




COS10011 COS60004 COS60007
Creating Web Applications (and DB)


Lecture 3

HTML

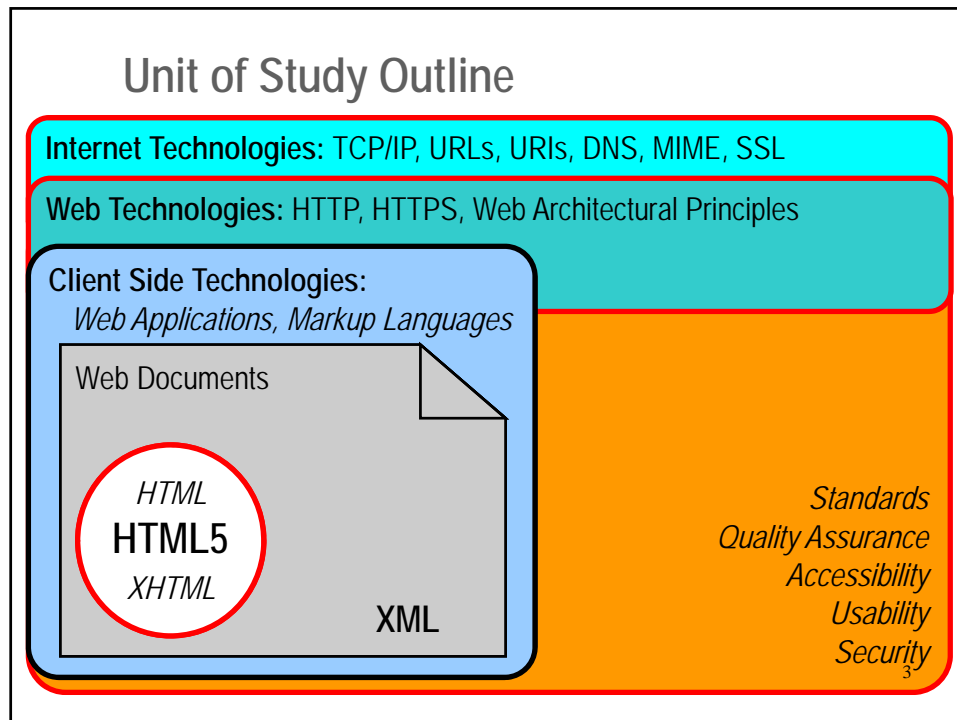
Labs - Reminder




- Labs are an essential part of this subject.
It is important for you to work through the labs – preferably *before* your lab session.
- Labs consolidate and *extend* material covered in the lectures.



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Last Lecture



- HTTP
- XML
- HTML Versions and Document types
- HTML5 Document Structure
- HTML5 Template
- Resources: HTML References, Syntax, Tutorials

See also: *Web Links on Blackboard*

Note: Emerging resource supported by W3C
<http://www.webplatform.org/>



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Assignment 1 – Now available



- Individual assignment
- Familiarise you with the techniques and skills involved in designing and creating webpages utilising validated HTML and CSS created with a standard text editor. You will deploy these Web pages on a Unix / Apache server.
- The assignment is broken into three sections.
 1. The development of validated HTML5 web pages that are linked together and deployed on a server.
 2. The development of CSS file(s) to present webpages.
 3. Opportunity to extend the basic techniques and content covered in tutorials.



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Assignment 1 – Important Dates



- Due Date **ESP**
 - ☐ 8 am Monday 13 April
 - ☐ Late submission penalty 10% of total available marks per day. (No submission → No mark)
- **Demonstration** in *your* tutorial
 - ☐ Week 6, 13 – 17 April



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Assignment 1 – Marking Scheme



- Essential Requirements (50%)
 - ☐ HTML pages, linked and style by CSS
 - ☐ You *must* meet these to be eligible to pass the unit
- Other Specified Requirements (+25%)
 - ☐ The extent to which you successfully/correctly meet **all** the specified requirements
- Your Enhancements (+25%)
 - ☐ Additional 'Enhancements' page linked to extensions you have made to your web site

Carefully read the marking scheme on the last 2 pages of the assignment specification.



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Assignment 1 – Essential Requirements

Essential Requirements	Tick box <input checked="" type="checkbox"/> if requirement met	Y/N	Mark
index.html - validates to HTML5 <input type="checkbox"/> and XML <input type="checkbox"/> - title <input type="checkbox"/> , menu that links <input type="checkbox"/> , graphic <input type="checkbox"/>			/5
topic1.html etc - validates to HTML5 <input type="checkbox"/> and XML <input type="checkbox"/> - meaningful content <input type="checkbox"/> - at least ~200 words <input type="checkbox"/>			/10
register.html - validates to HTML5 <input type="checkbox"/> and XML <input type="checkbox"/> - form input fields (at least two different types of input control used) <input type="checkbox"/> - specified field values echoed back from the server <input type="checkbox"/>			/10
about.html - validates to HTML5 <input type="checkbox"/> and XML <input type="checkbox"/> - name <input type="checkbox"/> , SID <input type="checkbox"/> , course <input type="checkbox"/> , timetable <input type="checkbox"/> , photo of self <input type="checkbox"/> , email link <input type="checkbox"/>			/10
style.css - Single file external CSS applied to all HTML pages <input type="checkbox"/> - CSS validates with no errors <input type="checkbox"/>			/10
Deployed to Mercury <input type="checkbox"/>			/5
Subtotal (all Y)			/50

Your Web Topic will be given to you by your tutor

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HTML5: Template



```

<!DOCTYPE html>
<!-- First HTML5 Example -->
<html lang="en">
<head>
  <meta charset="utf-8" />
  <meta name="description" content="
    [description of what the doc is about] " />
  <meta name="keywords" content="
    [keywords description the document]" />
  <meta name="author" content="[your name]" />
  <title> ... </title>
</head>
<body>
  ...
</body>
</html>

```

**This Lecture: Web Page
CONTENT and STRUCTURE**

Replace the *[italicized text]* with your code.
Do not forget to validate you code.
Note we will be using XML compliant HTML5 code



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Mark Up for the Web



This document was successfully checked as HTML5!	
Result:	Passed, 1 warning(s)
Address:	http://mercury.ict.swin.edu.au/cos10011/s1234567/outline.xhtml
Modified:	Wed, 07 Jan 2015 08:30:23 GMT
Server:	Apache/2.2.15 (CentOS)
Size:	2529
Content-Type:	application/xhtml+xml
Encoding:	utf-8 (detect automatically)
Doctype:	HTML5 (detect automatically)
Root Element:	html
Root Namespace:	http://www.w3.org/1999/xhtml


- HTML5 can be processed either as a
 - HTML5 document (with a MIME type text/html) OR
 - XHTML document (with a XML MIME type application/xhtml+xml)

<http://dev.w3.org/html5/html4-differences/>



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Lecture - overview



- **HTML Content**
 - Headings and Paragraph
 - Phrase tags and Special Characters
 - Lists and Table
 - Image and Anchor
 - Image Maps
 - Form, Form Attributes and Form Elements
- **HTML Structure**
 - Div and Span
 - Navigation, Article, Section, Header, Footer, Main
 - Aside, Details, Figure


'Containers' for text, images etc.

