Web Development

Module 2 – HTML Part 1

Contents

- HTML Document Structure and Markup Basics
- HTML Doctypes and Templates
- HTML Elements
 - Comments
 - Heading and Paragraph
 - Phrase Tags and Special Characters
 - Lists and Table
 - Anchor and Image
- HTML Development Process

What is HTML?

HTML = HyperText Markup Language

ie. "HyperText" using a "Markup Language"!

Simple text that uses markup code
to define the structure and content of the page.

Web browsers understand the *meaning* of the *markup codes* and render or display the text and itscontent, as web page elements.

HTML: Documen

The simple basic structure of HTML documents:

First HTML5 Example

```
doctype definition
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8">
                                      character encoding
 <title>First HTML
Example</title></head>
<body>
  <h1>Welcome to HTML!</h1>
  <hr />
  HTML is<em>really</em>easy. It is just simple text
   with<strong>meaning</strong>.
  In fact, we can just keep adding text and keep typing and
  addingmore characters and more typing and just go on and on.
</body>
</html>
                  <title>...</title>
  <h1>...</h1>
      <hr />
```

HTML: Document Structure

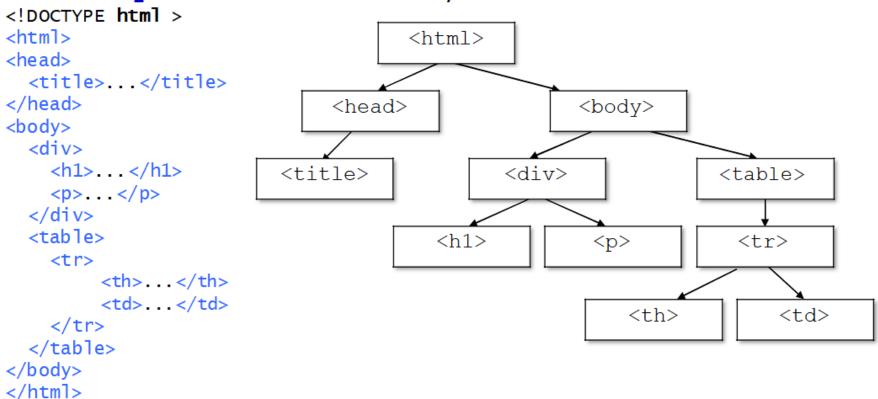
- Some HTML elements can be "containers" for other elements, which might also contain other elements, and so on.
- Hierarchical Structure
 - A "parent" element contains the "children" elements
 - E.g., <html> is the parent element of <head> and <body>
 - Children elements of the same parent element are called "siblings"
 - E.g., <head> and <body> are sibling elements.

This kind of **nesting** of elements creates a **tree**.

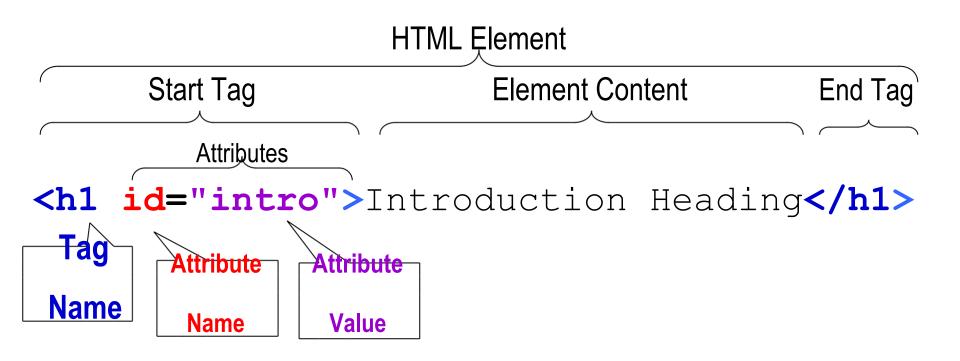
HTML: Document Structure

The <html> element, the "root" element of any html document, usually contains only two children: the <head> element and the <body> element. The <head> element contains the <title> element, and some other elements.

The **<body>** element can contain many other elements.



 HTML element structure includes start tag with tag name, may include attributes, element content (the text affected by the tag meaning), and an end tag.



