CS160 Spring 2006 Midterm

Part I: Short-Answer Questions (30 points)

Give short answers to the following questions:

1. When using personae, how many personae should you use (exact number not required)? How should you select them? [3 points]

The number of personae you use should be based on the number of major clusters of similar users in your target user population. If you have, for instance, three major types of users you should probably have three personae. Personae should be generated as concrete archetypes of each of those user clusters, abstracted to remove details of specific users and then re-expanded to include fictional (but plausible) details of the persona.

2. Explain "build and jump" in a brainstorming session [2 points]

Build and Jump are two strategies for keeping a design conversation moving. The group Builds on ideas to keep momentum going: "that's a great idea – what related ideas can we come up with along those lines?" Jumping is done to regain momentum when a theme tapers out: "Ok… what about this new idea?"

3. What is a "devil's advocate"? [2 points]

A devil's advocate is an individual that purposefully and inauthentically dissents with the majority view in a design conversation. They fabricate reasons to disagree with the group in the hope of stimulating divergence. Unfortunately, this usually does not work, as the other participants can easily tell that the disagreement is not genuine.

4. Why is it important for designers not to innovate sometimes? [2 points]

Radical innovation can cause problems in the work flow that you are trying to support. All users are resistant to major change, but certain classes of users (e.g. elder users) are particularly opposed to major technological jumps. There are often practical concerns that preclude major design innovations. For instance, the interface that is used to control a plane or a nuclear power plant should not change too dramatically between iterations – doing so would require massive retraining efforts and could potentially lead to life-threatening or otherwise disastrous user errors.

5. What are the three key steps in the iterative, user-centered design process? [3 points]

Design -> Prototype -> Evaluate (repeat)

6. List 4 typical task analysis questions: [2 points]

1. Who is going to use system? 2. What tasks do they now perform? 3. What tasks are desired? 4. How are the tasks learned? 5. Where are the tasks performed? 6. What's the relationship between user & data? 7. What other tools does the user have? 8. How do users communicate with each other? 9. How often are the tasks performed? 10. What are the time constraints on the tasks? 11. What happens when things go wrong?

7. Explain the principles of "partnership" and "interpretation" in contextual inquiry [4 points]

The principle of partnership implies that the designer and the customer should be equal collaborators in understanding the customer's work. The designer and customer work together in a master/apprentice relationship to build this understanding. The principle of interpretation states that the designer must carefully assign meaning to the things that she observes while doing contextual inquiry. It is not enough to simply observe what happens and report back to the design team – it is crucial to reason about the situation you have observed and build a narrative about why things are the way they are and how they could be improved. The customer should be involved in this process, helping to refine interpretations and create new ones.

8. List two advantages of low-fidelity prototypes [2 points]

1: Low-fidelity prototypes encourage design feedback from study participants – participants are more willing to critique implementations that they consider "unfinished."

2: Low-fidelity prototypes are easy to iterate and refine. Iteration can happen very rapidly. In the case of paper prototypes, new refinements and iterations are often made in the middle of a single user study.

9. List two dis-advantages of high-fidelity prototypes [2 points]

1: High-fidelity prototypes are expensive and time consuming to create.

2: High-fidelity prototypes discourage change, as the team has put a lot of effort in to building them as they are. Making major changes at this point will cause hurt feelings, confrontations within the design team, and a lot of lost energy.

10. How can you encourage constructive conflict in a design team? [2 points]

The fundamental issue in keeping conflict constructive is focusing criticism on the ideas that are being generated and the work task that is at hand. Allowing criticism to get personal will derail this process. Generating productive conflict within a design team is a matter of building a team with a wide variety of good design ideas. With enough people like this involved in a design there is bound to be authentic dissent within the team, which is always better than fabricated ("devil's advocate") dissent.

11. During a user test with the Wizard-of-Oz method, the design team members assume different roles. List them. [4 points]

Greeter, Facilitator, Computer, and Observer

12. When doing mobile evaluation, what are diary studies and experience sampling? [2 points]

Experience sampling is a method by which the system being evaluated generates events at random times. These events trigger data capture on the mobile device, including non-invasive data collection (GPS, sensor data, etc.) or invasive data collection (short questionnaires or surveys for the user). The random sampling gives you some idea of how your user is working with your system over time, without having to constantly monitor them.

In a diary study, the user records significant events by themselves. In feedback studies, the user answers predefined questions about each significant event. In an elicitation study, the user makes a recording when the event happens to serve as a memory aid in a later interview that will be conducted by the designers.

Part II: Heuristic Evaluation (20 points)

Describe ten usability problems in the UI shown on the next page. Label each violation with a number from 1 to 10 on the figure. Then make a list in the space below which is indexed by those numbers. Each entry should include the Heuristic from the list below that has been violated. You must also explain the violation in words. Finally you should suggest a solution for each of these problems. Use Nielsen's second set of heuristics below to label each violation. Remember to list each violation separately. Remember: If the same violation occurs in multiple places, it is still one violation. But the same interface element may cause several violations.

HEURISTIC POINT BREAKDOWN:

1 points for "labeling each violation with a number on the figure"

20 points for the ten violations

Reference: Nielson's Revised Set of Ten Usability Heuristics

H2-1: Visibility of system status

H2-2: Match between system and the real world

H2-3: User control and freedom

H2-4: Consistency and standards

H2-5: Error prevention

H2-6: Recognition rather than recall

H2-7: Flexibility and efficiency of use

H2-8: Aesthetic and minimalist design

H2-9: Help users recognize, diagnose, and recover from errors

H2-10: Help and documentation

1

Dance *Maniac*

The app that helps you bust a move, not your leg

Enter your dance ability (from 1 to 5) here: [ ] 2

Now enter your real ability here: [ ]

How many steps per second do you prefer (1-1000)? [1000 ▽] 3

Select a performer from the following list:

◎	The Dancing Scorpions
●	The Dancing Scorpions
◎	Madonna
◎	The Dancing Scorpions

4

5

Enter your selected performer's song to dance to: [ ]

The music will begin after you selection is loaded… 6

If you would like to purchase medical coverage, please click on one of the logos below

UHP University Health Plans, Inc.

