

Web Design Practical 1: Introduction to HTML

AIM: LEARN THE BASICS OF CREATING WEB PAGES WITH HTML5.

This sheet contains one checkpoint. Deadline: Thursday 10th March

FURTHER DOCUMENTATION

You will find it helpful to consult *Creating a Website: the Missing Manual* (MacDonald 2011, available as an e-book from the library). Chapters 1, 2, 7 and 8 are relevant to this worksheet.

See also the links on the CSCU9A2 resources page,
<http://www.cs.stir.ac.uk/courses/CSCU9A2/resources.php>

PART ONE: CREATING A SIMPLE WEB PAGE

The tools for use in the lab are TextPad and Internet Explorer 11 (IE11). Textpad is a fairly intuitive text editor, and provides syntax colouring (that is, different parts of the text are coloured differently so that you can easily differentiate, for example between tags and text).

Preparatory work:

In order for you to be able to make web pages visible, you need to start off by creating a folder called web, and fixing its permissions appropriately. The University's systems will do the rest.

1. Create a folder called web at the top level on your H: drive
2. Open 'My Computer\Groups (V:)\CSCU9A2\' then double click on the setweb (maybe setweb.cmd) icon.

That should create a web folder and set the permissions on it appropriately.

Bring up the TextPad program

⇒ **All Programs : Applications : TextPad**

then type in the some HTML to generate a simple page, for example:

```
<!DOCTYPE html>
<html>
<head>
  <title>All About Me</title>
</head>
<body>
<p>
  This is <b>my very own web page</b> all about me!
</p>
<p>
  I wonder what I shall write in it...
</p>
</body>
</html>
```

Use **File : Save As** to save this file in your web folder with the name `aboutme.html`. Saving it with the `.html` extension ensures that TextPad displays the HTML key words in a colour-coded format.

Now bring up the Internet Explorer (IE) browser and display the page. This can be achieved by:

- using the **File menu : Open** option of IE,
- *or by dragging and dropping the `aboutMe.html` file on to an already open IE window,*
- *or by double-clicking on the icon for `aboutMe.html`.*

The address bar near the top of the browser window will show a link to a local file something like: `H:\...\Web\aboutMe.html`. **This is not a proper network URL**, but indicates that the browser has fetched a file directly accessible on the local computer. This is the easiest way to check the appearance of Web pages that you are creating. You will see later how to create a page accessible via a full URL and HTTP request from anywhere in the online world.

Take a look at the elements that make up your text file `aboutMe.html`. The document follows a structure that is standard for all HTML files:

```
<!DOCTYPE html>
<html>
<head>
  <title>...</title>
</head>
<body>
  ...
</body>
</html>
```

The first line names a *Document Type Definition (DTD)*, saying that this is an HTML document. The rest of the document consists of an `<html>` element, which encloses a `<head>`

element followed by a `<body>` element. The head contains a `<title>` element. All well-structured HML documents should contain all these parts.

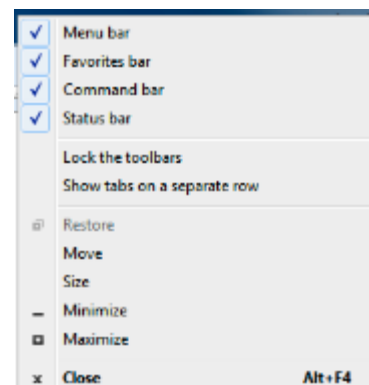
In this particular example, the body contains two paragraph elements, enclosed within `<p>` and `</p>` tags. Paragraph elements act as containers for text. The first paragraph contains some text highlighted in bold. Make sure you can see how each of the elements in the code is rendered by the browser.

Using the Browser effectively

To use the browsers effectively, you need to be able to see the menu line: as initially configured in the labs, IE11 is set up assuming that you are only a consumer of web pages. So: right-click in the dark blue area near the top of the IE11 page. This should bring up a menu looking rather like this:

You should ensure that the top four bars are ticked – that way, interacting with the browser is considerably easier.

On some computers, IE11 may have been set up so as to emulate an older browser (IE7) for local web pages. To avoid this (and hence to enable the capabilities of HTML5!), you should use Tools:Compatibility View Settings, which will bring up a panel. Ensure that “Display Intranet Sites in Compatibility View” and “Display all Sites in Compatibility View” are un-ticked. That way, IE11 should be able to deal with HTML5 web pages correctly.