- An HTML element begins with astart tagandusually finishes with anend tag.
- For example:

```
<h1>This is a major
heading.</h1>This is a
paragraph.
<em>This is text that is
emphasised.</em><strong>This is really important
text.</strong>
```

DEMO!

- A tag pair fully encloses an HTML element.
- An elements might contain other elements

```
content ..<em>.. Content ..</em>
..content
```

(i.e. elements might be nested)

- Void/empty elements have no content and no endtag
- All void/empty elements should be self-closed

```
<meta ... />
<hr />
<br />
<br />
<img ... />
<input ... />
```

<u>DO NOT</u> add end tags to void/empty elements:

```
<hr>...</hr>
<br>...</br>
X
<img>...</img>
```

Elements are either:

block-level elements or inline elements.

DFMO!

- Block-level elements would normally bedisplayed on a new line in the web page, e.g., <h1>,,.
- Inline elements are displayed within block-level elements without starting a new line, e.g., <a>, , .

This is a paragraph about The Matrix

HTML: White Space

- This make the HTML source text easier to read.
- This doesn't affect the way the content is presented by the browser.
- A browser does not display more than one white space character when the page is presented,
 - This means that 1, 2 or 10 source "spaces" will only be displayed as 1 space in the browser!
 - If you do need to 'hard-code' an extra space, you can use the non-breakingspaceentity

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HTML: <!DOCTYPE> declaration

- It must be the very first item in the HTML document,
- It is not an HTML element it is an instruction, indicating the version of HTML the page is written in,
- It allows browsers to know how to render the content correctly.
- Doctype keywords are case insensitive.

Tip: refer to http://www.w3schools.com/tags/tag doctype.aspfor the right way to specify different types of HTML documents, e.g., HTML4 and XHTML.

HTML5: <!DOCTYPE> declaration

HTML5

```
<!DOCTYPE html>
```

- In HTML5
 - attribute values must be quoted;

```
<h1 id="myid"class="myclass">Heading</h1>
```

- void/empty elements can stay unclosed;
 - <hr>, ,
, <meta>
- place inline elements only inside block levelelements.
- We will use HTML5 in this unit.

HTML5 or XHTML

```
<!DOCTYPE html>
                                <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML</pre>
                                1.0 Strict//EN"
                                "http://www.w3.org/TR/xhtml1/DTD/xhtml1
                                strict.dtd">
<html lang="en">
                                <html
                                xmlns="http://www.w3.org/1999/xhtml"
<head>
                                lang="en" xml:lang="en"><head>
  <meta charset="utf-8">
                                  <meta http-equiv="content-</pre>
                                  type"content="text/html;
  <title>HTML5</title>
                                  charset=utf-8"/><title>XHTML</title>
</head>
                                </head>
<body>
  <h1>HTML5</h1>
                                <body>
                                  \langle h1\rangle XHTML\langle /h1\rangle
  <hr>>
                                  <hr />
</body>
                                </body>
</html>
                                </html>
```

