Interactive (High-fi) Prototype (Group)

Midway Milestone due at the start of your studio (Thur/Fri Nov 30-Dec 1) Final Prototype due at the start of your studio (Thur/Fri Dec 7-8)

Writeup due Saturday, Dec 9 at 6 pm

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 and code 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 completed during the entire iterative design process.

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 are aware of 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-fi 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 back end computation/scalability.*

Using Heuristic Evaluation Summary

You 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 you are 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 you are unsure).

Prototype

You should build a prototype using a tool based on the platform (e.g., 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 (e.g., even if using React Native), you must get either the approval of Professor Landay and/or your CA.**

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 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. Midway Milestone Presentation: You will make a 10-minute presentation describing how you got to the new design & current prototype implementation status. **At least one of your three tasks should work at this point.**
2. Prototype: Your prototype **must be accessible from your 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. *If this is not possible for your group, you must make arrangements with your CA before your last studio session meets.*

3. Report: You will submit a **report of around 5-6 pages of text** (with images required) online on your project web site and on Google Drive. Make sure to create a new subdirectory titled "Assignment 8" in your team's directory and upload your deliverables into that folder. Your CA will check the time of submission, as well as whether or not the file was modified after the submission deadline.

Example from 2016:
Pelican: [Midway Milestone Presentation](#) [README](#) [Report](#)
For devices that have been added to Stanford's provisioning profile, you can download the prototype .ipa file [here](#).

Midway Milestone Presentation

You will have 10 minutes for this presentation plus up to 6 minutes for questions.

Suggested Talk Outline:
1. Project title, team & value proposition (1 slide)
2. Introduction to Problem & Solution (2 slides)
3. Overview of Talk (1 slide)
4. Heuristic Evaluation Results (2-3 slides)
    a. Focus on level 3-4 issues
5. Overview of Revised Design (2-3 slides)
    a. With reasoning for changes (can combine with HE results slides)
6. Prototype Implementation Status (5-6 slides)
    a. Tools Being Used
    b. Implemented Features: What you have gotten done so far
    c. Unimplemented Features & Plan
        i.   What has yet to be implemented
        ii.   Plan to finish
    d. Wizard of Oz Techniques: Any wizard of Oz techniques you plan to use
    e. Hard-coded Data: Any information that you will hard code rather than implement
    f. Issues/Questions Anything you are unsure of how to do?
7. Demonstration of Prototype (live or recorded if not possible)
    a. Demonstration of your prototype in its current running state
    b. **At least one of your three tasks should work at this point**
8. Summary (1 slide)

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 screenshots – 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?
7. **Summary (1 paragraph)**

Grading Criteria

Mid-Way Presentation (100 pts) *due by beginning of studio Nov 30-Dec 1*

The presentation grading will be broken into two components: the individual grade of the presenter and a group grade for the presentation content. Note that you should use images liberally and try to keep the text on the slides brief (and use large fonts – no less than 20 pt anywhere). The grades for each of these components are explained in more detail below.

Presentation Style Grade   (NAME (s): _____)

- ___ Ensure that the presentation shows appropriate preparation, and that visual aids are effective, properly prepared, and properly employed. Make sure that people at the back of the room can see your slides.
- ___ Cover the required scope within the 10-minute time period (there will be 6 extra minutes for questions). **Practice & time your presentation in advance. We will cut you off if you go over and you will not be able to gain points for missed material.**
- ___ Ensure the presenter(s) makes eye contact - prepared and not looking down at notes
- ___ Ensure the presenter(s) projects well (speak up!) - speech is understandable and fluent (avoid um's and uh's)

Presentation Content Grade (100 pts)   (GROUP NAME: _____)

Heuristic Evaluation Results **(25 pts)**

- ___ Did they present all of the important results and takeaways?
- ___ Did they discuss which violations were addressed and which were not?
- ___ Where the results clearly explained?

Revised UI Design **(25 pts)**

- ___ Was the interface novel and creative?
- ___ Did the design changes follow from sound reasoning or HE results?

Prototype **(50 pts)**

- ___ Were the tools used explained?
- ___ Was it clear what has been implemented so far?
- ___ Is there a sufficient plan to implement what is missing?
- ___ Was the prototype visually appealing & follow standards for the platform?
- ___ Was enough demonstrated to give confidence it will be done at end of quarter? (at least one of three tasks completely implemented at this point)

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

Prototype (50 pts) *due by beginning of studio Dec 7-8*
- Is the prototype *accessible and working*? **(40 pts)**
  - 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 pts)**

Design (50 pts)
- Tasks **(10 pts)**
  - 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 **(15 pts)**
  - 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 **(15 pts)**
  - 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?
- Overall Subjective Quality (**10 pts**)

Report (100 pts) *due by Dec 8 at 6 pm*
- Writing Quality **(50 pts)**
  - 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 pts)**
  - 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?
- Overall Subjective Quality (**10 pts**)