

Introduction to Human Computer Interaction & Design
Assignment #8: Assignment #8: Hi-Fi Prototype (Group)
Due at the start of lecture on 12/26
[Assignment from Landay of Stanford CS]

Instructor: Hao-Hua Chu
Fall Semester, 2016

Overview

The goal of this assignment is to learn how to build prototypes of user interface ideas using interactive user interface builders while also dealing with the interface constraints of a target platform. You will revise your user interface ideas based on the heuristic evaluation results and then use interactive tools to build a running prototype of the design. At the midway milestone, you will make an in-studio presentation about this project stage, how you got there, and how you will get to the final deliverable. By the final due date, you will turn in a report describing your quarter-long project and the steps you carried out.

Interface Redesign

Use the results of the heuristic evaluation to design a revised UI. You must modify your project's existing design based on the heuristic evaluation feedback and other issues you know about the design (from your own knowledge or the feedback of the teaching staff). Develop new/revised task flows (if necessary) for your tasks by storyboarding. The tasks that most of you used in the medium-fidelity assignment should be sufficient for this. If you are changing your tasks, make an appointment with the teaching staff to present your new tasks, design ideas, and storyboards for discussion.

Again, all of the underlying functionality does not have to work, so you can fake much of the output, but keep in mind you want to produce a prototype that would be *sufficient to carry out a usability test with target users* completing your three tasks -- so the prototype should work at a level to support such a test. Unlike the last prototype, we want your application to look and feel like what a final application running on your target platform (e.g., iPhone/Android/tablet/watch/Glass) would look and feel like. *This interaction is much more important than underlying functionality or backend computation/scalability.*

Using Heuristic Evaluation Summary

You previously received a list of heuristic violations that an "outside" group of evaluators found in your prototype. You will use this list to focus your redesign work. You must first fix all heuristic violations of severity level 3 or 4 in your design.

You do not need to fix violations you cannot reasonably fix in this short period or those whose severity rankings your group disagrees with the evaluators on, but you must give a justification for both of these cases in your presentation and report (speak with the teaching staff if unsure).

If you are able, please fix any other violations (level 1 and 2) that are easy to fix. In addition, if there are other design issues that you are aware of (from your own knowledge or the teaching staff's comments), please list those, fix what you can, and justify what needs to be fixed later.

Quality Required for Usability Testing

In addition to fixing major usability problems, you must make sure your prototype will be sufficient to use in a usability test with target participants. This means that a participant (who is not in your group or in this class) should be able to use your prototype to perform the three tasks that you outlined in the write-ups from the medium-fidelity prototyping assignment.

Note: the tasks should include at least 1 simple task, 1 medium task, and 1 complex task and the tasks should be real tasks (not partial, incomplete “feature testers”). If your tasks do not meet these criteria, you must change them (talk to the teaching staff if unsure).

Prototype

You should build a prototyping using a tool based on the platform (e.g., for Windows Phone one would use Microsoft Visual Studio, for Android one might use droiddraw, ADT, appinventor, the Eclipse plug-in, etc. and for iPhone one might use Interface Builder or something better you’ve found). **Note - If you are not creating a native mobile application, and instead believe that a mobile web application is more appropriate to your project due to technical constraints or the lack of native mobile experience (or desire/time to obtain it quickly) you must get either the approval of Professor Hao.**

Your prototype should implement the three task flows that you developed for your tasks. In addition, the design of the prototype should properly account for the size, resolution, colors, standard widgets/controls and other attributes of your target platform. It is time to apply good visual design principles to your designs. You will lose points on this assignment if the design is still too unprofessional.

The underlying functionality does not have to be fully implemented. For example, applications requiring large databases of information or live social networks can instead have a sufficient number of hard-coded data points for supporting the three tasks.

You have a limited period of time to complete this prototype, so you should focus on showing only what is essential and try to avoid writing code where it is not necessary. You will likely have to make some difficult choices!

Deliverables

1. Prototype: Your prototype must be accessible from your project web site. It must be accompanied by a README file that describes any installation requirements and operating instructions, including any limitations in the implementation. The prototype should ideally be executable without installing any additional software. (APK file for Android platform)
2. Report: You will submit a report of around 5-6 pages of text (with images required) online on your project web site.