Void elements are not closed

Void elements must self close

HTML5: Template

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8" />
  <meta name="description"content="Web development"</pre>
/>
  <meta name="keywords"</pre>
content="HTML,CSS,JavaScript"/>
  <meta name="author"content="Your Name"</pre>
  /><title>TITLE</title>
</head>
<body>
</body>
</html>
```

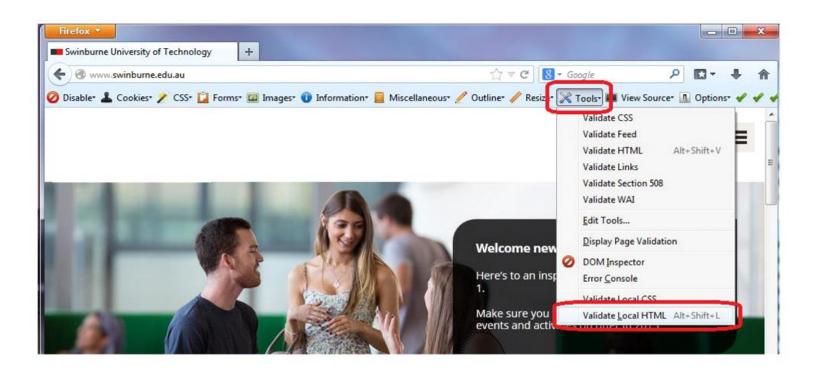
Replace the **highlighted text** with your code.

Webpage Validation

- The W3C has an on-line validator (http://validator.w3.org/)
 that allows us to validate our HTML5 webpages against a DOCTYPE:
 - <!DOCTYPE ...> included within our webpage,
 - oragainst other selected document standards.
- We can validate a webpage using either:
 - "Validate by URI"
 - validating a file on a server
 - "Validate by File Upload"
 - uploading a file saved on our local computer drives
 - "Validate by Direct Input"
 - cut and paste the webpage source to a textarea

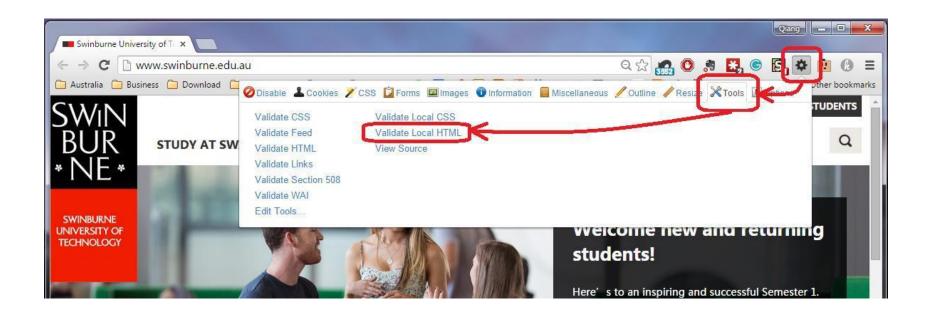
Webpage Validation

Web Developer (Add on for Firefox)



Webpage Validation

Web Developer (Extension for Chrome)



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HTML: Comment

- <!-- -->used to insert comments orexplanation in the source code
- It is NOT displayed by browsers.

```
<!-- First HTML5 Example -->
```

Then why do we need comments in our web pages?

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HTML: Head and Title Elements

- <head>...</head>is the container for all thehead elements.
 - <head>mustinclude a<title>for the document,
 - <head>can include scripts, styles, metainformation, and more.
- <title>...</title>defines the title for the HTMLdocument:

HTML5: Meta Tags

- Describe the metadata of an HTML document
- Placed as part of the <head> element content

HTML5: Body Element

- <body>...</body>defines the document'sbody.
- It contains all the contents of an HTML page, such as text, hyperlinks, images, tables, lists, forms, etc.

```
<head>
...
</head>
<body>
... HTML contents
... </body>
```

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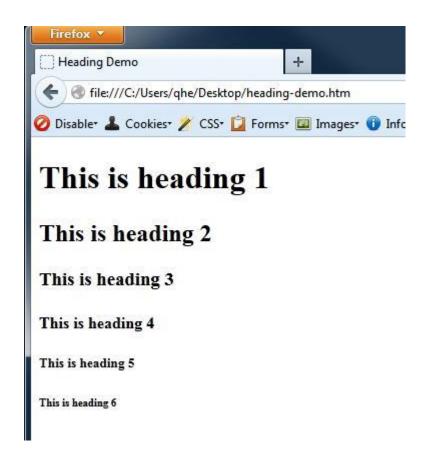
HTML: Heading Elements

- <h#>...</h#>is a logical block level elementused to mark the significance of a heading, where # is a number from 1 to 6
- There are six (6) levels from the top-level<h1>
 to the bottom-level important <h6>.
 - It's very similar to the headings in Word documents.
- Browsers display all headings larger and/or bolder than normal text.

HTML: Headings (continued)

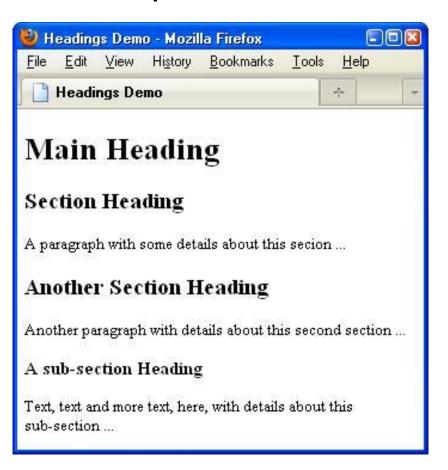
```
<h1>This
                     heading
             is
1</h1><h2>This
                 is
                    heading
2</h2><h3>This
                    heading
                 is
3</h3><h4>This
                 is
                    heading
4</h4><h5>This
                 is
                    heading
5</h5><h6>This
                    heading
                 is
6</h6>
```

DEMO! heading.html



HTML: Headings (continued)

Example:



Headings are logical markup, used to convey the order of importance of content.

DO NOT use headings simply as a wayto increase font size and make the text bold

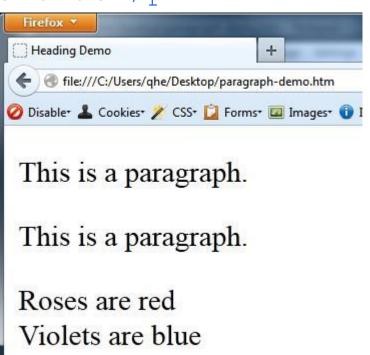
HTML: Paragraph Element

- ...is a logical block level element used tomark paragraphs.
 - Note: cannot contain other blocklevelelements
 - Browsers will place an empty line before and after a paragraph because it is a block-level element.
- - DO NOTuse line breaks to separate paragraphs.

HTML: Paragraph (continued)

