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Of
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Welcome

My main research area is character animation, specifically modelling and animating faces, although I have worked on projects in modelling, rendering, animation, visualization and computer games over the last 20 years or so. I am a member of the **VRGraphicS Research Group** and I have over 60 refereed publications. I also have a keen interest in education, and fully support the University's stance on research-led teaching.

Selected papers

- Mark Warburton and Steve Maddock (to appear). *Physically-based forehead animation including wrinkles*. Computer Animation and Virtual Worlds, to appear
- Mark Warburton and Steve Maddock (2013). *Creating Finite Element Models of Facial Soft Tissue*. In Proc. WSCG 2013 (Journal of WSCG 21(3)), Pilsen, Czech Republic, June 24-27, 2013, pp. 215-224.
- BinSubaih, A., S. Maddock, D. Romano (2009), "Serious Games for the Police: Opportunities and Challenges", Special Reports & Studies Series at the Research & Studies Center (Dubai Police Academy), 2009 [[pdf](#) (author's copy)]
- Gamito, M.N. and S.C. Maddock (2009). "Accurate multidimensional poisson-disk sampling", ACM Trans. Graph., 29, 1, Article 8 (December 2009). (Also presented at ACM Siggraph 2010.) [[pdf](#) (ACM Authorizer), [project page](#)]
- Gunmarsson, O. and S. Maddock (2008), "Sketching Faces", Proc. Fifth Eurographics Workshop on Sketch-Based Interfaces and Modeling 2008 (SBIM 2008), Annecy, France, June 11-13, 2008 [[pdf](#) (abstract, Eurographics DL), [project page](#)]
- M.N. Gamito, S.C. Maddock (2008), "Topological Correction of Hypertextured Implicit Surfaces for Ray Casting", The Visual Computer, 24(6), June 2008, pp. 397-409. [[local pdf](#) and [animations](#)]
- Martinez Lazalde, O., S. Maddock, M. Meredith (2008), "A Constraint-Based approach to Visual Speech for a Mexican-Spanish Talking Head", International Journal of Computer Games Technology, 2008, Article ID 412056, 7 pages. [[pdf](#), [pdf](#)]

Recent funded projects

- "3D structure-from-motion in archaeology", project 3 in the Interdisciplinary PhD Network 'Transforming Research Methods in the Humanities', which consists of 3 PhD studentships, ~£170,000. Supervisors: Project 1: Fitzmaurice (English) and Green (Computer Science); Project 2: Watt (Hispanic Studies), Wessels (Sociological Studies); Project 3: Willmott (Archaeology), Maddock (Computer Science), Autumn 2014-2017.
- "Changes with Computer Love" (virtual gallery), University of Sheffield Festival of the Mind, £4,885, Maddock and Brown (Computer Science), Bax and Fleetwood (Humanstudio), 18-28 Sep 2014.
- Physically-based facial modelling and animation (workstation), EPSRC Upgrading Small Scale Equipment Base for Early Career Researchers, £2,570, Viceconti (PI) et al inc. Maddock, 1 Nov 2012 - 31 March 2013.
- "Computer Love" (virtual gallery), University of Sheffield Festival of the Mind, £3,522, Brown and Maddock (Computer Science), Bax (Humanstudio), 20-30 Sep 2012.
- RECITE (Rethinking a City's Theatres, Digital Creativity and Innovation), University of Sheffield Cross-cutting Director of Research and Innovation Scholarships in the Digital World, ~£162,000, Peng (PI) and Samuel (Architecture), Maddock and Romano (Computer Science), Nicholson and Babbage (English), Sep 2010-Sep 2013.
- "Visual Speech for Technology Enhanced Learning", ESRC/EPSC PhD studentship, £49,000, Maddock (PI, Computer Science), Nicolson (Psychology), Pascalis (Grenoble), Oct 2008-Sep 2011, PhD student: Priya Day.

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Last modified on Tuesday, 10-Jun-2014 17:18:40 BST

Google Research in in f

COM1008:

Web and Internet Technology

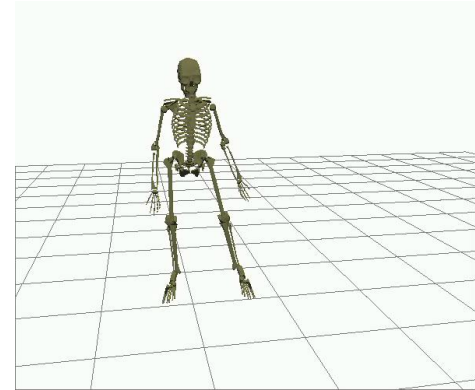
Lecture 2: HTML and CSS

Dr. Steve Maddock

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1. Introduction

- When creating a web page, separate the structure and appearance
 - HTML – structure (first)
 - CSS – appearance (second)
- Markup language
- We will use HTML5 and CSS
 - CSS3 features in a later lecture



2. Markup language

- Annotate a document to show its structure
- eXtensible Markup Language (XML)
 - Strict set of rules for defining the encoding of a document or an arbitrary data structure
 - metalanguage – a language for defining other markup languages

