Programming 1 Team Solo

The basics of web programming: Lecture #2: images, links and multipage sites

CLICKER CHANNEL: 82

Putting the H into HTML

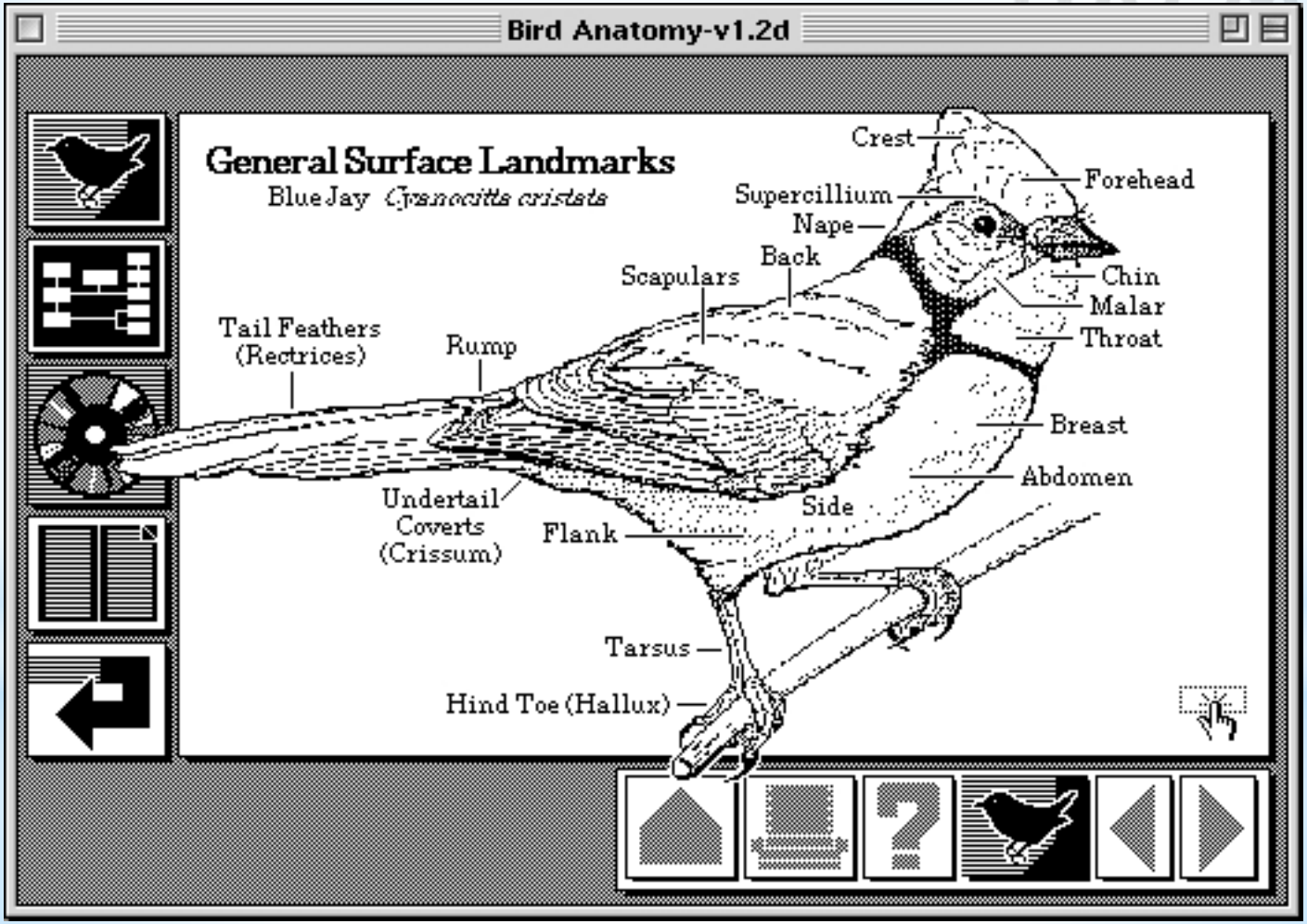
- Remembering that HTML stands for *HyperText Markup Language*…
- …what the heck is "hypertext"?!

- Wikipedia says: "Hypertext is text displayed on a computer display with references (hyperlinks) to other text which the reader can immediately access… (different) pages are interconnected by hyperlinks"

Highlights from the history of Hypertext

- Term first used by Ted Nelson in 1965 in his model for creating and using linked content
- Tim Berners-Lee (the chap who "invented" the web) created an early hypertext system called ENQUIRE in 1980
  - …this was lost because "the disc was reused for other purposes", i.e. they recorded over it! ☺
- The first "successful" Hypertext system was Apple's HyperCard in 1987

Hypercard - the web before the web



It's all about links

- An example
  - Go to www.kingston.ac.uk
  - Click on *Faculties*
  - Click on *SEC/Faculty website*
  - Click on *Courses*
  - Click on *Computing and Information Systems*
- Each click in turn takes you to a new document
- At the heart of any hypertext system (the web included) is the idea that documents contain link to other documents
- These links are embedded as content within the containing document

Web page v Web site

- You will often hear people use the term "web page" interchangeably with "web site"
- But these are different things… many pages comprise a site!
  - The single page about CIS at http://sec.kingston.ac.uk/about-SEC/schools/CIS/ is a web *page*
  - kingston.ac.uk in its entirety is a web *site*
- You will need to understand the difference if you are going to create applications that use the web
- You will need to be able to write pages that navigate to other pages (both within the same site and to external sites)
- This is where links come in

Links, put simply

- The text between the opening <a> tag and the closing tag is known as the *link text*
  - This text appears on the page in the web browser
  - If the user clicks the text, the browser will go to the page specified
  - This should explain where the user will go if they click on it
  - Ideally, the hypertext ethos is that the link text should fit into the surrounding prose
  - At least avoid using text like "click here"!