```
This is a
paragraph.This is a
paragraph.
Roses are red<br/>/>Violets are blue
```

DEMO!



HTML: Horizontal Rule

 <hr />an block level element used to visuallyseparate content in an HTML page.

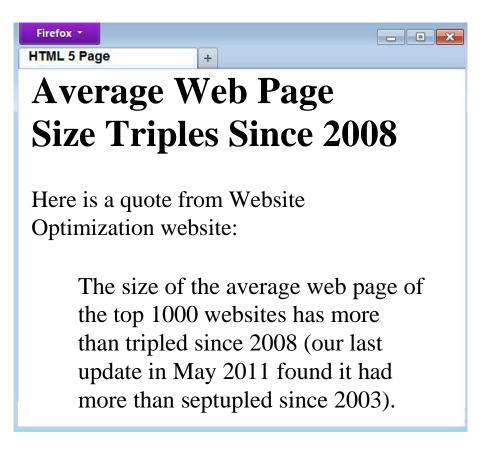
```
< h1 > HTML < /h1 >
                                          Firefox *
                                                                     - - X
                                          HTML 5 Page
HTML is a markup
                                          HTML
languagefor describing the
contents and structure of
web pages. 
                                          HTML is a markup language for describing the
                                          contents and structure of web pages.
<hr />
                                          CSS
<h1>CSS</h1>
CSS defines the style
                                          CSS defines the style or how to present the
                                          contents and structure of web pages.
orhow to present the
contents and structure of
web pages.
```

HTML: Block Quote

- <blockquote>...</blockquote >a block levelelement used to specify a section that is quoted from another source.
 - Browsers usually indent<blockquote>elements.
- Cite the source of quote using a 'cite' attribute

HTML: Block Quote (continued)

```
<body>
<h1>Average Web Page
SizeTriples Since
2008 < /h1 > Here is a
quote fromWebsite
Optimization website:
<blockquote</pre>
cite="http://www.websiteoptim"
ization.com/speed/tweak/avera
ge-web-page/">
The size of the average web
page of the top 1000 websites
has more than tripled since
2008 (our last update in May
2011 found it had more than
septupled since 2003).
</blockquote>
</body>
```



HTML: Preformatted Text

- ...is a block level element used tomark preformatted text.
- This is useful if you have information presented in a way that depends on maintaining white space (tabs, returns, multiple spaces) for meaning, like mathematics, formula, computer code
 - Theelement is typically presented in amonospaced font (like "courier new") so that all characters are the same width.
 - Browsers will notflow or "wrap" the text to fit thebrowser window, and will display horizontal scroll bars if required.

HTML: Preformatted Text (continued)

