Introduction to Web Technology

HTML

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HTML

Objectives:

- learn the HTML language to create web site;
- understand the concept of HTML tags and attributes;
- use HTML tags to format text, add graphics, create links, display tables, lists, etc.

HTML

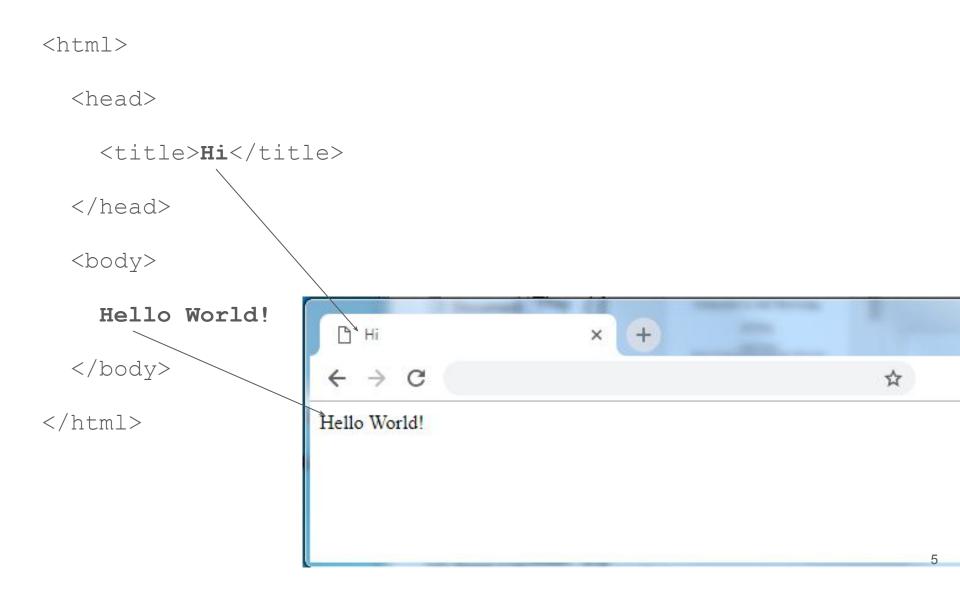
- is a markup language for describing web documents
 - used to mark parts of documents to indicate how they should appear on a display
- HTML stands for Hyper Text Markup Language

- HTML documents are described by HTML tags
- Each HTML tag describes different document content

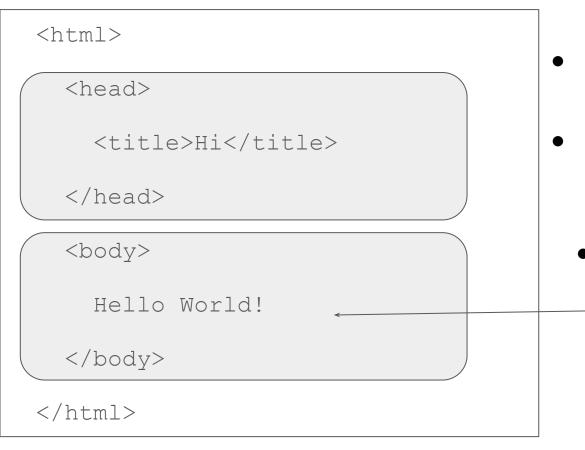
The first HTML document

```
<html>
  <head>
    <title>Hi</title>
  </head>
  <body>
    Hello World!
  </body>
</html>
```