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE recipe PUBLIC "-//Happy-Monkey//DTD RecipeBook//EN"
"http://www.happy-monkey.net/recipebook/recipebook.dtd">

<recipe>

  <title>Peanut-butter On A Spoon</title>

  <ingredientlist>
    <ingredient>Peanut-butter</ingredient>
  </ingredientlist>

  <preparation>
    Stick a spoon in a jar of peanut-butter,
    scoop and pull out a big glob of peanut-butter.
  </preparation>

</recipe>
```

http://en.wikipedia.org/wiki/File:RecipeBook_XML_Example.png

2.1 HTML

- HTML is a markup language with pre-defined presentation semantics

start tag <??>	mix of text and elements	matching end tag </??>

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>Sample page</title>
```

Can also have empty elements, e.g.


```
</head>
```

```
<body>
```

A general document is made up of elements

```
<h1>Sample page</h1>
```

```
<p>This is a <a href="demo.html">simple</a> sample.</p>
```

```
<!-- this is a comment -->
```

```
</body>
```

Attributes are named properties of elements

```
</html>
```

attribute_name = "value inside quotes"

2.1 HTML

- HTML5 being developed simultaneously by WHATWG and W3C
- (Web Hypertext Application Technology Group, World Wide Web Consortium)
- 'living HTML spec'
- Current spec is over 900 pages



www.w3.org/TR/html5
<https://html.spec.whatwg.org/multipage/>

W3C [CC-BY-3.0 ,
(www.creativecommons.org/licenses/by/3.0)], via Wikimedia Commons

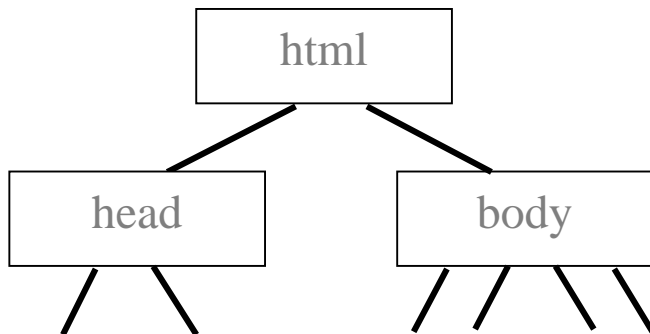
An example...

- We'll look at the HTML involved in structuring a page with:
 - A heading
 - A short piece of text
 - A bulleted list containing 3 items
 - A hyperlink attached to one of the items in the list
- Then, we'll use a stylesheet to change the appearance.



3. Overall structure of the page

- There are two main parts to the document:
 - **head** and **body**
- The structure of the document can be represented as a tree
 - html element is the root



Specifying the doctype triggers browsers that need it to operate in html standards mode

```
<!DOCTYPE html>
<html lang="en">
```

```
<head>
  <meta charset="utf-8" />
  <title>Team X</title>
</head>
```

```
<body>
  <!-- a comment in place
        of some contents -->
</body>
```

```
</html>
```

3.1 History: XHTML document type declaration

- XHTML is an XML-based language, defined by a document type definition (DTD)
- An XHTML document must include a *DTD*

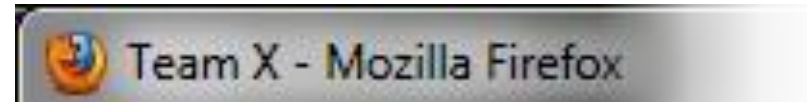
```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
```

- Modern Web browsers have the DTD incorporated into their code.

DTD	Public Identifier	URL
Strict	-//W3C//DTD XHTML 1.0 Strict//EN	http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd
Transitional	-//W3C//DTD XHTML 1.0 Transitional//EN	http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd
Frameset	-//W3C//DTD XHTML 1.0 Frameset//EN	http://www.w3.org/TR/xhtml1/DTD/xhtml1-frameset.dtd

3.2 The document head

- Content of head element is not rendered in browser window
- **title element** is compulsory and is displayed in the title bar
- **meta** element provides a general-purpose mechanism for adding metadata to HTML documents
- **charset** defines the document's character encoding
 - Security risk of not setting it
 - Must be in first 512 bytes
 - multibyte character encoding for Unicode.



```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8" />
  <title>Team X</title>
</head>

<body>
  <!-- content -->
</body>

</html>
```

4.2 The document head

- Other meta data elements use name and content attributes
- Other elements
 - link – stylesheets (see later in this lecture)
 - script – JavaScript (see a later lecture)

```
<head>
  <meta charset="utf-8" />
  <title>Team X</title>
  <link rel="stylesheet" href="teamx1.css" />
  <meta name="author" content="Steve Maddock" />
  <meta name="description" content="Team X web site for COM1008" />
  <meta name="keywords" content="Team X, sports" />
</head>
```

4.3 The body of the document

Team X

We are Team X.