Horizon

HORIZON NJ HEALTH

JOHN E. FEAKES

KAISER PERMANENTE

FIRSTCARE

4

1: Help and Documentation: There does not appear to be any help or documentation provided in this app. A better design would include a help button and some way for the user to learn more about what each option does.

2: Error Prevention: The app does not explain what any of these values mean or what they are used for. The difference between “dance ability” and “real ability” is not clear. What happens if the user puts the same value for both? What if they put a number that is not between 1 and 5? A better design would clear explain all of these options and how the user should know what they are. It would also be nice if this used a slider rather than a text box.

3: Flexibility and Efficiency of Use: This drop down combo box presumably has 1000 different options in it. There is no way that we could reasonably expect the user to pick between these, especially on a mobile device. A better design would narrow this down to three or four selections (perhaps “slow,” “medium,” “fast,” and “hyper”) and let the user choose between them with radio buttons.

4: Aesthetic and Minimalist Design: This violation occurs in two places. First, there is no obvious reason that “The Dancing Scorpions” should be listed more than once in the radio button group. The extra instances should be removed. Second, purchasing medical coverage seems well outside the reasonable scope of this app. The logos at the bottom clutter the interface without adding any real value. This entire portion of the app should be removed or radically rethought.

5: Recognition Rather than Recall: The song choice must be typed in manually, despite the fact that the app almost certainly has a limited library of songs to choose from. This would be a good place to use a drop down list, so that the user can choose between the provided song options.

6: Visibility of System Status: The app says that the music will begin after the selection is loaded, but it does not indicate how long this might take or whether progress is being made. A better design would use a progress meter of some sort to let the user know how long the loading process will take.

Part III: UI Scenario and Sketch (20 points)

You have been asked to design a mobile interface for carpooling. Your application should allow riders to post their requested destination and pick-up location, and for drivers to find riders who are on their route and have a similar destination. Consider the two tasks below:

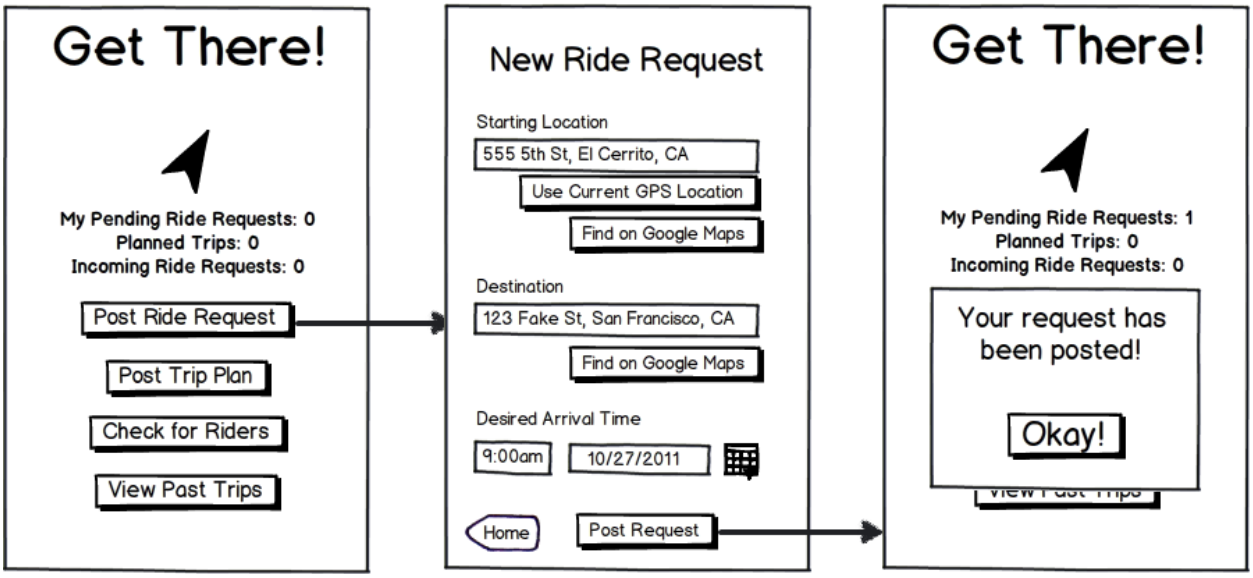
(a) A rider posts a ride request. It should include both their start and destination addresses, and their ideal arrival time.

(b) Assume the driver has posted the same information as above for their own route. They are then shown a list of possible pickups, and should select whether to pick those users up or not.

Create scenarios for each task, and show the sequences of screens for each with sketches.
[10 points each]

Task a)

Scenario: Jim's car is in the shop and he needs to find a way to work tomorrow. He lives in El Cerrito and works in San Francisco. He needs to arrive at his workplace no later than 9am. He decides to post a ride share request on the "Get There" app.



Task b)

Scenario: Amber has posted all of her planned trips of the week on the “Get There” app. One of her trips is coming up shortly, so she decides to check and see if anyone has requested a ride. She sees that two riders have requested a pickup for the correct two cities, but only one, Jim, is going really close to her destination. She accepts his pickup request.