School of Computing, Maths & Digital Technology
6G4Z2101: Introduction to Web Design and Development

Introduction to the unit

Introduction to HTML

What the unit will cover

- Term 1
  - HTML, including new HTML5 structural tags
  - Cascading Style Sheets (CSS)
  - Web standards, usability, accessibility, responsiveness
  - HTML5 video – create custom controls using javascript
  - HTML5 canvas

- Term 2
  - Creating dynamic content using MySQL/PHP
  - Using a portable web server
  - Content Management Systems

- All course materials can be found on Moodle

Unit delivery

- 1 lecture per week

- 2-hour workshop per week

- Lectures
  - Term 1 – Marie Carroll and Peter McKenna
  - Term 2 – Bob Cherry

This term's workshops

- Workshops will be a combination of:
  - Guided exercises
  - Try it on your own
  - Supporting materials e.g. Lynda.com
  - You will code in **Notepad++**, or other text editor

- After the workshop
  - Practice in your own time to become more familiar with the material – set yourself challenges
  - Work on the appropriate part of the assignment

Self-directed study

- Total unit effort should be 300 hours

- Contact hours - 3 x 24 = 72

- Self-directed study should be around 5 hours per week

- Lectures and labs cannot teach you everything you need to know; you need to read around your subjects

Assessment

- Term 1 – portfolio (50%)
  - Create an e-portfolio website, styled with an external style sheet
  - Javascript-based tasks (HTML5 video and canvas)

- Term 2 – portfolio (50%)
  - MySQL/PHP development and Moodle-based quiz

- This term's assessment will be available next week, so you can work through it systematically as you cover relevant content week-by-week

The World Wide Web – the history [1]

- Invented in 1989 by Tim Berners-Lee, a British computer scientist at CERN

- The Internet was developing, and hypertext was an emerging technology

- October 1990 – Berners-Lee had written the three fundamental technologies
    - HTML (Hypertext Mark-up Language)
    - URI (Uniform Resource Identifier) – unique addresses for resources
    - HTTP (Hypertext Transfer Protocol)

The World Wide Web – the history [2]

- 6 August 1991 – [first website](#) went live
- 1992 – First web server outside of Europe built at Stanford University
- 1993 – Web protocols and code released as open source
- 1994 – Telecommunications companies started to provide internet access in the home

HTML and CSS

- HTML and CSS are the basic building blocks of any web page

- HTML documents define the content and structure of the page

- Style Sheets define the layout and presentation

- Stylesheets revolutionised web design
  - Use 'The WayBack Machine' to see how web design has evolved over time

What is HTML?

- HyperText Markup Language

- A **markup** language that describes web pages

- Tells a browser how a web page is structured (e.g. defines headings and their levels, paragraphs, etc)

- Tags are (normally) in pairs e.g. <html> </html>

- HTML pages are saved with the file extension .htm (or .html)

- Home page often called index.htm / index.html

  - Typing www.mmu.ac.uk/ actually sends you to www.mmu.ac.uk/index.htm

Basic tags

- All html pages include the same set of basic tags

```
<!DOCTYPE html>
```
Doctype declaration

```
<html>
```
Opens the html document

```
<head>
```
<head> content is largely non-visible in the web page

```
<title>My web page</title>
```
<title> content appears at the top of the browser window

```
</head>

<body>

<h1>This is the top level heading</h1>

<h2>This is a second level heading</h2>

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

</body>

</html>
```

Content within <body></body> tags is the visible content of the web page
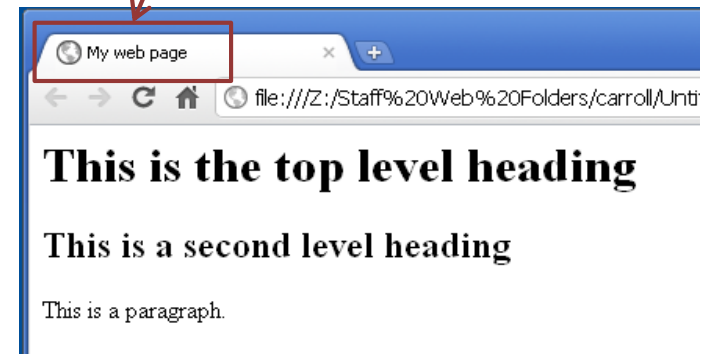
Paragraphs and Headings