- Art
- [Bart](#)
- Cara

```
<body>
  <h1>Team X</h1>
  <p>We are Team X.</p>
  <ul>
    <li>Art</li>
    <li><a href="http://www.thesimpsons.com/">Bart</a></li>
    <li>Cara</li>
  </ul>
</body>
```

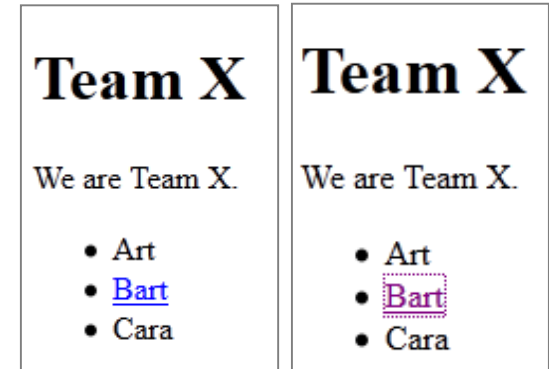
- Six heading elements: **h1**, h2, h3, h4, h5, h6
- List types:
 - Unordered lists (**ul**); items (**li**)
 - Ordered lists (**ol**); items (**li**)
 - Definition lists (**dl**); items (**dt** term and **dd** definition)
- The hyperlink (anchor) element is **a**

5. Hyperlinks

- The ends of hyperlinks are called *anchors*
 - They link a source and a destination*

```
<a href="URL">link text</a>
```

- Default display: blue and underlined
- Once visited: purple and underlined



```
<body>
  <h1>Team X</h1>
  <p>We are Team X.</p>
  <ul>
    <li>Art</li>
    <li><a href="http://www.thesimpsons.com/">Bart</a></li>
    <li>Cara</li>
  </ul>
</body>
```

Uses an absolute URL

5.1 Relative URLs

- Orange gives the relative filenames from the start position `index.html`
- From within `index.html` : `feedback`

The '..' refers to the next folder level up in the hierarchy



Absolute URL : `feedback`

Chapman, N and J. Chapman, Web Design: A complete introduction, John Wiley & Sons, 2006.

5.1 Relative URLs

- Useful because can easily move whole Web site to a different host machine, as the links are relative
- Fragment identifier can be used to link to a location within a document:

```
<a href=" ../feedback.html#Comments">Send a comment</a>
```

- The location in the document is identified with an id:

```
<h1 id="Comments">Your comments</h1>
```

- Implicit destination anchor at the start of every document

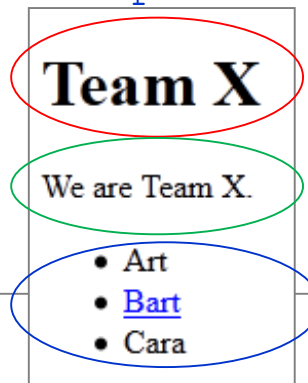
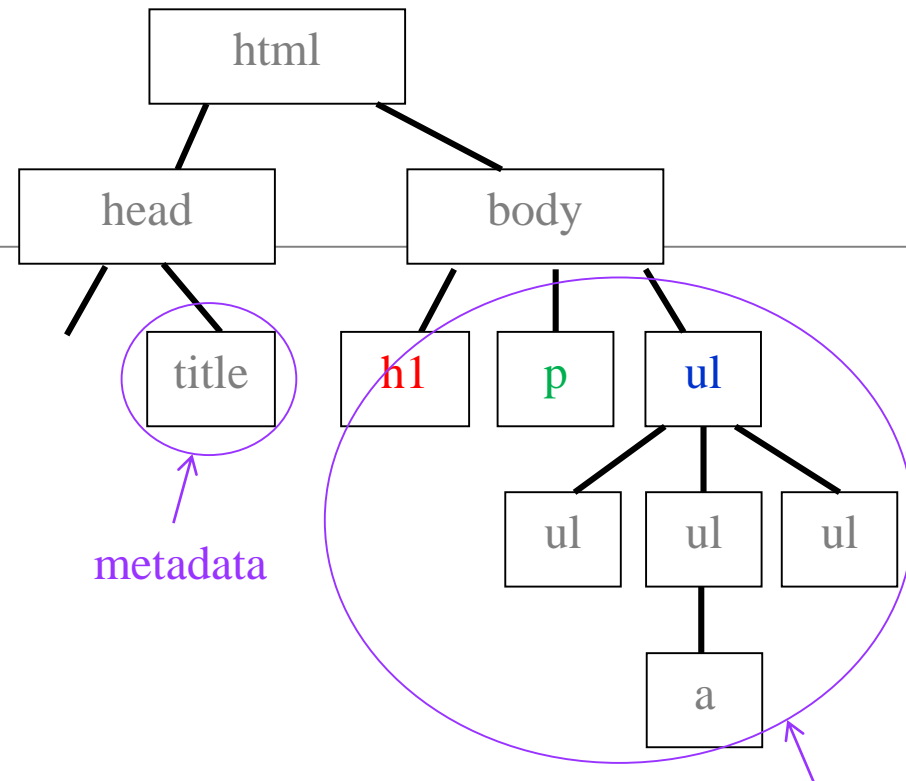
```
<a href="#">Jump to top of page</a>
```

6. Document structure

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8" />
  <title>Team X</title>
</head>