```
if (document.getElementById('EmailAddress').value !=
document.getElementById('EmailAddress2').value)
 alert('- Email address and its confirmation do not
 match\n'); return false;
if (document.getElementBy
                                  alert('- Email address
                                  return false;
      DEMO!
      preformatted.html
```

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HTML: Phrase Elements

- <dfn><code><samp><kbd><v
 ar>are logical inline phrase elements that define the meaning of the enclosed text
 - Do notuse those elements just for presentation

 Defines emphasized text – rendered as italics

 Defines important text - rendered as bold

<dfn> Defines a definition term

<code> Defines a piece of computer code

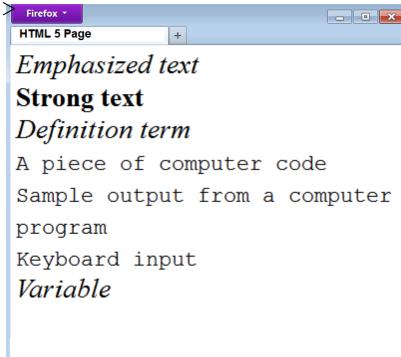
<samp> Defines sample output from a computer program

<kbd> Defines keyboard code

<var> Defines a variable

```
>
<em>Emphasized text<br/>br
/><strong>Strong text</strong><br
/><dfn>Definition term</dfn><br
<code>A piece of
computercode</code>
<br />
<samp>Sample output from
acomputer program</samp>
<br />
<kbd>Keyboard input
<br />
<var>Variable
```

DEMO!

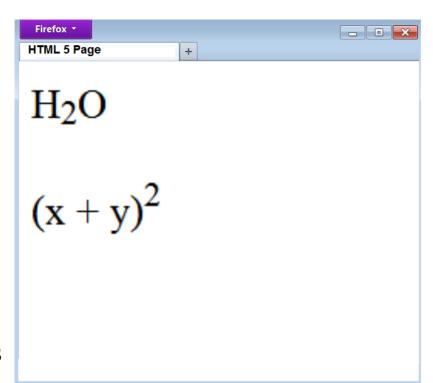


- <i>...</i>
 befines a part of text in an alternate voice or mood.
 The content of the <i> tag is usually rendered in italics
 - The <i> tag can be used to indicate a technical term, a phrase from another language (eg. scientific name), a thought, or a ship name, etc.
- ...should be avoided. Use
 According to the HTML 5 specification, use only as a LAST resort, when no other tag is more appropriate.

Superscript and Subscript

- ^{...}defines superscript text
 - It appears as a half character above the baseline
 - Often used to show an exponent in amathematical equation such as $(x + y)^2$ or a footnote / citation reference.
- _{...}defines subscript text.
 - It appears as a half character below the baseline.
 - Often used in chemical formulas, such as H₂O.

DEMO!



HTML: Special Characters

- To encode reserved characters in HTML into the contents special characters &...; are used
- Some of the common codes are listed below:

Character	Decimal Entity Number	Named Entity	Description
11	"	"	quotation mark
1	'	'	apostrophe
&	&	&	ampersand
<	<	<	less-than
>	>	>	greater-than

HTML: Special Characters (continued)

Character	Decimal Entity Number	Named Entity	Description
			non-breaking space
©	©	©	copyright
	­	­	soft hyphen
®	®	®	registered trademark
-	¯	¯	spacing macron
0	°	°	degree
±	±	±	plus-or-minus
×	×	×	multiplication
÷	÷	÷	division

Character entity references in HTML4

http://www.w3.org/TR/REC-

httml40/sgml/entities.htmlDEMO!Wikipedia List of XML and HTML character entities

http://en.wikipedia.org/wiki/List of XML and HTML character entity references

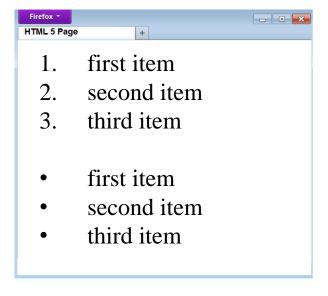
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HTML: List Elements

Ordered List

- ...
- Unordered List
 - ...
- List Items



- ...:used to mark eachlistitem in orderedand unordered lists.

DEMO!

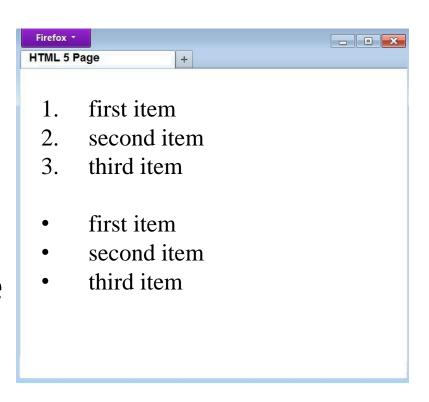
HTML: List (continued)

Ordered list example