- Most text will be tagged either as a paragraph <p> </p>, or a heading <h?> </h?>

- Browsers apply some default styling if there is no stylesheet

- Headings of different levels use <h1> to <h6>

- Tags help to define structure e.g. heading levels should reflect the importance of each heading

```
1    <!DOCTYPE HTML>
2    <html>
3    <head>
4     <meta charset="UTF-8">
5     <title>Welcome to Desolve</title>
6
7     <link href="_css/main.css" rel="stylesheet" media="screen, projection">
8    </head>
9    <body>
10   <header id="pageHeader">
11     <hgroup>
12        <h1><a href="index.htm" title="Desolve.org">Desolve</a></h1>
13        <h2>Fine Urban Photography</h2>
14     </hgroup>
15   </header>
16   <nav id="mainNav">
17      <h2>Site navigation</h2>
18      <ul>
19         <li><a href="galleries.htm" title="Our photo galleries" class="gallery">Galleries <em
20         <li><a href="gear.htm" title="Favorite gear" class="gear">Gear <em>our favorite equip
21         <li><a href="contact.htm" title="Get in touch" class="interact">Interact <em>contact,
22         <li><a href="shop.htm" title="Buy our stuff" class="shop">Shop <em>buy our stuff!</em
23      </ul>
24   </nav>
25   <section id="content">
26     <div class="banner">
27        <h1>We love urban photography</h1>
28        <p>We're betting you do too. Welcome to our site, a growing collection of galleries t
           line. While you're at it, feel free to submit a gallery of your own. <strong>Welcome<
29     </div>
30     <article id="home">
31        <h1>Welcome to Desolve</h1>
32        <p>So what is Desolve? The short answer is that it comes from the combination of <st:
           is that we're a collection of photographers, designers, and creatives who enjoy urbar
           occasionally find articles on design, our thoughts on the latest trends, and the odd
33        <h2>So... what aren't we?</h2>
34        <p>Professional photographers, for one. Please keep in mind that we're strictly amate
           settings we took the picture at, or even what lens we had. We're also not very exclus
           go through a submittal and approval process, so if you're interested, drop us a line
35        <p>We also occasionally have meetups. If, for example, we know we're coming to Miami,
           city, <a href="contact.htm" title="get in touch">let us know!</a></p>
36        <section class="news">
37        <h2>Upcoming cities</h2>
38        <p>Want to be a part of a Desolve.org meetup? Check out our upcoming dates and contac
```
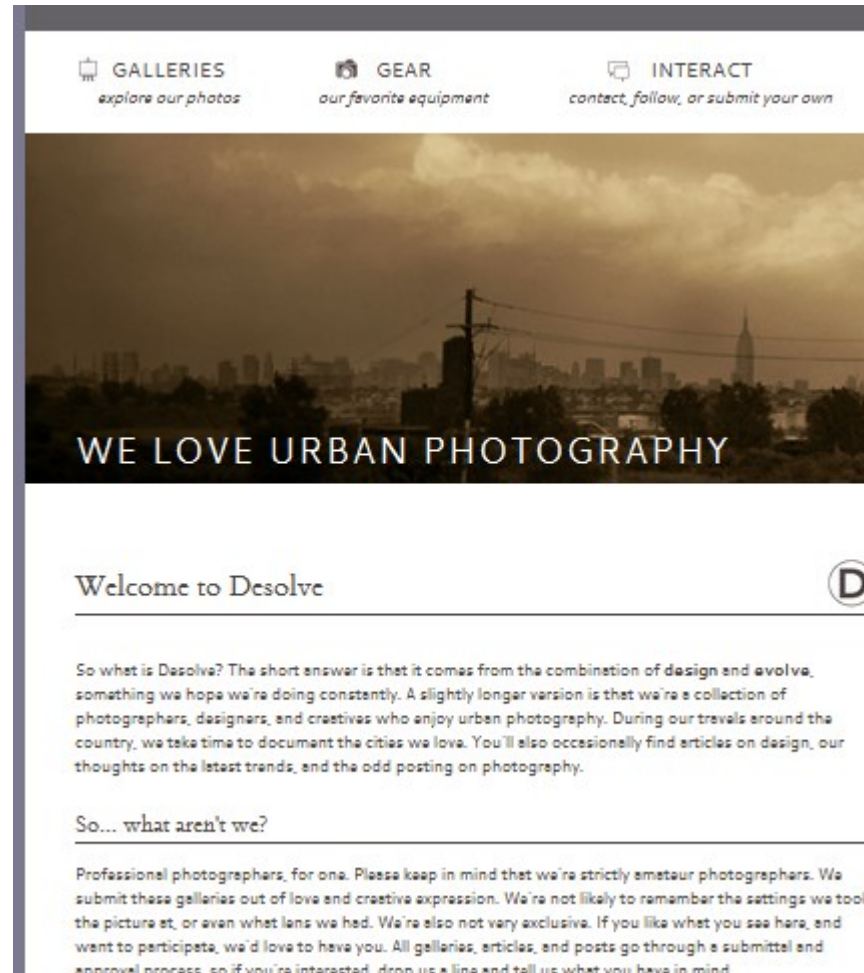
HTML tags are added to the content