<body>
  <h1>Team X</h1>
  <p>We are Team X.</p>
  <ul>
    <li>Art</li>
    <li><a href="http://www.thesimpsons.com/">Bart</a></li>
    <li>Cara</li>
  </ul>
</body>
</html>
```



6.1 Layout – should reflect document structure

- Some editors will layout the code for you
- There are also tools to tidy up your HTML, e.g. HTML Tidy (<http://infohond.net/tidy/>)

```
<body>
  <h1>Team X</h1>
  <p>We are Team X.</p>
  <ul>
    <li>Art</li>
    <li><a href="http://www.thesimpsons.com/">Bart</a></li>
    <li>Cara</li>
  </ul>
</body>
```

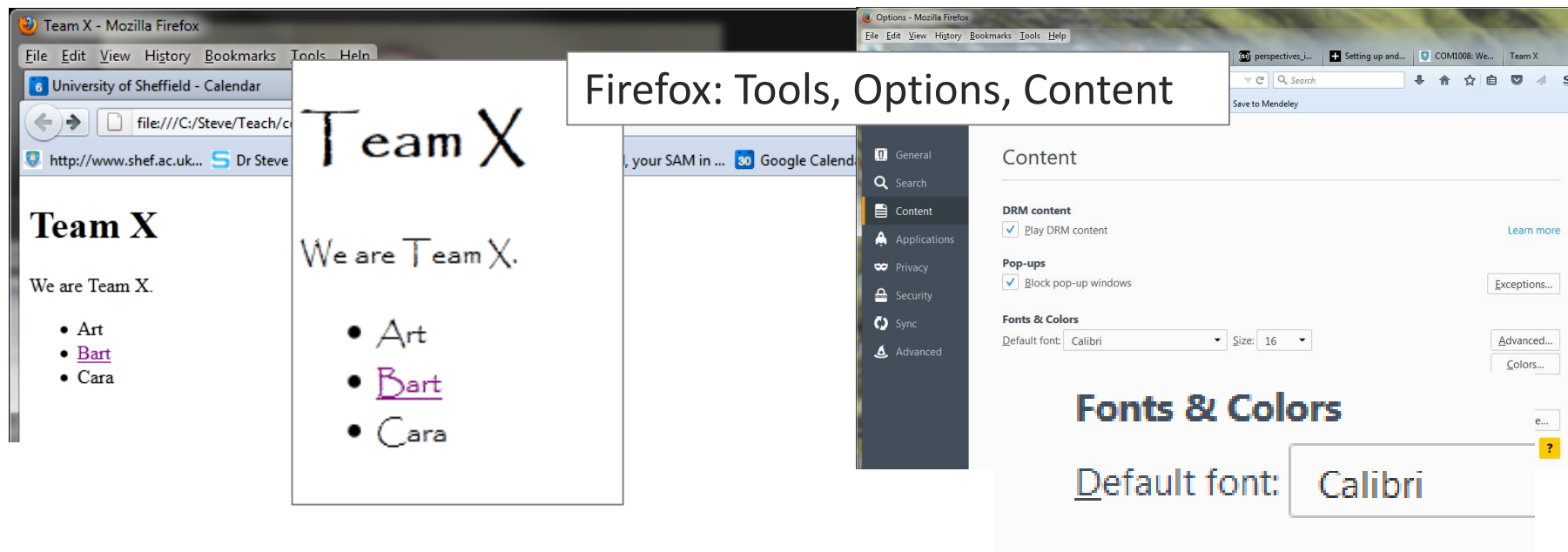
Indent 2 spaces

```
<body>
  <h1>Team X</h1>
  <p>We are Team X.</p>
  <ul>
    <li>Art</li>
    <li><a href="http://www.thesimpsons.com/">Bart</a></li>
    <li>Cara</li>
  </ul>
</body>
```

Indent 4 spaces

7. Appearance

- A browser (sometimes called a User Agent) has defaults for the appearance of each element
- A browser can offer the user options to override these defaults
- *Alternative:* Glue a stylesheet



7.1 “Gluing” a stylesheet to a document

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8" />
  <title>Team X</title>
  <link rel="stylesheet" href="teamx1.css" />
</head>

  Multiple stylesheets can be glued

<body>
  <h1>Team X</h1>
  <p>We are Team X.</p>
  <ul>
    <li>Art</li>
    <li><a href="http://www.thesimpsons.com/">Bart</a></li>
    <li>Cara</li>
  </ul>
</body>

</html>
```

Team X

We are Team X.

- Art
- [Bart](#)
- Cara

With stylesheet

Team X

We are Team X.

- Art
- [Bart](#)
- Cara

Without stylesheet

7.2 Alternative ways to “glue” a stylesheet to a document

- Link to a stylesheet which is in its own file:  Preferred option

```
<head>
  <link rel="stylesheet" href="teamx1.css" />
</head>
```

- ‘Old style’:

```
<head>
  <link rel="stylesheet" type="text/css" href="teamx1.css" />
</head>
```

- Embed it in the head element:

```
<head>
  <style> ...style information goes here... </style>
</head>
```

- Inline it:

```
<h1 style="color: teal;">My heading</h1>
```

8. The CSS

We are Team X.