```
     first item
     second item
     third
item
```

Unordered list example

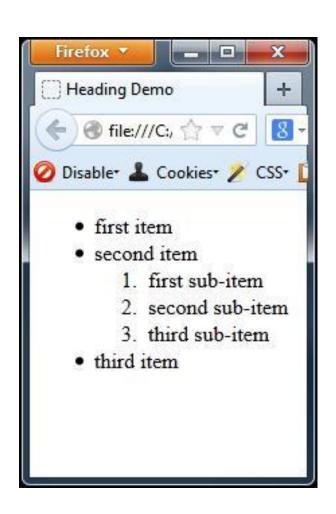
```
    first item
    second item
    third
item
/ul>
```



HTML: List (continued)

Nested list example:

```
<l>
 first.
 itemsecond
 item
   <01>
    first sub-
    itemsecond sub-
    itemthird sub-
    item
   third item
DFMO!
              list.html
```



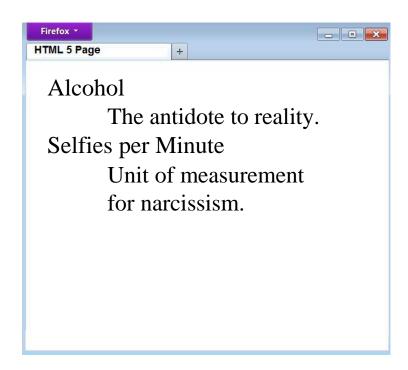
The inner list must be **inside** a list item of the outer list.

HTML: Definition List

- <dl>...</dl>element defines a definition list.
- <dt>...</dt>is used to define the item in thelist and;
- <dd>...</dd>is used to describe the item inthe list
- The browser will render the item and the definition on separate lines, and the definition will be indented
- Do not use definition list to create secondlevel indentation

HTML: Definition List (continued)

```
<dl>
     <dt>Alcohol</dt>
     <dd>The antidote
toreality.
     </dd>
     <dt>Selfies
perMinute</dt>
     <dd>Unit
ofmeasurement
for narcissism.
     </dd>
</dl>
```



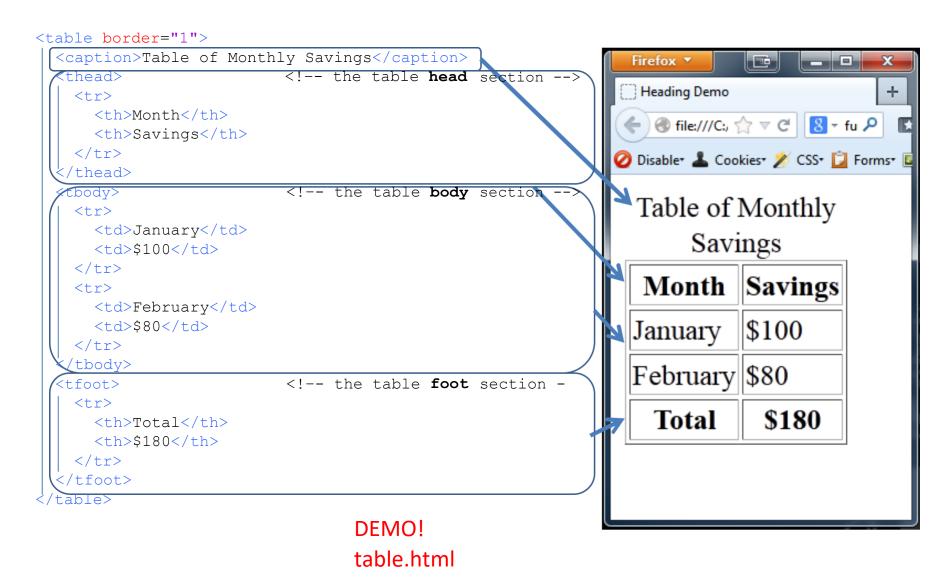
HTML: Table

- ...
 - block level element for organising data in a tabularformat.
 - Do notused table for page layout presentation.

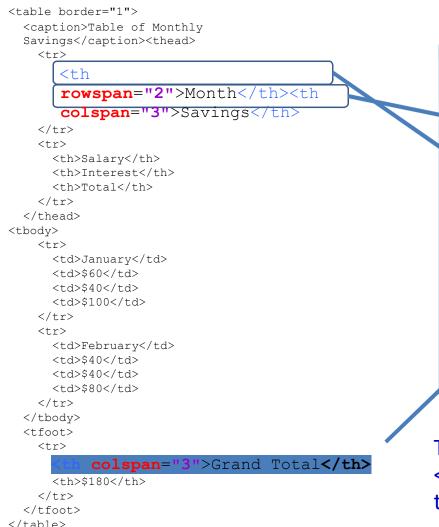
Table elements:

