

# **INF1206 - Web Development – Fundamentals**

**Week 1: 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 <img> or <img />

# Basic HTML Document Structure

```
<html>
<head>
    <title>INFT1206</title>
</head>
<body>
    <h1>Basic HTML Document Structure</h1>
    <p>This is a paragraph.</p>
    <p>Here are links to
        <a href="https://durhamcollege.ca/mydc/academic-faculties/faculty-of-science-engineering-information-technology">Faculty of Science, Engineering & Information Technology
    </a>
    and
    <a href="https://durhamcollege.ca/">Durham 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>INFT1206</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://durhamcollege.ca/mydc/academic-faculties/faculty-of-science-engineering-information-technology">Faculty of Science, Engineering & Information Technology
    </a>
  and
    <a href="https://durhamcollege.ca/">Durham 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 INFT1206 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

# What are HTML Comments?

- Like any other programming comment they are text that are effectively ignore by the technology that they are embedded in
- Give information for developers that is important or eases the use/maintenance of the resource
- Anything in-between <!-- --> will be ignored by the browser
- ▶ In this class, at the top of each EACH and EVERY web page created for submission will include:

```
<!--  
    Name: Bill Smith  
    File: lab1.html  
    Date: 12 September 2023  
    This is the Lab 1 page for Web Development - Fundamentals (INFT1206)  
-->
```

- ▶ NOTE: it is optional for students to include more comments (they are encouraged but not required)

# HTML Structural Elements

html tag	Description
<!DOCTYPE>	Specifies the document type (is <b>HTML5</b> )
<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. <b>keep white space.</b>	<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	&nbsp;	&#160;
<	less than	&lt;	&#60;
>	greater than	&gt;	&#62;
&	ampersand	&amp;	&#38;
©	copyright	&copy;	&#169;

□ tags-pre-entities.html

# Presentation Tags

Tags	Description	Example	Equivalent CSS
<b>	Specifies bold text	<b>.....</b>	{ font-weight: bold; }
<em>	Specifies emphasized text	<em>....</em>	{ 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	<sup>...</sup>	{ font-size:small; vertical-align:top; }
<sub>	Specifies subscripted text	<sub>...</sub>	{ 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 **<ul>** tag displays an unordered bulleted list. You can use CSS (**list-style-type** property) to control the bullet style.
- The **<li>** tag is used to designate the individual list items in the list.
- Both the **<ul>** and the **<li>** require a closing tag (**</ul>** and **</li>**).

Tags	Description	Example
<b>&lt;ul&gt;</b>	Specifies an unordered list	<code>&lt;ul&gt;   &lt;li&gt; ..... &lt;/li&gt;   &lt;li&gt; ..... &lt;/li&gt;   &lt;li&gt; ..... &lt;/li&gt; &lt;/ul&gt;</code>
<b>&lt;li&gt;</b>	Specifies a list item	

[list-unordered.html](#)

# Ordered lists

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

Tags	Description	Example
<code>&lt;ol&gt;</code>	Specifies an ordered list	<code>&lt;ol start="3"&gt;</code> <code>  &lt;li&gt; ..... &lt;/li&gt;</code> <code>  &lt;li&gt; ..... &lt;/li&gt;</code> <code>  &lt;li&gt; ..... &lt;/li&gt;</code> <code>&lt;/ol&gt;</code>
<code>&lt;li&gt;</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>
```

# Quotations

- HTML also has features available for marking up quotations; which element you use depends on whether you are marking up a block or inline quotation.

## Blockqoutes

- If a section of block level content (be it a paragraph, multiple paragraphs, a list, etc.) is quoted from somewhere else, you should wrap it inside a <blockquote> element to signify this, and include a URL pointing to the source of the quote inside a cite attribute.

