

SWINBURNE UNIVERSITY OF TECHNOLOGY COS10005 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.

```
<h1>This is a heading</h1>
This is a paragraph with a <a href="...">link</a>
and an image <img ... >
<form> ... </form>
 ...  and more ...
```

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



HTML: Document Structure



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The simple basic structure of <html> HTML documents: <head> <!DOCTYPE ...> <html> First XHTML Example - Mozilla Firefox _ | _ | × | </head

✓/head

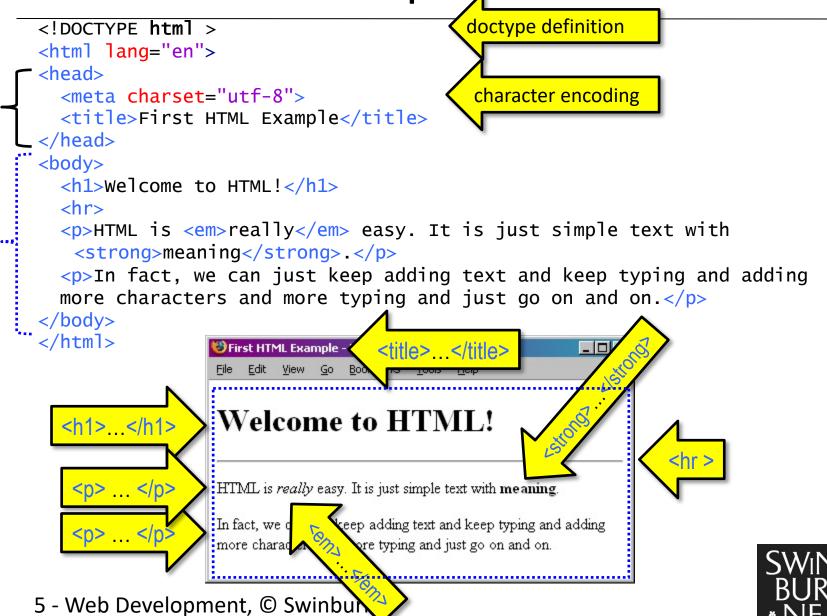
✓/head Bookmarks Tools Help <head> <bod
<p>✓bod
Yelcome to XHTML! <title>...</title> </head> XHTML is *really* easy. It is just simple text with <body> meaning. ... All body content In fact, we can just keep adding text and keep goes here ... typing and adding more characters and more typing and just go on and on. </body> </html>

</body>

Every HTML web page needs **one** and **only one** html element, element andelement andelement.

4 - Web Development, © Swinburne

First HTML5 Example



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**.

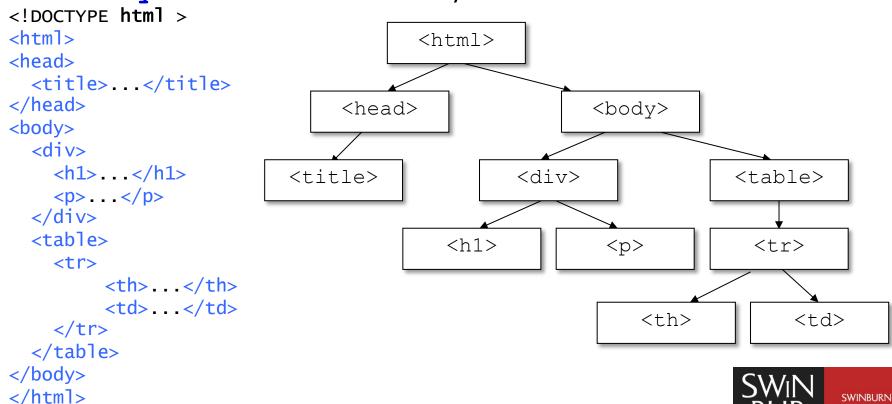


HTML: Document Structure



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.