- Art
- [Bart](#)
- Cara

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8" />
  <title>Team X</title>
  <link rel="stylesheet" href="teamx1.css">
</head>
<body>
  <h1>Team X</h1>
  <p>We are Team X.</p>
  <ul>
    <li>Art</li>
    <li><a href="http://www.thesite.com">Bart</a></li>
    <li>Cara</li>
  </ul>
</body>
</html>
```

teamx1.css

```
h1 {
  color: teal;
  font-family: Georgia, serif;
  font-size: 200%;
}
p {
  color: blue;
}
ul {
  padding-left: 100px;
  list-style-type: circle;
}
li {
  color: #123456; /* hexadecimal */
}
```

A comment.

#123456 is the same as rgb(18,52,86)

8.1 The CSS

- A stylesheet is a set of *rules*

```
Selector { Property: Value; }
```

- This applies to all occurrences of the relevant element
 - (See inheritance, cascading and specificity)
- Multiple declarations are separated by semicolons
- If property value has a space, use quotes:

```
font-family: "Lucida Handwriting", Papyrus, serif;
```

```
h1 {
  color: teal;
  font-family: Georgia, serif;
  font-size: 200%;
}

p {
  color: blue;
}

ul {
  padding-left: 100px;
  list-style-type: circle;
}

li {
  color: #123456; /* hexadecimal */
}
```

Team X

We are Team X.

- Art
- Bart
- Cara

8.2 CSS selectors

- Single elements
 - `h1 { color: blue; }`
- Multiple items – the items are given in a comma-separated list
 - `h1, h2 { color: blue; }`
- Label specific html elements and then refer specifically to those elements
 - Use of ids and classes
- Use contextual selection
 - See later lecture
- As the number of CSS rules grows, we need to know which rule applies to which element – cascading, inheritance and specificity

8.3 id and

- HTML elements can be labelled with a unique id, which is used only once in the HTML document. Example:
 - `<p id="special">...</p>`
- In the CSS file, the #operator is used to refer to these:

```
#special {  
  color: blue;  
}
```

Matches an element with id “special”

```
h1, h3, #special {  
  font-style: italic;  
}
```

Matches all h1 elements and all h3 elements,
and an element with id “special”
Additive process – an element with id “special” is
now blue and italic.

8.4 class and .

- If we want to style multiple things at the same time, we can label each HTML element using a class:
 - `<p class="italic">...</p>`
 - `<h1 class="italic">...</h1>`
- Multiple classes can be added to the same element, separated by spaces:
 - `<h1 class="italic purple">...</h1>`
- In the CSS file, the `.` operator is used to refer to these

```
p.italic { font-style: italic; }  
*.italic { font-style: italic; }  
.italic { font-style: italic; }  
.purple { color: purple; }
```

Matches paragraphs using this class
Matches all elements using this class
Matches all elements using this class
Matches all elements using this class

9. Flow

```
<body>
  <h1>Team X</h1>
  <p>We are Team X.</p>
  <ul>
    <li>Art</li>
    <li><a href="http://www.thecoolmoo.com/">Bart</a></li>
    <li>Cara</li>
  </ul>
</body>
```

- By default, elements ‘flow’ onto the page based on their order in the HTML document
 - **Block** elements - begin on new line
 - *Examples:* p, div, ul, li, table, h1, h2, h3, h4, h5, h6, hr
 - **Inline** elements - displayed within blocks
 - *Examples:* a, img, span, em, strong, code, big, small, br, cite
- There are a range of ways to alter the flow:
 - Change the *position* property of an element
 - ‘float’ an element to one side of its container
 - Change the *display* property, e.g. none

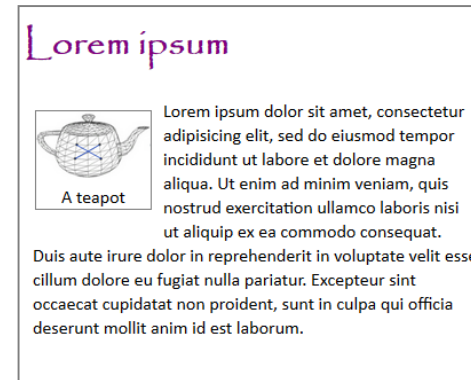
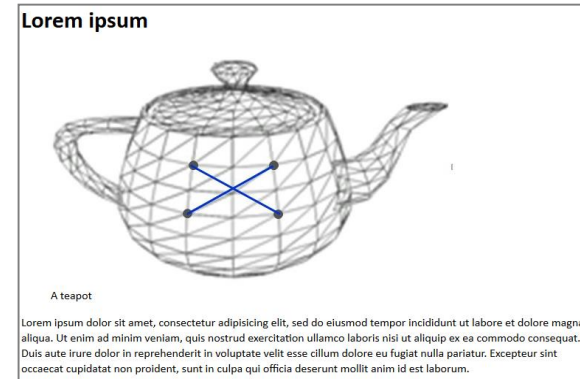
Team X

We are Team X.

- Art
- [Bart](#)
- Cara

9.1 Example: Floating an image

- Including an image on the web page...
- And changing the appearance of the page with a stylesheet...



HTML for structure

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8" />
  <title>Lorem ipsum</title>
</head>

<body>
  <h1>Lorem ipsum</h1>
  <figure>
    
    <figcaption>A teapot</figcaption>
  </figure>
  <p>Lorem ipsum...rest of text
</p>
</body>

</html>
```

