COMPSCI 111 / 111G

Mastering Cyberspace:
An introduction to practical computing

HTML5
### Markup Languages

Plain text contains all the content which will appear on the page. Using a variety of formatting styles makes the text much easier to read and can be used to emphasise points.

#### Formatting

Plain text contains all the content which will appear on the page. Using a variety of formatting styles makes the text much easier to read and can be used to emphasise points.
Markup Languages

- **Markup**
  - Indicates the formatting that should be used to display the page

- **Markup Language**
  - A markup language consists of special tags which are placed in the text
  - Specifies how to format the text

- **Hypertext Markup Language (HTML)**
  - Used to format web pages
  - Contains hypertext information (links)
  - Written in ASCII / Unicode
  - Embedded format codes (tags)
Browser Wars

• HTML 1.0
  – Tim Berners Lee (1993)

• Browsers added extra features
  – Internet Explorer had unique tags
  – Netscape Navigator had unique tags

• Major problem
  – What tags should a publisher use?
  – How can this problem be resolved?

http://en.wikipedia.org/wiki/Browser_wars
Development of HTML

• HTML 2.0

• HTML 3.2 / HTML 4.0
  – W3 Consortium recommendation (1997)

• HTML 4.01
  – W3C recommendation (1999)

• XHTML 1.0
  – W3C recommendation (2000)

• HTML5

http://en.wikipedia.org/wiki/Html
Document Type Definition

• Defines which standard is being used for the page
  – We use HTML5

• Should appear at the top of the file

```html
<!DOCTYPE html>
```
Encoding methods

• Different character sets used to encode the page
  - ASCII
  - UTF-8
  - Unicode

• Need to tell the browser which encoding is used
  - Located in the head of the document.

<meta charset="UTF-8">
Use at the start of every file

- Copy and paste the code exactly as it appears
  - Will be provided in tests and exams

```html
<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <meta charset="UTF-8">
</head>
</html>
```
HTML Source Code

• Code used by the browser to display the page
  – White space is ignored

• Comments
  – Ignored by the browser
  – Allow you to document your code
  – <!-- Put your comment here -->

• Layout
  – Use tidy layout where possible
  – Make code easy to understand
  – Make code easy to maintain/ modify
  – Use whitespace and comments to help
Overview of tags

• Markup achieved with “tags”
  – Enclosed with angle brackets < ... >
  – Use lower case
  – Most come in pairs <tag> ... </tag>

• Tag usually applies to text between start and end tag

This word is in <span>italics</span>
Attributes

• Some tags require additional information
  – Properties or attributes of the tag
  – `<tag property="value"> </tag>`
Nested Tags

• Tags must be correctly nested
  – Cannot close an open tag until all the open tags that it affects are also closed

```html
<tag>
  Text only affected by “tag”
</tag>

<tag2>
  Text affected by both “tag” and “tag2”
</tag2>

  Text only affected by “tag”
</tag>
```
Essential tags

<html>
  
  - Encloses the entire document
  - Specifies that the document uses html

</html>
Essential tags

**<head>**
- Contains information for the browser
  - E.g. character encoding used
- Does not contain any content to be displayed on the page

```html
<html>
<head>
  <meta charset="UTF-8">
</head>
</html>
```
Essential tags

**<body>**

- Contains all the content that will appear on the page

```html
<html>
<head>
  <meta charset="UTF-8">
</head>
<body>
  .
  .
  .
</body>
</html>
```
Essential tags

<title>
  – Part of the head
  – Specifies the title to be used by the browser
  – Name of the window
  – Used in navigation (bookmarks, history, etc.)

```html
<html>
  <head>
    <meta charset="UTF-8">
    <title>Introduction to tags</title>
  </head>
  <body>
    ...
  </body>
</html>
```
Exercise 1: What does HTML stand for?

- Hypertext Markup Language

Exercise 2: What is a document type definition used for?

- Defines which standard is being used for the webpage

Exercise 3: What is “white space”?

- Characters or series of white space characters that define horizontal or vertical spaces
Define the structure of a “block”

- Headings
- Paragraphs
- Lists
- Tables
- Preformatted text
Paragraphs

<p>
  Defines a paragraph of text
</p>

```html
<html>
<head>
  <meta charset="UTF-8">
  <title>Introduction to tags</title>
</head>
<body>
  <p>This is a very simple web page</p>
  <p>It contains two different paragraphs of text.</p>
</body>
</html>
```
HTML5 Exercise

• **Exercise 4:** Create a complete HTML5 document with the title "Simple page". The only text that should appear on the page is "Hello World".

```html
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Simple Page</title>
</head>
<body>
<p>Hello World</p>
</body>
</html>
```
Headings

Six levels of headings

- `<h1>` First level heading
- `<h2>` Second level heading
- `<h3>` Third level heading
- `<h4>` Fourth level heading
- `<h5>` Fifth level heading
- `<h6>` Sixth level heading
<html>
<head>
<meta charset="UTF-8">
<title>Introduction to tags</title>
</head>
<body>
<h1>A very simple web page</h1>
<p>It contains two paragraphs and two headings</p>
<h2>Second section</h2>
<p>This section is less important</p>
</body>
</html>
Example of Head, Heading and Title

<html>
<head>
  <meta charset="UTF-8">
  <title>Titles, headings and heads</title>
</head>
<body>
  <h1>Title</h1>
  <p>The title is part of the document head</p>

  <h2>Head</h2>
  <p>The head is not shown on the page</p>

  <h2>Heading</h2>
  <p>These come in different sizes and make up the content of the page. They should therefore be used only in the body.</p>
  <p>Do not get confused</p>
</body>
</html>
Ordered Lists

Ordered Lists

- Automatically numbered
- `<ol> ... </ol>` Contains the entire list
- `<li> ... </li>` Used for each list item

```html
<p>Structure of an HTML document</p>
<ol>
  <li>HTML</li>
  <li>HEAD</li>
  <li>BODY</li>
</ol>
```
Unordered Lists

- Bullet Points
- `<ul> ... </ul>` Contains the entire list
- `<li> ... </li>` Used for each list item

```html
<p>Structure of an HTML document</p>
<ul>
  <li>HTML</li>
  <li>HEAD</li>
  <li>BODY</li>
</ul>
```
Description Lists

Terms and explanations

- `<dl> ... </dl>` Contains the entire list
- `<dt> ... </dt>` Defines a term in a description list
- `<dd> ... </dd>` Is used to describe a term in a description list

```html
<p>Some definitions</p>
<dl>
  <dt>HTML</dt>
  <dd>Hypertext Markup Language</dd>
</dl>
```
Tables

- Used to format tables of information
- By default, there are no borders shown
Tags required to format Tables

Tags

- `<table> ... </table>`  
  Surrounds the entire table

- `<tr> ... </tr>`  
  Identifies a row in the table

- `<td> ... </td>`  
  Each element/cell of data in the row
A simple table example

```html
<html>
<head>
    <meta charset="UTF-8">
    <title>Simple Table</title>
</head>
<body>
    <p>What follows is a simple table:</p>
    <table>
        <tr>
            <td>One Row</td><td>Two Columns</td>
        </tr>
    </table>
</body>
</html>
```
Table Exercise

Exercise 1: Write a fragment of HTML5 code that will generate a table with 2 rows and 1 column. The text in the first row should be “first row” and the text in the second row should be “second row”.

```html
<html>
  <head>
    <meta charset="UTF-8">
    <title>Simple Table</title>
  </head>
  <body>
    <p>What follows is a simple table:</p>
    <table>
      <tr><td>first row</td></tr>
      <tr><td>second row</td></tr>
    </table>
  </body>
</html>
```