entities.
 - Some useful html character entities:

Entity	Description	Entity Name	Entity #
	non-breaking space	 	
<	less than	<	<
>	greater than	>	>
&	ampersand	&	&
©	copyright	©	©

□ tags-pre-entities.html

Presentation Tags

Tags	Description	Example	Equivalent CSS
	Specifies bold text	{ font-weight: bold; }
	Specifies emphasized text	{ font-style: italic; }
<i>	Specifies italic text	<i>.....</i>	{ font-style: italic; }
<u>	Specifies text to be underlined	<u>.....</u>	{ text-decoration: underline; }
<sup>	Specifies superscripted text	^{...}	{ font-size:small; vertical-align:top; }
<sub>	Specifies subscripted text	_{...}	{ font-size: xx-small; vertical-align: bottom; }

❑ [tags-presentation.html](#)

❑ You may avoid using these tags. Use CSS instead

HTML List Tags

Three types of list tags in HTML:

- Unordered lists
- Ordered lists
- Definition lists

Unordered lists

- The **** tag displays an unordered bulleted list. You can use CSS (**list-style-type** property) to control the bullet style.
- The **** tag is used to designate the individual list items in the list.
- Both the **** and the **** require a closing tag (**** and ****).

Tags	Description	Example
	Specifies an unordered list	<code> </code>
	Specifies a list item	

[list-unordered.html](#)

Ordered lists

- The `` tag displays an ordered list. You can use CSS (`list-style-type` property) to control the sequence style.
- The `` tag is used to designate the individual list items in the list.
- Both the `` and the `` require a closing tag (`` and ``).

Tags	Description	Example
<code></code>	Specifies an ordered list	<code><ol start="3"></code> <code> </code> <code> </code> <code> </code> <code></code>
<code></code>	Specifies a list item	

[list-orderd.html](#)

Definition lists

- The `<dl>` encloses a definition list.
- A definition list contains
 - **terms**, which are defined with the `<dt>` tag, and
 - **descriptions**, which are defined with the `<dd>` tag.
- Each `<dl>`, `<dt>` and `<dd>` tag requires a closing tag (`</dl>`, `<dt>` and `</dd>`).
- By default, a browser will align terms on the left and indents each definition on a new line.
- The intent of a definition list is to display lists of terms and their corresponding descriptions, such as in a glossary.

Definition lists

Tags	Description	Example
<dl>	Specifies a definition list	<dl> <dt> </dt> <dd> </dd> <dd> </dd> <dt> </dt> <dd> </dd> </dl>
<dt>	Specifies a definition term	
<dd>	Specifies a definition description	

[list-definition.html](#)

Nested lists

- Ordered lists and Unordered lists can be nested - a combination of the two can also be nested.
 - Each level will be indented.
 - Nested lists may look complicated however you just need to remember the basic structure for ordered and unordered lists.
- [list-nested.html](#)

Example

```
<ol>
  <li> .... </li>
    <li> ....
      <ul>
        <li> .... </li>
        <li> .... </li>
      </ul>
    </li>
    <li> .... </li>
    <li> .... </li>
  </ol>
```

HTML Image

- The HTML **** tags defines an image in a HTML page.
 - e.g.
``
- The **** tag has 2 **required attributes**:
 - **src**: url of the image
 - **alt**: alternate text for the image
- The **width** and **height** are supported by HTML5, but suggest to use CSS to define the size:
 - e.g.
``

□ image.html

Image Map

➤ Image map

- Define clickable areas on an image.
- Click on the clickable areas will activate different hyperlinks.
- <[map](#)> and <[area](#)> tags are used to define an image map.

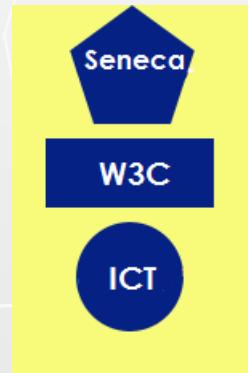


Image Map Example

```


<map name="tutorials">
    <area shape="poly"
          coords="74,0,113,29,98,72,52,72,38,27"
          href="usemap.png" alt="Image Demo"/>
    <area shape="rect" coords="22,83,126,125"
          href="http://www.w3schools.com/html/" alt="W3C" />
    <area shape="circle" coords="73,168,32"
          href="https://scs.senecac.on.ca/" alt="ICT" />
</map>
```

imageMaps.html

Hyperlinks & Anchors

- The HTML `<a>` Element (or the HTML **Anchor** Element) defines a **hyperlink**, the named target destination for a hyperlink, or both.
- A **hyperlink** (or **link**) is a word, group of words, or image that you can click on to jump to another document or another part of the same document.
- Basic HTML link (anchor) format:
`text`

Hyperlinks

➤ Absolute link

```
<a href="https://scs.senecac.on.ca/~wei.song">Wei Song's Website</a>
```

➤ Relative link

- The links should be relative to the location of the current document. e.g.

```
<a href="index.html">WEB222 Home</a>
```

```
<a href="../index.html">Home</a>
```

```
<a href="../info/policy.html">Academic Policy</a>
```



More Hyperlinks

- E-mail link

```
<a href="mailto:wsong@myseneca.on.ca">Email me</a>
```

- Phone link

```
<a href="tel:+14164915050">+1 416 491 5050</a>
```

- Image link

```
<a href="http://www.senecacollege.ca/">  
    
</a>
```

Links within a page - using Anchor

- Create a bookmark in a page, and jump/link to the bookmark in the page.
 1. Create bookmark within a web page:
``
Note: ` <!-- works but not support by HTML5 -->`
 2. Use hyperlink to link to bookmark:
 - The hyperlink and bookmark are in the same page
`Go to Timetable`
 - The hyperlink and bookmark are in the same website
`My Timetable`
 - The hyperlink and bookmark are in different sites (External link)
`My Timetable`

<a> Tag (Anchor) Attributes

➤ **download**

- Specifies that the target will be downloaded when a user clicks on the hyperlink.

➤ **target –**

- Specifies where to open the linked document – typically "_blank" to force the link to open in a new window / tab

hyperlinks.html

Resourceful Links

- **Introduction to HTML (MDN)**

<https://developer.mozilla.org/en-US/docs/Web/Guide/HTML/Introduction>

- **HTML5**

<https://developer.mozilla.org/en-US/docs/Web/Guide/HTML/HTML5>

- **HTML element reference (MDN)**

<https://developer.mozilla.org/en-US/docs/Web/HTML/Element>

- **HTML attribute reference**

<https://developer.mozilla.org/en-US/docs/Web/HTML/Attributes>

- **Basic Structure of an HTML5 Document**

<http://www.coreservlets.com/html5-tutorial/basic-html5-document.html#>

- **Thimble by mozilla**

<https://thimble.mozilla.org/>

Thank you!

Any Questions?