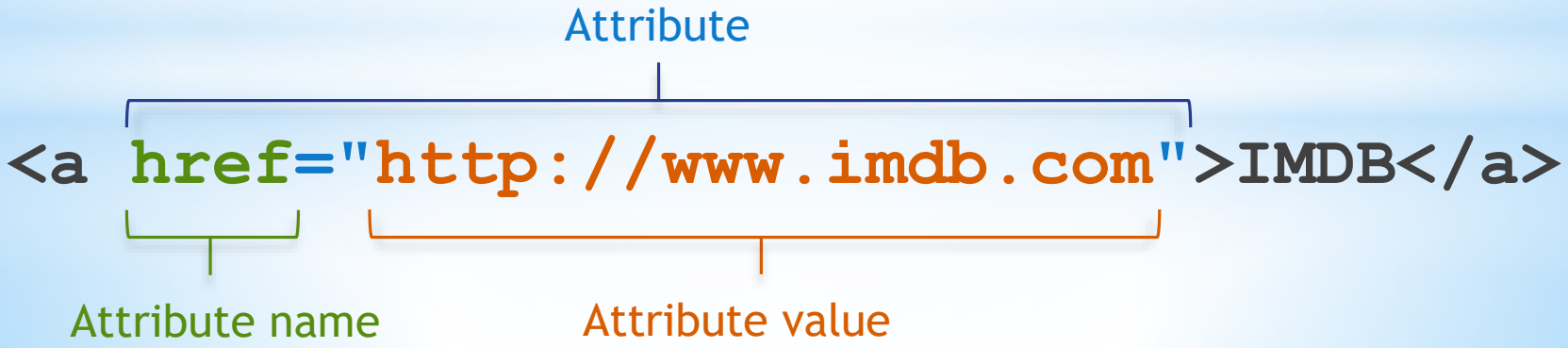
An example

```
<html>
  <head>
    <title>Example</title>
  </head>
  <body>
    <p>One of the best websites on the web for film information
       is <a href="http://www.imdb.com">IMDB</a>. It contains
       everything you ever need to know about film and TV.</p>
  </body>
</html>
```

One of the best websites on the web for film information is IMDB. It contains everything you ever need to know about film and TV.

Attributes

- Something we've not seen before in our HTML tags – but that is a key part of the <a> element – are *attributes*.
- Attributes appear in the start tag and contain additional information about an element
- Attributes have a name and value
- For example, in our <a> element we have the *href* attribute which contains the information about what page the browser goes to if the link is clicked:



Linking to other web sites

- The IMDB example previously was an example of an *absolute URL*
  - URL stands for Uniform Resource Locator – in English, a complete web address
  - An absolute URL starts with a protocol followed by two slashes (in this case, HTTP://)
  - The *domain name* (the name of the server which holds the page) for the page follows
  - Optionally, there will also be a path to a specific page
    - e.g. http://sec.kingston.ac.uk/about-SEC/schools/CIS

- When your link goes to an entirely different website, use an absolute URL

Linking to other pages on your website

- When linking to other pages within the same website, you don't need to specify the protocol or domain name:
- This is called a *relative* URL

```
<a href="about.html">About me</a>
```

- Note how there is no *http://* or any domain name…
- We'll look at these in a bit more detail later…

Which of the following would be correct usage of hyperlinks?

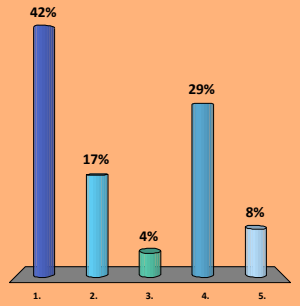
1. The author Douglas Adams is best known for The Hitchhikers' Guide to the Galaxy. The radio show version first aired in 1978.

2. The author adams.html is best known for hhtg.html. The radio show version first aired in 1978.

3. The author <a href="Douglas Adams"/> is best known for <a href="The Hitchhikers' Guide to the Galaxy"/>. The radio show version first aired in 1978.

4. The author, Douglas Adams, is best known for The Hitchhikers' Guide to the Galaxy. The radio show version first aired in 1978. Click here to find out more about Adams, and here to find out more about the story.

5. The author, Douglas Adams, is best known for The Hitchhikers' Guide to the Galaxy. The radio show version first aired in 1978. Click adams.html to find out more about Adams, and httg.html to find out more about the story.