The CSS document then targets content based on those tags

HTML document without stylesheet attached, using only the browser's default styles

HTML document with stylesheet attached

Hyperlinks

- Hyperlinks are what make the Web a hypermedia system

- Links can be **internal** or **external**

- Links include 3 parts:

  - The anchor tag <a href> ……
  - The url of the page you are linking to
  - The link text that appears in the web page

  - Go to the BBC home page
  - How to contact us

- URL = Uniform/Universal Resource Locator

HTML images

- Images are added using the <img> tag
- src = source – an **attribute** of the <img> tag

- The image size is generally specified within the tag

Tells the browser to display an image
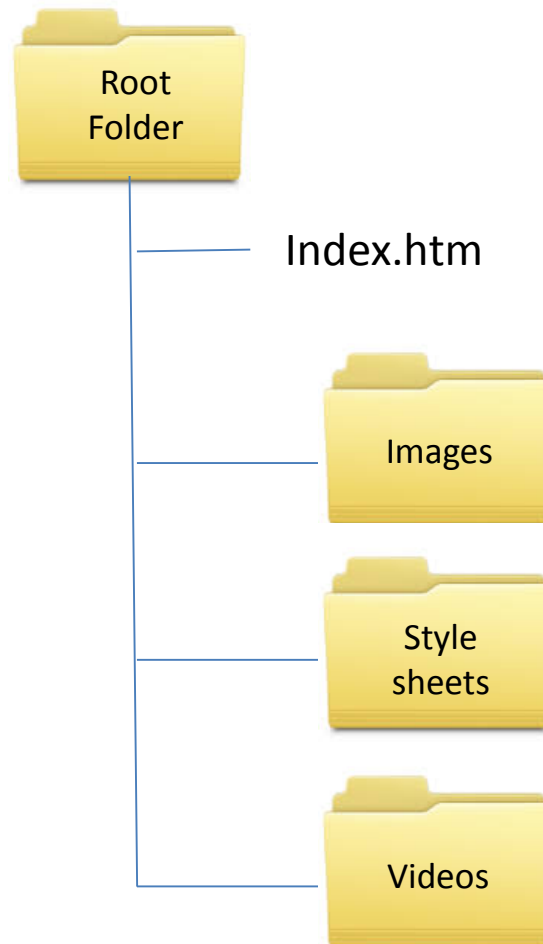
Image filename

Image size in pixels

- You will need to add a pathname if your images are stored in a different folder to the html page

