COM1008: Web and Internet Technology
Assignment: Website (50%)

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Part 1: Planning and Design document (7%)
Part 2: Website (36%)
Part 3: Development and testing document (7%)
Deadline: 3pm, Monday 26 November (week 10)
Handin: zip file of all your documents via MOLE.

1 Introduction

This assignment will test your ability to create a website using Mobile First Responsive Web Design. It will test your understanding of stages of creating a website, as well as your coding skills in HTML5 and CSS.

This project should be done in pairs. The work you submit must be your own work and not plagiarised. Only one of you should hand the work in through MOLE.

1.1 Pairwork

You should self-organise into pairs and email me (e.j.norling@sheffield.ac.uk) to let me know of your pairing. The deadline for this is Monday 22nd October. If you have any difficulty finding someone to pair with, please let me know.

2 The Website

You will develop a website about the University building (not the organisation) called the *Students' Union*. The focus should be on its uses for students doing degrees in the Department of Computer Science. The target audience for the website is students of Computer Science, in particular new first year undergraduate students. It should be clear that the website is written by you and represents your view (as students of Computer Science), i.e. it is not an official University site.

The following is a list of the minimal requirements for this web site:

- It should have a home page that welcomes people to the website. This page should serve as what is commonly called the 'splash page' for the website, and should say something about the fact that it is your guide (a student guide) to the Students' Union building. This page should load quickly, and should be immediately intuitive, as well as being attractive. It is your choice what to put on the home page, but whatever decision you make it should be part of your planning document. Don't forget to invent a banner for your website which appears on every page of your website (or on every page after the splash page, if the splash page is different in some way).
- A page that describes some of the different areas of the Students' Union building that students might use. For example, there are teaching spaces, support services, retail outlets, and so on. (Think about using links to official information too).
- A page with details of a typical week that a Computer Science student may experience using the building. (Don't use the building? Now is your chance to explore it!) You might decide to do this in a diary format or in a blog format or in some other way Make sure it includes plenty of photographs.
- A page focussing on the eating options. What would you recommend about the various options?
- A contact page, which includes your contact details and a form for users to send comments to you via your University e-mail address – you can either use one address or both of your addresses. A user should input their e-mail address in a text box in the form, and input their comments in another text area on the form. The form should also include a button, which, when clicked by the user, sends the contents of the two text areas to your e-mail address. Make sure the form is stylish – you are again demonstrating that you can use HTML and CSS to make a form look good.
- An accessibility page. On this page you should give the accessibility statement for the web site. (You may have addressed accessibility in

*This assignment has been adapted from a previous assignment by Dr Steve Maddock

a number of ways on the website and if so you should state that on this page.)

You may include other pages if you wish, but remember that you are focusing on the *Students' Union* **building**, not the organisations. (You may include links to some of the organisational services that are hosted within the building, but focus on the building and its use.)

You must satisfy the following when constructing your website:

- The overall website design must be consistent.
- The website must be legible, e.g. is there good contrast between text and background? What happens when stylesheets are turned off?
- The website must take into account accessibility issues.
- The <head> element must include an element identifying the author(s).
- You must use the HTML5 semantic elements when structuring each webpage. These must then be styled in the relevant stylesheet(s).
- A navigation area must be included for the Web site.
- Appearance must be controlled by the linked stylesheet(s), *not* by inline styles.
- Use of @media queries
- Economic use of properties in a stylesheet, e.g. `margin a b c d`, rather than setting the top, right, bottom and left margin separately
- All source code should be well organised and neatly laid out, e.g. using *indentation*.
- You must include comments in your source code. As an example, a comment might describe the purpose of a particular CSS rule or use of a particular HTML element rather than a different element. We will look at these comments carefully since the comment text will be unique to you and reflect your understanding. However, do not comment simple pieces of source code where the meaning is obvious – use your common sense here. For the HTML file, remember to include a meta tag in the <head> element that states that you are the author. Include comments to this effect in other files.
- (*Note:* If you want to use videos on your website, then put them on youtube and just put a single image and a link to the youtube video on your web site. Do not include the video on the web site itself, as this will make it impossible to hand in the final work – see later.)

3 Part 1: Planning and Design

The Word or pdf document for this part should be between 500 and 1000 words long, and may include as many images as you wish to use.