Multi-page sites in NoobLab

- When you start writing an HTML page in NoobLab, it will default to creating a page called *index.html*
- Most web servers treat pages with this name as a default page
  - So, for example, when you go to http://www.kingston.ac.uk, it may well be going to http://www.kingston.ac.uk/index.html
- When you hit the "run" button in NoobLab, it will run and display the current HTML page

Multi-page sites in NoobLab

- Up until now you have created single pages of HTML – but if you are going to do exercises that involve creating web *sites*, with links between the pages, you'll need to know how to do this within NoobLab
- At the top of the code editor, you'll see a + sign

- Click the + to add a new page
- NoobLab will ask you to give the new page a name
  - Get into the habit of ensuring the new page has a `.html` extension!

An example of a multipage site

index.html | about.html | research.html | +

```
1  <html>
2    <head>
3      <title>Hungry</title>
4    </head>
5    <body>
6      <h1>Welcome to my page</h1>
7      <p>You can find out all <a href="about.html">about me,</a>
8        or you can read about <a href="research.html">my work</a>.
9      </p>
10   </body>
11 </html>
```

[Output]

Welcome to my page

You can find out all about me, or you can read about my work.

An example of a multipage site

index.html | about.html | research.html | +

```
1  <html>
2    <head>
3      <title>Hungry</title>
4    </head>
5    <body>
6      <h1>Welcome to my page</h1>
7      <p>You can find out all <a href="about.html">about me,</a>
8        or you can read about <a href="research.html">my work</a>.
9      </p>
10   </body>
11 </html>
```

[Output]

Welcome to my page

You can find out all about me, or you can read about my work.

An example of a multipage site

index.html | about.html | research.html | +

```
1  <html>
2    <head>
3      <title>Hello</title>
4    </head>
5    <body>
6      <p>My name is Paul Neve and I am from London.</p>
7      <p>You can go <a href="index.html">back to the first page</a>
8        now.</p>
9    </body>
10 </html>
```

[Output]

My name is Paul Neve and I am from London.

You can go back to the first page now.

An example of a multipage site

index.html | about.html | research.html | +

```
1  <html>
2    <head>
3      <title>Hello</title>
4    </head>
5    <body>
6      <p>I do research into e-learning and also about
7      people learning to program.</p>
8      <p>You can go <a href="index.html">back to the first page</a>
9        now.</p>
10   </body>
11 </html>
```

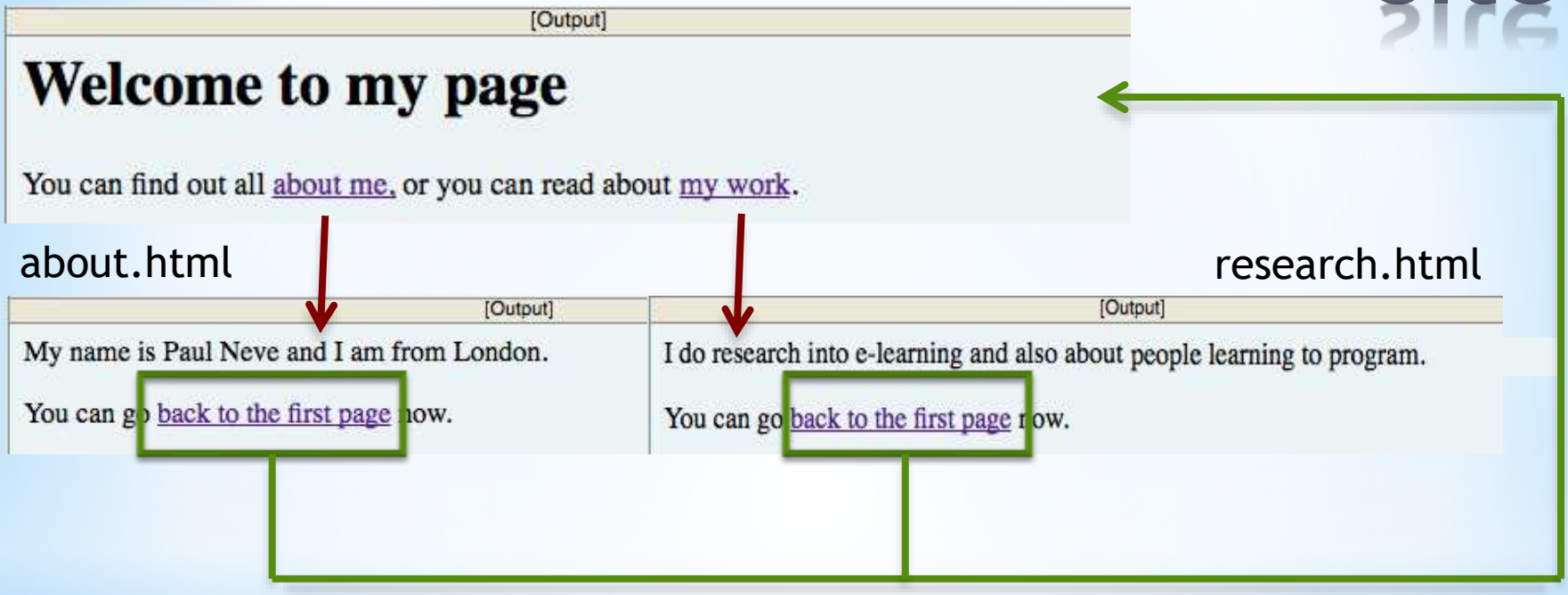
[Output]

I do research into e-learning and also about people learning to program.

