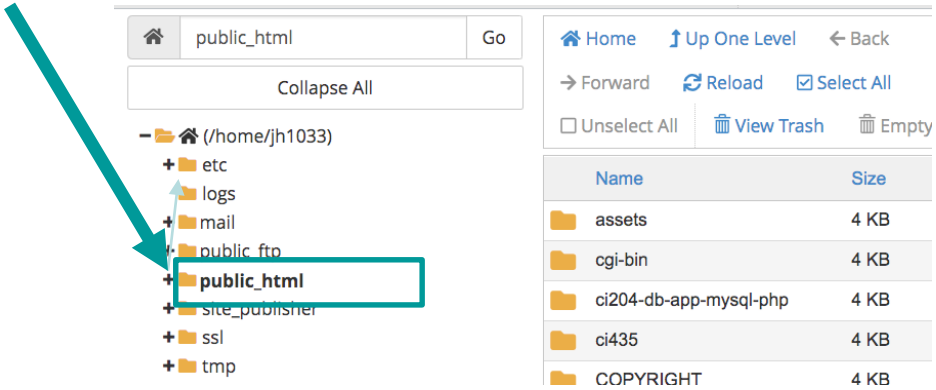
CI435 Introduction to Web Development

Lecture 2

HTML5 markup basics

Last week

- Hopefully all students now can access the Brighton Domains webspace. If anyone has problems this week please tell your lab class tutor, or email jh1033@brighton.ac.uk
- From now on please put your website files in your Brighton Domains workspace, so you can test them online - http://YOURUSERNAME.brighton.domains/
- You can then see them on your phone too (but they won't fit well yet)



This lecture will cover…

- Assessment - semester 1 coursework
- HTML markup basics
  - HTML tags and elements
  - Block and inline elements
  - Well-formed markup
  - Normal flow HTML document
- This week's lab tutorial and independent learning

Assessment – semester 1 coursework

- The coursework brief is on the Assessment page on the CI435 area of studentcentral
- Please read it *carefully* – it tells you everything you need to know to pass semester 1
- Create a 3-page **responsive** website, written in HTML (HTML5 doctype) and styled with CSS; test and publish on your Brighton Domains workspace:
  - **Page 1** – your *Learning Journal*, kept over 10 weeks
  - **Page 2** – a *Tutorial*, written for student audience
  - **Page 3** – a page with a contact form, to get feedback
- Additional pages will not be marked

Assessment – online submission

- **Deadline – 15:00 Friday January 15th 1500h**
- Submit through an online submission point on CI435 area of studentcentral
  1. A zip file of your website files
  2. URL for your website on the Brighton Domains server
  3. Screenshots of HTML and CSS validation reports in zip file
- There will be a mid-term online submission in **Week 7**, on **Monday, November 16th by 1500h**, to check your progress – this work will not be formally marked, but you'll get feedback in class – and if you don't submit, you won't.
- Further information will be provide nearer the time

Assessment – marking criteria

- The coursework brief includes marking criteria (page 5) -read this to see how to achieve a Pass grade – A+, A, B, C and D
- The grading criteria are weighted for importance
- Websites that are not responsive will not automatically fail, providing they demonstrate good knowledge of HTML and CSS web standards and how to apply them
- To get an A or B grade the website has to be fully responsive
- It is permitted to submit work up to 14 days after the deadline – marks for late work are capped at 40%

Assessment – retrieving failure

- Even if you think your work is going to fail it is better to submit something …
- If submitted work fails you can opt for 'In-Year Module Retrieval' in this module – *i.e.* improving the marked work for a capped mark of 40%, submitting April
- More details about IYMR will be given to any student who fails the coursework at the appropriate time next year – you will be advised what to do and given support
- Failed work can also be 'referred' – you have a second attempt over the summer

Web standards recap

- Web standards specify the '**syntax**' and '**semantics**' of web markup languages such as HTML and CSS …
  - **Syntax** = format and rules of use
  - **Semantics** = meaning
- HTML markup -

  ** **This is ****well-formed**** markup** **

  - **Syntax** – **tags** are lowercase; tags are explicitly closed; tags are nested correctly
  - **Semantics** – tags mark up text in a **meaningful** way –

  ** ** = …

  **** = …

HTML **tag**

Web standards recap

- Separation of content and presentation –
  - **HTML** markup specifies the **structure** of the content of a web page in a meaningful way
  - HTML should **not** be used to define how a page should be displayed – presentational tags from earlier versions of HTML are no longer used
  - *E.g.* ** ** centre text, **<u>** underline, **<font>** font change
  - Browsers still recognise these obsolete standards – meaning that old websites still display as intended; web standards are 'backwards compatible'