Lorem ipsum



A teapot

Lorem ipsum dolor sit amet, consectetur
adipiscing elit, sed do eiusmod tempor incididunt

CSS for appearance

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8" />
  <title>Lorem ipsum</title>
  <link rel="stylesheet" href="x.css" />
</head>
<body>
<h1>Lorem ipsum</h1>
<figure>
  
  <figcaption>A teapot</figcaption>
</figure>
<p>
Lorem ipsum...
</p>
</body>
</html>
```

Lorem ipsum

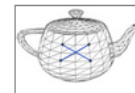


A teapot

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Without

Lorem ipsum



A teapot

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit

With

HTML for structure

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8" />
  <title>Lorem ipsum</title>
  <link rel="stylesheet" href="x.css" />
</head>
<body>
<h1>Lorem ipsum</h1>
<figure>
  
  <figcaption>A teapot</figcaption>
</figure>
<p>
  Lorem ipsum...
</p>
</body>
</html>
```

CSS for appearance

x.css

```
h1 {
  color: purple;
  font-family: Papyrus, serif;
  font-size: 200%;
}

p { margin: 0.5em; }

figure {
  float: left;
  border: solid 1px gray;
  margin: 10px;
  padding: 0;
}


figcaption {
  text-align: center;
}
```



10. Spacing

- How do we change the spacing around elements on the page?

Lorem ipsum

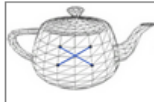


A teapot

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum



A teapot

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Welcome

My 10.1 The Box Model
have been involved in projects in modelling and animating faces, although I visualisation and computer games over the last 20 years or so. I am Head of the Computer Graphics and Virtual Reality Research Group. I have

over 60 refereed publications and am a member of both ACM SIGGRAPH and Eurographics. I also have a keen interest in the area of facial expression analysis.

Selected papers

- Every element (content) is placed inside a box
- Each box region may have a thickness of zero

- Warburton, A., S. Maddock, D. Romano (2009) "Opportunities and Challenges", Special Reports & Studies Series at the Research & Studies Center (Dubai Police Academy), 2009
- WSCG 2013, Pilsen, Czech Republic, June 24-27, 2013 (accepted)

- BinSubain, A., S. Maddock, D. Romano (2009) "Accurate Multi-Dimensional Poisson-Disc Sampling", ACM Transactions on Graphics, 28(3), October 2009, ACM Press (2010)

- Gamito, M.N. and S.C. Maddock (2009) "Based approach to Visual Speech for a Mexican-Spanish Talking Head", International Journal of Computer Games Technology, Volume 2009 (2009), article 1542056, 7 pages
- Martinez Lazalde, O., S. Maddock, M. Meredith (2008), "A

- "Visual Speech for Technology Enhanced Learning", ESERO/EPERC PhD studentship, £49,000, Maddock (PI, Computer Science), Nicholson (Psychology), Pascalis (Grenoble), Oct 2008-Sep 2011, PhD student: Brive Dey

Recent funded projects

- Physically-based facial modelling and animation (production), EPSRC Upgrading Small Scale Equipment Base for Early Career Researchers, £2,570, Viceconti (PI) et al inc. Maddock, 1 Nov 2012 – 31 March 2013

- "Computer Love" (virtual gallery), University of Sheffield Festival of the Mind, £3,522, Brown and Maddock (Computer Science), Bax (Humanstudio), 20-30 Sep 2012.

- RECITE (Rethinking a City's Theatres, Digital Creativity and Innovation), University of Sheffield Cross-cutting Director of Research and Innovation Scholarships in the Digital World, £162,000, Peng (PI) and Samuel (Architecture), Maddock and Romano (Computer Science), Nicholson and Babbage (English), Sep 2010-Sep 2013

- "Visual Speech for Technology Enhanced Learning", ESERO/EPERC PhD studentship, £49,000, Maddock (PI, Computer Science), Nicholson (Psychology), Pascalis (Grenoble), Oct 2008-Sep 2011, PhD student: Brive Dey

- "Visual Speech for Technology Enhanced Learning", ESERO/EPERC PhD studentship, £49,000, Maddock (PI, Computer Science), Nicholson (Psychology), Pascalis (Grenoble), Oct 2008-Sep 2011, PhD student: Brive Dey