You can go back to the first page now.

An example of a multipage site

index.html



Other tips for NoobLab and multi-page sites

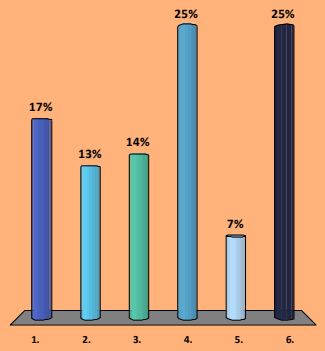
- You can change the filename of the currently selected tab by clicking on it
- You can delete a tab by clicking the button towards its top-right corner

Reinforcing the absolute URL v relative URL

- The relative URL refers to a page that is part of your website
- Relative URLs do not need **`http://`** - in fact if you have this it will be treated as an absolute URL
- Absolute URLs take you to a page on a website somewhere out on the internet, that is completely separate from your site

Which of these are examples of *relative* URLs?

1. The News
2. Google
3. Kingston SEC
4. The BBC
5. The BBC
6. The News



Note: There is more than one correct answer here! To select multiple answers, simply press them on your clicker – so press the number for the first correct answer, then press the number for the second correct answer, then the third (if there is a third!) and so on…

Anchors

- Anchor links let you link to a particular part of a long page
- When you click on an anchor link, the browser stays on the same page but scrolls down to a given element
- A picture tells a thousand words…

```
<html>
  …usual title and other <head> stuff would go here…
  <body>
    <h1>Dictionary Internetica</h1>
    <h2 id="awords">Letter A</h2>
    <h3>Aardvark:</h3>
    <p>Medium sized insectivore with protruding nasal
    implement.</p>
    …every other word in the English language that begins
    with A-Y would go here…
    <h2 id="zwords">Letter Z</h2>
    <h3>Zachun:</h3>
    <p>An oil pressed from the fruit of a small thorny tree
    used in Arabic cultures as a healing ointment.</p>
    …rest of the words beginning with Z…
  </body>
</html>
```

Anchors

- The ID attribute is used to uniquely identify an element on a page

```
<h2 id="awords" >Letter A</h2>
<h2 id="zwords" >Letter Z</h2>
```

- Each ID on a page should be unique – you cannot reuse the same ID
- You can then create a hyperlink that, when clicked, will jump straight to that element:

```
<a href="#zwords">Go to the letter Z</a>
```

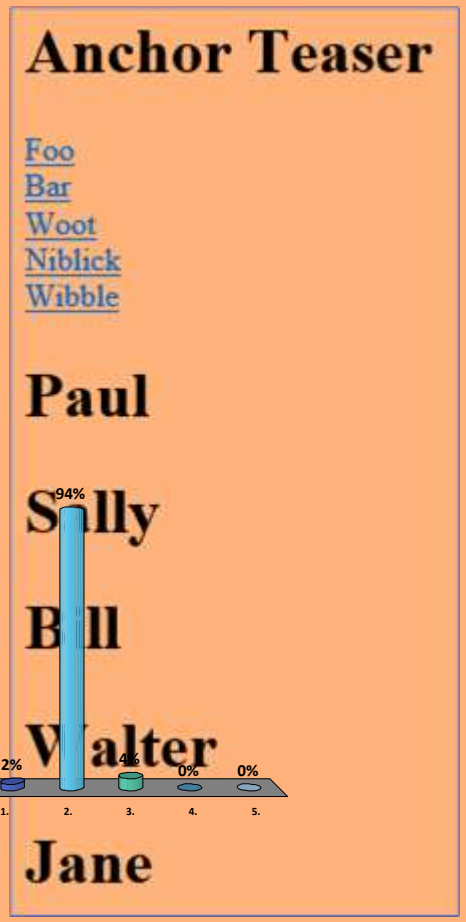
- This would scroll immediately to the letter Z entries on our dictionary page

Anchors

```
<html>
  …usual title and other <head> stuff would go here…
  <body>
    <h1>Dictionary Internetica</h1>
    <a href="#zwords">Go to the letter Z</a>
    <h2 id="awords">Letter A</h2>
    <h3>Aardvark:</h3>
    <p>Medium sized insectivore with protruding nasal
    implement.</p>
    …every other word in the English language that
    begins with A-Y would go here…
    <h2 id="zwords">Letter Z</h2>
    <h3>Zachun:</h3>
    <p>An oil pressed from the fruit of a small
    thorny tree used in Arabic cultures as a healing
    ointment.</p>
    …rest of the words beginning with Z…
  </body>
</html>
```

If someone clicked on the link labelled Wibble, which name would the browser window scroll to?

```
<html>
  …usual title and other <head> stuff here…
  <body>
    <h1>Anchor Teaser</h1>
    <a href="#foo">Foo</a><br/>
    <a href="#bar">Bar</a><br/>
    <a href="#woot">Woot</a><br/>
    <a href="#niblick">Niblick</a><br/>
    <a href="#wibble">Wibble</a>
    <h1 id="nickblick">Paul</h1>
    <h1 id="wibble">Sally</h1>
    <h1 id="woot">Bill</h1>
    <h1 id="bar">Walter</h1>
    <h1 id="foo">Jane</h1>
  </body>
</html>
```



