Assignment 1 - Prototyping and Usability Testing

Important Information

This assignment is due on Sunday 20 March 23:55 (Week 4).

This is an **individual** assignment.

This assignment is worth 7.5% of your final grade.

This assignment assesses ILOs 1 and 3.

! **Marking Rubric**

Assignment 1 Rubric

Keep it COVID-SAFE

Some aspects of this assignment ask you to conduct usability testing with other students/friends/family/friends/dogs. When doing so, be sure to adhere to social distancing measures.

Consider how you need to adjust your methodology for COVID -- do you send the PDF of your balsamiq to the other person? Or use screenshare? Or do you control the computer for them? Maybe there is another approach as well, but it is your responsibility to remain COVID safe.

Background

Your task in assignment 1 is to apply user-centered design principles to create a **low -fidelity prototype** of a *stroke rehabilitation application* as described in the Assignment Theme.

In addition, you will conduct **Usability Testing using the Think-aloud protocol** discussed in the lectures. This will involve:

- creating a set of **usability test tasks** and associated **success requirements**,

- running a **usability test** with at *least 5 participants* and **collecting data**,

- **updating your low-fidelity prototype** based upon feedback, and

- summarizing your **results**.

The goal of this assignment is to assess your ability to design and prototype mobile applications and demonstrate your understanding of the fundamentals of user-centered design when applied to a practical context.

Requirements of the Mobile Application Design

Your design should include functionality for addressing *most* of the requirements in the assignment theme document, however a top-level assignment will attempt to address *all of them*.

Design Principles and Usability Goals

You should justify and discuss your design decisions in your report with respect to the Design Principles and Usability Goals described in the lectures. The marker will be specifically looking at how you can make your application be *understandable on first use* and *forgiving*.

I will also be looking for a discussion on the *consistency* of your app, and your use of (or deliberate lack of use of) *conventions* of the Android or iOS operating systems. For example, which parts your app (if any) will look the same on Android vs. iOS? Which parts (if any) will look different? What are the advantages and disadvantages of this approach?

Don't Over-do It

You do <u>not</u> need to provide a prototype of how your app will look on Android compared to how it will look on iOS.

A Note on Assignments 2, 3, and 4.

The other assignments will use the same *theme* as Assignment 1 (i.e. stroke rehabilitation application). For *this* assignment, you are encouraged to be **creative** and prototype ideas without regard for what will be practically achievable for you to code later (within reason). There are *no marks* for how similar your final code resembles your Assignment 1 submission.

Prototype Submission (40%)

Your submission should include two prototypes:

- your *original* prototype used for testing; and

- your *updated* prototype based upon user feedback.

For the purposes of this assignment, make it clear what has changed between prototypes (it is up to you how to do this).

To get an HD on your prototypes, you should includes *all* features described in the [Assignment Theme](#).

Prototypes should *communicate* how a user would progress through the envisaged application.

- These can be in any of the following formats:
  - Scans or photos of a (well-drawn and legible) sketch
  - Screenshots of a Balsamiq Wireframe
    - You must also include your Balsamiq PDF or Balsamiq project file in your submission *in addition* to your report, but still include screenshots in your report.
    - Your Balsamiq prototype *does not* need to contain navigation links if you don't want to. Design choices and justification are being assessed, rather than your ability to create button links or functionality in Balsamiq.
  - Screenshots of any other digital mockup (e.g. Powerpoint, PowerMockup, Paint, Photoshop, etc.)
    - Software other than that listed here must be *approved by the lecturer* **before** you begin work on this assignment. The software must be freely available, and provide an output which is easily assessable.
    - Be warned about using prototyping software which focuses heavily on interaction and navigation – remember I am assessing your design decisions for your app, not your ability to produce a fully functional interactive prototype.
    - You must not write *any* code for this assignment.

- Your prototypes should *communicate* to the reader at least:
  - Navigation between screens (remember, you can communicate this with links OR just by using arrows and comment boxes etc.).
  - Variations of screens when the app is in different states (e.g. what does it look like on first use?, or what does a screen look like after a user has recorded some attempts?)