CREATING A HOME PAGE

Again, open the file `aboutMe.html` within TextPad. You are going to use this to create your own personal web page. There is a short summary of basic HTML on the CSCU9A2 page (see the Resources page in the Reference section). For more detailed information consult the references listed at the start of this sheet.

Note that your web page will be visible throughout the Internet, so take care what you write on it! Do not reveal your contact details or any private information. And later, we will try to make it look good.

Using the suggestions below, create your web page using TextPad, and **save it with the name `index.html` in the web folder in your own home folder**. The web folder is different from your other folders in that its contents can be “seen” by the Universities Web server, and hence be sent to anyone on the Internet. (Note that if you save it elsewhere, and then drag and drop it, it may not work correctly – though this can be fixed (see end of this lab sheet).)

Once you have done this, your web page, and any other pages you create in that folder should be accessible to the world. The full URL for the page will be:

`http://www.students.stir.ac.uk/~qjx001/index.html`

where you must replace qjx001 with your own username. The browser/web server will automatically convert the URL to the following form:

`http://www.students.stir.ac.uk/users/x/qjx001/Web/index.html`

which is the more precise location of the file in the web server file store. If you receive an "error 404", see the comments at the end of the sheet.

Documents in your Web folder can be fetched from throughout the Internet using both those forms of URL – so you could try reading your home page.

To make the browser load this page using a full HTTP call via the network, type either URL into the browser's address bar.

Content

What should your home page look like? That's really up to you, but please follow these guidelines. Note that for now we would like you to create the page using simple HTML: no CSS (we'll add that later). To get the checkpoint your page must use some **lists** (numbered and/or un-numbered and/or description), as well as a **table**, and a variety of **headings**. Your page must also include some **images** and some links to other **websites**.

- ◆ Make the title reflect what the page is: call it something like

Fred Bloggs Home Page

- ◆ Make the top level heading the same as the title.

What about the actual content? Take some care what you write, remembering that what you write will be visible. You could for example:

- ◆ Say that you are a student
- ◆ Say what modules you are studying (nice place for a table?)
- ◆ Write about your interests (nice place for some lists, perhaps an image as well?)
- ◆ Write about where you come from (perhaps you could find some images, and use them as links?)
- ◆ We used to say: "Put your name and email address at the bottom, so that you can be contacted. (In a later practical you will see how to insert a clickable "mailto" link in there too.)". However, there are now programs that go and "harvest" email addresses for use by email spammers, so that this is no longer a good idea.
- ◆ Later on you will look at using CSS to improve the appearance of your page.

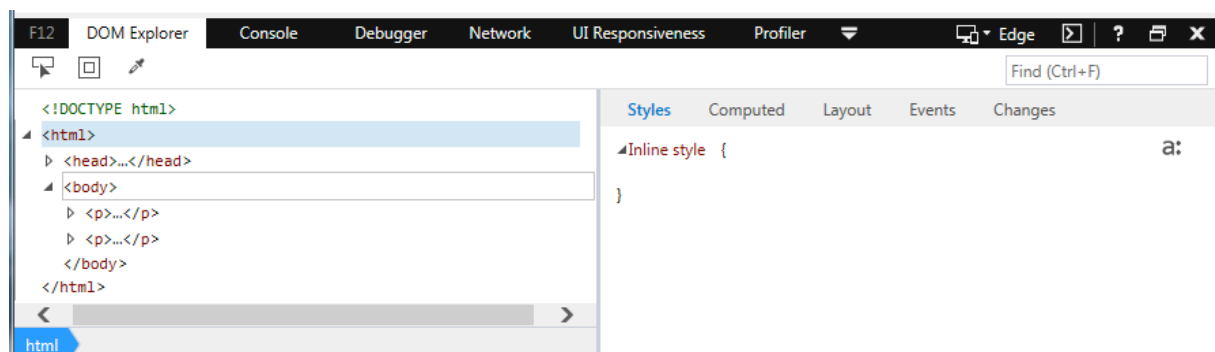
Whatever you do write about, please take care what you put in your home pages:

- Do not use anything which is, or could be taken to be ageist, racist, sexist, inflammatory or indecent.
- Do not use anything which is, or could be taken to be, libellous or slanderous.
- Remember that these home pages are visible throughout the Internet – and if inappropriate information is placed on them, the University will be unwilling to continue to provide this facility to you.

Ask the students sitting near you what their username is, and try to view *their* home page via the browser – you will again need to customise one or other of the two URL forms given above. With their home page on view, select **Tools: Developer Tools** – you can then see *your* browser's copy of *their* HTML: think about whether it is laid out in a readable fashion.