Allow content to be set out on the page into meaningful blocks




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Lecture - overview



- **HTML Content**
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HTML Content

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 of **importance** from the **most** important `<h1>` to the **least** important `<h6>`.
 - *Do not skip heading levels. If the next heading is one level below the last heading, only use the next heading level.*
- Browsers display all headings larger and/or bolder than normal text,
 - *Do not use headings simply as a way to increase font size and make the text bold (use CSS instead)*



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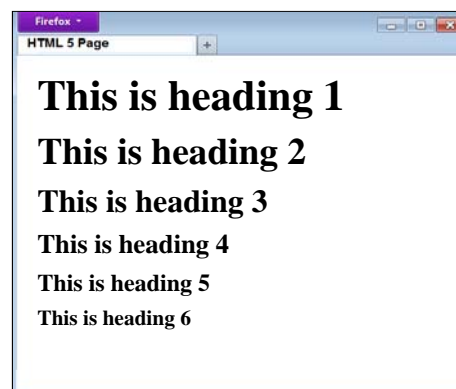
HTML Content

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>
```

Default Firefox rendering



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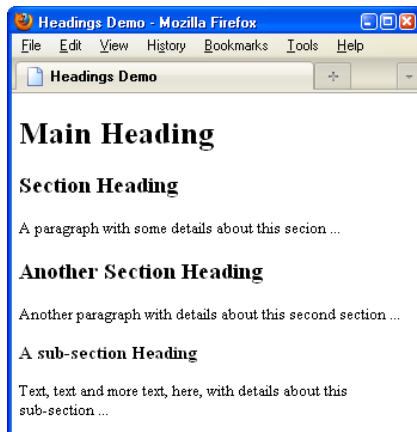
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HTML Content

Headings (continued)



■ Example:



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

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

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HTML Content

Paragraph Element



- `<p>...</p>` is a logical block level element used to mark paragraphs.
 - *Note: `<p>` cannot contain other block-level elements*
 - Browsers will generally place white space before and after a paragraph – it is a block level element.
- `
` an empty / void inline element used to insert a single line break.
 - *Do not use line breaks to separate paragraphs.*

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HTML Content

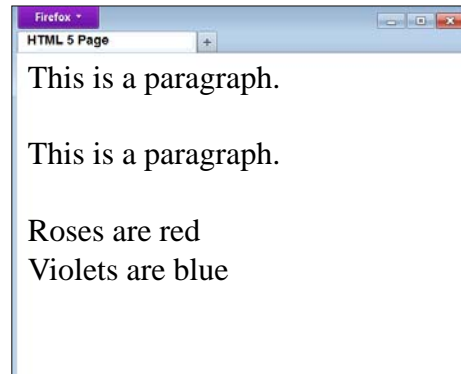
Paragraph (continued)



```
<p>This is a paragraph.</p>
```

```
<p>This is a paragraph.</p>
```

```
<p>Roses are red<br />Violets are blue</p>
```



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HTML Content

Horizontal Rule

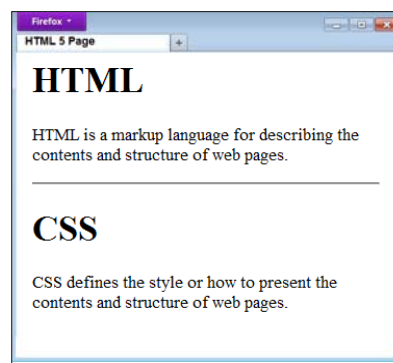


- `<hr />` an empty / void block level element used to define a thematic break in an HTML page, or a shift of topic. It is used to separate content in an HTML page.

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

```
<hr />
```

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



Lecture - overview



■ HTML Content

- ☐ Headings and Paragraph
- ☐ *Phrase tags and Special Characters*
- ☐ Lists and Table
- ☐ Image and Anchor
- ☐ Image Maps
- ☐ Form, Form Attributes and Form Elements

■ HTML Structure

- ☐ Div and Span
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HTML Content

Phrase Elements



- `` `` `<dfn>` `<code>` `<samp>` `<kbd>` `<var>`
are logical *inline* phrase elements that define the meaning of the enclosed text

<code></code>	Defines emphasized text – <i>renders as italics</i>
<code></code>	Defines important text – <i>renders as bold</i>
<code><dfn></code>	Defines a definition term
<code><code></code>	Defines a piece of computer code
<code><samp></code>	Defines sample output from a computer program
<code><kbd></code>	Defines keyboard code
<code><var></code>	Defines a variable




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■ *Do not use just for presentation*

HTML Content

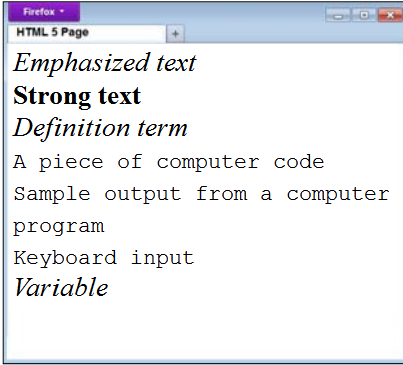
Phrase Elements (continued)




```

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

```




Default Firefox rendering




HTML Content

Phrase Elements (continued)



- `<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

Deductions if used in Assignments



HTML Content

Phrase Elements (continued)



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 H_2O .

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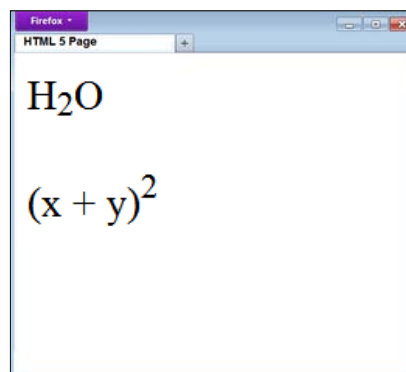
HTML Content

Phrase Elements (continued)



`<p>H₂O</p>`

`<p>(x + y)²</p>`

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HTML Content

Block Quote



- `<blockquote>...</blockquote>` a logical 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



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HTML Content

Block Quote (continued)



```
<body>
<h1>Average Web Page Size Triples Since
2008</h1>
<p>Here is a quote from Website
Optimization website:</p>
<blockquote
cite="http://www.websiteoptimization.co
m/speed/tweak/average-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>
```



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HTML Content

Special Characters



- To encode reserved characters in HTML into the contents, special characters **&...;** are used
- A more descriptive term is entity encoding
- Some of the common codes are listed below:

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



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HTML Content

HTML: Special Characters (continued)



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

Character entity references in HTML4

<http://www.w3.org/TR/REC-html40/sqml/entities.html>

Wikipedia List of XML and HTML character entities

http://en.wikipedia.org/wiki/List_of_XML_and_HTML_character_entity_references

Character Codes: <http://character-code.com/>



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Lecture - overview



■ HTML Content

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HTML Content

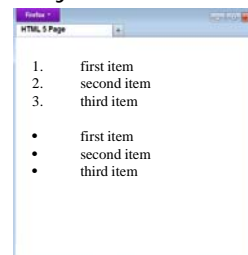
List elements



- `...` and `...` are block level elements used to create *ordered* and *unordered* lists respectively

- `...` is used to mark each list item.
* is the only element that is allowed directly in an ordered or unordered list.*

```
<ul>
  <li>item 1
    <p>Paragraph</p>
  </li>
  <li>item 2</li>
</ul>
```



```
<ul>
  <li>item 1</li>
  <p>Paragraph</p>
  <li>item 2</li>
</ul>
```



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HTML Content

List (continued)

■ Ordered list example

```
<ol>
  <li>first item</li>
  <li>second item</li>
  <li>third item</li>
</ol>
```

■ Unordered list example

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

HTML Content

List (continued)

■ Nested list example:


```
<ul>
  <li>first item</li>
  <li>second item
    <ul>
      <li>first sub-item</li>
      <li>second sub-item</li>
      <li>third sub-item</li>
    </ul>
  </li>
  <li>third item</li>
</ul>
```

Nested list must be inside a list item

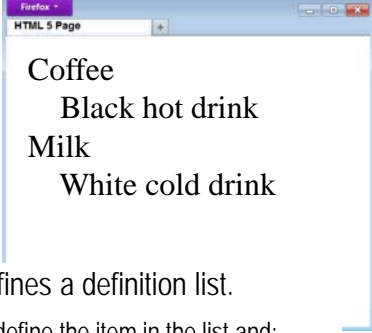
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HTML Content


Definition List



```
<dl>
  <dt>Coffee</dt>
  <dd>Black hot drink</dd>
  <dt>Milk</dt>
  <dd>White cold drink</dd>
</dl>
```




- **<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 Content

Table element




- **<table> ...</table>** block level element offers a powerful way to organise *data* in a *tabular format*.
 - **Do not use table for page layout presentation.**
 - **border** is the only specific attribute supported in HTML5
- Table elements:

□ <table> ... </table>	declares a table
□ <caption> ... </caption>	captions a table's contents
□ <tr> ... </tr>	defines a table <i>row</i>
□ <th> ... </th>	defines a table header <i>cell</i>
□ <td> ... </td>	defines a table data <i>cell</i>
□ <thead>, <tfoot>, <tbody>	defines table <i>sections</i>



HTML Content

Table (continued)



border can only be 1 (show a border) or 0 (do not show a border)