The first HTML document

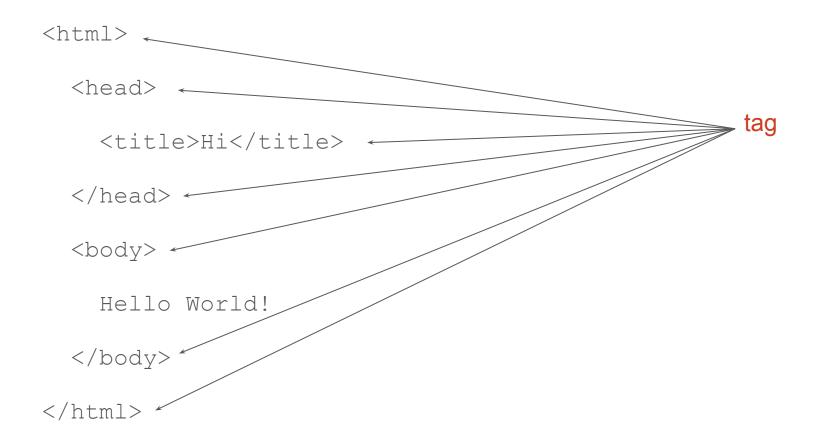


HTML document structure



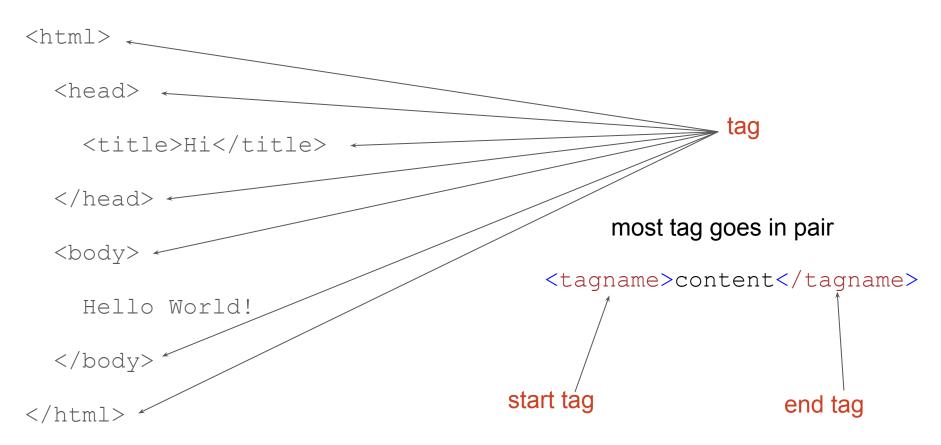
- A HTML document starts with
 <html> and ends with </html>
- A HTML document has a head and a body
 - The visible part of the HTML document is between<body> and </body>

HTML tags



HTML tags

tags are **NOT** case sensitive



HTML tags

```
HTML documents are made up by HTML elements.
                   The HTML element is everything from the start tag to
<html>
                   the end tag.
  <head>
    <title>Hi</title>
                                      Where is the HTML element?
  </head>
                                      Where is the HEAD element?
  <body>
                                      Where is the BODY element?
                                      Where is the TITLE element?
    Hello World!
  </body>
                                      What elements does the HTML
</html>
                                      element contain?
```

Self-closing tag

```
<tagname></tagname>
```

- Sometime we have an element with no content (an empty element)
- With an empty element, we can combine the start-tag and end-tag into one self-closing tag: <tagname />

Example:

- O

 tag defines a line break
- <hr /> tag defines a horizontal line
- o tag defines an image

Tag attributes

```
<tagname attribute1="value1" attribute2="value2">
...
</tagname>
```

- HTML elements can have attributes
- Attributes provide additional information about an element
- Attributes are always specified in the start tag
- Attributes come in name/value pairs like: name="value"

Heading tags

```
<h1>Heading 1</h1>
<h2>Heading 2</h2>
<h3>Heading 3</h3>
<h6>Heading 6</h6>
Normal text...
</body>
```

```
Heading tags: <h1>, <h2>, . . . , <h6><h1> the most important heading<h6> the least important heading
```

Unordered List

```
My timetable:

        >MATH222: Mon 8:30-10:30 lecture
        >CSCI204: Tue 9:30-11:30 lab
        >IsIT206: Wed 8:30-10:30 lecture
```

My timetable:

- MATH222: Mon 8:30-10:30 lecture
- CSCI204: Tue 9:30-11:30 lab
- ISIT206: Wed 8:30-10:30 lecture

Unordered List My timetable: List Item Ali>MATH222: Mon 8:30-10:30 lecture CSCI204: Tue 9:30-11:30 lab Isi>IsiT206: Wed 8:30-10:30 lecture

My timetable:

</**ul**>

- MATH222: Mon 8:30-10:30 lecture
- CSCI204: Tue 9:30-11:30 lab
- ISIT206: Wed 8:30-10:30 lecture

Ordered List

My timetable:

- 1. MATH222: Mon 8:30-10:30 lecture
- 2. CSCI204: Tue 9:30-11:30 lab
- 3. ISIT206: Wed 8:30-10:30 lecture

Ordered List

Ordered List

My timetable:

<l

List Item

```
MATH222: Mon 8:30-10:30 lecture
```

CSCI204: Tue 9:30-11:30 lab

ISIT206: Wed 8:30-10:30 lecture

My timetable:

- 1. MATH222: Mon 8:30-10:30 lecture
- 2. CSCI204: Tue 9:30-11:30 lab
- 3. ISIT206: Wed 8:30-10:30 lecture

Description List

```
My timetable:
<d1>
  <dt>MATH222</dt>
  <dd>Mon 8:30-10:30 lecture</dd>
  <dt>CSCI204</dt>
  <dd>Tue 9:30-11:30 lab</dd>
  <dt>ISIT206</dt>
  <dd>Wed 8:30-10:30 lecture</dd>
</dl>
```

My timetable:

MATH222

Mon 8:30-10:30 lecture

CSCI204

Tue 9:30-11:30 lab

ISIT206

Wed 8:30-10:30 lecture

Description List My timetable: <d1> <dt>MATH222</dt> <dd>Mon 8:30-10:30 lecture</dd> <dt>CSCI204</dt> <dd>Tue 9:30-11:30 lab</dd> <dt>ISIT206</dt> <dd>Wed 8:30-10:30 lecture</dd>

</dl>

Description **L**ist

Description **T**erm

Description Definition

My timetable:

MATH222

Mon 8:30-10:30 lecture

CSCI204

Tue 9:30-11:30 lab

ISIT206

Wed 8:30-10:30 lecture

```
<i>i>italic text</i> <br />
<b>bold text</b> <br />
<mark>highlighted text</mark> <br />
<del>deleted text</del> <br />
<ins>inserted text</ins>
```

italic text
bold text
highlighted text
deleted text
inserted text

My timetable:

- MATH222: Mon 8:30-10:30 *lecture*
- **CSCI204**: Tue 9:30-11:30 *lab*
- ISIT206: Wed 8:30-10:30 *lecture*

<h1>HTML <small>Small</small> Formatting</h1>
HTML <small>Small</small> Formatting

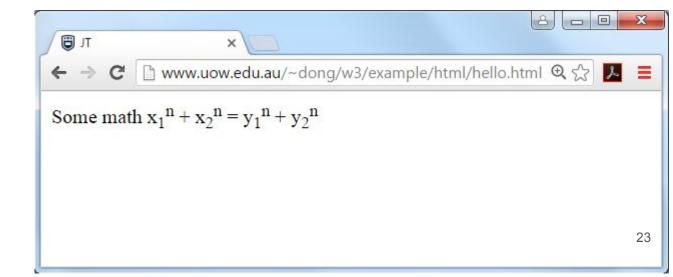


Changing font

```
<font size="1">This is the smallest size</font>
<font size="2">smaller than the default</font>
<font size="3">This is the default font size</font>
<font size="4">larger than the default</font>
<font size="5">larger than the default</font>
<font size="6" color="red">larger than the default</font>
<font size="6" color="red">larger than the default</font>
<font size="7" color="blue">This is the largest size</font>
```

```
<body>
Some math

x<sub>1</sub><sup>n</sup> +
x<sub>2</sub><sup>n</sup> =
y<sub>1</sub><sup>n</sup> +
y<sub>2</sub><sup>n</sup> +
y<sub>2</sub><sup>n</sup> +
y<sub>2</sub><sup>n</sup> +
```



border attribute

```
>
 Username
 First name
 Last name
>
 jsmith
 John
 Smith
>
 mlee
 Mary
 Lee
```

Username First name I		Last name
jsmith	John	Smith
mlee	Mary	Lee

Turn off the border:

border="0"

Username First name Last name ismith John Smith Mary mlee Lee 24

```
Table Row
 ←
 Username
           row 1
 First name
 Last name
jsmith
           row 2
 John
 Smith
mlee
           row 3
 Mary
 Lee
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee 2

```
>
                Table Header
 Username -----
 First name
 Last name
>
                Table Data
 jsmith ←
 John
 Smith
>
 mlee
 Mary
 Lee
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee 2

jsmith	John	Smith	
mlee	Mary	Lee	27

```
<caption>User information</caption>
Username
 First name
 Last name
>
 jsmith
 John
 Smith
>
 mlee
 Mary
 Lee
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee Lee

```
<caption>User information</caption> ...
Username
 First name
 Last name
                  Table caption
>
 jsmith
 John
 Smith
>
 mlee
 Mary
 Lee
User information
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee

```
Table
```

```
Table width within the page
```