Website file structure
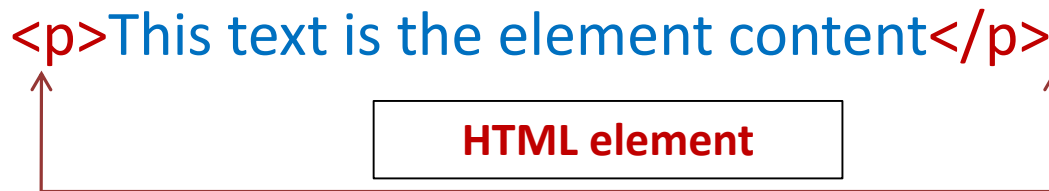

Root Folder

Index.htm

Images

Style sheets

Videos

HTML pages go in the root folder, and other content goes in sub-folders

Sub-folders will depend on site content

Elements and Attributes

- An HTML element is everything from a start tag to an end tag, including the tags themselves

<p>This text is the element content</p>

HTML element

- Many HTML elements can have attributes, which give additional information (e.g. image source, height and width)

- Attribute values appear in speech marks

- Some HTML elements can be empty, such as the break tag

HTML Lists

- Lists can be ordered <ol> or unordered

- Each list item is enclosed within <li> tags

- Now commonly used for creating navigation menus, through CSS styling

```
<ul>
<li>List item 1</li>
<li>List item 2 </li>
<li>List item 3 </li>
</ul>
```

```
<ol>
<li>List item 1</li>
<li>List item 2 </li>
<li>List item 3 </li>
</ol>
```

- List item 1
- List item 2
- List item 3

1. List item 1
2. List item 2
3. List item 3

Nested lists

- Lists can be nested, to create sub-lists

```
<ol>
  <li>List item 1
   <ul>
<li>sublist item</li>
<li>sublist item</li>
<li>sublist item</li>
</ul>
</li>
<li>List item 2
   <ol type="i">
    <li>sublist item</li>
    <li>sublist item</li>
    <li>sublist item</li>
   </ol>
</li>
</ol>
```

Open ordered (i.e. numbered) list

First numbered list item

Open unordered list, inside the first numbered item

```
1.  List item 1
       ○  sublist item
       ○  sublist item
       ○  sublist item
2.  List item 2
       i.  sublist item
      ii.  sublist item
     iii.  sublist item
```

HTML tables

- Use the <table> </table> tags
- Tables are made up of rows <tr> and cells <td>

Uses 'colspan'

Name	Hobby	
John	Football	Reading

Uses 'rowspan'

Name	John
Hobby	Football
	Reading

```
<table border="1">
    <tr>
    <td>cell 1</td>
    <td>cell 2</td>
    <td>cell 3</td>
    </tr>
    <tr>
    <td>cell 1</td>
    <td>cell 1</td>
    <td>cell 1</td>
    </tr>
</table>
```

'border' is an attribute of the 'table' element

cell 1	cell 2	cell 3
cell 4	cell 5	cell 6

New tags in HTML5

- HTML5 has introduced a range of new semantic structural tags
  - <nav>
  - <header> and <footer>
  - <main>, <article>, <section>, <aside>
  - and more
- **Semantic** or **Structural** elements
- Supported by new browsers
- Some lack of clarity in how some of the new tags are to be used (especially <article> and <section>)

Web Standards

- Web standards are recommendations from the World Wide Web Consortium (W3C)

- When new tags become full W3C Standard, all browsers should understand them e.g. CSS3 and HTML5 tags

- One of the W3C's recommendations is to separate content (HTML) from presentation (CSS)

- The Web Standards Project
  "… the Web needs guidance to realize its full potential. Web standards are this guidance."

W3C and W3Schools

- W3C – Lots of information about web standards and the status of new recommendations

- W3Schools has free tutorials for many areas of web design
  - Teaches how to code according to Web Standards

- http://www.w3.org/
- www.w3schools.com

http://www.lynda.com/

- Paid-for tutorial site available free to MMU students

Other tutorial sites

- http://www.codecademy.com/tracks/htmlcss

- http://www.tizag.com/htmlT/

- http://www.htmlgoodies.com/tutorials/

- http://www.html-5-tutorial.com/

Summary

- The World Wide Web is still uses the same basic technologies as when originally invented

- HTML is the first building-block of a web site, being the language in which all web pages are created

- HTML tags define the structure of a page

- HTML is an evolving language, with HTML5 having introduced a range of new tags

- Web Standards aim to bring a level of consistency to web development