```
<table border="1">
  <caption>Table of Monthly Savings</caption>
  <tr>
    <th>Month</th>
    <th>Savings</th>
  </tr>
  <tr>
    <td>January</td>
    <td>$100</td>
  </tr>
  <tr>
    <td>February</td>
    <td>$80</td>
  </tr>
  <tr>
    <td>Total</td>
    <td>$180</td>
  </tr>
</table>
```

Note: by default the <th> cells are presented bold and centred !

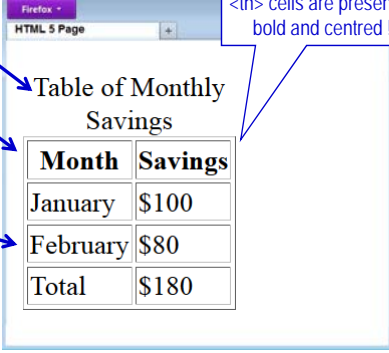



Table of Monthly Savings

Month	Savings
January	\$100
February	\$80
Total	\$180

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HTML Content

Table (continued)



```
<table border="1">
  <caption>Table of Monthly Savings</caption>
  <thead>
    <tr>
      <th scope="col">Month</th>
      <th scope="col">Savings</th>
    </tr>
  </thead>
  <tfoot>
    <tr>
      <th scope="row">Total</th>
      <td>$180</td>
    </tr>
  </tfoot>
  <tbody>
    <tr>
      <td>January</td>
      <td>$100</td>
    </tr>
    <tr>
      <td>February</td>
      <td>$80</td>
    </tr>
  </tbody>
</table>
```

Note: the scope attribute is included to help non-visual devices 'understand' the tabular data. For more complex tables, the header attribute could be used in each table data cell, referencing the id of the table header cell(s).

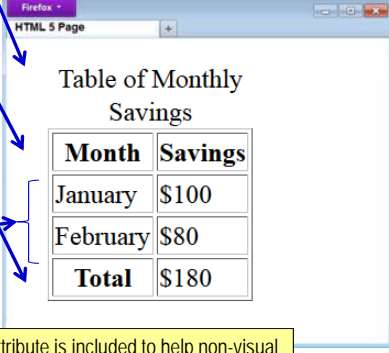


Table of Monthly Savings

Month	Savings
January	\$100
February	\$80
Total	\$180

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HTML Content

Table (continued)



```
<table border="1">
  <caption>Table of Monthly Savings</caption>
  <thead>
    <tr>
      <th rowspan="2">Month</th>
      <th colspan="3">Savings</th>
    </tr>
    <tr>
      <th>Salary</th>
      <th>Interest</th>
      <th>Total</th>
    </tr>
  </thead>
  <tfoot>
    <tr>
      <th colspan="3">Grand Total</th>
      <td>$180</td>
    </tr>
  </tfoot>
  <tbody>
    <tr>
      <td>January</td>
      <td>$60</td>
      <td>$40</td>
      <td>$100</td>
    </tr>
    <tr>
      <td>February</td>
      <td>$40</td>
      <td>$40</td>
      <td>$80</td>
    </tr>
  </tbody>
</table>
```

Month	Savings		
	Salary	Interest	Total
January	\$60	\$40	\$100
February	\$40	\$40	\$80
Grand Total			\$180

rowspan and **colspan** attributes for `<td>` and `<th>` allows a more complex table to be built.

Other attributes should be added to **th** and **td** to aid *accessibility*, such as 'scope' and 'header'

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Lecture - overview



■ HTML Content

- ☐ Headings and Paragraph
- ☐ Phrase tags and Special Characters
- ☐ Lists and Table
- ☐ *Image and Anchor*
- ☐ Image Maps
- ☐ Form, Form Attributes and Form Elements

■ HTML Structure

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HTML Content

Image element



- `` is an 'empty' inline element that defines an image in an HTML page.
 - Must have the two required attributes: **src** and **alt**
- 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
- Images can be edited / created using software such as:
 - GIMP www.gimp.org
 - Inkscape www.inkscape.org
 - Adobe Photoshop www.photoshop.com
 - IrfanView www.irfanview.com

HTML Content

Image (continued)



- **src** attribute - indicates the location and filename of the image
 - A relative or absolute (URL) path can be used
- **alt** attribute - for clients that do not support image display (or if the user has "turned off" images).
- **height** and **width** attributes – used to set and reserve the dimensions of the image on the web page.
(This speeds page loading)

Do not use height and width attributes to force a large image to "scale down" in appearance. Resize the image first in an image editing program to the final on-page size and put the correct height and width size in the attribute values.

HTML Content

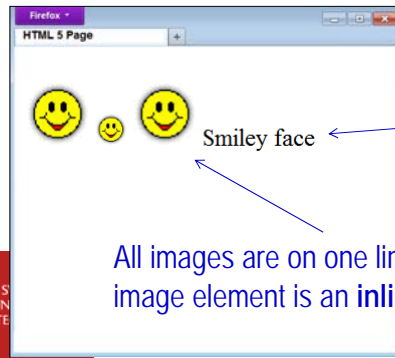
Image (continued)



```
<p>




</p>
```



alt displays
if image is
not found

All images are on one line, as the
image element is an **inline** element.



HTML Content

Hyperlinks - Anchor element



- `<a> ... ` is an inline element that defines a hyperlink, used to link from one page to another.
- The **href** attribute - indicates the resource's location for the hyperlink
 - ☐ A **relative** or **absolute (URL)** path can be used
 - ☐ Resource can be a
 - ☐ A web page or a location within a web page
 - ☐ a file
 - ☐ An email address
- In HTML5, the `<a>` element can only be a hyperlink.



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*An image can be used as a hyperlink, by nesting an
 element as the anchor's element content*

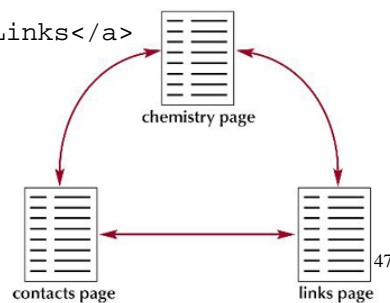
HTML Content

Links to Other Pages



- A web site often has a need to link between related pages.
- If all the pages are located in the *same folder*, the links can be simple.

```
<a href="chemistry.html">Chemistry</a>
<a href="contacts.html">Contacts</a>
<a href="links.html">Links</a>
```



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HTML Content

Note: Specifying Resource Locations



- **Relative path** is best used in specifying resources, such as files, images and web pages
 - It allows a whole folder of web pages to be moved from the "testing" environment to the "live" environment, and still retain their relative paths
 - e.g. "index.html", "images/logo.png",
avoid leaving your home directory **"images/logo.png"**
- **Absolute path** is used if the resource is not part of the website
 - e.g. "http://www.swinburne.edu.au/update.htm" ✓
 - Do not use local directory** **"file://c:./update/htm"** ✗

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HTML Content

Paths – Relative and Absolute

You are here.
What is the *relative* link to **bio.htm** in the directory **lee** ?

Answer
`href="lee/bio.htm"`

If you are coding here in this **bio.htm** what is the *relative* link back to **index.htm** in the directory **faculty**?

Answer
`href="../../index.htm"`

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HTML Content

Paths – Relative and Absolute

If you are coding here in this **chem.htm** what is the *relative* link back to **index.htm** in the directory **faculty**?

Answer
`href="../../index.htm"`

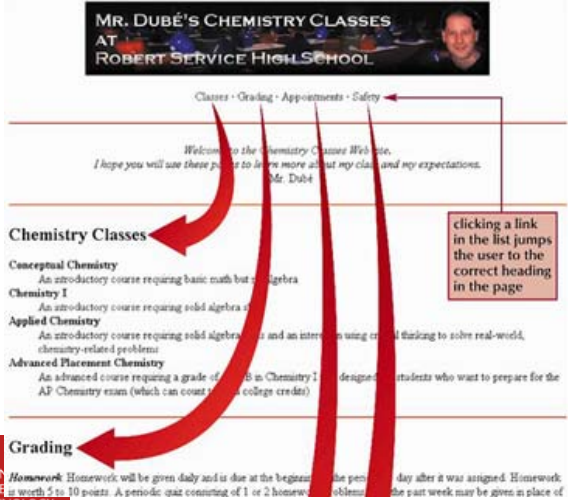
What is the *absolute* link from here to **index.htm** ?
(trick question)

Answer
`href="/index.htm"`

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HTML Content

Linking to Sections



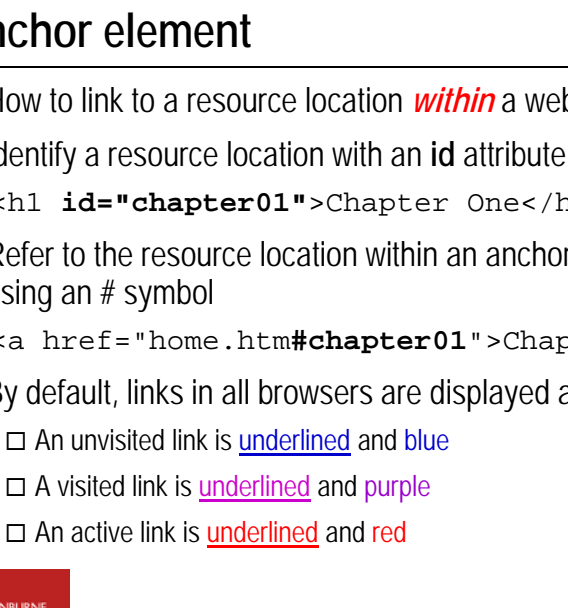
■ How do we link to sections within a page?

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HTML Content

Anchor element



■ How to link to a resource location *within* a web page

■ Identify a resource location with an **id** attribute in the page

