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Introduction to Web Development

Code: COMP07009
Credit: 20 points
Week 2
Reference: http://www.w3schools.com/html

What is HTML?

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- Language for describing web pages
- Stands for **H**yper **T**ext **M**arkup **L**anguage
- Consists of a set of markup tags
- Tags describe the document content
- HTML documents contain HTML tags and text
- HTML documents are also called web pages
- HTML can be created using an HTML editor such as:
  - Notepad++, HTML-Kit
  - Adobe Dreamweaver
- In this module, open source (ie. free) software will be used in the labs

HTML Elements / Tags

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- An HTML element is everything from the start tag to the end tag
- Tags are keywords (tag names) surrounded by angled brackets like <html>
- HTML Elements start with a start (opening) tag
- HTML Elements end with an end (closing) tag
- Normally come in pairs like <head> and </head>
- End tag has a forward slash before the tag name
- HTML elements with no content are empty elements
-
 tag which defines a line break is an empty element with no closing tag
- Adding a slash inside the start tag is the proper way of closing empty elements
- Break
lines
in a
paragraph

What is HTML5?

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- HTML5 will be the new standard for HTML
- Previous versions
  - HTML 3.2
  - HTML 4.01
  - XHTML 1.0
- HTML5 is still a work in progress
- However, the major browsers support many of the new HTML5 elements and API

How did HTML5 get started?

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- HTML5 is a cooperation between the World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG).
- WHATWG was working with web forms and applications, and W3C was working with XHTML 2.0. In 2006, they decided to cooperate and create a new version of HTML.

Rules for HTML5

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- New features should be based on HTML, CSS, DOM, and JavaScript
- Reduce the need for external plugins (like Flash)
- Better error handling
- More markup to replace scripting
- HTML5 should be device independent
- The development process should be visible to the public

New Features

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- The <canvas> element for 2D drawing
- The <video> and <audio> elements for media playback
- Support for local storage
- New content-specific elements, like <article>, <footer>, <header>, <nav>, <section>
- New form controls, like calendar, date, time, email, url, search

New Elements

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- The internet has changed a lot since HTML 4.01 became a standard in 1999.
- Today, some elements in HTML 4.01 are obsolete, never used, or not used the way they were intended to. These elements are removed or re-written in HTML5.
- To better handle today's internet use, HTML5 includes new elements for better structure, better form handling, drawing, and for media content.

Getting started

- Type some basic code into an HTML editor (some editors may have autocomplete feature)
- eg

```
<!DOCTYPE html>
<!-- Comment can be added -->

<html>

<head>
<meta charset="UTF-8" />
<title>Title of the document</title>
</head>

<body>
The content of the document......
</body>

</html>
```

Getting started

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- Save the file with .htm or .html extension
- View the file locally in a browser
- The browser does not display the HTML tags, but uses the tags to interpret the content of the page
- Comments are inserted into the source code to explain the code which useful when editing the code at a later date
- Comments are ignored by the browser

Interpreting the code

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- DOCTYPE declaration defines the document type as HTML5
- This is important for validation
- Text between <html> and </html> describes the web page
- The text between <body> and </body> is the visible page content
- The <head> tag is a container for all the head elements.
- The <head> tag must include a title for the document, and can include scripts, styles, meta information and more.

Interpreting the code

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- The <title> tag defines the title of the document
- Displays the title in the browser window
- Provides a title for the page when it is added to favourites
- Displays a title for the page in search-engine results
- Metadata is data (information) about data.
- It will not be displayed on the page
- Charset specifies the character encoding for the HTML document as UTF-8

Structure

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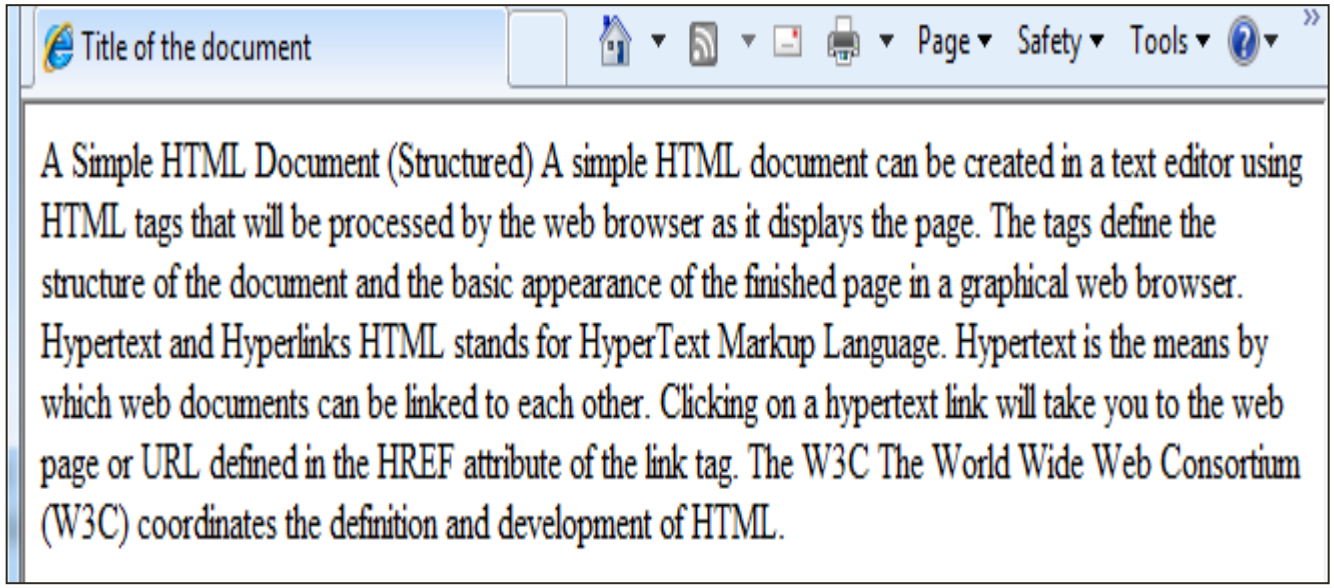
- A web browser will ignore CARRIAGE RETURNS typed into an editor.
- Therefore you need to tell the browser how a web page is split up
- Eg headers, paragraphs, lists
- HTML5 has new markup elements for better structure such as aside, header, footer
- These will be looked at later