Report (60%)

You are required to write up your work in a report format with the following sections (a guide for the length of each section is provided, but may vary depending on your use of figures):

- **Introduction (max half a page)**
  - Explain the purpose of the application, and the considerations you have made about your target users.
  - You may cite existing applications which influenced your design (whether the example is good or bad).

- **Usability Goals and Design Principles (2-3 pages)**
  - Describe how you designed your application to follow the usability goals from the lectures. Include pictures to illustrate this.
  - Describe which of Don Norman's design principles you considered when designing your application. Include pictures to help illustrate this.

- **Testing Methodology (2-3 pages)**

- Describe how you approached your usability testing, explaining the steps you took such that someone could replicate your experiment. Include things such as:
    - Participant recruitment (and any bias in that recruitment?)
    - Where you conducted the test
    - How you did it (files, computer set up, etc)
    - Justify your choices
  - List your Usability Test Tasks and Success Requirements (include the Tasks Matrix from the lectures).

- **Testing Results and Discussion (2-3 pages)**
  - Include at least one data table summarising the results of your test (e.g. timings, number of mistakes made, etc.)
  - Discuss how you updated your prototype based upon your testing observations and user feedback.
  - You are <u>not</u> expected to conduct statistical analysis such as t-Tests, ANOVAs, or correlation -- just simple summary statistics will do.
  - Results should be anonymised.
  - You will be assessed on your understanding of your results, <u>not</u> on whether or not you got perfect test scores or not.

- **Conclusion (max half a page)**
  - Wrap things up, summarising what you have learned.

- **References**
  - Include academic (and non-academic) references throughout your report. Use a Harvard referencing style.

- **Appendices**
  - You may choose to include your prototype as an appendix, or as a separate file.
  - Include your raw collected data in your appendix.

Your report must be no longer than 10 pages (*excluding* appendices, references, and balsamiq prototype itself). You should use 10pt Times New Roman font with default margins and single-line spacing.

Assignment Submission

The following file(s) must be submitted via MyLO before Sunday 20th March:

- A report, in PDF format.

- Your original Balsamiq prototype, **and updated prototype**.
  - Include the exported Balsamiq PDF and Balsamiq Project files.
  - If you used any other approved software, you should include any associated project files.

> ### Assignment Submission Box
> Assignment 1 - Prototyping

Weighting

Component	Component	Total Weight (Sum 100%)
Prototype (40%)	Design and Functionality (70%)	28%
	Iteration (30%)	12%
Report (60%)	Introduction, Conclusion, References, and Style (10%)	6%
	Design Principles and Goals (20%)	12%
	Testing Methodology (35%)	21%
	Results and Discussion (35%)	21%

Plagiarism & Cheating

Practical assignments are used by the Discipline of ICT for students to both reinforce and demonstrate their understanding of material which has been presented in class. They have a role both for assessment and for learning. It is a requirement that work you hand in for assessment is *your own*.

Working with others

One effective way to grasp principles and concepts is to discuss the issues with your peers and/or friends. You are encouraged to do this, **particularly through the unit Discord on the #assignment-feedback channel**. We also encourage you to discuss aspects of practical assignments with others, and to draw inspiration from other sources. However, once you have clarified the principles of the question, you must express your idea entirely by yourself.

Cheating

- Cheating occurs if you claim work as your own when it is substantially the work of someone else.

- Cheating is an offence under the Ordinance of Student Discipline within the University. Furthermore, the ICT profession has ethical standards in which cheating has no place.

- Cheating involves two or more parties.
    - If you allow written work, computer listings, or electronic versions of your work to be viewed, borrowed or copied by another student you are an equal partner in the act of cheating.
    - You should be careful to ensure that your work is not left in a situation where it may be used/stolen by others.

- Where there is a reasonable cause to believe that a case of cheating has occurred, this will be brought to the attention of the unit lecturer. If the lecturer considers that there is evidence of cheating, then no marks will be

given to any of the students involved and the case will be referred to the Head of Discipline for consideration of further action.

References

Failing to cite the source of any information or images used in your report may be considered a form of academic misconduct. You are welcome to make use of images and *partial* ideas found from outside sources for your designs, but you <u>must</u> reference them. The preferred style of referencing in this unit is Harvard.

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