```
<h1 id="chapter01">Chapter One</h1>
```

■ Refer to the resource location within an anchor using an **#** symbol

```
<a href="home.htm#chapter01">Chapter 1</a>
```

■ By default, links in all browsers are displayed as follows :

- ☐ An unvisited link is underlined and **blue**
- ☐ A visited link is underlined and **purple**
- ☐ An active link is underlined and **red**

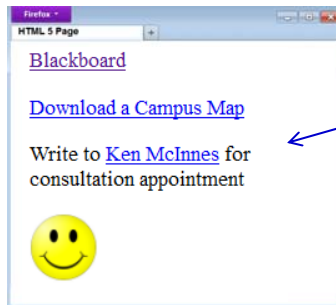
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HTML Content

Anchor (continued)



```
<p><a href="http://ilearn.swin.edu.au"> Blackboard</a></p>
<p><a href="http://www.swinburne.edu.au/campuses/hawthorn/
documents/hawthorn.pdf" >Download a Campus Map</a></p>
<p>Write to <a href="mailto:kmcinnes@swin.edu.au" >Ken McInnes</a>
for consultation appointment</p>
<p><a href="http://ilearn.swin.edu.au"> </a></p>
```



Paragraph tags are used in the example to display a multiple line example. List elements could also have been used.



HTML Content

HTML: Common Link Protocols



Protocol	Purpose
file	Access document stored on a local computer system
ftp	Access files on a server using the file transfer protocol
http	Web document transfer protocol
mailto	Use local user configuration to create new email message
news	Usenet newsgroup service
wais	Wide Area Information Server database
tel	User local user configuration to activate the phone and dial the number <u>RFC3996</u>
sms	User local user configuration to create / send sms <u>RFC5724</u>

Include full international prefix.
 +61-3-9214-8000

Send reminder!



HTML Content

Other **<a>** attributes

- Apart from **href** **<a>** has number of other useful attributes

```
<a href="..." title="..." target="..." ... >...</a>
```

- **title** a core attribute, shows information about the link as a "tool tip".
- **target** specifies where to display the information retrieved from the URL.

Value	Description
_blank	Opens the linked document in a new window or tab
_self	Opens the linked document in the same frame as it was clicked (this is default)
_parent	Opens the linked document in the parent frame
_top	Opens the linked document in the full body of the window
filename	Opens the linked document in a named frame

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HTML Content

Link **title** attribute

- An example of a hyperlink **title** attribute value being displayed as a tool-tip by the browser.

```
<a href="home.htm"
  title="Return to the Chemistry Home Page">
  Home Page</a>
```



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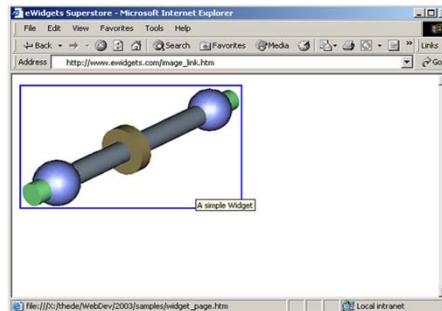
HTML Content

Image as a hyperlink



- Enclose an `` in an `<a>` turns the image into a hyperlink

```
<a href="info.htm">
  
</a>
```



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*Note: The lecture handout also has some notes on **Image Maps** ⁵⁷
Not examined but might be nice in your assignments.*

HTML Content

Image "Thumbnails"



- "Thumbnail" images:

Can create a better user experience ...

- ☐ Because large image files can take time to download, it is a common practice to provide smaller "thumbnail" versions of larger images.
- ☐ The small thumbnail images download quickly.
- ☐ "Thumbnail" images are commonly used as hyperlinks to a larger images. The user clicks on the small image to see the larger image.

- Good technique for "gallery" or "photo album" pages.

```
...
<a href="mycat_large.jpg">
  
</a>
```

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*Hint: Add a **title** attribute to the anchor element to let users know how the large.jpg file is.*

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Lecture - overview



■ HTML Content

- ☐ Headings and Paragraph
- ☐ Phrase tags and Special Characters
- ☐ Lists and Table
- ☐ Image and Anchor
- ☐ Image Maps
- ☐ *Form, Form Attributes and Form Elements*

■ HTML Structure

- ☐ Div and Span
- ☐ Navigation, Article, Section, Header, Footer, Main
- ☐ Aside, Details, Figure



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HTML Content

Form element



- `<form> ... </form>` provides a mechanism to allow a user to enter information into a web page.
- Entered information can be submitted to a server, which it turn can receive the data, process the data and generate a response.
- Possible responses may include:
 - ☐ display information on a web page;
 - ☐ adding data to a database; or
 - ☐ sending an email message.

Firefox - HTML 5 Page

Personal Details:

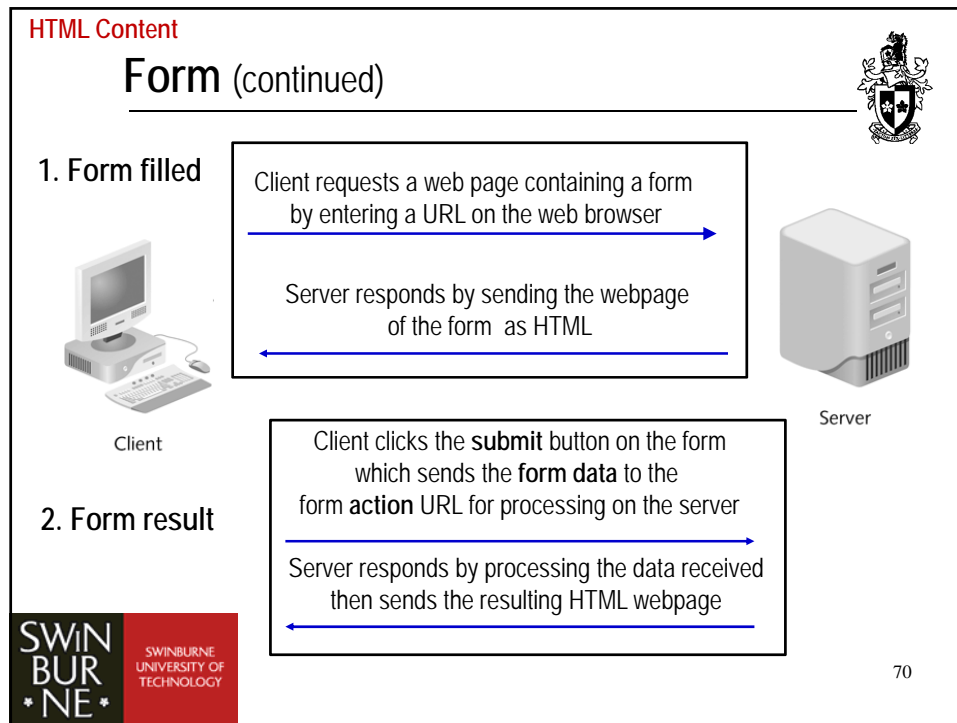
Name:

Email:

Date of birth:



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HTML Content

Form attributes (continued)