### Example

```
<p>Here is a blockquote:</p>
<blockquote
  cite="https://developer.mozilla.org/en-US/docs/Web/HTML/Element/blockquote">
  <p>
```

The HTML Block Quotation Element indicates that the enclosed text is an extended quotation.

```
  </p>
</blockquote>
```

# Quotations

## ➤ Inline quotations

Inline quotations work in exactly the same way, except that they use the `<q>` element. For example, the below bit of markup contains a quotation from the MDN `<q>` page

### Example

```
<p>
  The quote element — <code>&lt;q&gt;</code> — is <q
  cite="https://developer.mozilla.org/en-US/docs/Web/HTML/Element/q"> intended for short
  quotations that don't require paragraph breaks. </q>
</p>
```

# Citations

- There is a `<cite>` element, but this is meant to contain the title of the resource being quoted, e.g. the name of the book.  
There is no reason, however, why you couldn't link the text inside `<cite>` to the quote source in some way:

citations.html

# Abbreviations

<abbr> — this is used to wrap around an abbreviation or acronym. When including either, provide a full expansion of the term in plain text on first use, along with the <abbr> to mark up the abbreviation.

citations.html

# Marking up contact details

HTML has an element for marking up contact details — <address>. This wraps around your contact details, for example:

## Example

```
<address>Chris Mills, Manchester, The Grim North, UK</address>
```

# Representing computer code

There are a number of elements available for marking up computer code using HTML:

- ▶ <code>: For marking up generic pieces of computer code.
- ▶ <pre>: For retaining whitespace (generally code blocks) — if you use indentation or excess whitespace inside your text, browsers will ignore it and you will not see it on your rendered page. If you wrap the text in `<pre></pre>` tags however, your whitespace will be rendered identically to how you see it in your text editor.
- ▶ <var>: For specifically marking up variable names.
- ▶ <kbd>: For marking up keyboard (and other types of) input entered into the computer.
- ▶ <samp>: For marking up the output of a computer program.

# Marking up times and dates

- ▶ HTML also provides the `<time>` element for marking up times and dates in a machine-readable format.
- ▶ Why is this useful? Well, there are many different ways that humans write down dates.
- ▶ But these different forms cannot be easily recognized by computers — what if you wanted to automatically grab the dates of all events in a page and insert them into a calendar? The `<time>` element allows you to attach an unambiguous, machine-readable time/date for this purpose.

## Example

```
<time datetime="2016-01-20">20 January 2016</time>
```

[time-date.html](#)

# HTML Image

- The HTML **<img>** tags defines an image in a HTML page.
  - e.g.  
``
- The **<img>** 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

# 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:

```
<a href="URL.....">text</a>
```

# Hyperlinks

## ➤ Absolute link

```
<a href=" https://scholar.google.ca/citations?user=gXeY3ekAAAAJ&hl=en ">Google Scholar for Muath Alzghool</a>
```

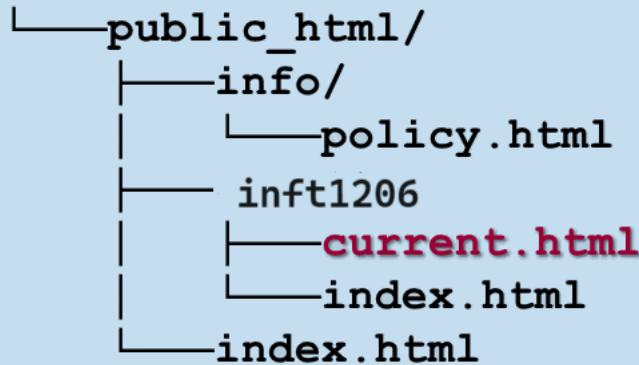
## ➤ Relative link

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

```
<a href="index.html">INFT1206 Home</a>
```

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

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



# More Hyperlinks

- E-mail link

- <ul>  - <a href="mailto:muath.alzghool@durhamcollege.ca">Email me</a>

- Phone link

- <ul>  - <a href="tel:+4161111111">+1 416 111 1111</a>

- Image link

- <ul>  - <a href="https://durhamcollege.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:

```
<a id="timetable"></a>
```

2. Use hyperlink to link to bookmark:

- The hyperlink and bookmark are in the same page

```
<a href="#timetable">Go to Timetable</a>
```

- The hyperlink and bookmark are in the same website

```
<a href="inft1206.html#timetable">My Timetable</a>
```

# <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

# 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>
- **Assignment 1-part1**  
[https://developer.mozilla.org/en-US/docs/Learn/HTML/Introduction\\_to\\_HTML/Marking\\_up\\_a\\_letter](https://developer.mozilla.org/en-US/docs/Learn/HTML/Introduction_to_HTML/Marking_up_a_letter)

*Thank you!*

**Any Questions?**