```
-  ... declares a table
- <caption> ... specifies the table caption
- </caption> ... defines a table row
-  ... defines a table head cell
defines a table data cell
-  ...  - - - ... defines a table data cell
defines a table sections
```

HTML: Table (continued)



HTML: Table (continued)





The **rowspan** and **colspan** attributes for and allows a more complex table to be built.

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HTML: Anchor element

• <a>...is an inline element that definesa hyperlink, used to link from one page to another.

```
<a href="http://www.google.com.au">GOOGLE</a>
```

- The href attribute indicates the location of the target resource for the hyperlink
 - The target resource can be a
 - A web page or a location within a web page
 - A file
 - An email address
 - Arelativeorabsolute (URL) path can be used

Note: Specifying Resource Locations

 Relative path is best used in specifying targetresources hosted on the same website, such

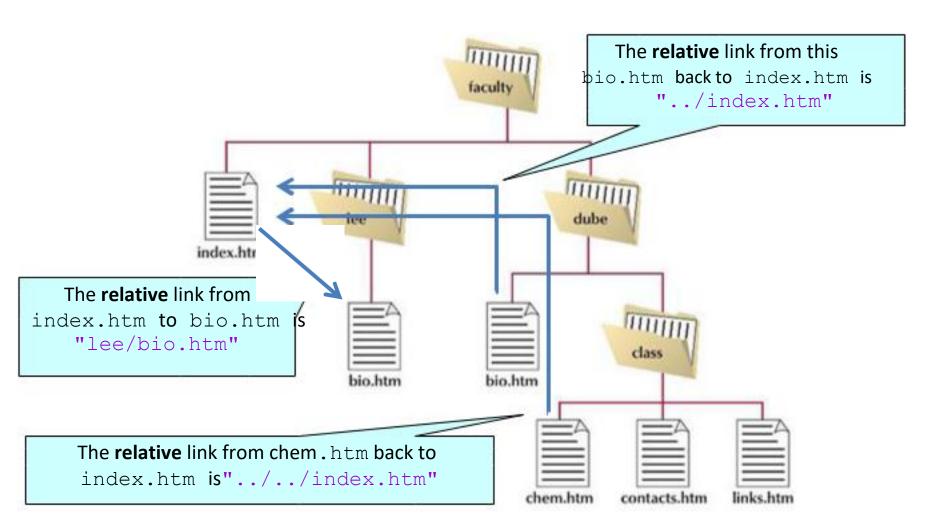
as files, images and web pages.

```
e.g., <ahref="help.html">HELP</a>
```

 Absolute path is used if the target resource is not part of the website

e.g., <ahref="http://www.swin.edu.au/index.html">Swinburne

Relative Paths



HTML: Anchor (continued)

 Resource location within a web page is specified starting with a # symbol

```
<a href="home.htm#section10">Section 10</a>
and is identified by an id attribute in the page
<h1 id="section10">Section Ten</h1>
```

- By default, links are displayed as follows:
 - An unvisited link is<u>underlined</u>andblue
 - A visited link is<u>underlined</u>andpurple
 - An active link isunderlinedandred

HTML: Anchor (continued)