Report

This is your final project report and it will be cumulative, although it will have an emphasis on this last stage. Your write-up should include a description of the UI design changes you made in this iteration and a prototype overview (including sketches, storyboards & high resolution screen shots – link thumbnails to larger images). Addressing the HE usability problems can take as much space as is necessary. The write-up should follow the below outline with separate sections for the top-level items (number of pages/section are approximate). Much of the first 3 sections can be reused from prior assignments – make sure to improve where necessary.

Report Outline (5-6 pages of text plus lots of images):

1. **Header** - project name (1 line), team members names (w/ roles if appropriate) & a value proposition (short phrase that briefly describes what your project offers)
2. **Problem and Solution Overview (1 paragraph)**
 - The need your team is trying to solve with this application (mission).
 - The basic approach of your solution to the above problem (w/ image of design).
3. **Tasks & Final Interface Scenarios (1/2 page)**
 - List and describe the 3 tasks (ordered by complexity) and tell us *why* you chose each of them.
 - Present storyboard walkthrough of each task using final interface images
4. **Design Evolution (1 page of text, but mainly images)**
 - Show major steps in project from initial sketches to final designs
 - Explain reasoning/evidence behind design changes (i.e., evaluation technique & what it found at each stage & how you changed in response)
 - leave description/discussion of final changes due to HE in below section
5. **Major Usability Problems Addressed (2-3 pages -- use as many as needed)**
 - Separately list each level 3 or 4 heuristic violation along with the fix or reason for not fixing
 - be sure to *include a rationale* for each change and *compare & contrast the changes visually* (include annotated screenshots before and after for each major change)
 - reference sketches/ screenshots in descriptions
 - List any other changes you made and the reasoning behind it (e.g., for supporting usability test or due to platform implementation/standard issues)
6. **Prototype Implementation (3/4 page)**
 - Tools (How you built the prototype)
 - How the tools *helped*
 - How the tools *did not help*
 - Wizard of Oz (Any Wizard of Oz techniques required to make it work?)
 - Hard-coded Data (which pieces use are hard-coded data?)
 - What is missing and what might you add in the future?

Summary (1 paragraph)

Grading Criteria

The prototype and design will be graded as one item (50 pts + 50 pts) and the report will be graded as another item (100pts).

Prototype (50 pts)

- Is the prototype *accessible and working*? (40)
 - Can users *complete the three tasks* with the prototype?
 - Is the prototype *easy to use*?
 - Is the prototype interface *aesthetically pleasing and well-executed*?
 - Does the prototype fit the target platform's UI style?
 - Were *appropriate tradeoffs* made between functionality and completeness?
- Does the README file summarize these limitations and any other details needed? (10)

Design (50 pts)

- Tasks (10)
 - Do the tasks cover the interesting aspects of the project?
 - Do the tasks have an appropriate difficulty/complexity specified?
 - Do the tasks altogether form a compelling story for the project?
- Changes (20)
 - Were *appropriate changes made* to address the key problems discovered in the HE?
 - Are these changes *well illustrated* with screenshots?
 - Were these changes *justified*?
 - Were the design changes *creative*?
 - Are the *limitations and tradeoffs described* and justified in the report?
- Transition from medium fidelity prototype to high-fi prototype (20)
 - Were the limitations of the medium-fi prototype addressed?
 - Were appropriate *constraints* from the final target platform considered?
 - Does the design adequately represent the final target platform?
 - Were any non-standard interactions described and justified?

Report (100 pts)

- Writing (60)
 - Does the report cover all the topics in the outline?
 - Does the organization follow the outline?
 - Are sub-sections used for easy scanning of important parts?
 - Is the writing grammatical and understandable?
 - Are the limitations and tradeoffs described and justified in the report?
- Screenshots and Storyboards (40)
 - Are important figures referenced and placed inline with the text? *
 - Is there a complete set of screenshots?

Are screenshots clearly annotated with appropriate captions and are they properly referenced/linked- to from the text?