1. Paul
2. Sally
3. Bill
4. Walter
5. Jane

Images in HTML

- Images can be considered as being like another kind of link:

- When the page is displayed in the browser, the image at the given URL will appear in the page at that point
  - (the URL can be a relative or absolute one)
- Note that the `img` element is a self closing tag:
  - `<img src="myimage.jpg"/>` right
  - `<img src="myimage.jpg"></img>` wrong!
  - `<img src="myimage.jpg">` wrong! *

* It won't work on this module in NoobLab, as we are trying to encourage a certain way of thinking and a certain level of good practice. However, this would be valid in some situations and contexts. If you really want to know, ask me about HTML5…

Where to place images in your code

- (this is only an excerpt of a page; we'll take the **<html>** and **<body>** elements as read)

```
<img src="http://fetlar.kingston.ac.uk/cat.jpg"/>
<p>This is Ringo. He could sleep for England.</p>
<hr/>

<p><img src="http://fetlar.kingston.ac.uk/cat.jpg"/>
This is Ringo. He could sleep for England.</p>
<hr/>

<p>This is Ringo. <img
src="http://fetlar.kingston.ac.uk/cat.jpg"/> He could sleep
for England.</p>
```

- Think about where the "blocks" are, and where there are blocks within blocks…

Where to place images in your code

- (this is only an excerpt of a page; we'll take the **<html>** and **<body>** elements as read)

```
<img src="http://fetlar.kingston.ac.uk/cat.jpg"/>
<p>This is Ringo. He could sleep for England.</p>
<hr/>
```

```
<p> <img src="http://fetlar.kingston.ac.uk/cat.jpg"/>
This is Ringo. He could sleep for England.</p>
<hr/>
```

```
<p>This is Ringo. <img
src="http://fetlar.kingston.ac.uk/cat.jpg"/> He could sleep
for England.</p>
```

- Think about where the "blocks" are, and where there are blocks within blocks…

Where to place images in your code

This is Ringo. He could sleep for England.

This is Ringo. He could sleep for England.

This is Ringo. He could sleep for England.

- If the image block is before the paragraph block, the image appears before the paragraph
- If the image block is inside the paragraph block at the beginning, the image appears on the first line of the paragraph
- If the image block is inside the paragraph within the text, it will appear in the text at that point

Where to place images in your code

- Think of an image as being like a big letter:

```
<p>Here is quite a long paragraph of text. It goes on for a
very long time and if necessary will wrap across several
lines. XXXXXX. If there is an image on one of these lines
then the height of the line will grow to fit the image.</p>
```

```
<p>Here is quite a long paragraph of text. It goes on for a
very long time and if necessary will wrap across several
lines. <img src="http://fetlar.kingston.ac.uk/cat.jpg">. If
there is an image on one of these lines then the height of
the line will grow to fit the image.</p>
```

Where to place images in your code

Here is quite a long paragraph of text. It goes on for a very long time and if necessary will wrap across several lines. XXXXXX. If there is an image on one of these lines then the height of the line will grow to fit the image.

Here is quite a long paragraph of text. It goes on for a very long time and if necessary will wrap across several lines. . If there is an image on one of these lines then the height of the line will grow to fit the image.

1.
2.
3.

Which of the three screenshots is a true representation of this HTML?

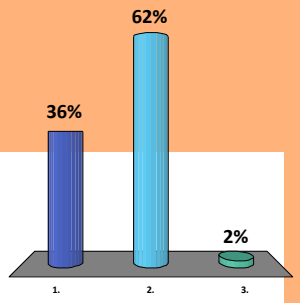
```
<html>
  <head>
    <title>Awesome cat</title>
  <head>
  <body>
    <p>Here is a picture of Ringo.
      <img src="http://fetlar.kingston.ac.uk/cat.jpg"/>
      He could sleep for England.</p>
  </body>
</html>
```

1

Here is a picture of Ringo.

He could sleep for England.

2



Here is a picture of Ringo. He could sleep for England.

3

Here is a picture of Ringo.

He could sleep for England.

Image test

```
<html>
  <head>
    <title>Awesome cat</title>
  <head>
  <body>
    <p>Here is a picture of Ringo.
      <img src="http://fetlar.kingston.ac.uk/cat.jpg"/>
      He could sleep for England.</p>
  </body>
</html>
```

Image example

Here is a picture of Ringo. He could sleep for England.

Here is a picture of Ringo.

He could sleep for England.

Here is a picture of Ringo.

He could sleep for England.

What would be the result of the HTML on the previous page?