Block structure

```
<!DOCTYPE html>

<html>

<head>
<meta charset="UTF-8" />
<title>Title of the document</title>
</head>

<body>

A Simple HTML Document (Structured)

A simple HTML document can be created in a text editor using HTML tags that
will be processed by the web browser as it displays the page. The tags define
the structure of the document and the basic appearance of the finished page in
a graphical web browser.

Hypertext and Hyperlinks

HTML stands for HyperText Markup Language. Hypertext is the means by which web
documents can be linked to each other. Clicking on a hypertext link will take
you to the web page or URL defined in the HREF attribute of the link tag.

The W3C

The World Wide Web Consortium (W3C) coordinates the definition and development
of HTML.

</body>
</html>
```

Example

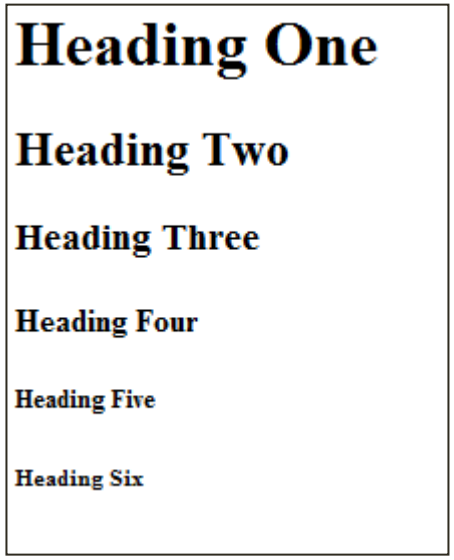


- Browser has ignored all the returns and therefore doesn't display text as paragraphs

Headings

- HTML headings are defined with the <h1> to <h6> tags
- <h1> tag being the main heading
- Each level being subheading of previous one

```
<h1>Heading One</h1>

<h2>Heading  Two</h2>

<h3>Heading Three</h3>

<h4>Heading Four</h4>

<h5>Heading Five</h5>

<h6>Heading Six</h6>
```



New Structure

```
<!DOCTYPE html>

<html>

<head>
<meta charset="UTF-8" />
<title>Title of the document</title>
</head>

<body>

<h1>A Simple HTML5 Document (Structured)</h1>

<p>A simple HTML document can be created in a text editor using HTML tags that
will be processed by the web browser as it displays the page. The tags define
the structure of the document and the basic appearance of the finished page in
a graphical web browser.</p>

<h2>Hypertext and Hyperlinks</h2>

<p>HTML stands for HyperText Markup Language. Hypertext is the means by which
web documents can be linked to each other. Clicking on a hypertext link will
take you to the web page or URL defined in the HREF attribute of the link
tag.</p>

<h3>The W3C</h3>

<p>The World Wide Web Consortium (W3C) coordinates the definition and
development of HTML. </p>

</body>

</html>
```

Example

A Simple HTML5 Document (Structured)

A simple HTML document can be created in a text editor using HTML tags that will be processed by the web browser as it displays the page. The tags define the structure of the document and the basic appearance of the finished page in a graphical web browser.

Hypertext and Hyperlinks

HTML stands for HyperText Markup Language. Hypertext is the means by which web documents can be linked to each other. Clicking on a hypertext link will take you to the web page or URL defined in the HREF attribute of the link tag.

The W3C

The World Wide Web Consortium (W3C) coordinates the definition and development of HTML.