Web standards recap

- Separation of content and presentation –
  - **CSS** is the language that specifies how the content should be **presented** by a browser
  - CSS stylesheets are linked from the head of the HTML document that they style

```
<link href="style.css" rel="stylesheet" type="text/css" />
```

  - If presentation is defined *only* in a CSS stylesheet it is much easier and quicker to change the way that an entire website is styled

HTML syntax – the terminology

```
<a href=”ci435/index.html”>Learning Journal</a>
```

- **<a>** - is an HTML **tag** (or **element**) – meaning an ***anchor*** to **markup** a link
- **Href** – is an **attribute** of the anchor tag – meaning ***hypertext reference*** the destination the link points to
- **“ci435/index.html"** – is the **value** of the attribute – the location and name of the file that is the destination of the link
- **Learning Journal**– the text **content** that is **marked up** as a link (shows on page)
- The whole line - markup and content - is an **element**
- The browser will present the element using its own built-in CSS stylesheet – e.g link text looks like this

HTML5 doctype, XHTML strict syntax

- Your web pages must have the **HTML5 doctype –**

```
<!doctype html>
```

- HTML5 has a 'lax' syntax because it is backwards compatible with earlier versions of HTML
- In my examples I use **XHTML 1.0 Strict syntax** –
  - tags must always be **closed -** `<h1>page heading</h1>`
  - tags must be written in **lower case**
  - attribute names must be in **lower case**
  - attribute values must be nested in **quotes** [*NOT* smart quotes]
  - elements must be correctly **nested**

HTML5 doctype, XHTML strict syntax

- If you don't use a strict syntax the browser will *probably* still render your web page – because browsers are 'backwards compatible' and built to render earlier versions of HTML
- But - it's **important** to write well-formed, consistent code – makes it easier to read, de-bug, maintain …
- Displays as intended across a multitude of devices
- … and for us to mark your work!

What is **HTML markup**?

- Easy – ***nothing*** like writing code
- Comes from pre-digital print industry – text was ‘marked up’ by hand, using code words and symbols, to instruct compositors how to set the written content into type for printing
- Also the way that early word processors worked before the graphical user interface (GUI)
- HTML **semantics** – a markup language is **meaningful**, to both computers and humans

What is **HTML markup**?

- Pairs of markers – **tags** – are applied before and after content or data to define its structure *e.g.*
  - **Important** text = **`<strong>`**`important`**`</strong>`**
  - **Emphatic** text = **`<em>`**`emphasise`**`</em>`**
  - **Paragraph** = **`<p>`**`new paragraph`**`</p>`**
  - **Top level heading** = **`<h1>`**`page heading`**`</h1>`**
  - **Sub-heading** = **`<h2>`**`sub-heading`**`</h2>`**
- Instructs the browser how to structure the content, and the beginning and end of the instruction
- An HTML web page is made up of **elements** – content contained within a start tag and a matching end tag

What is **HTML markup**?

- A few tags are empty of content and are shown as single closed tags (self-closing) *e.g.* **line breaks** -

```
<p>Some text <br />
    some text on the next line <br />
    and on the next line</p>
```

- Or **image tags**, which show location of the image source file, which is stored elsewhere -

```
<img src="images/myPhoto.png" />
```

- Can also be written **
** and **<img src="">** without the space and backslash :-(

HTML5 **section** elements

- Before HTML5 we used ** ** [division] tags to structure content and use these for laying out the page in CSS –

```
<div class="header">
    <h1>Main heading</h1>
</div>
```

- HTML5 includes new semantic (meaningful) page section elements that should be used instead of less meaningful divs - *e.g.* `<header>`, `<nav>`, `<main>`, `<section>`, `<article>`, `<aside>`, `<footer>` *etc.*

```
<header>
    <h1>Page heading</h1>
</header>
```

- Use the semantically correct tag to write **meaningful markup**

HTML5 **semantics**

- The meaning and correct usage of tags is specified by the W3C - http://dev.w3.org/html5/spec/Overview.html
- Not light reading!
- A more readable resource is **'MDN'** the Mozilla Developer Network HTML element reference - https://developer.mozilla.org/en-US/docs/Web/HTML/Element
- Or the **html5 Doctor** element index - http://html5doctor.com/element-index/

Content hierarchy

- Elements are **nested** inside other elements to structure text in a hierarchy –

```
<header>
   <h1>page heading</h1>
   <h2>sub-heading</h2>
</header>
```