```
<form id="survey" method="post" action="process.php">
  <!-- Form elements here -->
</form>
```

- **id** - unique identifier of the form
- **method** - HTTP method used to submit the form – **get** or **post**
 - **get** is often used to submit data to obtain something
e.g. search, or see a product (URL is visible in the browser)
 - **post** is often used to submit data for storage
e.g. registration (URL is not visible in the browser)
- **action** - URL referring to where the data is to be submitted for processing
 - Absolute path is used if processing is from a different site
- **Usually** the <form> element contains all **form control elements** and all other form structuring elements.
- Nothing will be displayed or actioned, unless there are **form control elements**.

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HTML Content

HTML Forms



Form control elements:

- `<input .../>` defines a *form control* for the user to enter *input*. Different *input elements* can be displayed *based on* the *type attribute* and include: *Note: input is an empty or void element*
text, checkbox, radio, password, submit, reset, hidden, file, image, button
- `<select>` defines a *form control* for the *selection of options* from a *selection list* and can have the following *attributes*:
size, multiple, tabindex, disabled
- `<textarea>` defines a *form control* for the user to enter *multi-line text input* and can have the following *attributes*:
rows, cols, readonly, tabindex, accesskey, disabled

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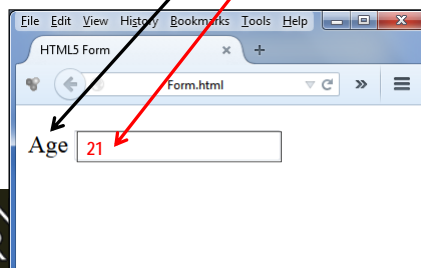
HTML Content

Form Elements: Label



- `<label>...</label>` element associates a *label* with a *form control*.

```
<form id="survey" method="post" action="process.php">
  <p><label for="age">Age</label>
  <input type="text" name="years" id="age" /></p>
  <!-- other form controls -->
</form>
```



Note: Each *form control* element has a **name** attribute. Data is passed in **name = value** pairs e.g. **years=21**

When label text is 'clicked' or 'touched' the form control is focused. This provides a better / larger target on touch screens.

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HTML Content

Form Elements: Label

Technique #1 Preferred Technique! `for` is explicitly connected to `id`

```
<form id="survey" method="post" action="process.php">
  <p><label for="age">Age</label>
  <input type="text" name="age" id="age" /></p>
</form>
```

Technique #2

```
<form id="survey" method="post" action="process.php">
  <p><label>Age
    <input type="text" name="age" />
  </label></p>
</form>
```

This technique is very common but the **label** is *not explicitly* connected to an identifier



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HTML Content

Form Elements: Input Text



```
<p><label>Name
  <input type="text" name="name" maxlength="40"
        size="20" />
</label></p>
<p><label>Age
  <input type="text" name="age" maxlength="2"
        size="2" />
</label></p>
```

If **type** is not included, or is unidentified, **type="text"** is assumed.

type="text" is used for both text and numbers
name attribute is used to pass data for form processing
maxlength specify the maximum number of characters allowed
size sets the visible width of the text box



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HTML Content

Form Elements: Input Checkbox

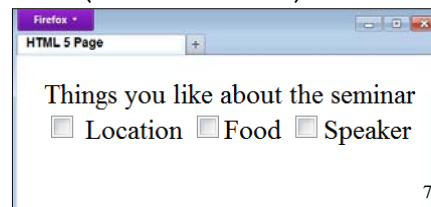


```
<p>Things you like about the seminar
<br />
<label><input type="checkbox" name="things[]"
value="loc" />Location</label>
<label><input type="checkbox" name="things[]"
value="fud" />Food</label>
<label><input type="checkbox" name="things[]"
value="spk" />Speaker</label>
</p>
```

An array called
"things"

As multiple checks are allowed, the **name** (sent to the server) must either

- Be different
- or the same but terminate with []



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HTML Content

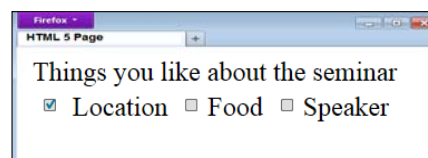
Form Elements: Input Checkbox



```
<p>Things you like about the seminar
<br />
<label><input type="checkbox" name="things[]"
value="loc" checked="checked" />
Location</label>
<label><input type="checkbox" name="things[]"
value="fud" />Food</label>
<label><input type="checkbox" name="things[]"
value="spk" />Speaker</label>
</p>
```

checked is used to initialise
checkbox with a default
check

checked="checked" is used for
XHTML compliant code



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Note this for your assignments as they
need to be well-formed XML

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HTML Content

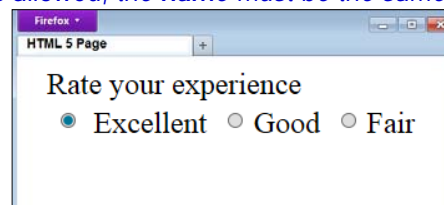
Form Elements: Input Radio Button



```
<p>Rate your experience<br />
  <label><input type="radio" name="rating"
    value="Excel" checked="checked" />
    Excellent</label>
  <label><input type="radio" name="rating"
    value="Good" />Good</label>
  <label><input type="radio" name="rating"
    value="Fair" />Fair</label>
</p>
```

Best to group radio inputs with a fieldset and legend - see later.

Note: Only *one* choice is allowed, the name must be the same



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HTML Content

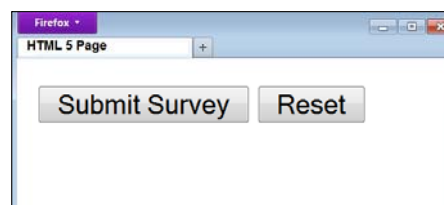
Form Elements: Input Submit and Reset



```
<p>
  <input type="submit" value="Submit Survey" />
  <input type="reset" value="Reset" />
</p>
```

Make sure that the form has an input of type submit.

Note: Reset means set all input form fields to its initial value, and not clear its value. It only has the effect of clearing, if the initial values are blank or empty



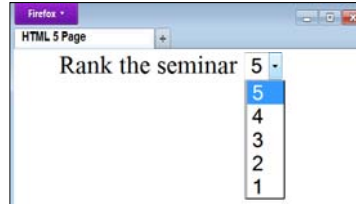
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HTML Content

Form Elements: Select & Option



```
<p><label for="rank">Rank the seminar</label>
  <select name="rank" id="rank">
    <option value="5" selected="selected">5</option>
    <option value="4">4</option>
    <option value="3">3</option>
    <option value="2">2</option>
    <option value="1">1</option>
  </select>
</p>
```



- selected="selected" is used for XHTML compliant code



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HTML Content

Form Elements: Select & Option (Attributes)



select can have the following attributes: size, multiple, tabindex, disabled

Attribute	Value	Description
<u>autofocus</u>	autofocus	Specifies that the drop-down list should automatically get focus when the page loads
<u>disabled</u>	disabled	Specifies that a drop-down list should be disabled
<u>form</u>	<i>form_id</i>	Defines one or more forms the select field belongs to
<u>multiple</u>	multiple	Specifies that multiple options can be selected at once
<u>name</u>	<i>name</i>	Defines a name for the drop-down list
<u>required</u>	required	Specifies that the user is required to select a value before submitting the form
<u>size</u>	<i>number</i>	Defines the number of visible options in a drop-down list

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HTML Content

Form Elements: Text Area



- `<textarea>...</textarea>` defines a form control for the user to enter multi-line text input
 - Text Areas can have the following attributes: rows, cols, readonly, tabindex, accesskey, disabled
- ```
<p><label>Comments

<textarea name="comments"
rows="4" cols="20">
Enter comments here.
</textarea>
</label></p>
```

Note: all characters in the text area's element content are displayed verbose. So do not add blank spaces



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## HTML Content

## Forms – How do they work?

- The **form** element *must* have an **'action'** attribute and value:  
*the form data will be submitted to this program / process*
- Data collecting **form control elements** *must* have **'name'** attributes:  
*these names are paired with user entered attribute values and then sent as 'name=value' data pairs to the server*
- The form *must* contain an **input type='submit'**  
*when clicked, or the 'enter' key is pressed, form is 'actioned'*
- We will revisit form processing later,
  - when we look at *Client-side scripting and form data validation*
  - when we look at *Server-side processing*

You need to know  
how forms work.

## HTML Content

## Forms - Common errors – Watch out!



- Errors in *Form Control* elements may lead to *data errors*

**input type = "radio"**

one, from a limited number of choices

mutually exclusive – one checked, all others unchecked

same 'name'

different 'value' for elements in the group

**input type = "checkbox"**

one or more, from a limited number of choices

usually have different 'name' or use an array[]

**select and option** (dropdown box)

one (or more) options, from a limited number of choices

'name' only for **select** (can have a 'multiple' attribute)

different 'value' for 'option' elements (not 'name')

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## HTML Content

## HTML Forms: Fieldset &amp; Legend



Other form elements:

- <fieldset>** element is used for *grouping* related form controls, so authors can divide a form into smaller, more manageable parts, improving the usability of the form.
- <legend>** element defines a *caption for a fieldset* and must be at the start of a fieldset, before any other elements. A legend can include an **accesskey** attribute.

Firefox - HTML 5 Page

Personal Details:

Name:

Email:

Date of birth:

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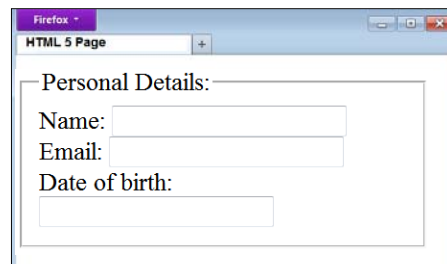
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## HTML Content

## Form Elements: Fieldset & Legend