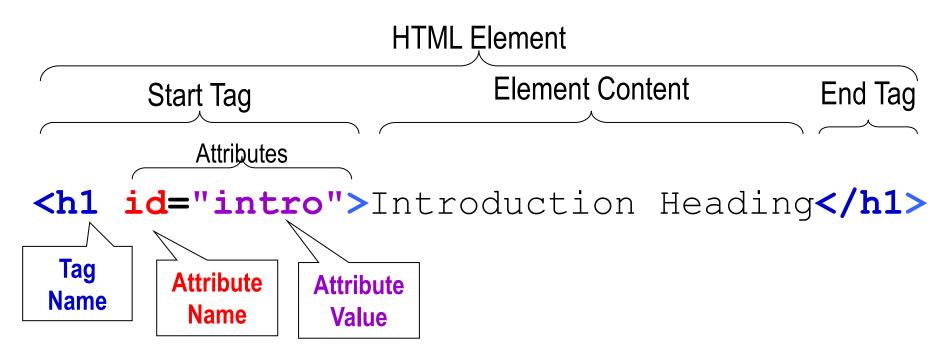
The **<body>** element can contain many other elements.







 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 a start tag and usually finishes with an end 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>
```

- 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 end tag
- All void/empty elements should be self-closed
 - Optional in HTML5

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

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

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







Elements are either:

block-level elements or **inline** elements.

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

```
This is a paragraph about <em>The Matrix</em>
```



HTML: White Space



- HTML source files can contain "white space" characters like "spaces", "tabs" and "line breaks"
- 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-breaking space entity



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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.asp for 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 level elements.
- We will use HTML5 in this unit.



HTML5 or XHTML



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML</pre>
<!DOCTYPE html>
                                  1.0 Strict//EN"
                                  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
                                  strict.dtd">
<html lang="en">
                                  <ht.ml
<head>
                                  <head>
  <meta charset="utf-8">
  <title>HTML5</title>
</head>
                                  </head>
<body>
                                  <body>
  <h1>HTML5</h1>
                                    \langle h1\rangle XHTML\langle /h1\rangle
  \langle hr \rangle
                                    <hr /> <
</body>
                                  </body>
</html>
                                  </html>
Void elements are not closed
```

```
xmlns="http://www.w3.org/1999/xhtml"
lang="en" xml:lang="en">
  <meta http-equiv="content-type"</pre>
  content="text/html; charset=utf-8" />
  <title>XHTML</title>
                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" />
  <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,
 - or against 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



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HTML: Comment



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

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 the head elements.
 - <head> must include a <title> for the document,
 - <head> can include scripts, styles, meta information, and more.
- <title>...</title> defines the title for the HTML document:



HTML5: Meta Tags



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

```
<head>
    <title>HTML5 Page</title>

<meta charset="UTF-8" />
    <meta name="description" content="Web development"
    />
    <meta name="keywords"
    content="HTML,CSS,JavaScript"/>
    <meta name="author" content="John Smith" />
    </head>
```



HTML5: Body Element



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

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



Contents



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- HTML Elements
 - Comments
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 - Phrase Tags and Special Characters
 - Lists and Table
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HTML: Heading Elements



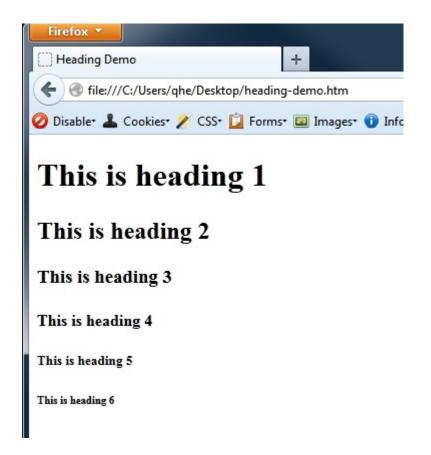
- <h#>...</h#> is a logical block level element used to mark the significance of a heading, where # is a number from 1 to 6
- There are six (6) levels from the top-level <h1>
 to the bottom-level important <h6>.
 - It's very similar to the headings in Word documents.
- Browsers display all headings larger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



HTML: Headings (continued)



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

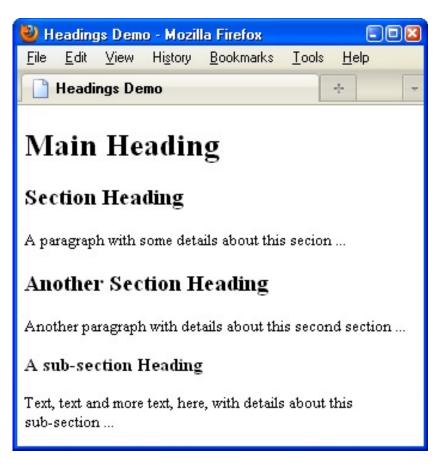




HTML: Headings (continued)



Example:



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