You must create a document that describes how you planned and designed the website using 'Mobile First Responsive Web Design'. This document should be completed before implementation starts. *It should* ***not*** *include screen shots of your implementation.*

(Note: Requirements is given in section 2 above, so you don't need to write about this.)

You must include the following in separate headed sections:

- General ethos: A brief statement about the general ethos behind your design and why it suits the requirements.
- Site Map: draw the site map for your website and **justify** the structure.
- Accessibility: describe how you address accessibility issues on your website.
- Legal issues: describe how you address issues such as copyright in relation to your website.
- Design mock-ups: You must use a mobile-first approach for the assignment. Create design mock-up diagrams that show, *as a minimum*, the mobile design and the desktop design. You could use wireframes for this, or you could use paint software (e.g. Photoshop) or even hand-drawn sketches (that are then scanned in) to produce diagrams similar to the following examples:
  - The one labelled *"The "extreme" versions of the new website design"* in the following article: https://www.smashingmagazine.com/2013/03/building-a-better-responsive-website/;
  - The one labelled *"Normal, Narrow, Mobile"* in the Overview section at http://webdesignerwall.com/tutorials/responsive-design-with-css3-media-queries/comment-page-1

  You must decide how many breakpoints to use in your design and write a short justification of this. (Note: the exact position of the breakpoints could be changed during the development stage, and you may also add a few tweakpoints.) **Justify** your design decisions.
- Menu System: A consideration of the menu system that is being used, e.g. consider the articles at
  - http://responsivenavigation.net/index.html
  - http://bradfrost.com/blog/web/responsive-nav-patterns/
  - https://cmd-t.webydo.com/from-simple-to-unusual-a-look-at-navigation-in-web-design-1057d0baef7b

  and give a justification for the menu system you decide to use.

In discussing each of the above things, I expect

you to **justify** your decisions using references to relevant websites. For example, the following website should be referred to:
https://developers.google.com/webmasters/mobile-sites/.

You only need to consider the last two major versions of typical web browsers in your planning process. Do not consider old browsers.

You should include plenty of diagrams in your document (and each figure should be numbered and have a caption), where the pictures can be general illustrations (e.g. a design hierarchy or a page layout diagram). Pictures can be hand-drawn and scanned in, or can be produced using appropriate software tools. Your references list and words in diagrams do not count towards the word limit.

Surprise me with your own comments on different aspects of the process. The aim of this document is to make sure you have thought about the process of planning and designing a website and carried out the process in a structured way.

4 Part 2: The Website

The Website should include all the requirements given in Section 2 and should match your design document. If you make any changes to the design, these can be discussed in Part 3.

5 Part 3: The Development and Testing Document

The Word or pdf document for this part should be between 500 and 1000 words long, and may include as many images as you wish to use.

The development and testing document should cover the following, each in headed sections:

- Changes: Has the design changed? If so, briefly describe the changes and why you made them.
- Organisation: Did you create templates for the HTML and CSS? If so, why, and how did you use them? Consider the use of CSS reset or normalize – why would you use these? How did you organise the file structure for the website? Discuss the debugging tools you have used. How did you organise the menu? Did you use JavaScript? Discuss.
- Optimisation: Have you considered optimisations (e.g. image loading times)? Discuss.
- Security: For the contact page, which contains a form for users to complete, discuss any security issues that you think are relevant and how you deal with these. Also discuss any other relevant security issues for your website (e.g. http or https?).
- Testing: Tests on different devices and different browsers – you only need to consider the last two major versions of web browsers in your testing. For the purposes of this assignment, it is acceptable to use emulation tools for testing. You must consider accessibility testing and show the results of this.

(Note: I am not including 'delivery' as part of the assignment, since for you that is just handing the assignment in through MOLE.)

You should include plenty of diagrams in your document (and each figure should be numbered and have a caption), where the pictures can be general illustrations, as well as screen shots from your own website (e.g. screen shots of tests on different devices). Your references list and words in diagrams do not count towards the word limit.

Surprise me with your own comments on different aspects of the process. The aim of this document is to make sure you have thought about the process of developing and testing a website and carried out the process in a structured way.