```
<fieldset>
 <legend>Personal Details:</legend>
 <label>Name:
 <input type="text" name="pname" /></label>
 <label>Email:
 <input type="text" name="pemail" /></label>
 <label>Date of birth:
 <input type="text" name="pdob" /></label>
</fieldset>
```



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## HTML5 FORM ELEMENTS



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## HTML Content

## HTML5 Form Elements



- HTML5 has new form input **types**  
*Note that these are not yet universally supported by all browsers*

<http://html5test.com/>

- Examples generated using Chrome.

- |                                   |                                 |
|-----------------------------------|---------------------------------|
| <input type="checkbox"/> color    | <input type="checkbox"/> range  |
| <input type="checkbox"/> date     | <input type="checkbox"/> search |
| <input type="checkbox"/> datetime | <input type="checkbox"/> tel    |
| <input type="checkbox"/> email    | <input type="checkbox"/> time   |
| <input type="checkbox"/> month    | <input type="checkbox"/> url    |
| <input type="checkbox"/> number   | <input type="checkbox"/> week   |

*Note: If the browser does not understand the type, it will default to type="text"*

- Other **new attributes** include:  
autofocus, placeholder, pattern, required



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## HTML Content

## HTML5 Form Elements: Colour



```
<p><label>Colour
 <input type="color" name="favcolor"
 autofocus />
</label></p>
```

The **autofocus** attribute defines which text input should have the default cursor position.

There can only be one field with autofocus. If there is more than 1 the first instance gets the focus.



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## HTML Content

## HTML5 Form Elements: Date



```
<p><label>Date
 <input type="date" name="bday" />
</label></p>

<p><label>Time</label>
 <input type="time"
 name="starttime" />
</label></p>
```

The screenshot shows a web browser window with a URL bar containing 'mercury.it.swin.edu.au'. The page displays two form elements: a 'Date' input field with a calendar dropdown showing January 2013, and a 'Time' input field with a time selection dropdown. The date is set to 23/01/2013 and the time is set to 09:00.



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## HTML Content

## HTML5 Form Elements: Email



```
<p><label>Email
 <input type="email" name="contactemail"
 placeholder="name@domain.com"
 required="true" />
</label></p>
```

The **placeholder** attribute specifies a short hint that describes the expected value of an input field

The **required** attribute indicates that email field must be filled prior to submission

The screenshot shows a web browser window with a URL bar containing 'mercury.it.swin.edu.au'. The page displays an 'Email' input field with the placeholder text 'name@domain.com'. Below the field, a message box says 'Please enter an email address.'.



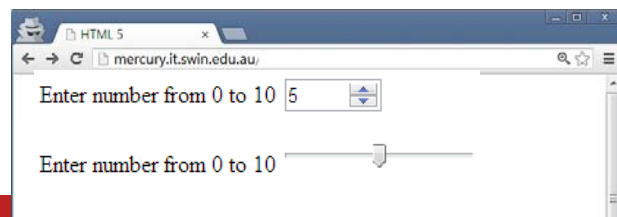
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## HTML Content

## HTML5 Form Elements: Number



```
<p><label>Enter number from 0 to 10
 <input type="number" name="score" min="0"
 max="10" step="1" value="5" />
</label></p>
<p><label>Enter number from 0 to 10
 <input type="range" name="rating" min="0"
 max="10" value="5" />
</label></p>
```



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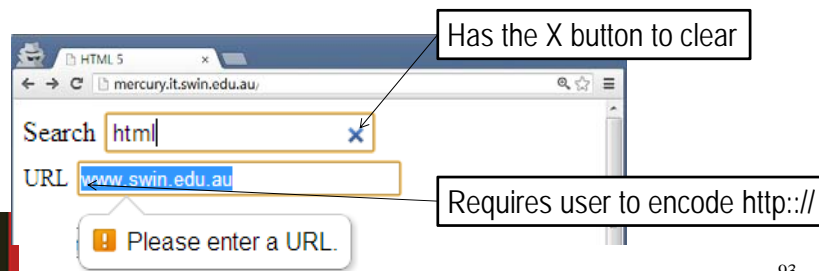
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## HTML Content

## HTML5 Form Elements: Search



```
<p><label>Search
 <input type="search" name="searchquery"
 placeholder="search query" />
</label></p>
<p><label>URL
 <input type="url" name="website"
 placeholder="http://www.domainname.au" />
</label></p>
```



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## HTML Content

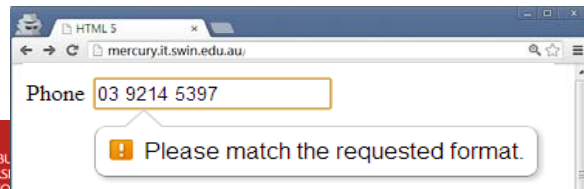
## HTML5 Form Elements: Phone



```
<p><label>Phone
 <input type="tel" name="phone"
 placeholder="(##) ####-####"
 pattern="\(\d{2}\) +\d{4}-\d{4}" />
</label></p>
```

The **pattern** attribute specifies a regular expression that the `<input>` element's value is checked against.

Works with the following input types: text, search, url, tel, email, and password.



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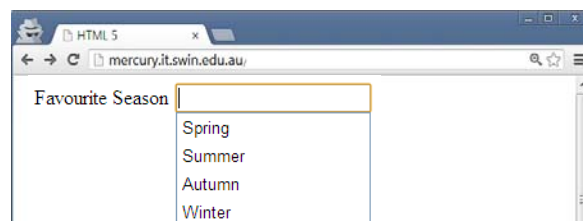
## HTML Content

## HTML5 Form Elements: Data List



