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## CS160 Spring 2004 Midterm Exam

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. Write all your answers in this booklet. Use the back sides of printed pages first, then you can ask for more paper.

### Part I: General HCI Questions (40 points)

- 1) The User-Centered Design Cycle that we use throughout the course consists of **three** steps. What are they? [6 points]
  
  
  
  
  
  
  
  
  
  
- 2) Pair the following inventions with their inventors from: Doug Engelbart, Vanevar Bush, Ted Nelson, Alan Kay, Jeff Hawkins: [5 points]

DYNABOOK:

HYPERTEXT:

ZOOMER:

NLS:

MEMEX:

- 3) Which of the following techniques are recommended for successful user interface design? (circle all that apply) [4 points]
  - a) Focus groups
  - b) Iterative design
  - c) Formal specification
  - d) Outsourcing programming effort
  - e) Personae
  - f) Task analysis
  - g) Simulation and verification
  - h) UML diagramming

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- 4) The preferred roles in a contextual inquiry interview are: (circle all that apply) [3 points]
- a) Master-servant
  - b) Interviewer-interviewee
  - c) Cat-mouse
  - d) Psychologist-patient
  - e) Master-apprentice
  - f) Hunter-gatherer
- 5) List **three** typical task analysis questions (a few words for each should be enough) [3 points]
- 6) Which of the following facilitate team work? (circle all that apply) [3 points]
- a) Shared team goals
  - b) Constructive conflict
  - c) Regular salary bonuses
  - d) Face-to-face meetings
  - e) A clear leader in the team
  - f) Regular off-site gatherings with friends and family
- 7) Name two advantages of paper prototypes over software prototypes in Visual Basic or Java? [4 points]
- 8) Why are multiple evaluators used in a heuristic evaluation? How many is a typical number? [5 points]

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- 9) For each of the following representations, say whether it is abstract or concrete: [3 points]
- a) A city map
  - b) A user interface sketch
  - c) A historical timeline
- 10) For each of the following tasks, say whether it requires recognition or recall: [4 points]
- a) Typing a password
  - b) Sketching a map of California
  - c) Selecting “The Sopranos” from an online TV guide
  - d) Finding your car in a very large parking lot

### **Part II: Heuristic Evaluation (20 points)**

Describe ten usability problems in the online sample UI on the next 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 revised set of heuristics below to label each violation. Remember to list each violation separately.

#### **HEURISTIC POINT BREAKDOWN:**

**1 point for “labeling each violation with a number on the figure”**

**1 point for the corresponding HE number and a suggested solution**

**20 points for the ten violations**

### **Reference: Nielsen’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

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

**H2-10:** Help and documentation

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**Heuristic violations found:**

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### **Part III: UI Scenario and sketch (20 points)**

You have conducted a contextual inquiry and task analysis of user behavior in a middle-income family home with 4 children. Three representative tasks are:

- (a) (Easy) Planning tomorrow's dinner at a time when all the children are home from sports practice or music lessons, but before "The West Wing" starts.
- (b) (Moderate) Finding a weekend night when one of the two oldest children will be home and available for babysitting.
- (c) (Hard) Planning a thanksgiving dinner menu without any items that someone hates (including your guests).

You decide to use wall-mounted touch-screen kiosk in the kitchen to support these tasks

1. Sketch a main page for this application which includes support for the tasks above (you don't have to include all the features the app would have). Include labels as needed on icons [5 points]
2. Sketch a scenario for (a) using storyboarding. [5 points]
3. Sketch a scenario for (b) using storyboarding [5 points]
4. Sketch a scenario for (c) using storyboarding [5 points]

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**Continue your design here**