```
<h1>Main Heading</h1>
<h2>Section Heading</h2>
A paragraph with some details
about this secion ...
<h2>Another Section Heading</h2>
Another paragraph with details
about this second section ...
<h3>A sub-section Heading</h3>
Text, text and more text, here,
with details about this sub-section
...
```

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

HTML: Paragraph Element



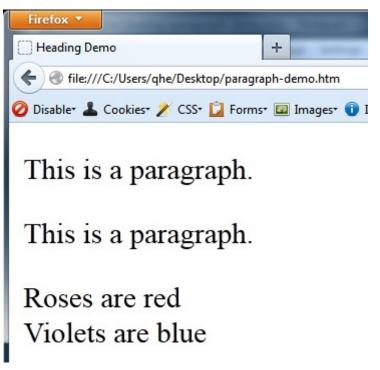
- ... is a logical block level element used to mark paragraphs.
 - Note: cannot contain other block-level elements
 - Browsers will place an empty line before and after a paragraph because it is a block-level element.
-
 an empty inline element used to insert a single line break.
 - DO NOT use line breaks to separate paragraphs.



HTML: Paragraph (continued)



This is a paragraph.
This is a paragraph.
Roses are red
> Violets
are blue





HTML: Horizontal Rule



<hr> an block level element used to visually separate content in an HTML page.

```
<h1>HTML</h1>
HTML is a markup language
for describing the contents
and structure of web
pages.
```

<hr>>

<h1>CSS</h1>
CSS defines the style or how to present the contents and structure of web pages.





HTML: Block Quote



- <blockquote>...</blockquote > a block level element 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 Size
Triples Since 2008</h1>
Here is a quote from
Website 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>
```



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).



</body>

HTML: Preformatted Text



- ... is a block level element used to mark 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
 - The element is typically presented in a monospaced font (like "courier new") so that all characters are the same width.
 - Browsers will not flow or "wrap" the text to fit the browser window, and will display horizontal scroll bars if required.

HTML: Preformatted Text (continued)



```
(document.getElementById('EmailAddress').value
 != document.getElementById('EmailAddress2').value)
 alert('- Email address and its confirmation do not match\n');
                                Firefox *
 return false;
                                HTML 5 Page
                                 if (document.getElementBy
alert('- Email address
                                   return false;
```

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 - Comments
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HTML: Phrase Elements



- <dfn> <code> <samp> <kbd> <var> are logical inline phrase elements that define the meaning of the enclosed text
 - Do not use 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

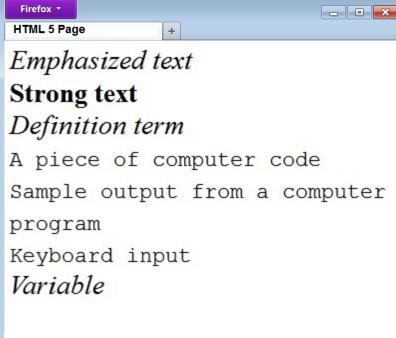
<kbd> Defines keyboard code

<var> Defines a variable





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







- <i>...</i> should be avoided. Use
 Defines 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.



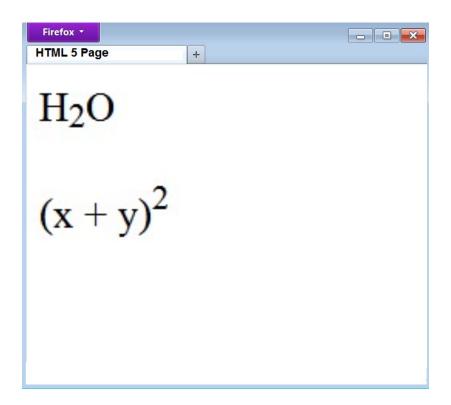


Superscript and Subscript

- ^{...} defines superscript text
 - It appears as a half character above the baseline
 - Often used to show an exponent in a mathematical 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.









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
ı	'	'	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
o	°	°	degree
<u>±</u>	±	±	plus-or-minus
×	×	×	multiplication
÷	÷	÷	division



Contents



- HTML Document Structure and Markup Basics
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- HTML Elements
 - Comments
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HTML: List Elements



Ordered List

Unordered List

List Items

- ...: used to mark each list item in ordered and unordered lists.

