Low-fi Prototype & Evaluation
Due: Monday, 5/8/2017, start of class

Overview
The goal of this assignment is to learn how to use low-fi prototyping in the early stages of UI design. You will first sketch out many different design realizations that will implement your solution. You will then select the best of these realizations to test further. You will build a low-fi prototype of this best design and then perform a simple usability test. You will incorporate the results of the test into design changes in your prototype for the next assignment.

Project Requirements

1. Concept and UI Exploration: Sketches and Storyboards
   a. Concept Sketches: Based on your insights from needfinding, brainstorm at least 3-5 different design ideas (realizations) to implement your chosen application idea. This should result in at least 15-20 rough sketches. Look at a wide variety of input/output modalities (e.g., speech, wearable, or gestural) to explore the space. See examples of the variation & style.
   b. UI Sketches: Pick the top two yet diverse realizations from (1a) and storyboard the interface designs in more detail. The entire interface does not need to be fleshed out, but a few key “screens” should be there (e.g., 3-5 sketches for each of the two design ideas) as well as some transitions between them (i.e., arrows showing relationships between interaction on one screen and movement to another screen or changes in states). These should still be rough sketches but you should be starting to get at more of the details necessary for your design idea. Scan in or take photographs of these UI sketches, and include both designs in your slides.
   c. Design Selection Rationale: Pick the best of the two design ideas for continued exploration. Please give the reasoning for your choice from needfinding data and/or design reasoning and intuition. Make a list of pros and cons for each of the two designs.
   d. UI Task Flows: Define three key tasks for your application (see lecture on selecting tasks). Given a simple, moderate, and complex tasks, storyboard a task flow for each task, for a total of at least three task flows, that shows (visually) how the tasks will be performed using your best proposed user interface from (1c). These storyboarded task flows will also show the transitions between screens (i.e., arrows showing relationships between interaction on one screen and changes in state). Make sure these are self-explanatory with any additional notes annotating the storyboard to explain. Scan in or take photographs of these UI Storyboards for your report.

2. Design and construct your low-fidelity prototype.
   Make your low-fi prototype on paper.
Your low-fi test will use the three (3) or more tasks that you turned into UI Storyboards in (1d). These benchmark tasks should include at least 1 simple task, 1 moderate task, and 1 complex task. These tasks should give good coverage of your interface.

3. **Find at least three (3) participants to test your tasks on.**
   You should not use friends, class members, or people who have already been exposed to your project. The type of people you recruit should be based on your needfinding (do not use more than one Stanford student unless you have explicit permission from the teaching team). Remember it must be voluntary. You should get them to sign a consent form ensuring their confidentiality (see an example at [http://hci.stanford.edu/courses/cs147/2016/au/assignments/consent-form.html](http://hci.stanford.edu/courses/cs147/2016/au/assignments/consent-form.html)).

**Testing Procedures**

- **Have one of your teammates explain** to the participant how they would interact with your prototype. Do not show your participants how to perform your tasks. Just explain that you will have paper prototypes and they can tell you where they would click or go and then you will advance to the next screen/update the screen for them. Demonstrate speaking aloud and explain that you will be asking follow up questions.

- **You should write up a script for your study** and follow the same script with each participant. The participant will then be given task directions for the first task that tells them what they are trying to achieve, **not how to do it**. For example for a grocery app, you say “Imagine you want to buy groceries for dinner this week. You come to the first screen and this is what you see. Try buying groceries and please talk aloud." When they are finished, you will give them the directions for the next task and so on. Keep each task on a separate card or sheet of paper.

- **Make a log of critical incidents** (both positive and negative events) during the experiment. For example, the user might make a mistake or they might see something they like and say, “cool.” Write it down along with a description of what was going on. Later you should prioritize these events and assign severity ratings to the problems (use the ratings of 0=no problem, 1=cosmetic problem, 2=minor usability problem, 3=major usability problem, 4=usability catastrophe).

- **Each participant will perform all 3 tasks.** Keep the data separate for each task and participant. Keep participant names confidential in your logs (use the “participant number” from the consent form in all other data).
Deliverables
A slide-based summary that includes all of the materials you created above. Come prepared to give a 5-minute presentation in class, but include all your other materials in the appendix. We challenge you to something creative in your presentations.

Here are the materials you should include in your slides in the preso or in the appendix:

1. Title, each team member’s name (first name plus last initial) (1 slide)
2. Introduction (1-2 slides)
   a. Mission Statement/Value Proposition
   b. Problem/Solution Overview
3. Sketches (images w/ caption) (1 slide showing variety)
   a. Overview image of the 15-20 sketches you made (include all in appendix)
   b. Top 2 designs storyboarded in more detail and reasoning for choosing these
4. Selected Interface Design (3 slides)
   a. Storyboards for 3 tasks
5. Prototype description, with images of each screen used by your tasks and a picture of the entire system (include in appendix)
6. Experiment (3-6 slides)
   a. Method
      i. Participants: demographics, how recruited/compensated
      ii. Tasks
      iii. Procedure
      iv. Results
7. Other supporting material (appendix)
   a. Include raw data (cleaned up and readable)
   b. Include any extra figures or sketches that don’t fit in above

Grading Criteria
- **Concept and UI Sketches** (10 points)
- **Selected interface design:** Why did you choose it? Any reasoning from data or constraints of the target platform? What can you do with it? (20 points)
- **Representative tasks & task flows.** Did the three tasks provide coverage of the functionality in the application? Was it clear on how a user carried out the task? (20 points)
- **Low-fi prototype:** Was the interface appropriate for the supported tasks? Did it follow from sound reasoning? Were appropriate low-fi techniques/style used? (20 points)
- **Experiment:** Was the experiment carried out in a sound manner (e.g., participants, location, method)? Were the results given in sufficient detail to understand what occurred? (20 points)
- **Quality and clarity of slides** (10 points)
- **Creativity in presentation** (up to 10 bonus points)