The `alt` attribute

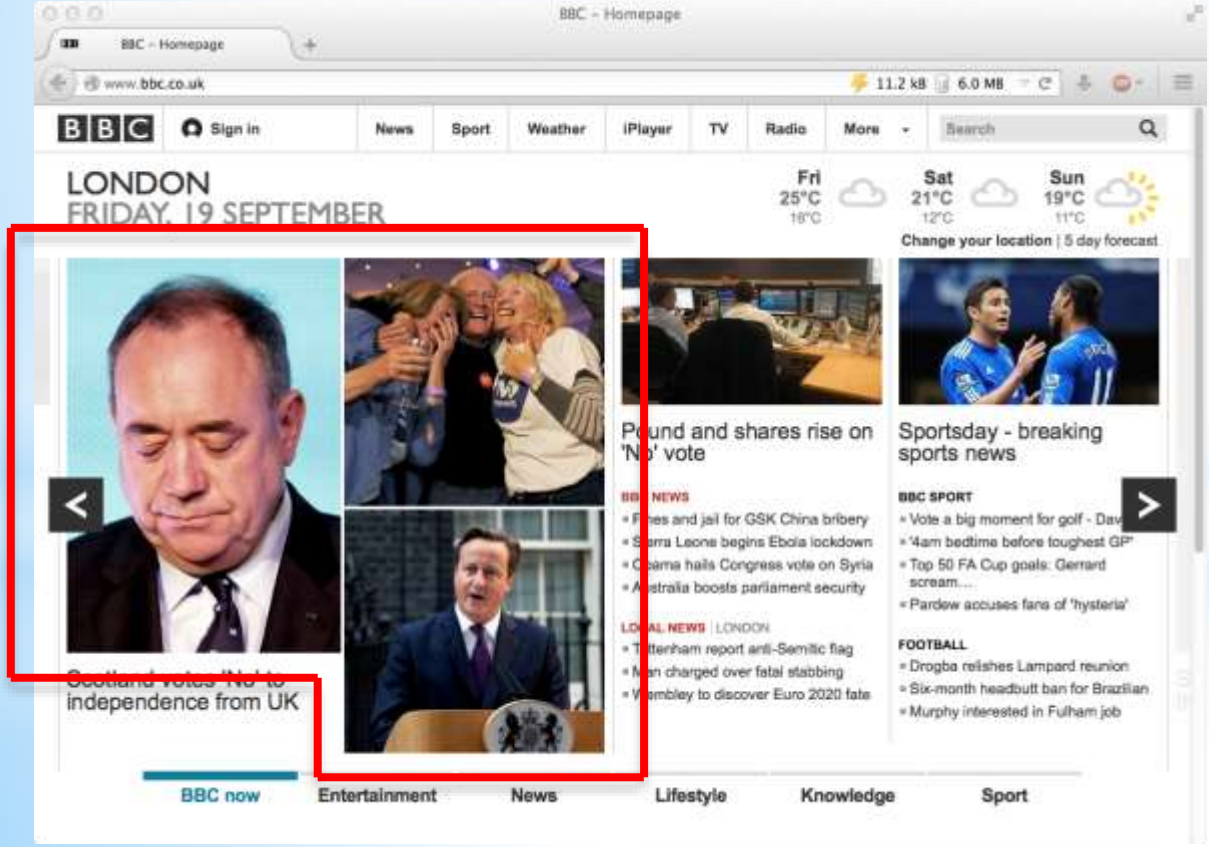
- The alt attribute is (in theory) mandatory
- It provides a text description of the image
- Different browsers use this in different ways:
  - Non-graphical browsers will display (or read) this text as a replacement for the image
  - Some of the conventional browsers use the alt attribute as a tooltip for the image

- In theory, you should always provide a sensible value for the alt attribute that describes what the image is – but be aware of your surrounding content

The `alt` attribute

- From the BBC website:

```
<img src="…190914_elvis.jpg" alt="Alex Salmond; people celebrate the result; David Cameron"/>
```