Firefox * HTML 5 Page	+	
1.	first item	
2.	second item	
3.	third item	
•	first item second item third item	



HTML: List (continued)

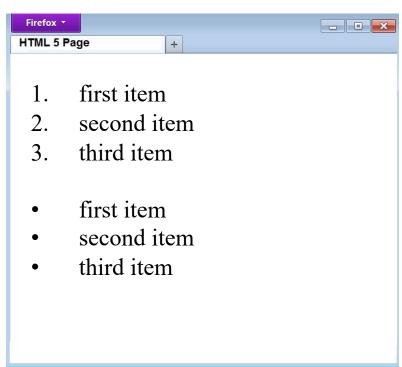


Ordered list example

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

Unordered list example

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



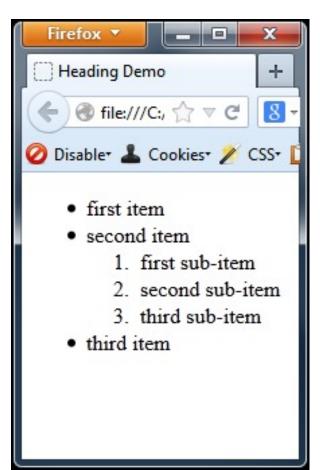


HTML: List (continued)



Nested list example:

```
<l
 first item
 second item
   <01>
    first sub-item
    second sub-item
    third sub-item
   third item
```



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



HTML: Definition List



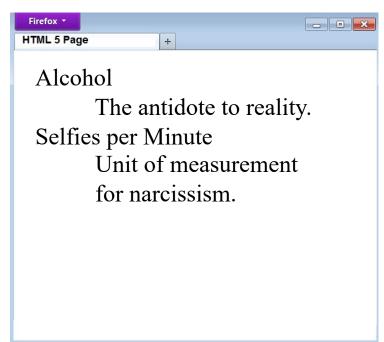
- <dl>...</dl> element defines a definition list.
- <dt>...</dt> is used to define the item in the list and;
- <dd>...</dd> is used to describe the item in the list
- The browser will render the item and the definition on separate lines, and the definition will be indented
- Do not use definition list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



HTML: Definition List (continued)



```
<dl>
     <dt>Alcohol</dt>
     <dd>The antidote to
reality.
     </dd>
     <dt>Selfies per
Minute</dt>
     <dd>Unit of
measurement for
narcissism.
     </dd>
</dl>
```





HTML: Table



...

- block level element for organising data in a tabular format.
- Do not used table for page layout presentation.

Table elements:

```
-  ...  declares a table
- <caption> ... </caption> specifies the table 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)



```
<caption>Table of Monthly Savings/caption>
                                                 Firefox ▼
                    <!-- the table head section
  (thead>
                                                  Heading Demo
   Month
                                                   🌏 file:///C:, 🏫 ▽ ୯ 🛮 🐰 - fu 🔎
    Savings
   🕢 Disablet 🚣 Cookiest 🧪 CSSt 辽 Formst 🖺
  /thead>
                    <!-- the table body section
  tbody>
                                                  Table of Monthly
   \langle tr \rangle
    January
                                                      Savings
    $100
   Month Savings
   February
    $80
                                                 January
                                                           $100
   /tbodv>
                                                 February $80
 <tfoot>
                    <!-- the table foot section -
   Total
                                                            $180
    Total
    $180
   tfoot>
 table>
```

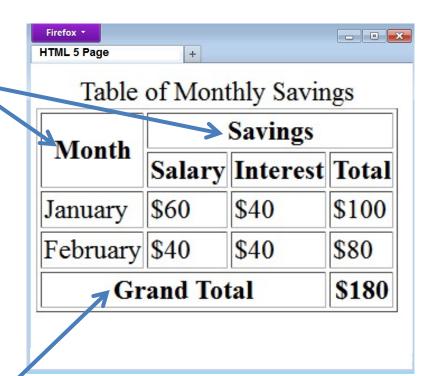


HTML: Table (continued)



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```
<caption>Table of Monthly Savings</caption>
<thead>
  Month
  Savings
 Salary
  Interest
  Total
 </t.r>
</thead>
January
  $60
  $40
  $100
 February
  $40
  $40
  $80
 <tfoot>
 $180
 </t.foot>
```



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

HTML: Table (continued)



```
 → Use CSS instead
<caption>Table of Monthly Savings</caption>
<thead>
  Month
  Savings
 Salary
  Interest
  Total
 </t.r>
</thead>
January
  $60
  $40
  $100
 February
  $40
  $40
  $80
 <tfoot>
 $180
 </t.foot>
```



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 defines a 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
 - A relative or absolute (URL) path can be use

Note: Specifying Resource Locations



 Relative path is best used in specifying target resources hosted on the same website, such as files, images and web pages.