```
\leq a
                                                        Firefox >
href="http://ilearn.swin.edu.au">Bla
                                                        TITLE
                                                       ckboard</a>
                                                       🥝 Disablet 🚣 Cookiest 🎉 CSSt 📋 Formst 💷 Image
<a
                                                       Normal Link to a Web Page
href="http://www.swinburne.edu.au/contac
                                                       Blackboard
ts-
campuses/campuses/hawthorn/documents/haw
                                                       Normal Link to a PDF file
thorn.pdf">Hawthorn Campus Map (12)
                                                       Hawthorn Campus Map
Click <a
                                                       Email Link
href="mailto:nathan@swin.edu.au">here
                                                       Click here to contact Nathan.
</a>to contact Nathan.
                                                       Image Link
<a
href="http://en.wikipedia.org/wiki/Smile
\wedge">
<img src="smiley.jpg"alt="Smiley Face"</pre>
/></a>
```

DEMO! anchor.html

HTML: Image Element

- is an inline element that defines animage in an HTML page.
 - Musthave the two required attributes:srcandalt

```
<img src="images/logo.jpg"alt="Swinburne LogoImage"/>
```

- src indicates the location and filename of theimage
 - Arelativeorabsolute (URL)path can be used
- alt something to be displayed when the imagecannot be found, e.g., "image missing"

Note: Specifying Resource Locations

 Relative path is best used in specifying targetresources hosted on the same website, such

as files, images and web pages.

```
e.g., <img src="logo.jpg" alt="Logo" /> <img src="images/logo.jpg"alt="Logo" />
```

 Absolute path is used if the target resource is not part of the website

```
e.g., <imgsrc="http://www.swin.edu.au/media/swinburneeduau/style-assets/images/logo-2013.jpg" alt="Swinburne Logo"/>

DO NOT specify local driver:src="C:\images\logo.jpg"

DEMO!

image2.html
```

HTML: Image (continued)

- The three well supported image formats for the Web are:
 - PNG (Portable Networks Graphics)*.png
 - JPEG (Joint Photographic Experts Group)*.jpgor*.jpeg
 - GIF (Graphics Interchange Format)*.gif
- An image can be used as a hyperlink, by nesting an element as the anchor's element content

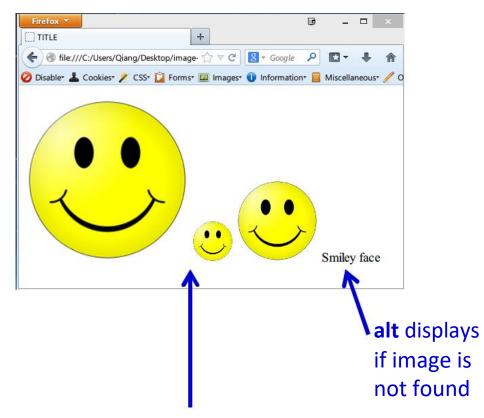
HTML: Image (continued)

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Height and Width

height attribute width attribute

```
>
<img src="smiley.jpg"</pre>
alt="Smiley face" />
<imq src="smiley.jpq"</pre>
alt="Smiley face"
height="50px" width="50px"/>
<ima
src="smiley.jpg"alt="Smil
ey face" height= "100px"
width="100px" />
<imq src="ismily.jpg"</pre>
alt="Smiley face"/>
```



All images are on the same line, as elements are **inline** elements.

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HTML: Development Process

- Step 1: Choose a document type, HTML or XHTML and a version
- Step 2: Create an HTML document by typing HTML markup text using a text editor
- Step 3: Save the HTML document with the .html or .htm filename extension
- Step 4: View and test the web page locally
- Step 5: Upload the HTML document to the web server using FTP / SCP software, e.g., WinSCP or FileZilla
- Step 6: View the HTML page on the server in a web browser
- Step 7: Validate the HTML page to ensure quality

HTML: W3C References

World Web Web Consortium (W3C):

http://www.w3.org

Home Page

http://www.w3.org/Markup

HyperText Markup Language (HTML) Home Page

http://www.w3.org/MarkUp/#tutorials

W3C HTML Introductory Tutorials

http://validator.w3.org/

W3C HTML Validator

HTML: Syntax References

Syntax references:

http://www.w3.org/

The W3C HTML Standards / References

http://reference.sitepoint.com/

HTML Tutorials / References

http://www.htmlhelp.com/

HTML References

http://www.w3schools.com/

HTML Tutorials / References

See also: Web Links on Canvas

HTML ELEMENTS TO BE CONCLUDED IN THE NEXT LECTURE