```
<p><label>Favourite Season
 <input type="text" name="favseason"
 list="seasons">
 <datalist id="seasons">
 <option value = "Spring">
 <option value = "Summer">
 <option value = "Autumn">
 <option value = "Winter">
 </datalist>
</label></p>
```

Make sure the id matches the list



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## Lecture - overview



### ■ HTML Content

- ☐ Headings and Paragraph
- ☐ Phrase tags and Special Characters
- ☐ Lists and Table
- ☐ Image and Anchor
- ☐ Image Maps
- ☐ Form, Form Attributes and Form Elements

### ■ HTML Structure

- ☐ *Div and Span*
- ☐ Navigation, Article, Section, Header, Footer, Main
- ☐ Aside, Details, Figure



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### HTML Structure

## Division



- `<div>...</div>` is a generic logical block level container used to divide content, e.g. section
- It has **no default** meaning or rendering behaviour, as it is a logical “division”.
- It plays a role in providing an arbitrary block container where a style can be applied to use CSS.
- **Do not** use a `<div>` when you should be using a logical element like `<p>`.

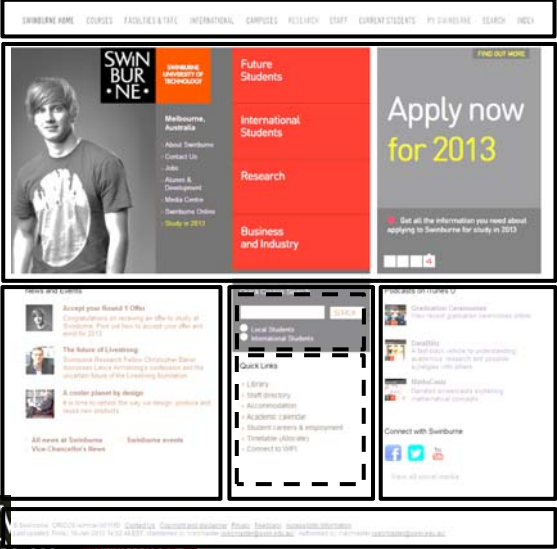


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**HTML Structure**

## Division (continued)



Main logical divisions

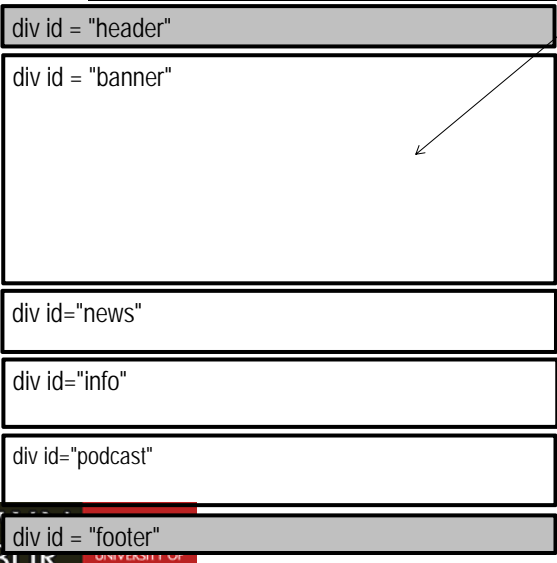
- Header (1)
- Banner (1)
- Columns (3)
- Footer (1)

May contain smaller logical divisions

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**HTML Structure**

## Division (continued)



div id = "header"

div id = "banner"

div id="news"

div id="info"

div id="podcast"

div id = "footer"

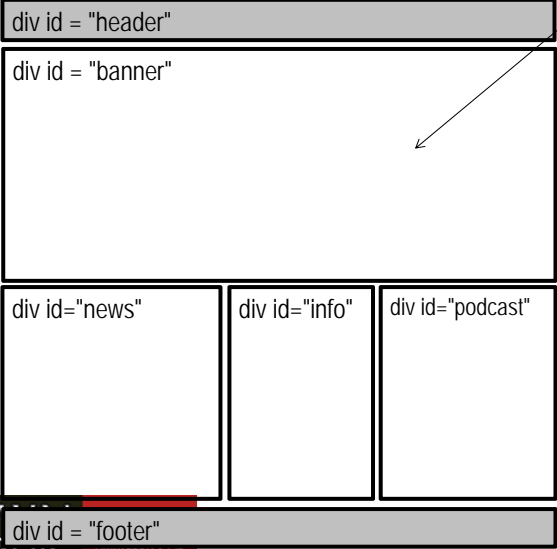
Presented without CSS

- Always remember that **HTML** is only about **content** and **structure**, where these will appear on the screen will be specified through **CSS**

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HTML Structure

## Division (continued)



div id = "header"

div id = "banner"

div id="news"    div id="info"    div id="podcast"

div id = "footer"


Presented with CSS

- **id** is used if the style is only for one division on the web page
- **class** is used if style is applied to several divisions on the web page, for example multiple articles

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HTML Structure

## Span



- `<span>...</span>` is a generic inline level container used to group other inline elements, such as text.
- It has **no default** meaning or presentation qualities.
- Similar to the `<div>` element, the `<span>` tag has a role in providing an arbitrary container but for inline elements.
- **Do not** use a `<span>` when you should be using a logical element like `<em>` or `<strong>`.

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## HTML Structure

## Division and Span



- With `<div>` and `<span>`, the defined structure remain semantically *neutral* in terms of meaning to the browser.
- If a browser is to have a shortcut key to the page navigation, which `<div>` will it jump to?  
Users may use different names, such as
  - ☐ `<div id="nav"> ... </div>`
  - ☐ `<div class="menu"> ... </div>`
  - ☐ `<div class="navigation"> ... </div>`

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## Lecture - overview



- HTML Content
  - ☐ Headings and Paragraph
  - ☐ Phrase tags and Special Characters
  - ☐ Lists and Table
  - ☐ Image and Anchor
  - ☐ Image Maps
  - ☐ Form, Form Attributes and Form Elements
- HTML Structure
  - ☐ Div and Span
  - ☐ *Navigation, Article, Section, Header, Footer, Main*
  - ☐ Aside, Details, Figure

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## HTML Structure

## Navigation



- `<nav>...</nav>` specifies a section of navigation links.
- It is intended only for major block of navigation links.
  - Not all links of a document must be in a `<nav>` element
- Browsers, such as screen readers for disabled users, can use this element to determine whether to omit the initial rendering of this content.



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## HTML Structure

## Navigation (continued)

**<nav>**

```
Home |
Products |
Download |
Contact Us
```

**</nav>**

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## HTML Structure

## Article



- `<article>...</article>` defines independent, self-contained content
- Content should make sense on its own and it should be possible to distribute it independently from the rest of the site.
- Examples are
  - ☐ Forum post
  - ☐ Blog post
  - ☐ News story
  - ☐ Comment



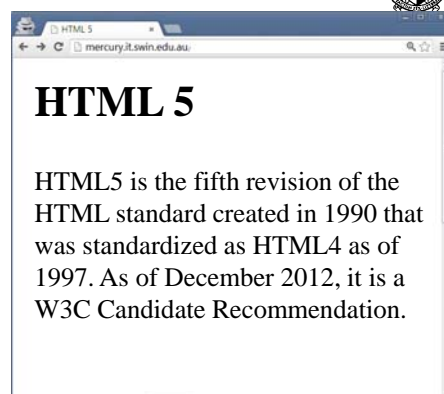
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## HTML Structure

## Article (continued)



```
<article>
 <h1>HTML 5</h1>
 <p>HTML5 is the fifth
revision of the HTML
standard created in 1990
that was standardized as
HTML4 as of 1997. As of
December 2012, it is a W3C
Candidate
Recommendation.</p>
</article>
```



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## HTML Structure

## Section



- `<section>...</section>` defines sections in a document.
- Usually a subsection of an `<article>`



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## HTML Structure

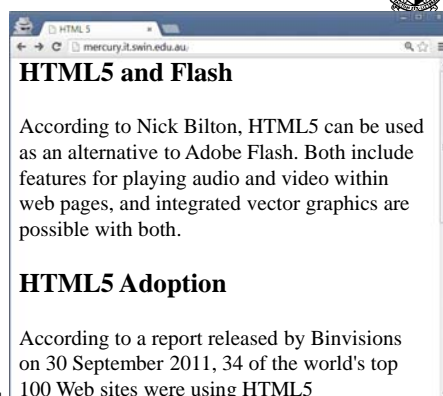
## Section (continued)

`<section>`

```
<h1>HTML5 and Flash</h1>
<p>According to Nick Bilton,
HTML5 can be used as an
alternative to Adobe Flash. Both
include features for playing
audio and video within web pages,
and integrated vector graphics
are possible with both.</p>
```

`</section>``<section>`

```
<h1>HTML5 Adoption</h1>
<p>According to a report
released by Binvisions on 30
September 2011, 34 of the world's
top 100 Web sites were using
HTML5</p>
```

`</section>`

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## HTML Structure

## Header



- `<header>...</header>` defines a header for a document or section.
- It should be used as a container for introductory content or set of navigational links about its **containing** element (or nearest ancestor).
- There can be several `<header>` elements in one document.
- Note: It cannot be placed within a `<footer>`, `<address>` or another `<header>` element.



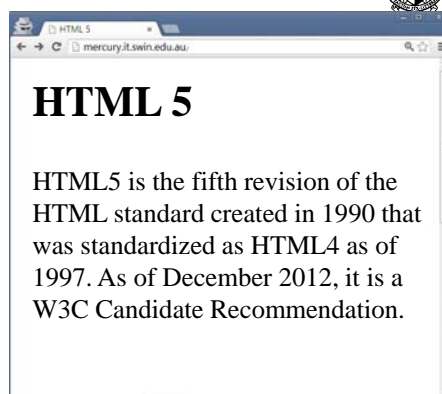
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## HTML Structure

## Header (continued)



