Carleton University, Ottawa, Canada
School of Computer Science
Winter Term, 2020

COMP3008 Project 1
Interaction Design Process
Due: February 16th, 2020 at 11:55pm EDT

This project is to practice and explore the elements of Interaction Design process as presented and discussed in class and in the textbook. Tasks include requirements analysis, initial design alternatives, prototyping and iteration, and usability evaluation**.**

GROUPS:

The project is to be done working in small teams of 4 people. You are responsible for organizing and managing your group. Please use the forum on CULearn to make connections, and contact the Instructor or Teaching Assistants if assistance is required. You should have your team chosen by **Tuesday, January 14th, 5PM**. * If not in a group by then, I will randomly assign the students to groups.

APPLICATION DOMAIN AND GOALS:

The type of interface/application is up to you. Your choice should be discussed and approved by a Teaching Assistant before you invest too much time and effort into it. Choose something that seems interesting to you. Topics should address an existing need, be non-trivial to design (e.g., a desktop calculator or calendar is too simple), and not simply replicate an existing system.

Topics should be approved by one of your TAs by January 22nd at the latest. When emailing them, make sure to include enough info about your idea so that they can properly assess whether it seems like a reasonable path.

Questions to consider when selecting a topic:

- What general area are you interested in (e.g., desktop, web, mobile, alternate input mechanisms)?
- What is the existing need?
- Who are the target users?
- Is this feasible within the timeframe of the class?

ETHICS:

Several steps of the project involve working with study participants to help you in design and in determining usability. The project has been reviewed and approved by the Carleton University Research Ethics Board. The course will include a presentation on ethics in user testing before you will need to start work. When working with participants, you must first obtain a participant's informed consent using the consent form, conform to commitments made on the form, and afterwards give them the debriefing form explaining the purpose of the work. These forms are available on the COMP3008 CULearn page. (Write your name(s) at the top of both the consent and debriefing forms. Completed consent forms must be scanned or photographed and included as an appendix to your report.)

REPORT FORMAT:

This report must be written according to the requirements in this section.

Cover page: Project title, team name, team member names and student IDs, course ID (COMP3008), and submission date.

Content formatting:

- 12-point Times New Roman font
- 1.5 line-spacing
- 1-inch margins.
- Use of proper section headings.
- Page numberings.

PROJECT STEPS AND REQUIREMENTS:

This section outlines the work you need to do, and how to prepare a report for assessment. (Approximate page lengths for the sections in the report are suggested below, where a page is approx. 350 words).

1: Requirements Analysis – 25%

To develop an understanding of the requirements, you need to conduct some data gathering and analysis.

	Task	Report
a.	Decide on the general idea for your project. Do not make assumptions or decision about exactly how it will unfold yet – you need to find out what your users really want and need rather than simply assuming that you know which direction to take. Identify at least 3 likely personas that represent the system's users. Design at least 3 scenarios to show how users may use the system.	Overview of your project idea. What is the idea? Why is this needed? What problem or opportunity is it addressing? *(1 page)* 3 personas and scenarios. *(1/2 page for each persona and each scenario.)*
b.	Identify your target users. Conduct need finding sessions with 5 participants. Each individual interview session should be between 15 and 30 minutes. For each participant, the study should consist of two parts, interview and observation. For the interview, you should design a brief semi-structured interview script to elicit the user's attitude, current approach, goals, needs, and desired outcomes with respect to your project topic. Use your script to guide the interview, and take notes about the participant responses. You may wish to conduct the interview with one team-member interviewing, and another taking notes.	Interview script and general description of participants. *(1 page)* Interview and observation notes from at least 5 participants *(1 page per participant)*

	For the observation, you should use the scenarios you identified. Ask the participant to role-play the scenario, and thinking aloud. Take notes on their activity as they work through the scenario.	
c.	Work as a team to organize and interpret your interview notes. a. Improve or change your personas and scenarios based on what you have learned. b. Develop an Affinity Diagram to help organize your data c. Identify key requirements for your design	Improved personas and scenarios. Affinity diagram(s) Description of key requirements *(3--5 pages in total)*

2: Initial Design Alternatives – 25%

	Task	Report
2a.	Design **two** alternative low-fidelity prototypes based on what you learned in the first step. Consider interface styles, patterns, theoretical design frameworks. You should try to come up with two *distinct* designs, based on different design rationales. Complete the following steps for ***each design***.	
2b.	Describe --- A name for your design identifying its key characteristics --- your design rationale referencing what you learned in the previous step --- your design approach --- why you think this design will have advantages relating to the requirements	Design name and rationale, approach, anticipated advantages (*1--2 pages per design*)
2c.	Create (e.g., sketch using Balsamic or Moqups) low-fidelity prototypes of the main visual elements. Create a storyboard for **one** of typical use scenario, using your sketches, with captions and markup annotations explaining the interaction	Sketches of main elements and your storyboard *(3--5 pages per design)*

3: Prototype Evaluation and Iteration – 30%

	Task	Report
3a.	To select with which of your two prototypes you will proceed, discuss them as a group and come to a consensus which one is better in terms of usability, based on the principles learned in the course.	State which prototype you select to proceed and the rationale for your decision (*approx. 1 page)*
3b.	Test your selected design with participants. Use your low fidelity prototype (e.g., Balsamiq or Moqups) and employ the Wizard-of-Oz usability technique. Conduct at least 2 iterations of testing and design improvement. At each iteration of testing, involve at least 3 participants.	For each iteration: Describe the results of testing, explaining participant behaviour and satisfaction (*approx. 1-2 pages per iteration)* Explain the changes you made to improve your design and show the new visual elements (*approx. 1-3 pages per iteration*)

4: Usability Inspection Evaluation – 20%

	Task	Report
4a.	Conduct a Heuristic Evaluation of your final prototype design from Step 3. Use Nielsen's general usability heuristics and follow the defined procedure. Each team member should conduct an individual evaluation before you proceed to the consolidation phase.	A summary of the results of the Heuristic Evaluation, showing independent results and consolidated results. For each identified issue, include its priority and severity. (*approx. 1 page per evaluator + 1 page for consolidation)*

5: Workload Distribution and Summary

	Task	Report
5a.	Describe the contributions of each team member. This may take the form of an itemized list, but include enough detail to convey the amount of effort and value of the contribution towards the overall milestone goals. In general, teams will earn the same grade. However, significant variability in the perceived effort and value of contributions will result in adjusted grades for individual team members.	A summary of contributions per team member.

ASSIGNMENT SUBMISSION AND FEEDBACK:

Throughout the duration of this project, the Teaching Assistants will be available during their office hours for advice and feedback as you work through the project steps. We have 6 excellent TAs, all with experience in Human-Computer Interaction. Please make use of them. For example, you may wish to seek feedback on your interview script before working with participants.

For the project report, please write up the steps of your study as described above. Please ensure that the entire report is in one single PDF document. Upload the PDF file by following the submission instructions on the web site. Only one submission is necessary per group. The project is due at **11:55 PM EST February 16th, 2020**. Projects submitted or updated late will be penalized by a deduction of 10 marks (out of a possible 100) per 24 hour period, or part thereof.

Other important deadlines:

- Selection of groups: January 14th, 2020.
- Approval of topic by a TA: January 22nd, 2020.