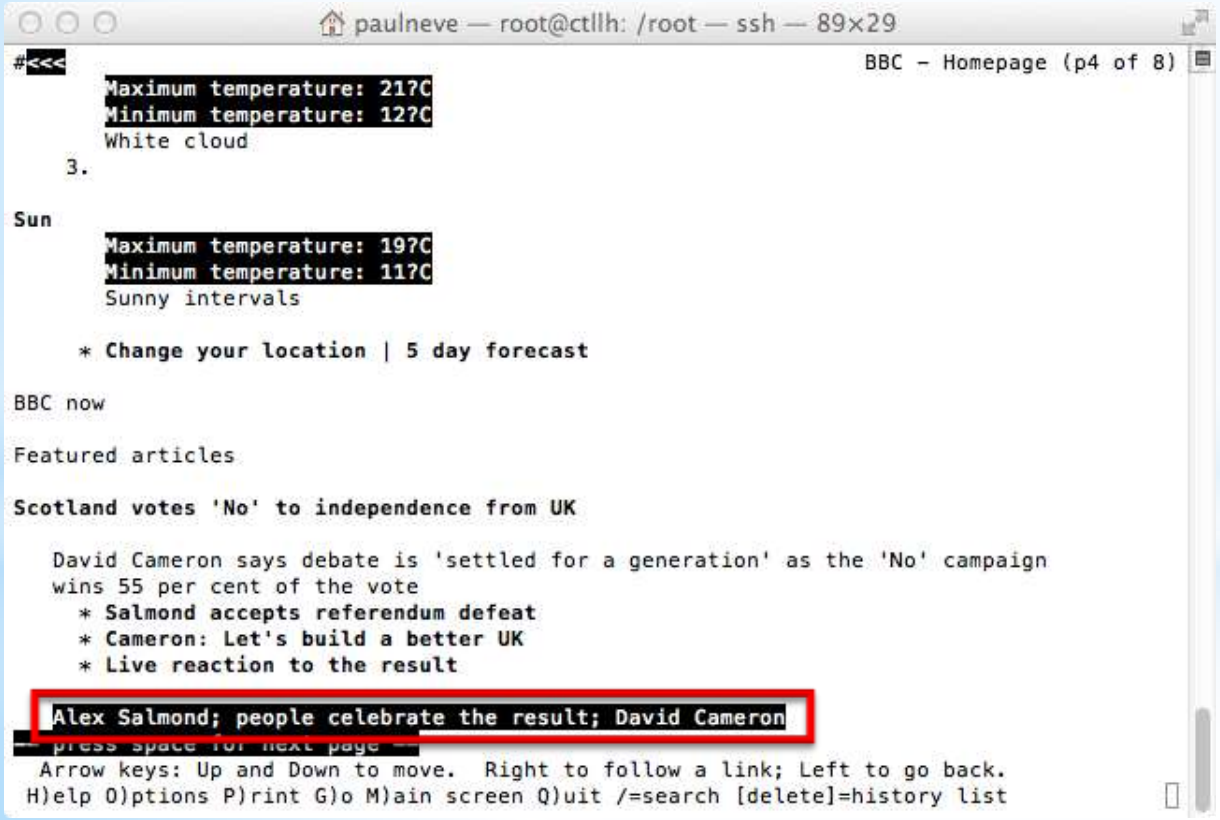


The HTML above corresponds to the image highlighted in the browser screenshot on the left…

The `alt` attribute

- From the BBC website:

```
<img src="…190914_elvis.jpg" alt="Alex Salmond; people celebrate the result; David Cameron"/>
```



The same "image" in a text-based browser is shown as the text contained within the **`alt`** attribute

Kingston University London – study for an undergraduate, postgraduate and foundation degree or course

Kingston University Londo...

www.kingston.ac.uk

11.2 kB | 6.0 MB

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Site search

Kingston University London

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Ill-informed arguments from both sides of Scottish independence debate risk being as useful as 'half-baked haggis', Kingston University economics expert Steve Keen warns

Kingston University MA Fashion students captivate London Fashion Week crowds with cosmopolitan collections

Upcoming open days

› Foundation Studies in Art & Design open session
Wednesday 24 September 2014

› Undergraduate open day for 2015 entry
Saturday 27 September 2014

› Foundation Studies in Art & Design open session
Wednesday 8 October 2014

More open days

Events

› MA Production Design for Film & Television Show

The KU website: what NOT to do ☺

-

Kingston University London – study for an undergraduate, postgraduate and foundation degree or course

Kingston University Londo...

www.kingston.ac.uk

11.2 kB 6.0 MB

Advanced search | Course search | A-Z

Site search

Kingston University London

How to find us | Courses | News | Events | About Kingston University | Services for business | Giving | Faculties | Alumni | Jobs

Undergraduate study | Postgraduate study | International students | Research

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ourse types...

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Hotline opening hours

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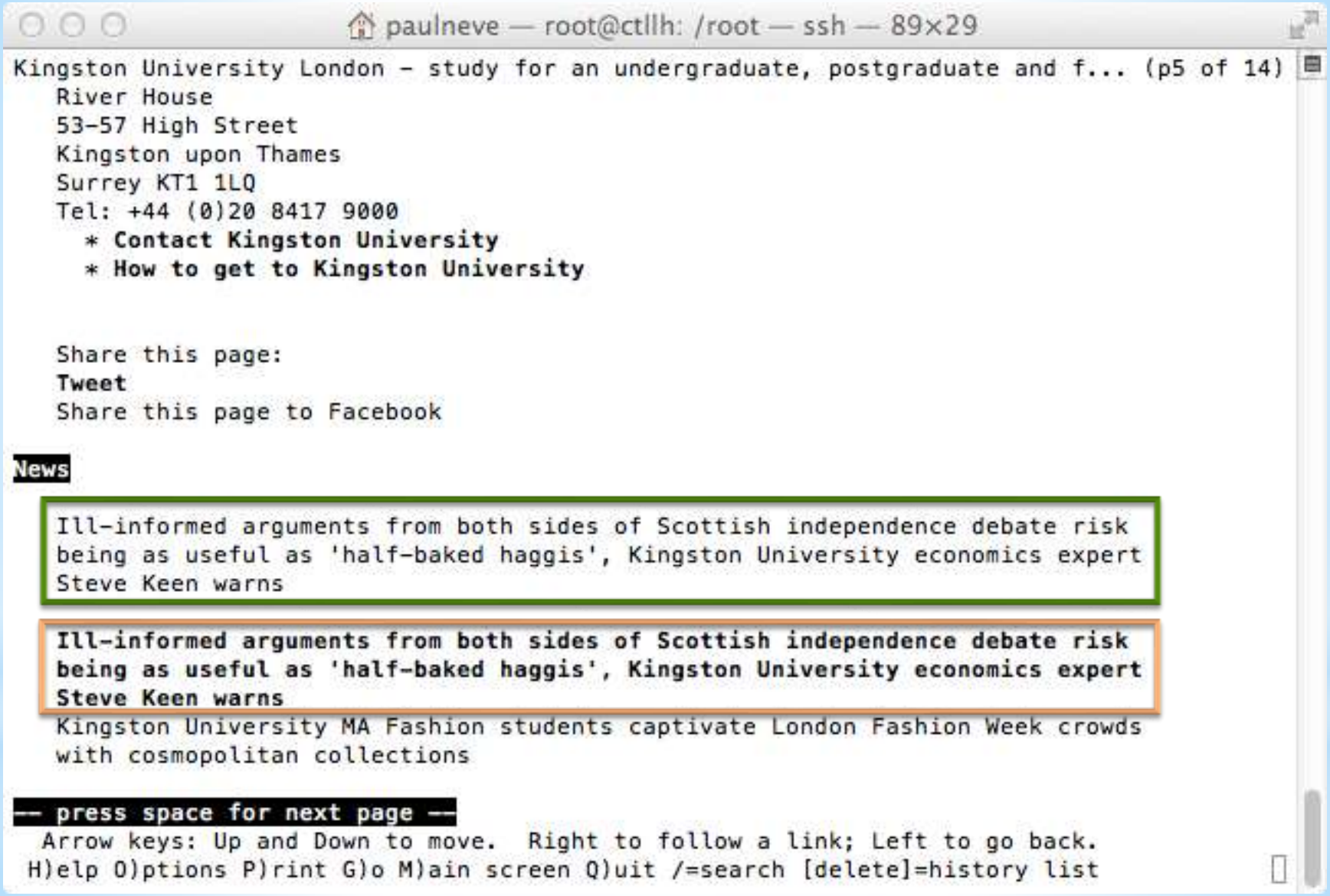
More open days