Column width

within the table

```
<caption>User information</caption>
>
 Username
 First name
 Last name
jsmith
 John
 Smith
>
 mlee
 Mary
 Lee
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee

```
<caption>User information</caption>
                  Column width
Username
                  using pixels
 First name
 Last name
>
 jsmith
 John
 Smith
>
 mlee
 Mary
 Lee
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee

```
<caption>User information</caption>
Username
 First name
 Last name
Horizontal
>
                 alignment
 jsmith
 John
 Smith
>
 mlee
 Mary
 Lee
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee

```
jsmith
  John Smith <br />
  DOB: 23/01/2000 <br />
  Course code: 875
  mlee
  Mary Lee <br />
  DOB: 15/04/2001 <br />
  Course code: 741
```

Vertical alignment

jsmit <mark>h</mark>	John Smith DOB: 23/01/2000 Course code: 875	
mlee	Mary Lee DOB: 15/04/2001 Course code: 741	33

```
jsmith
  John Smith <br />
  DOB: 23/01/2000 <br />
  Course code: 875
  mlee
  Mary Lee <br />
  DOB: 15/04/2001 <br />
  Course code: 741
```

Vertical alignment

jsmith	John Smith DOB: 23/01/2000 Course code: 875	
mlee	Mary Lee DOB: 15/04/2001 Course code: 741	34

```
>
  jsmith
  John Smith <br />
  DOB: 23/01/2000 <br />
  Course code: 875
  >
  mlee
  Mary Lee <br />
  DOB: 15/04/2001 <br />
  Course code: 741
  ismith
                     Mary Lee
```

Vertical alignment

John Smith DOB: 23/01/2000 Course code: 875 DOB: 15/04/2001 Course code: 741 mlee

```
>
 STUDENT DETAILS
STUDENT NAME
 John Lee
>
 STUDENT NUMBER
 1234567
>
 UOW EMAIL
 jlee@uowmail.edu.au
```

STUDENT DETAILS	
STUDENT NAME	John Lee
STUDENT NUMBER	1234567
UOW EMAIL	jlee@uowmail.edu.au

Table Row span > < Monday Tuesday Wednesday > 8:30-9:30 MATH 321 lecture INFO 104 lecture CS 222 lecture > 9:30-10:30 CS 222 Lab MATH 321 tutorial > 10:30-11:30</ Monday Tuesday Wednesday CS 222 lecture INFO 104 tuto 8:30-9:30 INFO 104 lecture | CS 222 lecture MATH 321 lecture CS 222 Lab 9:30-10:30 MATH 321 tutorial 10:30-11:30 CS 222 lecture INFO 104 tutorial

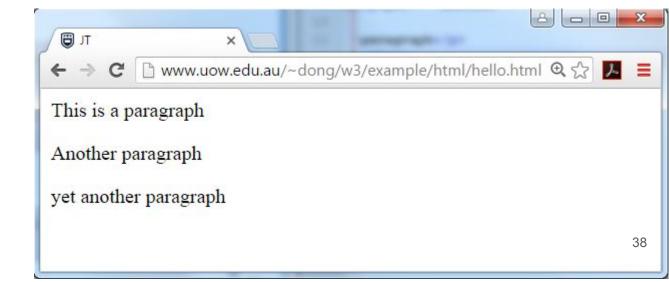
Paragraph tag

```
This is a paragraph
Another

paragraph
yet another
```

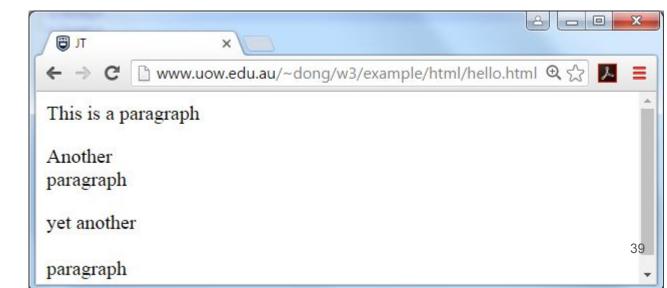
Extra spaces and **lines** will NOT be displayed in paragraph

paragraph



Line break

paragraph



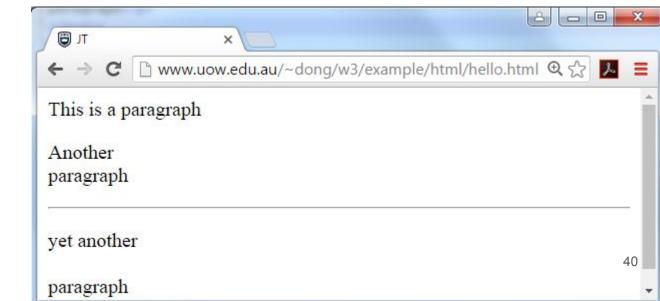
Horizontal line <hr/>

