

CS160 Sample Midterm Exam 1

This is a closed book, individual test. You are not allowed to use your notes, texts, or laptop computers. **You have eighty minutes for this exam; there are eighty points total.** Use your time accordingly.

Before you begin, **write your name on every page!** You will lose 1 point if you do not do this.

If you find a question ambiguous, document the ambiguity. Indicate the way you interpreted the question in a set of separate sentences next to the question. The questions on the exam are not intended to be ambiguous, but sometimes another meaning is interpreted by the examinee that we did not take into consideration.

Part I: General HCI Questions (35 points)

- 1) For each of the following innovations in Human-Computer Interaction, give the person who first conceived the idea, and the prototype system in which it was first implemented: (i) the mouse, (ii) hypertext, (iii) pen-based interfaces [3 points]
- 2) Explain the model of interaction between designer and user in contextual inquiry and contrast it with interviewing [4 points]
- 3) In Human-Centered Design, at what stages of the design process should the customer or representative users be involved? [3 points]
- 4) For task analysis, we presented three different methods. List them and **briefly** (one or two sentences each) describe what they are [6 points]
- 5) List two user interface metaphors [2 points]
- 6) Other than from a metaphor, where else do conceptual models come from? [2 points]
- 7) Contrast structural and functional models. [4 points]
- 8) How would you use the GOMS Keystroke-Level Model (KLM)? Remember that the operators are K, P, H, M, which are respectively Keystrokes, Pointing, Homing, and Mental Preparation. You don't need to give all the heuristics for M. [4 points].
- 9) By applying Fitt's law, which of the following two operations would typically be faster?: [3 points]
 - (a) moving the pointer into a 10 mm target from 50 mm away, or
 - (b) moving the pointer into a 30 mm target from 90 mm away.
- 10) Give two advantages of rapid prototyping. [2 points]
- 11) What is the wizard of Oz technique? [2 points]

NAME: _____

Part II: Heuristic Evaluation (20 points)

Describe ten usability problems in the online sample UI in the “Handouts” page. Label each violation with a number on the figure and make a list of violations. For each problem, you must discuss which guideline is violated and why. You should also 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

Write your heuristic evaluation problems here:

Part III: UI Scenario and sketch (25 points)

You have conducted a contextual inquiry and task analysis of user behavior at a UCB bus stop and identified the following set of sample tasks that you want to implement in a kiosk:

- (a) Querying for the next bus, given a route name or destination name.
 - (b) Finding out the best route to a shopping mall on the following Saturday (you don’t know the station or line, just the name and city of the mall. The kiosk should figure out the routes and connections, and print a map for you).
1. Sketch a main page for the kiosk which enables the scenarios above (you don’t have to include all the features the kiosk would have). Include labels as needed on icons [10 points]
 2. Sketch Scenario (a) using storyboarding. [5 points]
 3. Sketch scenario (b) using storyboarding [10 points]