Events

MA Production Design for Film & Television Show


paulneve — root@ctllh: /root — ssh — 89×29
Kingston University London - study for an undergraduate, postgraduate and f... (p5 of 14)
River House
53-57 High Street
Kingston upon Thames
Surrey KT1 1LQ
Tel: +44 (0)20 8417 9000
* Contact Kingston University
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Tweet
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News
Ill-informed arguments from both sides of Scottish independence debate risk being as useful as 'half-baked haggis', Kingston University economics expert Steve Keen warns
Ill-informed arguments from both sides of Scottish independence debate risk being as useful as 'half-baked haggis', Kingston University economics expert Steve Keen warns
Kingston University MA Fashion students captivate London Fashion Week crowds with cosmopolitan collections
-- press space for next page --
Arrow keys: Up and Down to move. Right to follow a link; Left to go back.
H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list

Images as links

- You can place an image inside a link

```
<p>Click on the picture of Ringo to find out more about him.</p>
<a href="about.html"><img src="http://fetlar.kingston.ac.uk/cat.jpg"/></a>
```

- This is another example of a "block within a block"…

Images as links

- You can place an image inside a link

```
<p>Click on the picture of Ringo to find out more about him.</p>
<a href="about.html"> <img src="http://fetlar.kingston.ac.uk/cat.jpg"/> </a>
```

- This is another example of a "block within a block"...

Images as links

Click on the picture of Ringo to find out more about him.

- Some browsers will put a default blue border around an image link to show it's a link:
- Others don't, but all browsers will change the mouse pointer when the user hovers over a link (whether it's an image or just text)
- You can change this styling with CSS (out of scope for this module, though ☺)

Images with relative URLs

- All of our image links have used absolute URLs – i.e. they refer to an image that's stored on a server somewhere out on the wider internet
- Of course, you can also specify links with relative URLs, e.g.

```
<img src="myimage.jpg"/>
```

- Such an image would be assumed to be on the same website and in the same location as the current web page
- For this to work, you'dSuch an image would have needed to be uploaded to your web server along with the web page itself…
- …NoobLab abstracts this process away from you so you can concentrate on the code rather than the infrastructure of your pages…
  - …we may look more at infrastructure later in the module, and you'll cover it in other – but code is our priority for now, so absolute URLs for images will be the order of the day

Summary

- Hypertext is all about links - a web of pages that are interrelated, and that are navigated by clicking on text (or image) based
- We create links using the <a> element
  - We put the text (or image) that want the person to click on between the start and end tags
  - We use the attribute src to specify the URL that the link will take the user to
- There are two types of links
  - Links with absolute URLs (starting with a protocol, e.g. http://) take you somewhere on another website
  - Links with relative URLs refer to a page on your current website
- When you create a multipage website in NoobLab, you use relative URLs to link between pages because they are part of the same site

Summary

- The img element is self-closing - you finish it with />, it has no text content, and don't need a </img> after it
- Images are similar to links in that they use an attribute - src - to specify where the image can be found on the internet
  - The src attribute can reference a relative or absolute URL
  - We will use absolute URLs exclusively for now to make it easier to concentrate on the code rather than on the infrastructure of web servers
- The position of the image element within the HTML markup affects how and where it appears within the text on the page
  - Remember that elements are blocks and you can have blocks within blocks