CSIT884 Web Development

Lecture 01 - HTML

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>
   <head>
       <title>Hi</title>
   </head>
                                           Hi
                                                           × +
   <body>
                                           \mathbb{C}
                                      Hello World!
       Hello World!
   </body>
</html>
```

HTML document structure

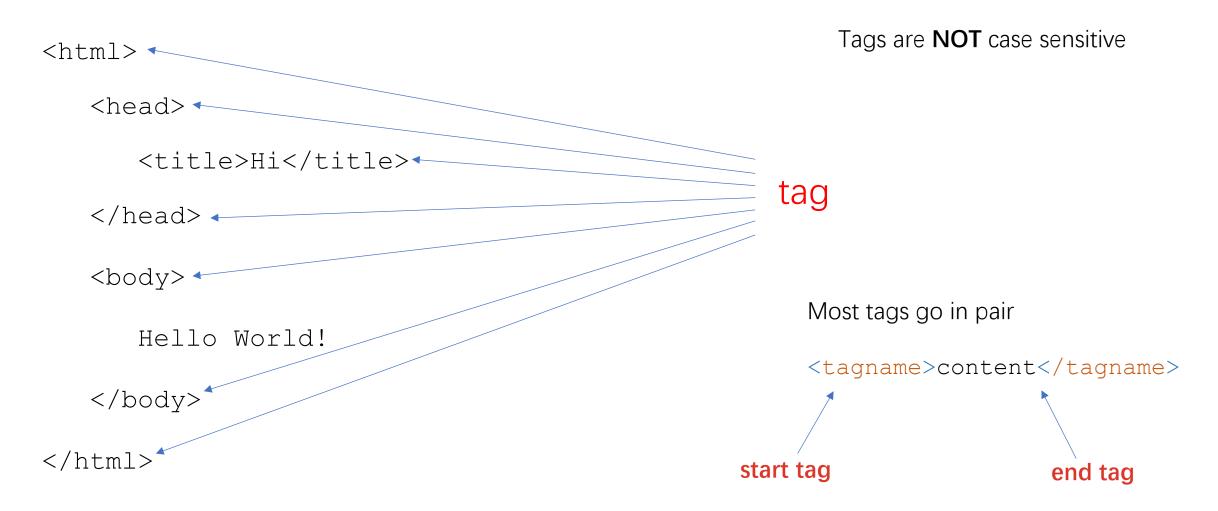
```
<html>
   <head>
      <title>Hi</title>
   </head>
   <body>
      Hello World!
   </body>
</html>
```

- 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> <
   <head>
      <title>Hi</title>◆
                                           tag
   </head>
   <body>
      Hello World!
</body>
```

HTML tags



HTML tags

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

HTML documents are made up by HTML elements.

The HTML **element** is everything <u>from the start tag to</u> the <u>end tag</u>.

Where is the HTML element? Where is the HEAD element? Where is the BODY element? Where is the TITLE element?

What elements does the 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
 - o <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

```
<body>
  <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

```
← → C

Heading 1

Heading 2

Heading 3

Heading 6

Normal text...
```

Unordered list

```
My timetable:

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

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

Unordered list

Unordered List

List Item

- 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:

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

- 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:
                                            List Item
<01>
 MATH222: Mon 8:30-10:30 lecture
 CSCI204: Tue 9:30-11:30 lab
                                       My timetable:
 ISIT206: Wed 8:30-10:30 lecture
                                          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>
```

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>
      \langle dt \rangleISIT206\langle dt \rangle
      <dd>Wed 8:30-10:30 lecture</dd>
```

```
Description List
```

Description Term

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

- 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

HTML Small Formatting

HTML Small Formatting

Changing font

This is the smaller than the default
This is the default font size
larger than the default
larger than the default

This is the default
larger than the default
larger than the default

This is the largest size

```
<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>
</body>
```

Some math
$$x_1^n + x_2^n = y_1^n + y_2^n$$

border attribute

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

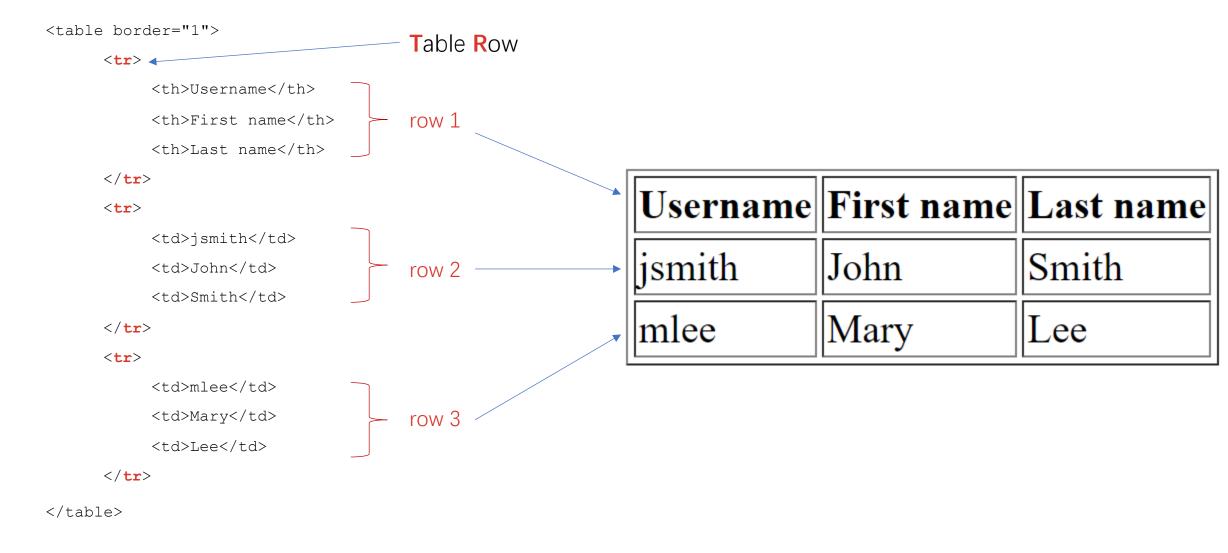
Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee

Turn off the border border="0"

Username First name Last name

jsmith John Smith

mlee Mary Lee

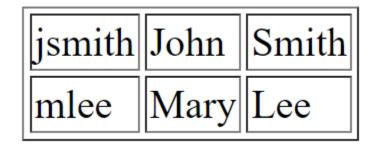


```
Table Row
   > -
     Username
     >First name ←
                      Table Header
     Last name
   </tr>
   >
     jsmith
                      Table Data
     John
     Smith
   </tr>
   <tr>
     mlee
     Mary
     Lee
   </tr>
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee

```
>
    jsmith
    John
    Smith
  </tr>
  >
    mlee
                 Table Data
    Mary
    Lee
  </tr>
```

Sometimes we do not need table header

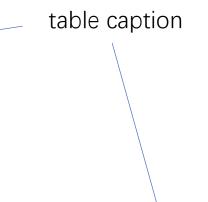


```
<caption>User information
 Username
  First name
  Last name
 jsmith
  John
  Smith
 mlee
  Mary
  Lee
```

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee



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

table width

within the page

column width

within the table

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee

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

column width

using pixels

Username	First name	Last name
jsmith	John	Smith
mlee	Mary	Lee

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

horizontal alignment

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

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

```
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

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

column span

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

```
Monday
       Tuesday
       Wednesday
   row span
       8:30-9:30
       MATH 321 lecture
       INFO 104 lecture
       CS 222 lecture
   9:30-10:30
       CS 222 Lab
       MATH 321 tutorial
    Monday
                                                   Tuesday
                                                                  Wednesday
       10:30-11:30
                         8:30-9:30
                                                   INFO 104 lecture
                                                                  CS 222 lecture
                                   MATH 321 lecture
       CS 222 lecture
                                                   CS 222 Lab
                         9:30-10:30
                                                                  MATH 321 tutorial
       INFO 104 tutorial
                         10:30-11:30
                                   CS 222 lecture
                                                   INFO 104 tutorial
```



Paragraph

```
This is a paragraph
```

Another

paragraph

yet another

paragraph

Extra spaces and **lines** will <u>NOT</u> be displayed in paragraph

This is a paragraph

Another paragraph

yet another paragraph

Line break

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

```
<br /> defines a line break
```


/> is an empty element

(i.e. it is a tag with no content)

It combines the start and end tags together (self-closing)

This is a paragraph

Another paragraph

yet another

paragraph

Horizontal line

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

<hr /> is also an empty element that defines a horizontal line

This is a paragraph

Another paragraph

yet another

paragraph

Non-breaking space

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

We can use for non-breaking space.

This is an example of **character entities**.

This is a paragraph

Another paragraph

yet another

paragraph

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
<	<	Less than
>	>	Greater than
&	&	Ampersand
ii .	"	Double quote
í	'	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 quotation

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

normal paragraph

a paragraph in blockquote

another paragraph in blockquote

see the difference?

Preformatted text

```
<
Mary
  had a
    little
        lamb
```

pre element is shown in monospaceIt preserves the character and line spacing

```
Mary
had a
little
lamb
```

Computer code

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

What 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 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

Attribute	Description
src	URL of the s ou rc e image
	e.g.
	<pre>src="uow-logo.png"</pre>
	<pre>src="images/uow-logo.png"</pre>
	<pre>src="http://www.mycom.au/staff.png"</pre>
alt	alternative text for the image
height	Optional
width	Specifies height, width for image in pixels, or in percentage

Image alt

```
<img src="JI-logo.png" height="30" width="200" alt="logo of JI" />
```

- 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="JI-logo.png" : the image file is in the same directory as the current html file
src="images/JI-logo.png" : the image file is in the subdirectory called images located at the same
directory as the current html file
src="images/logo/JI-logo.png"
src="/../f1/bird.png"
```





```
<a href="http://www.uow.edu.au" target="_blank">Visit UOW</a>
```

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 (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"





Link – target within document

```
2 See also
Within the html document we can use the attribute id to mark a specific location
                                                                                                             3 Notes
                                                                                                             4 References
<a href="#Proofs">1 Proofs</a><br/>
                                                                                                             5 External links
<a href="#See also">2 See also</a><br/>
                                                                                                             Proofs
<a href="#Notes">3 Notes</a><br/>
<a href="#References">4 References</a><br/>
<a href="#External links">5 External links</a><br/>
                                                                                                             See also
<h3 id="Proofs">Proofs</h3>
<h3 id="See also">See also</h3>
                                                                                                             Notes
<h3 id="Notes">Notes</h3>
                                                                                                             References
<h3 id="References">References</h3>
<h3 id="External links">External links</h3>
                                                                                                             External links
```

1 Proofs

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><br/>
<a href="#See_also">2 See also</a><br/>
<a href="#Notes">3 Notes</a><br/>
<a href="#References">4 References</a><br/>
<a href="#External_links">5 External links</a><br/>
<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

For 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

```
<!-- 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">

It should be like this:

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>
It should be like this:
<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" />
```

It should be like this:



XHTML is stricter than HTML

Attribute minimization is not allowed

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

It should be like this:

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

```
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
 - ...

References

- http://www.w3schools.com/html
- http://developer.mozilla.org/en-US/docs/Web/HTML