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10.2 Example: margins

- Lots of properties for margins, padding and borders

- Example: margins

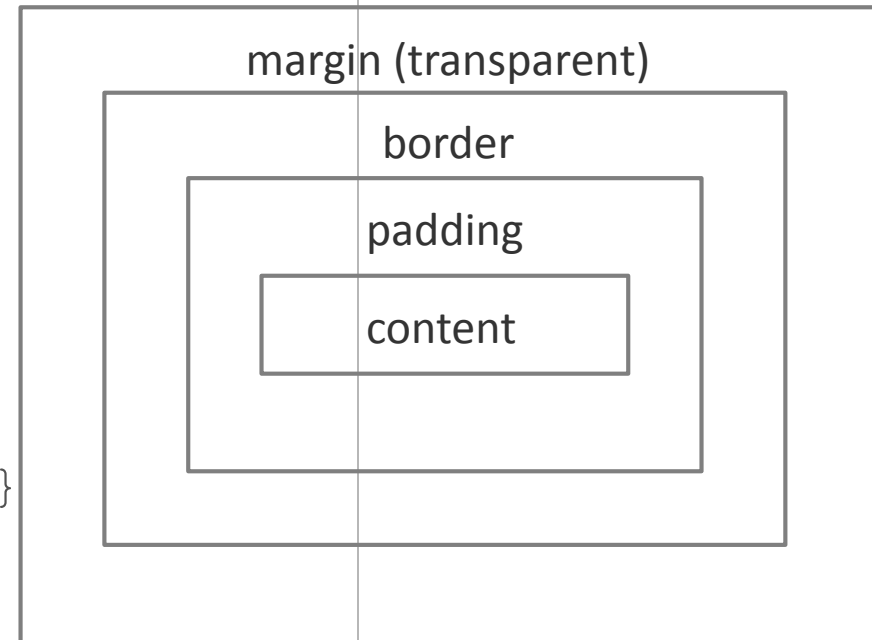
- margin-top, margin-right, margin-bottom, margin-left

- *length* | *percentage* | *auto*

- `p { margin-top: 10px; }`

- Set all at once with:

- `body {
 margin: 1em 20px 3% 15px;
}`



>Lorem ipsum

p 976 × 84

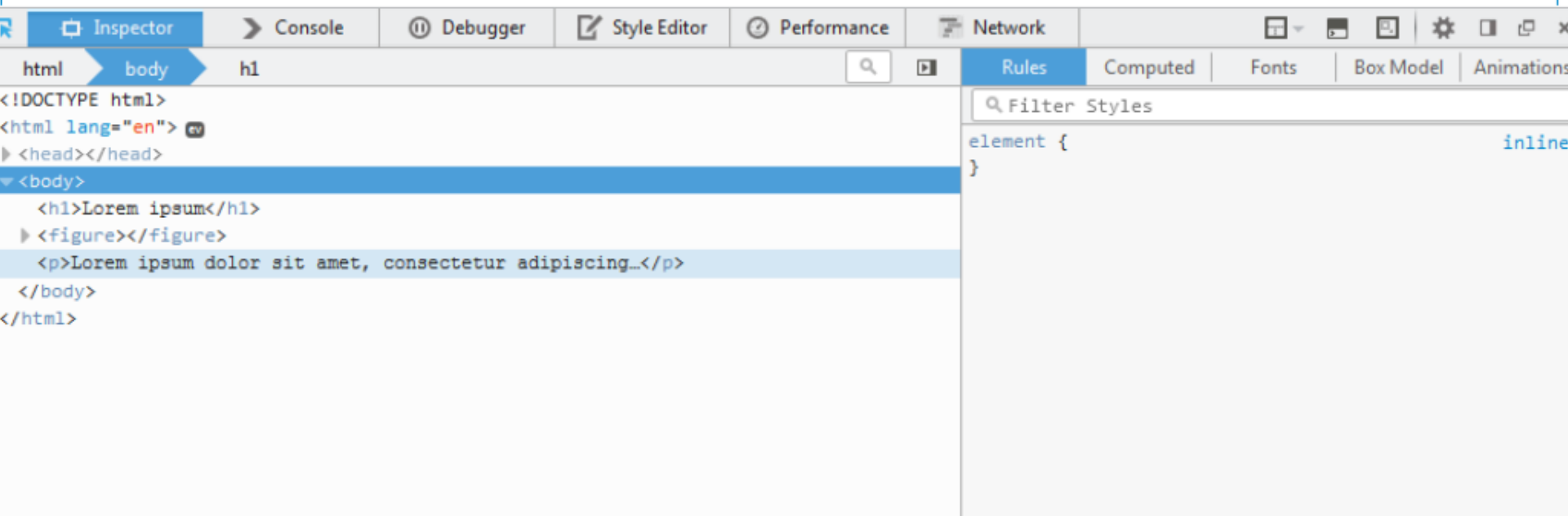


A teapot

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

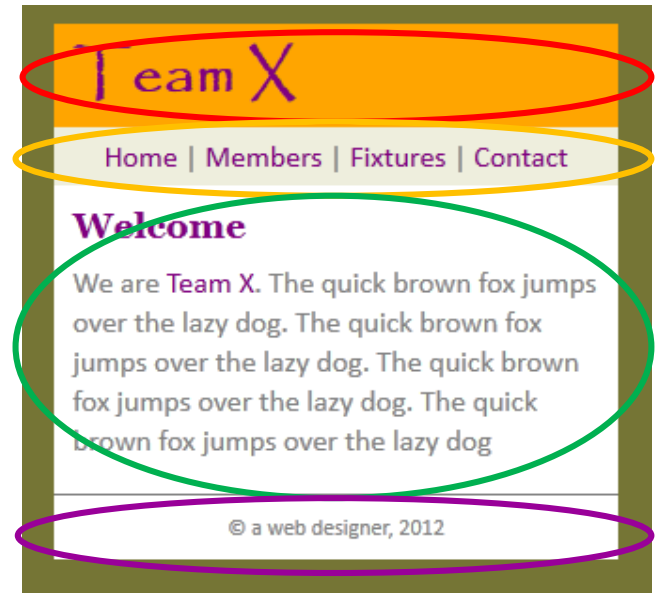
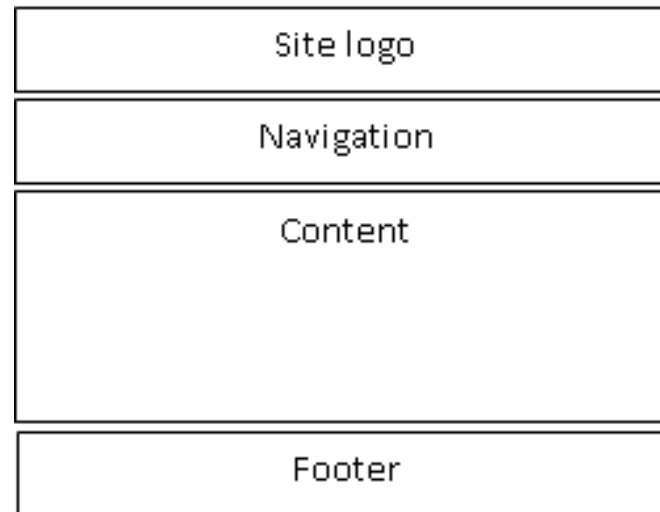
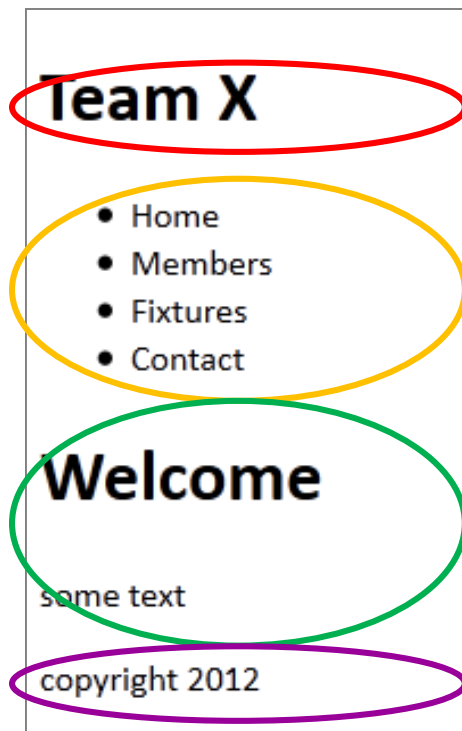
11. Debugging

- Example: Firefox Web Developer



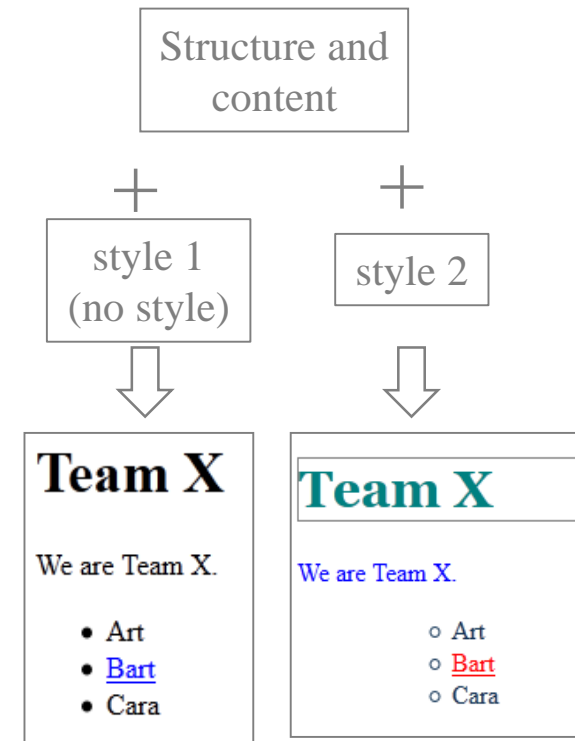
12. Grouping elements (Next week)

- div
- HTML5 semantic elements: header, nav, main, section, article, footer, aside



13. Summary

- When creating a Web page, separate the structure (**HTML**) and the appearance (**CSS**)
- Element ‘**flow**’ in documents can be altered
- The **box model** is used to control spacing around elements
- **Grouping HTML elements** helps control complexity
- Visualising the document as a tree is useful
- CSS rules can proliferate, so need to organise and work out which apply – **cascading, inheritance and specificity**



Next week