```
<article>
 <header>
 <h1>HTML 5</h1>
 <p><time pubdate
 datetime="2013-01-15">
 </time></p>
 </header>
 <p>HTML5 is the fifth revision
 of the HTML standard created in
 1990 that was standardized as
 HTML4 as of 1997. As of December
 2012, it is a W3C Candidate
 Recommendation.</p>
</article>
```



Refers specifically to the HTML5 article as the enclosing element is `<article>`



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## HTML Structure

## Footer



- `<footer>...</footer>` specifies a footer for a document or section.
- It should contain information about its **containing** element (or nearest ancestor), such as author of the document, copyright information, links to terms of use, contact information
- Contact information should be enclosed in `<address>` tag.
- There can be several `<footer>` elements in one document.



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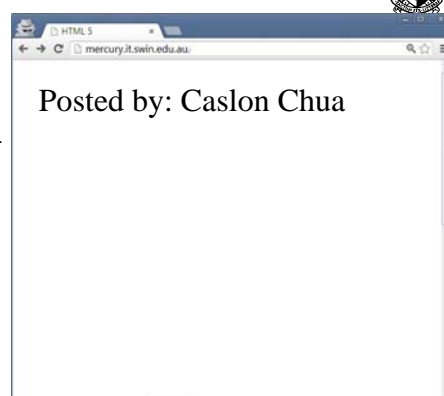
## HTML Structure

## Footer (continued)



```
<body>

 <footer>
 <p>Posted by: Caslon
 Chua</p>
 <p><time pubdate
 datetime="2013-01-
 21"></time></p>
 </footer>
</body>
```



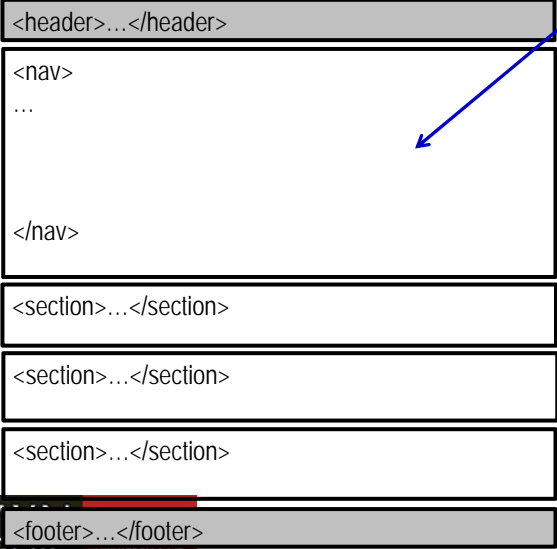
Refers to the webpage as the enclosing element is `<body>`



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HTML Structure

## Structure: HTML5 way



`<header>...</header>`

`<nav>`  
...  
`</nav>`

`<section>...</section>`

`<section>...</section>`

`<section>...</section>`

`<footer>...</footer>`

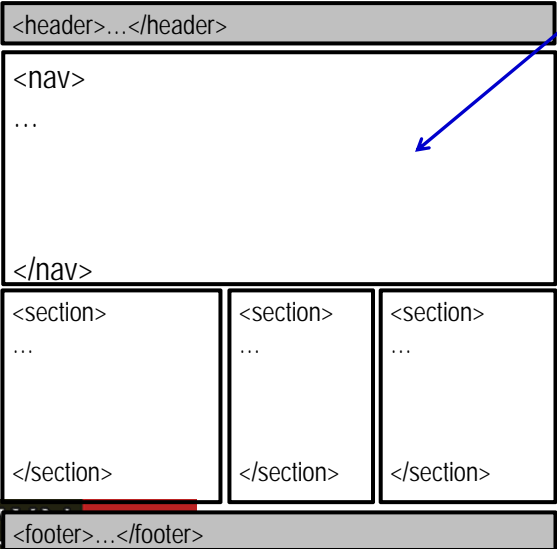
Presented without CSS

- Always remember that **HTML** is only about **content** and **structure**, where these will appear on the screen will be specified through **CSS**

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HTML Structure

## Structure: HTML5 way (continued)



`<header>...</header>`

`<nav>`  
...  
`</nav>`

`<section>`  
...  
`</section>`

`<section>`  
...  
`</section>`

`<section>`  
...  
`</section>`

`<footer>...</footer>`

Presented with CSS

- **id** and **class** are still used to apply styles to various structure in the web page

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## Lecture - overview



### ■ HTML Content

- ☐ Headings and Paragraph
- ☐ Phrase tags and Special Characters
- ☐ Lists and Table
- ☐ Image and Anchor
- ☐ Image Maps
- ☐ Form, Form Attributes and Form Elements

### ■ HTML Structure

- ☐ Div and Span
- ☐ Navigation, Article, Section, Header, Footer, Main
- ☐ *Aside, Details, Figure*



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### HTML Structure

## Aside



- `<aside>...</aside>` defines some content aside from the content it is placed in.
- It should be related to the surrounding content, such as a sidebar of an article



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## HTML Structure

## Aside (continued)



```
<p>I'm taking up HIT1091 this semester.</p>
<aside>
 <h4>HIT1091</h4>
 <p>HIT1091 is a web development subject
covering HTML, CSS and JavaScript.</p>
</aside>
```



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## HTML Structure

## Details



- `<details>...</details>` defines additional details that the user can view or hide on demand.
- It is used to create an interactive widget that the user can *open* and *close*, where the content is not visible unless the *open attribute* is set.
- The `<summary>` tag is used to specify a visible heading for the details that can be clicked to view or hide the details.



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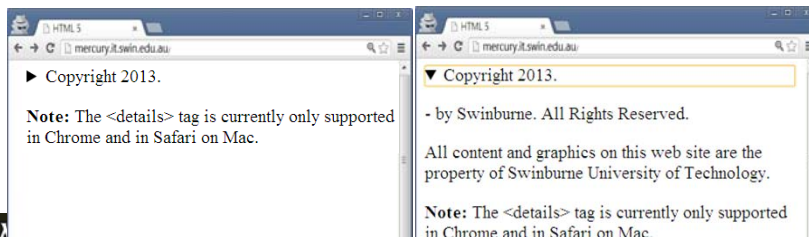
## HTML Structure

## Details (continued)



```
<details>
<summary>Copyright 2013.</summary>
<p> - by Swinburne. All Rights Reserved.</p>
<p>All content and graphics on this web site are the
property of Swinburne University of Technology.</p>
</details>

<p>Note: The <details> tag is
currently only supported in Chrome and in Safari on
Mac.</p>
```



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## HTML Structure

## Figure



- **<figure>... </figure>** encloses a self-contained content such as illustrations, diagrams, photos, code listings
- Its position is independent of the main flow, and if removed it should not affect the flow of the document.
- The **<figcaption>** element is used to add a caption for the **<figure>** element.



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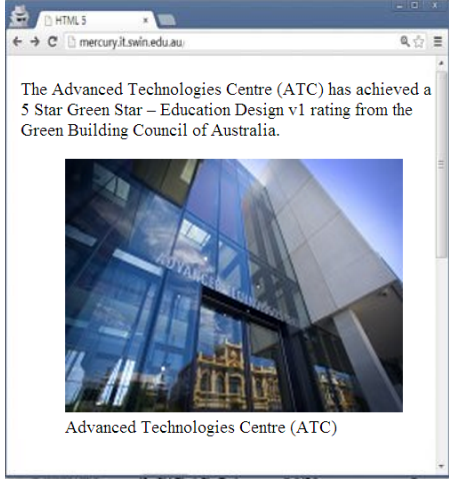
## HTML Structure

### Figure (continued)

```
<p>The Advanced Technologies Centre (ATC) has achieved a 5 Star Green Star - Education Design v1 rating from the Green Building Council of Australia.</p>

<figure>

<figcaption>
Advanced Technologies Centre (ATC)
</figcaption>
</figure>
```



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## HTML Structure

### Structure: Putting it all together

```
<header>...</header>
<nav> ... </nav>
<article>...
 <section>
 <header>...</header>
 ...
 <figure> ...</figure>
 </section>
 <section>
 <header>...</header>
 ...
 <figure> ...</figure>
 </section>
</article>
<aside>...</aside>
<footer>...</footer>
```

Presented without CSS

- Always remember that **HTML** is only about **content** and **structure**, where these will appear on the screen will be specified through **CSS**

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HTML Structure

## Structure: Putting it all together

Presented with CSS

```
<html>
<header>...</header>
<nav> ... </nav>
<article>
 <section>
 <header>...</header>
 ...
 <figure> ...</figure>
 </section>
 <section>
 <header>...</header>
 ...
 <figure> ...</figure>
 </section>
</article>
<aside>
 ...
</aside>
<footer>...</footer>
</html>
```

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## Next Lecture ....

- CSS – Presentation and Layout

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