```
This is a paragraph
Another <br />

paragraph
<hr />
yet another <br />
```

similarly, we have the horizontal line tag <hr /> with no content

paragraph



Non-breaking space

```
This     is a
paragraph
Another <br />
paragraph
<hr />
yet another <br />
<br />
paragraph
```

use for non-breaking space
this is an example of character entities

Character entity

- Some characters are reserved in HTML.
- Reserved characters in HTML must be replaced with character entities.

Character	Entity	Meaning
(non-breaking space)		Non-breaking space
<	<	Is less than
>	>	Is greater than
&	&	Ampersand
W	"	Double quote
1	'	Single quote (apostrophe)
0	°	Degree
©	©	Copyright

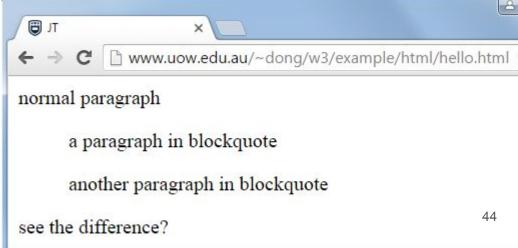
Character entity

```
<body>
A HTML document starts with
&lt;html&gt; and ends with
&lt;/html&gt;
</body>
```

A HTML document starts with <html> and ends with <html>

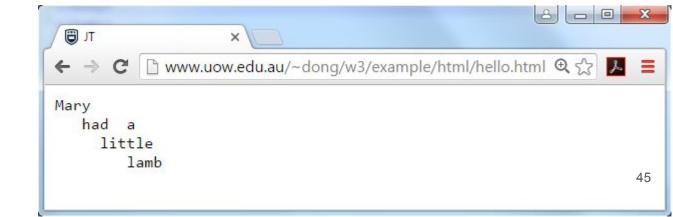
Block quotations <blockquote>

```
normal paragraph
<blockquote>
a paragraph in blockquote
another paragraph in blockquote
</blockquote>
see the difference?
```



Preformatted text

pre element is shown in monospace
it preserves the character and line spacing



Computer code

```
<
<code>
a = 0;
b = 3;
c = 2;
sum = a + b + c;
</code>
```

what would happen if we use <code> ... </code> without ?

Computer code

```
<
<code>
#include <iostream&gt;
void main() {
   cout < &lt; &quot; Hello World! &quot; &lt; &lt; endl;
</code>
```

```
If you want to include special characters such as
          < > & " '
```

within **pre** tags, they should be substituted by character entities so that they are not subject to special interpretation by the browser.

```
#include <iostream>
void main() {
    cout << "Hello World!" << endl;</pre>
```

Image

```
<img src="uow-logo.png" height="300" width="200"
alt="logo of UOW" />
```

Attribute	Description
src	<pre>URL of an image, for example src="uow-logo.png" src="images/uow-logo.png" src="http://www.mycom.au/staff.png"</pre>
alt	alternate text for an image
height width	optional. Specifies height, width for image in pixels, or in percentage

Image alt

```
<img src="uow-logo.png" height="300" width="200"
alt="logo of UOW" />
```

- If a browser cannot find an image, it will display the alt text.
- Sometimes, to save bandwidth, user can disable image display, in this
 case, the alt text will be display.
- A screen reader is a software program that can read what is displayed on a screen which is very useful to people who are blind or visually impaired.
 Screen readers can read the alt text.

Image src

The URL of an image can be

- an absolute URL points to another website
- or a relative URL points to an image file within a website

Absolute URL

```
src="http://www.mycom.au/staff.png"
```

Relative URL

src="uow-logo.png": the image file is in the same directory as the current html file

src="images/uow-logo.png" : the image file is in the subdirectory called
images located at the same directory as the current html file