Attributes

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- Provide additional information about HTML elements
- Come in name/value pairs like **name="value"**
- Attributes are always specified in the start tag
- Attributes either required or optional
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- href attribute required as it specifies URL of the page the link goes to
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- target is optional and specifies where to open the linked document

Links (Hyperlinks)

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- Defined using the anchor <a> tag
- Word, group of words or image that you can click on to jump to a new document or a different location in the same document

- External links
- W3 Schools

- Internal links
- Home page
- Assumes index.html is in same directory as current file, otherwise need to specify location
- Home page

Example

```
<h1>The W3C</h1>

<h2>External Link</h2>
<p>The World Wide Web Consortium (W3C) coordinates the definition and
development of HTML. Check out <a href="http://www.w3.org/">The official W3C
home page</a>
</p>

<p>Or <a href="http://www.w3.org." target="_blank">The official W3C home
page</a> will open the link in a new window.
</p>

<h2>Internal Link</h2>
<p>Go to an <a href="headings.html">internal</a> link
</p>
```

Example

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The W3C

External Link

The World Wide Web Consortium (W3C) coordinates the definition and development of HTML. Check out The official W3C home page

Or The official W3C home page will open the link in a new window.

Internal Link

Go to an internal link

Named anchors

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- Often used to create “table of contents” at the beginning of a large document
- Each chapter within the document is given a named anchor
- Links to each of these anchors are placed at the top of the document
- Create a bookmark inside the same HTML document or inside another page
- Create a link to it

Example

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- Create a bookmark

```
<h3><a id="w3c">The W3C</a></h3>
```

- Create a link to it

```
<a href="#w3c">Visit the W3c section</a>
```

Named anchors

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- Create a link to a bookmark in another document

```
<a href="links2.html#w3c">Visit the W3c
section in another web page</a>
```

- Go to the bookmark named w3c in the HTML file called links2.html which is stored in the same directory

Types of Links

- Absolute URL – points to another web site
- href="http://www.bbc.co.uk/news/contact.html
- Relative URL – points to a file within a web site
- Eg href="default.html"
- An anchor URL – points to an anchor within a page
- Eg href="#top"

Images

- Defined with the <img> tag
- Alt and src attributes are mandatory
- Width attribute is optional

```
<h1>Security Threats</h1>
<img src="images/worm.jpg" alt="worm" width="200" height="150" />
<br />

<img src="images/virus.jpg" alt="virus" width="200" height="150" />
```

Example

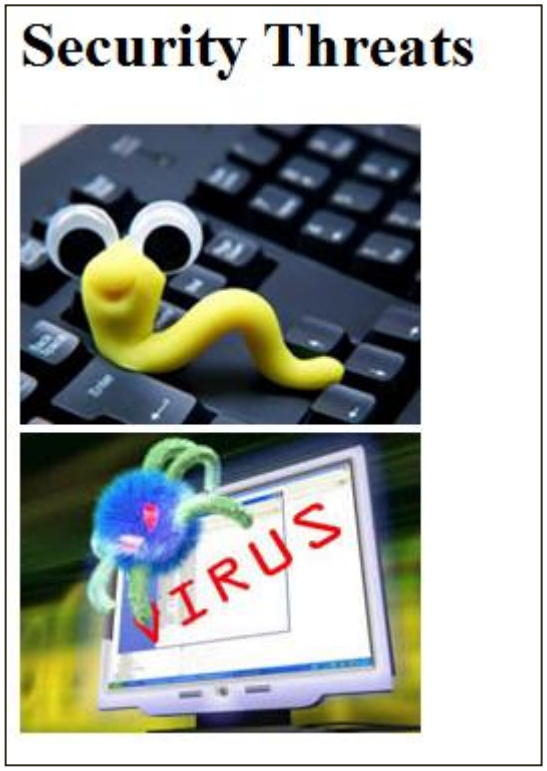

Image as a Link

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- An image can be defined within an anchor tag as a link

```
<a
href="http://en.wikipedia.org/wiki/Computer_worm">
<img src="images/worm.jpg" alt="worm" width="200"
height="150" /></a>
```

- The image is displayed as a hyperlink
- When clicked, it will display the page defined within the href attribute

Other tags

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- The <hr> tag creates a horizontal line
- <hr /> should be used as it's not a paired tag
- The <p> tag automatically adds an empty line before and after a paragraph
- The
 tag creates a line break and moves to the next line
-
 should also be used

Lines/Comments

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- Comments can be added which are not displayed in the browser
- Good practice to use them
- May be displayed in different colour

- Format is:

- <!-- Comment to be added -->

Display source code

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- HTML Code can be displayed in browsers
- Useful if you see a web site and wonder how it has been created
- Variations between browsers
- Mozilla Firefox
  - Tools menu, Web Developer, Page Source
  - Alternatively, Ctrl+U
- Microsoft Internet Explorer
  - View menu, Source
- Another window will be displayed the HTML code

Lab

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- Staff will demo editor to be used in the lab as this may vary across campuses
- Also, any settings that may be useful
- Familiarise yourself with the HTML editor
- Create a file to contain the basic HTML code
- Download some free images (careful of size)
- Create multiple HTML file using the various elements and tags from today's lecture
- Save the files with appropriate names so that staff can check your progress
- Preview the files in different browsers

w3schools

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- www.w3schools.com
- Familiarise yourself with the web site
- Notice level of browser support for HTML tags
- Look at differences between HTML and HTML5
- Try out some examples and quizes
- Check out tag references and print one for handy reference