

James Green 2017/18

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A Study in HCI

Full unit Project

Plan

Abstract

This project aims to compare various user interfaces and evaluate their design in terms of human usability. To achieve this various HCI issues which are present will need to be tackled including, but not limited to, variation between individual humans, cognitive issues, colour theory and typography. Through experimentation these factors will be manipulated and measured to find the optimum version of several interfaces.

There will be 3 interfaces each with a set of versions for comparison of their ability to overcome the HCI issues:

- The first of these interfaces will be a simple website showing interactivity without multiple pages, having to scroll for more content, and menus to snap to these sections. The content of the website is likely to be a personal website to show information about myself in a stylised way.
- The second will be a website for a small business, consisting of several pages that require navigational issues to be resolved, and aims to be suitable for users that are less computer literate. A few meetings with stakeholders and a specification will form more information regarding the requirements of this.
- The third, final, and most challenging interface will be a mobile application for the android operating system. This provides many more HCI issues compared to a webpage as the mobile interface is smaller in general, and requires alternative input such as touch, however also will encompass all the issues from the 2 websites. This application aims to be a journal for a single user, showing previous entries that can be accessed and updated. Extension to this is very possible with association of images to the users input for a day for example.

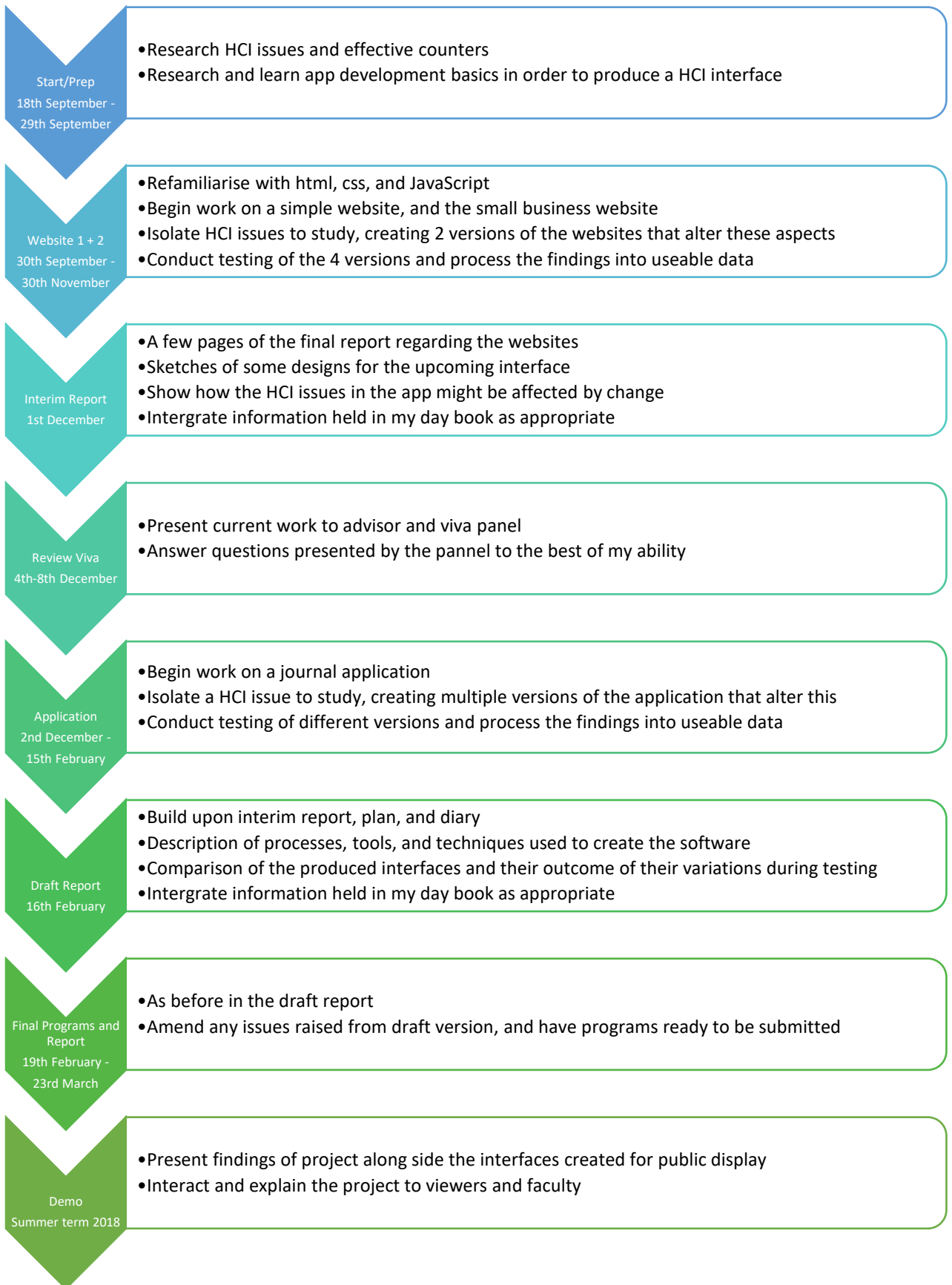
Using knowledge from a HCI course completed previously, I will test variations of these websites and app that, hopefully, will show differences in them as positive or negative. Most of this will be A/B testing, as this is a simple methodology. As the project progresses, each test will have a hypothesis attached, when results from chi squared or t-test (in the case of discrete variables being measured) show the significance is high enough the null hypothesis will be rejected and judgement can be made. In the cases where the null hypothesis could not be rejected, further investigation will be required.