```
src="images/logo/uow-logo.png"
src="/../f1/bird.png"
```

```
<a href="http://www.uow.edu.au" target="_blank">Visit UOW</a>
<a href="contact.html">Contact us</a>
<a href="http://www.uow.edu.au" target="_blank">
<img src="uow-logo.png" alt="visit UOW"/>
</a>
```

Visit UOW

The **href** in this example is an **absolute** URL.

If user clicks on this link, http://www.uow.edu.au will be opened in a new tab

target	description
_blank	open the link in a new window or tab
_self	open the link in the same frame (this is default)

```
<a href="contact.html">Contact us</a>
The href in this example is a relative URL.
It is similar to the src attribute of the img tag:
href="contact.html"
href="assignment/a1.html"
```

href="../handout/note5.html"

```
<a href="http://www.uow.edu.au" target="_blank">
<img src="uow-logo.png" alt="visit UOW"/>
</a>
```

Within the link tag $\langle a \text{ href...} \rangle \langle a \rangle$, we can put any text or image.

In the above example, it displays an image as a link to the address http://www.uow.edu.au

Link - target within document

Within the html document we can use the attribute id to mark a specific location

```
Euler's theorem
<a href="#Proofs">1 Proofs</a>
<a href="#See also">2 See also</a>
                                                       Contents
<a href="#Notes">3 Notes</a>
                                                       1 Proofs
<a href="#References">4 References</a>
                                                       2 See also
                                                       3 Notes
<a href="#External links">5 External links</a>
                                                       4 References
                                                       5 External links
<h3 id="Proofs">Proofs</h3> —
                                                      Proofs
<h3 id="See also">See also</h3>
                                                      See also
<h3 id="Notes">Notes</h3>
                                                      Notes
<h3 id="References">References</h3>
                                                      References
                                                      External links
<h3 id="External links">External links</h3>
```

Link - target within document

Within the html document we can use the attribute id to mark a specific location

```
<a href="#Proofs">1 Proofs</a>
<a href="#See also">2 See also</a>
<a href="#Notes">3 Notes</a>
<a href="#References">4 References</a>
<a href="#External links">5 External links</a>
<h3 id="Proofs">Proofs</h3>
```

The id value must be unique and must contain at least one character. The id value must not contain any space characters.

Link - target within document

We can create a link to a specific location within a html page

For example:

```
<a href="https://en.wikipedia.org/wiki/Euler%27s_theorem#Proofs">
Proof of the Euler theorem</a>
```

index.html

- index.html is a default page for a directory
- For security reason, it is better to have index.html for every directory
- It stops people from knowing the content and structure of your website

Example: If the directory abc has an index.html then when we go to http://the-web-address/abc

it automatically displays the page http://the-web-address/abc/index.html

Comments

```
<body>
<!-- this is
a long comment
it will not be displayed on the web page
-->
</body>
```

- XHTML stands for EXtensible HyperText Markup Language
- XHTML is stricter than HTML

XHTML is stricter than HTML

elements must be properly nested:

<i>bold and italic - not nested correctly</i>

It should be like this:

<i>bold and italic - not nested correctly</i>

XHTML is stricter than HTML

elements must always be closed:

```
paragraph not closed
break not closed <br>
horizontal line not closed <hr>
image not closed <img src="logo.png" alt="UOW logo">
```

```
paragraph not closed
break not closed <br />
horizontal line not closed <hr />
image not closed <img src="logo.png" alt="UOW logo" />
```

XHTML is stricter than HTML

elements must be in lower case:

```
<hEAD>
<TITLE>Web Technologies</TITLE>
<HEAD>
```

```
<head>
<title>Web Technologies</title>
<head>
```

XHTML is stricter than HTML

attribute names must be in lower case:

```
<img src="logo.png" alt="UOW logo" />
```

XHTML is stricter than HTML

attribute values must be quoted:

It should be like this:

XHTML is stricter than HTML

attribute minimization is not allowed:

```
<input type="checkbox" name="subscribe" value="eletter"
checked />
```

```
<input type="checkbox" name="subscribe" value="eletter"
checked="checked" />
```

HTML5

- version 5 of the HTML standard
- introduces new tags

```
<header> <footer> <article> <section>
<svg> <canvas> <audio> <video> ...
```

- introduces new APIs
 - Drag and Drop
 - Local Storage
 - Geolocation
 - O

References

• http://www.w3schools.com/html

• http://developer.mozilla.org/en-US/docs/Web/HTML