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

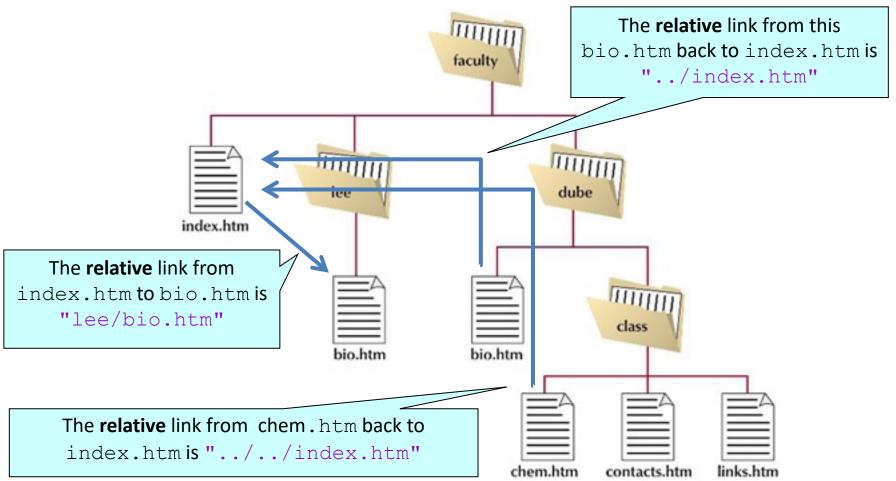
 Absolute path is used if the target resource is not part of the website

e.g., 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> and <u>blue</u>
 - A visited link is <u>underlined</u> and <u>purple</u>
 - An active link is <u>underlined</u> and <u>red</u>



HTML: Anchor (continued)



```
Firefox >
<a
                                                       TITLE
                                                                           +
href="http://ilearn.swin.edu.au">Bla
                                                       ← 6c P
ckboard</a>
                                                      🕢 Disablet 🗘 Cookiest 🧪 CSSt 📋 Formst 🔟 Image
                                                      Normal Link to a Web Page
<a
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
                                                      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/Smil
\wedge">
<img src="smiley.jpg" alt="Smiley Face"</pre>
/></a>
```



HTML: Image Element



- is an inline element that defines an image in an HTML page.
 - Must have the two required attributes: src and alt
 -
- src indicates the location and filename of the image
 - A relative or absolute (URL) path can be used
- alt something to be displayed when the image cannot be found, e.g., "image missing"

Note: Specifying Resource Locations



 Relative path is best used in specifying target resources 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., <img src="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"
```



HTML: Image (continued)



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

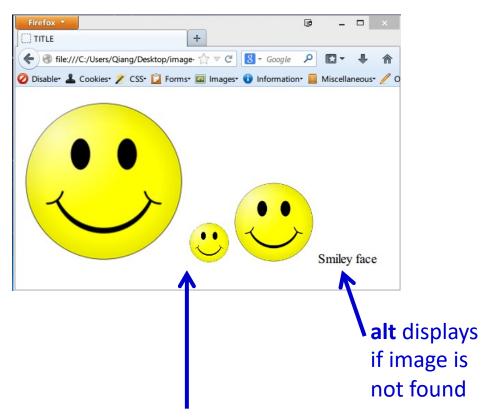


HTML: Image (continued)



Height and Width height attribute width attribute

```
>
<img src="smiley.jpg"</pre>
alt="Smiley face" >
<img src="smiley.jpg"</pre>
alt="Smiley face"
height="50" width="50" >
<imq src="smiley.jpq"</pre>
alt="Smiley face" height=
"100" width="100" >
<imq src="ismily.jpq"</pre>
alt="Smiley face" >
<q\>
```



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



Contents



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



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/

HTML References

http://www.w3schools.com/

HTML Tutorials / References

See also: Web Links on Canvas





HTML ELEMENTS TO BE CONCLUDED IN THE NEXT LECTURE

