A2: Design Concepts and Prototypes

The purpose of this assignment is for you to explore the design space of the potential interfaces for your system and then develop and evaluate detailed low-fidelity prototypes.

DUE DATE: submit on MarkUs, by November 5, at 12:00pm (noon).
GRADE: 10% of your final mark

What to do

In this part of the project, you will first consider different design alternatives for your product. To accomplish this, design (at least 3) potential interfaces for your system. Generate sketches for each concept. Use these sketches to gather informal user feedback. Identify the advantages and disadvantages of each design from the user's perspective. Additionally, use the feedback to iterate on the requirements for your product and to narrow down the design space.

Then you will design a new interface based on what you have learned above. Develop two detailed low-fidelity prototypes (representations) of this interface. The first representation should be a paper prototype of this interface. The second representation should be a collection of storyboards of the different tasks that can be supported by the system..

What to submit

The output from your work is a *Design Alternatives & Initial Evaluation Report*, which will be about 20 pages double-spaced (excluding the appendices). It should include the following:

1. **Design alternatives** (30/100 points)
   Show three different design alternatives that you initially considered. For each design, include:

   - Sketches
   - a short description/explanation
   - a list of its advantages and disadvantages
   - some informal feedback from users.

2. **Paper prototype of the current system design** (25/100 points)
   Implement the best of the ideas above into a paper prototype. Your low-fidelity prototype should be some combination of the three ideas above, into a cohesive solution. You do not have to attach the whole paper prototype to the document. Instead, only show some pictures of your paper prototype to convey what the current system design looks like. Include:

   - a short description/explanation
   - the rationale behind the different design features
   - a list of its advantages and disadvantages

3. **Storyboards of the current system design** (15/100 pts)
   Include 5 storyboards showing how the user would interact with your system to complete a task. Each storyboard should highlight how the different design requirements from A1 are addressed in your system. (3 points per storyboard)

4. **Evaluation of the low-fidelity prototype** (20/100 pts)
   Evaluate the usability of your system by conducting the following usability evaluation methods:
   - Think aloud with 4-10 users
   - Heuristic Evaluation OR Cognitive Walkthrough with 4-10 experts (during Studio 5)

   You must video record the Think Aloud sessions with users. Include in your report links to carefully curated segments of the sessions with users to illustrate important findings. Each video segment should be carefully curated (not exceed 1min in length). The selected video segments should not exceed 3min in length altogether.

   You can not be the experts who evaluate your own design. You must recruit other students in the class as your experts for the Heuristic Evaluation and/or Cognitive Walkthrough. Include a table summarizing which other students served as an expert, and rate how helpful each expert was (0: not helpful; 1: helpful; 2: very helpful). Part of your grade will be calculated based on the experts' assessment of how prepared you are when asking them to evaluate your design (see below).

   It is mandatory that every single member of your group serves as an expert for another group's evaluation with experts. Include a table in **the appendix** summarizing which other group(s) your team members helped to serve an expert for, and rate how well those groups had prepared their material for the evaluation (0: not prepared, 1: well prepared, 2: very well prepared). A penalty will apply if your group members do not take their expert role seriously, or fail to participate.

5. **Lessons learned and implications for design** (10/100 pts)
   Include a description of what worked and what did not. Based on this, explain what changes will you make to the design--show what the changes will be like.

In addition to the sections described above, your report should include:
- title page with a meaningful title, your names, your emails, your tutor's name, the course name and number, and the date
- a one paragraph executive summary of the document on the second page
- a table of contents
- a link to the full recordings of the Think Aloud sessions in their entirety
- a statement of "who did what" on the assignment (include the estimated amount of time each of the members spent on each of the listed parts)

Your report must be typed. Submit your report (1 per group) as a single PDF document on MarkUs.

How will it be graded?

The criteria for this assignment are as follows:

Design alternatives (30 pts)

Each of the three design alternatives will be graded using the same criteria:

- Sketches convey the ideas clearly (3 pts)
- The design concept is well described/explained (2 pts)
- Advantages of the design are well articulated (2 pts)
- Disadvantages of the design are well articulated (2 pts)
- Insights gained through informal feedback from users (1 pts)

Paper prototype of the current system design (25 pts)

- The paper prototype is well crafted (based off pictures) (5 pts)
- The system design is well described/explained (5 pts)
- The design features are well motivated (5 pts)
- The proposed design is well thought out (2 pts)
- The study instruments have been piloted and improved (2 pts)
- Advantages of the design are well articulated (3 pts)
- Disadvantages of the design are well articulated (3 pts)

Storyboards of the current system design (15 pts)

Each of the five storyboards will be graded using the same criteria:

- The task illustrated is relevant with regard to the functional requirements (1 pts)
- The storyboard well conveys the interactions with the system (2 pts)

Evaluation of the low-fidelity prototype (20 pts)

The two evaluations will be graded using the same criteria:

- The details of the evaluation method are described and well articulated (2 pts)
- The evaluation protocol is well prepared (2 pts)
- Quality of execution (based off feedback from Studio 5 and video recordings) (3 pts)
- The evaluation was conducted with enough participants/experts (1 pts)
- The discussion of the results is well organised, well articulated and insightful (2 pts)

Lessons learned and implications for design (10 pts)

- Bright spots, where the design is working well, as well as the limitations and issues (gaps and seams) are identified and insightful (5 pts)
- Proposed changes are relevant, well described and well thought out (5 pts)

All of the criteria will be graded using the same following scale:

100% - Outstanding. The criterion was satisfied perfectly or nearly perfectly.

75% - Good. The criterion was satisfied well.

50% - Satisfactory. The criterion was satisfied.

25% - Weak. The criterion was partially satisfied..

0% - Very poor. The criterion was not satisfied.

Further, penalties will apply for late submission, violation of submission instructions, poor presentation, and spelling & grammar issues:

Late submission
Late submissions incur a penalty: see the Course Policy.

Violation of submission instructions
Failure to comply to submission instructions will incur a penalty up to 10% of your grade.

Poor presentation
The report must present information in a well structured and organized manner. The content must be relevant, but concise. The presentation style of the report (e.g. formatting, layout) must be consistent and conscientious. Poor presentation will incur a penalty up to 10% of your grade.

Spelling & Grammar
Word processors offer spelling and grammar checking. Major spelling and grammatical errors will incur a penalty up to 10% of your grade. Note that documents submitted with less than University-level writing quality will be returned unmarked.