- The web document structure is better if related content is grouped in this way

Block and **inline** elements

- Two categories of HTML elements –
  - **BLOCK** elements, *e.g.* headings **`<h1>`**, paragraphs **`<p>`**, lists **`<ol>`**, **`<ul>`**
  - **INLINE** elements *e.g.* **`<em>`** and **`<strong>`**: nested *within* block elements
- Syntax - rules of use -
  - Block elements can contain nested inline elements *and* other block elements
  - Inline elements may *not* contain block elements; they can only contain other inline elements, and/or content
- 'Well-formed' HTML = **elements nested correctly**

Well-formed HTML

```
<p>Correctly nesting<br />
  <strong>block </strong><em>and </em>
  <strong>inline</strong>elements <br />
  &equals; well-formed markup</p>
```

HTML entity for the equals sign
http://dev.w3.org/html5/html-author/charref

Correctly nesting
block *and*
inline elements
= well-formed markup

Normal flow document

- Think of each HTML element as if it is contained in a **box**
- Every element is nested within the **<body>** tags
- Inline elements are nested *within* block elements
- Block elements fill the whole width of the browser **viewport**
- The document is presented in the order in which it is marked up – the **normal flow**

```
<body>
<h1>Page heading</h1>
<p>Lorem ipsum dolor sit amet,
consectetuer adipiscing elit. Donec
suscipit mollis nulla. Cum sociis
natoque <em>penatibus et magnis</em>.
Nullam feugiat suscipit ipsum. Donec
orci felis, condimentum a</p>
<p> Lorem ipsum dolor sit amet,
consectetuer adipiscing elit. Donec
suscipit mollis nulla. Cum sociis
natoque penatibus et magnis dis
parturient montes, nascetur
<strong>Lorem ipsum dolor</strong>
Lorem ipsum dolor sit amet</p>
<footer>&copy; J Harding</footer>
</body>
```

Normal flow document

- We can see this with the example Learning Journal page – as it stands at the end of Lab tutorial week 2
- Note that when the **viewport** – *i.e.* the browser window - is resized how a normal flow HTML document is fully accessible to devices with different screen widths – mobile, tablet laptop *etc.*

  http://jh1033.brighton.domains/ci435/tutorials/learningJournal/index_2.html

Browser stylesheet **presentation**

- HTML markup only defines the **structure** of the page content
- The CSS stylesheet built-in to the browser defines how elements are **presented** –

Page font is Times New Roman, 16 pixels size, serif

h1 h2 h3 h4 h5 h6 – heading hierarchy

Link – an unvisited link, the default state

Visited – a link which has been visited previously

Hover - when the mouse is held over the link

Active – link clicked on, but not released

Lab tutorials

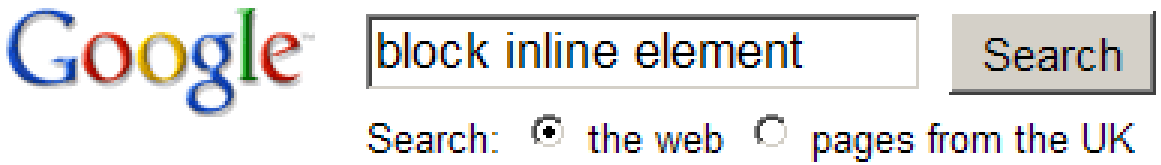
- By the end of Week 1 you should have completed 2 tutorials
- **Lab induction** – locating your Brighton Domains workspace and publishing a test web page that can be viewed online, to check that everything is working OK
- **Lab tutorial Week 1** -
  - Choosing which tool to use – Notepad++, Brackets *etc.*
  - Creating a basic HTML web page with the HTML5 doctype declaration
  - Linking 2 pages to form a *very* basic website
- Don’t worry if you didn’t complete the tutorials – plenty of time to catch up

This week's **lab tutorial**

- You will use many of the elements/tags we've talked about today
- Add more features to your basic HTML website
  - Lists **`<ul> <ol> <li>`**
  - Navigation within the page using anchors **`<a>`**
  - An email link (which won't work in the labs as there is no email software installed)
  - Add a **`<figure>`** image **`<img />`** and caption **`<figcaption>`**
  - Add a correctly formatted date to your posts

http://jh1033.brighton.domains/ci435/tutorials/tutorial02.html

This week's research and **reading**



- Web-based research – find out about "block and inline elements" and "absolute and relative" links
- MDN - Getting Started with HTML https://developer.mozilla.org/en-US/docs/Learn/HTML/Introduction_to_HTML/Getting_started
- Read about the ISO 8601 international standard for dates and times, used in HTML5
- Check out the W3C character entity reference chart - http://dev.w3.org/html5/html-author/charref