6 Handin via MOLE

The assignment handin process is via MOLE, using the assignment link. The three parts of the handin should be put in a single zip file called `names.zip`, where *names* includes both your names, e.g. `JaneSmith_and_JohnBrown.zip`. This zip file should contain the following:

- Part 1. The planning and design document. This should be a Word document called `design.doc` or a pdf document called `design.pdf`.
- Part 2. This is the website itself. The home page of the website must be `index.html` or `index.shtml`, so that it is easy for us to identify which file to load first. Make sure you include every file, including all relevant images. (Remember: using relative addresses on your website for the links between pages and resource files such as images is important so that the website can be easily copied onto a different server.) Do not include videos, as including these will create a large zip file, which will crash MOLE – there is previous experience of this and it wasn't pretty. If you want to use videos, then put them on youtube and just put a single image and a link to the youtube video on your web site.
- Part 3. The development and testing document. This should be a Word document called `developandtest.doc` or a pdf document called `developandtest.pdf`.

Remember to identify in each and every separate file that *you* wrote the code.

When you have created the zip file, you should check that it has been created correctly by unzip-

ping it again. There have been cases in previous years where the zip file was corrupt or the file structure had been flattened. So please check your zip file is correct.

7 Marking

7.1 Part 1 (7%)

You must include each of the things asked for in the above specification. Justifications should be given for each part, but these should be brief as there is a maximum word limit. Use diagrams to help explain things.

The accompanying description should give reasons for choices, e.g. the discussion of the site map should not describe what the site map diagram already shows. Reasoning is more important. Justify accessibility statements by citing references. The design mock-ups should be neat and reasons for the breakpoint(s) given.

7.2 Part 2 (36%)

The majority of marks are for producing a website that fulfils all the requirements. Read them *carefully*.

- General (10%) – includes look and feel, RWD behaviour, content, turning features off, use on different browsers;
- HTML (13%) – includes comments, layout, content of <head> element, semantic elements, menu, validation;
- CSS (13%) – includes organisation, layout, comments, economic use of properties, RWD, @media, validation;

7.3 Part 3 (7%)

You must include each of the things asked for in the above specification. Justifications should be given for each part, but these should be brief as there is a maximum word limit. Use diagrams to help explain things.

8 Practical Considerations

8.1 Unfair Means

The standard Department rules for use of unfair means will be applied:

https://sites.google.com/sheffield.ac.uk/comughandbook-201819/general-information/assessment/unfair-means?authuser=0

I am aware that there are lots of HTML, CSS and JavaScript tutorial sites on the Web. Do **not** copy them, since that would be plagiarism.

8.2 Code Reuse

Do NOT use Bootstrap or any other similar frameworks for creating web sites.

You may reuse HTML and CSS code that I wrote that is given in lecture notes, as long as it is not code that is from another source that is being used to illustrate something – I may have used it to illustrate something, but you will not have permission to reuse it. If there is any doubt, then assume you cannot reuse it.

If you are using CSS reset or normalize, you need to make sure you comply with the license for each of those and make clear that they are not your work.

8.3 Text Editor

There are plenty of Web design tools available. The expectation for this assignment is that you will use a text editor to develop your website. You might use more sophisticated tools to support your design process, but not to develop your code for you – typically, it is obvious when one of these sophisticated tools has been used in code development as the files created contain lots of extraneous HTML and CSS, rather than only including what is required. As part of the deliverables you will have noted that I expect code that contains detailed comments. These will demonstrate whether or not you understand the HTML and CSS that you have produced.

8.4 Relative Links

Make sure you use relative URLs in your HTML code when referring to your own resources or to other HTML files that you are developing – the reasons for this are explained in lectures. Links to external URLs should still be given in full, e.g. `http://www.w3.org/`.

8.5 Keeping Your Work Private

Your website should be developed in a local folder in your CiCS managed desktop file space, *not* in your Department `mypublic_html` folder (visible on the Department's Web server). If you develop the website in your `mypublic_html` folder, it will be visible to the world and all other students will be able to see your work and have the opportunity to copy it.

When your work is marked and returned to you: you can copy your Web site to your Department `mypublic_html` folder (see instructions in one of the lab classes for setting up a network link to the `mypublic_html` folder from a CiCS machine) and thus make it visible to the world via the Department's Web server. This is similar to the standard process of developing a Web site offline and then uploading it to make it visible online. By making it public *a few weeks after the handin deadline*, other students will be able to see your work, and to learn from what you did.