To save some time and effort, low fidelity may be used in preliminary stages for changes to be completed rapidly in response to findings. Some research shows that users feel less pressured with low fidelity prototypes and may present issues more freely than if they perceive it to be finished.

Finally, a report will be written detailing the result and timeline of the entire project with a summary and evaluation of the user interfaces created.

In summary my project is to utilise HCI for an improved experience during interaction, unlikely to save lives or change the world, however highlights some key aspects that may in the future be applied to such projects.

Timeline



Bibliography

Alan Dix et al., *Human-computer Interaction Third Edition*, 2004, Harlow, Pearson Prentice Hall.

This book covers all the basics of HCI with more detail, ready and waiting, this will be my main textbook for reference throughout the project. I can search through the basics and then delve deeper once I locate an area of HCI that I require further exploration of.

Donald A. Norman, *The Design of Everyday Things Revised and Expanded Edition*, 2013, Cambridge Massachusetts, The MIT Press.

This was a book recommended by two professors who teaches HCI at Royal Holloway. It serves much the same as the following website, it covers some of the topics of the course I attended, acting as a point of reference to check back upon. The writing in this book is also easier to read, and deals with interaction outside of just HCI giving it wider application.

Nuno Barreiro & Carlos Matos, *16-17 CS2846: Human-Computer Interaction*, Royal Holloway University of London, <https://moodle1617.royalholloway.ac.uk/course/view.php?id=3902> , 29/09/2017.

In my second year of undergraduate study I took this class and learnt nearly all I went into this project with regarding HCI. I decided it would be beneficial to keep it at hand for checking back to keep on track with the core of HCI.

Color Matters, J.L.Morton, <https://www.colormatters.com/> , 29/09/2017.

This website proves to be useful for colour theory in various views, such as marketing and scientific. A simple but effective website with many pages of information that was easy to digest.

Nielsen Norman Group, Jakob Nielsen et al., <https://www.nngroup.com/articles/> , 29/09/2017.

Similarly, to how Normans book was helpful the Nielsen Norman Group website is full of interesting articles which shared HCI knowledge and opinions in interesting format. Nielsen is of course known well for his heuristics for user interfaces, their colleagues who provide articles also well renowned. Use of this website can be done during travel quite easily to read near daily updates via mobile browser.

Risk Assessment

Risk	Mitigation
Report incomplete	Keep notes of progress and update draft report, diary, and day book regularly throughout the project
Findings not reliable	Ensure sample size for testing is adequate, and eliminate as many extraneous variables as possible
Interfaces not sufficient for testing	Reductions in the number of interfaces can leave more time for testing due to less work to create so many variations and tests for these variations
Findings inconclusive	Allowing time for further investigation, or altogether different tests may provide some mitigation against this
Unforeseen circumstances	Try to keep ahead on completion of critical path objectives, so that any unforeseen circumstance will hopefully have a lesser impact on end results (limited findings are better than no findings)
Pioneering sometimes is unwelcome, or unnoticed by some users	There is little mitigation that can be done to this, for example several breakthroughs in history have been neglected until another later has brought it to light e.g. iPhone bringing “new features” that have existed on Android for years