TESTING YOUR HTML

The browsers can do more than simply display the web pages you are writing. IE11 can help you further: In IE11, press the F12 key (or, alternatively, navigate to Tools/F12 developer Tools). Now you should see another pane at bottom of the window, in addition to the one that you are using to display the web page itself. This has a great deal of functionality, and we shall use it later. For now, you can use it to take a look at the structure of your HTML document. The new pane should look rather like this:



Look at what you can see in this window: it is primarily intended (I think) for detecting errors in JavaScript, of which more later. For now, you can use the DOM Explorer to examine the different parts of your HTML document. (DOM stands for Document Object Model, and is something you will learn more about later.)

VALIDATING HTML

The homepage that you have just constructed probably looks fine on your browser. However, perhaps it contained some hidden problems that your browser was tolerant of, but that other browsers would not be tolerant of and so would not display the document as you intended. The World Wide Web Consortium (W3C) has an HTML validation service that you can use. Below we describe how to use it – once you are used to it; it is a good idea to use it *before* you demonstrate your checkpoints in all the web design practicals.

Type the URL <http://validator.w3.org/> into the address bar of your browser window. There are various information resources and services available from that page. You will find a form for requesting validation checks.

Before you try this on your own page, try it on one we created earlier:

<http://www.cs.stir.ac.uk/~lss/research/memsmike/index.html>

This should validate with no errors. You can look at the source of this page if you like: display the page, then use **Tools: Developer Tools** to display the source HTML.

Now type the URL of your home page into the top text box (URI) in the form and click on the button “Validate this page”. After a pause (during which the W3C server fetches your home page and analyses it) you will get a report on the screen – you will probably need to scroll down to see the whole report.

You will probably see *at least* two complaints reported:

- Using experimental feature: HTML5 Conformance Checker. There is nothing you can do about this: HTML5 is very new and the tools supporting it are still experimental.
- no “character encoding” was found. You can follow the explanation link to read about that topic and you can fix the problem by adding the following line of HTML into the `<head>` part of your home page:

```
<meta charset="UTF-8" >
```

There may be other problems or weaknesses reported too – try looking at them and fixing them (by editing the HTML of your home page using TextPad). After you think that you have fixed the problems, click the “Revalidate” button on the report page and see if all is then OK – if not, then try again.

More validation things to try:

- You could try introducing HTML errors (such as omitting `</ ... >` tags, or using upper case), and then revalidating to see what complaint is produced in the report.
- You could try validating other pages to check the “quality” of their HTML content (for example, your neighbour’s home page, Stirling University home page (<http://www.stir.ac.uk/>), the Computing Science and Maths Department home page (<http://www.cs.stir.ac.uk/>), the CSCU9A2 home page...).

CAUTION: If you ask the validator to check a page that needs a username and password to authorise the access (e.g. the CSCU9A2 lecture notes), then it will ask *you* to tell *it* your username and password so that it can pass them on to the server actually needing the username and password – this in general is **not a good idea**, so, if it happens, click on cancel (and read the explanation that you will see on the screen – it’s quite well written).

CHECKPOINT [HTML]

Please demonstrate your validated homepage to laboratory staff. You should have correctly added a title, some headers, lists and tables, an image, some links, as well as some paragraphs in the body about yourself.

HINT: If you cannot access your web page : You may occasionally find that there are files that you can clearly see in your Web folder, but that the Web server refuses to, or cannot, fetch when requested - you type their URL into a browser but you get an error page sent back, usually mentioning “HTTP error 404 - File not found” or “HTTP error 403 – Forbidden” (for example, try `http://www.stir.ac.uk/x`). Here is how it might have happened, and how to fix it:

The HTTP (Web) server program has few or no special privileges, and requires all the files in your Web folder to be accessible to “Everyone” in order to fetch them to respond to a request. On the other hand, everything else in your home folder is automatically protected from access by anyone else - in particular if you initially create them outside the Web folder and then move (drag) them to inside it. In this case the server will report back to the browser that the request cannot be satisfied, and the browser will report failure or perhaps pop up an authorisation dialogue.

You can usually fix the problem as follows: Open ‘My Computer\Groups (V:)\CSCU9A2\’ then double click on the setweb (maybe setweb.cmd) icon. After a little scripting magic, the permissions in your Web folder will have been fixed to be “Readable to everyone”. The SetWeb action is also available via the Windows Start menu: Start / Programs / Internet / SetWeb.