Université d'Ottawa · University of Ottawa

School of Information Technology and Engineering (SITE)

SampleMidterm Exam

Wednesday May 31, 2007

Student Name …….……

Student ID ……...

Duration: 90 mins.

Instructions:

- ✓ *This examination is closed book **and** closed notes.*
- ✓ *It is recommended that you read the whole exam before attempting any one Question. Also, please don't spend more than the proposed time for each Question.*
- ✓ *Include all steps as appropriate for maximum credit. Be clear, brief, and specific in your answers*
- ✓ *Section A questions are to be answered on the exam sheet. Remaining questions should be answered on the booklet.*
- ✓ *Borrowing from your mates is not allowed.*

Good Luck!

A) Questions with short answers

1. Please name the five key ideas in human computer interaction.

Visibility
Feedback
Goal
Affordance
Task

2. What is user interface malfunction? (Explain in no more than three lines)

A mismatch between what the users want or need and what the system provides.

3. What is the main objective of user interface evaluation?

Minimize malfunctions.

4. Name ONE active evaluation method and ONE predictive evaluation method. Explain each in no more than three lines.

Active: Usability testing: Prove hypotheses about **measurable attributes** of an interface and prove/disprove it.

Passive: Questionnaire: Gathers subjective data about an interface design or the importance of a malfunction.

5. Name three advantages of using interview over using videotaping?

Face-to-face communication.
Less stressful for the users (since they're not captured by a camera)
Users are more actively involved in the discussion (better feedback).

6. Compared to Waterfall design model, what are the advantages of using the Spiral design model?

It provides ability to roll back in the development process whenever needed (something extremely needed with user-centered designs)
It provides better risk analysis and management.
(there are few others)

7. What is the difference between user-centered design and the standard software engineering design standard?

A user-centered design considered the design phase as part of the evaluation (the users are involved in all the development stages of the software). Standard software engineering involves users only during requirements analysis and usability testing.

8. Briefly describe the concept of affordance. Explain, use an example, how does it help explain how people think about their interactions with objects in the world.

The set of operations and procedures that can be done to an object. For example, the "Home" icon refers to going back to the main page of the interface, similar to the concept of going back home at the end of the day.

9. What is the difference between open-ended and close-ended questions in questionnaire design? What is the tradeoff between using the two techniques as per the questionnaire analysis?

Open-ended questions provide more feedback to the designers but the data is more subjective. Used at a very early stage in the interface design.

Close-ended questions provide less data but can be easily quantized and analyzed. Used at a later stage in the design.

10. Define the three stages of the generic design process model? Give one example technique used for each of the design stages.

Discovery:
Examples: task analysis, storyboarding, use cases, etc.

Design:
Examples: Low fidelity prototypes, wireframes, flowcharts, etc.

Evaluation:
Example: Usability testing.

B) Analysis and Design Questions

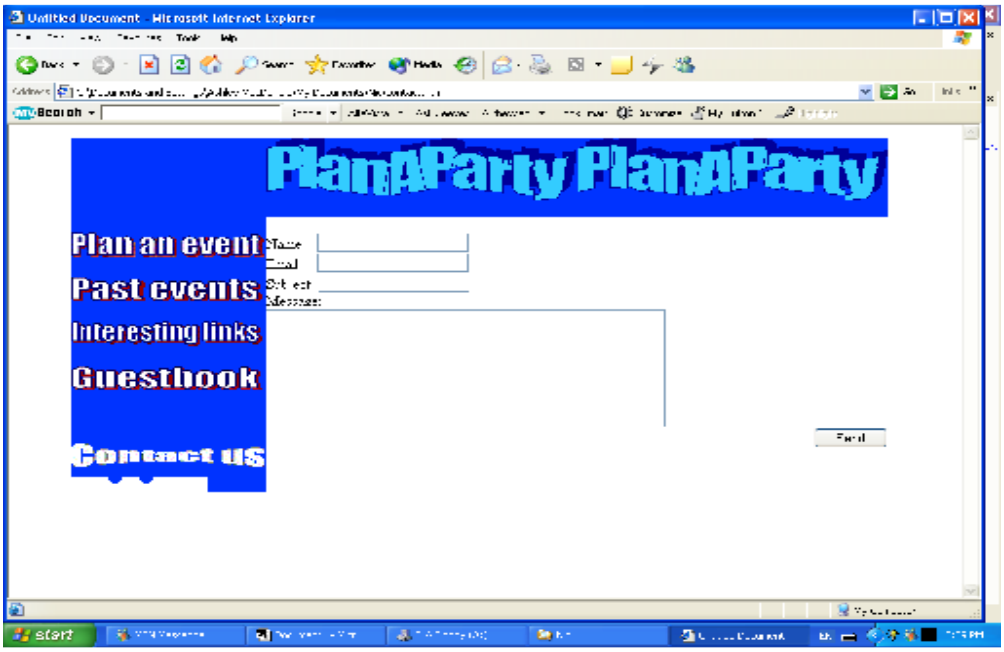
1. Which type of user interface system (command line, GUI, forms, question & answer interface, voice input/output) is better for the following situations?

   a. A system used by people with visual impairment (Voice input/output)
   b. A system used exclusively by experts (command line)
   c. A system that provides service to ordinary people (passengers) in an airport (GUI)
   d. A system to retrieve information on criminals in a Police station (forms or question & answer)

2. List the five 'levels' at which a user interface can be analyzed.

   Task level
   Conceptual level
   Interaction style level
   Interaction element level
   Physical element level

3. Please do a complete malfunction analysis for the following user interface. Give a cure and draw a window accordingly (at least 2 malfunctions).



There are many, here are few:

1. Consistency [severity=2]: The list of items on the left part of the interface is not consistent for text (some items have different font size, style, size).

Cure: All text in the list should be of the same properties (except for the selected one).

2. The fill-in form does not include explanation about what the user is expected to do and what the fields are. Also, the "send" button is places far from the form, should be immediately underneath.

   Cure: Provide textual description of what the user should fill and why and which format (if needed). Place the "Send" button immediately underneath.

3. There can be few other malfunctions: the color scheme is not so attractive, the title is not very readable; there is no cancel button (if user wants to). You can also propose cures for them.

4. In a university, give three classes of users for an electronic Library system used to search and hold/reserve academic books. Name one task per category of user.

Student: borrow a book
Professor: request a book (to be purchased by the library to make it available for her students)
Library Staff: Send notification when book is overdue.

5. For the same scenario explained in the previous question (question 4), consider the goal "Reserve a book". Draw up a task table that summarizes the tasks that must be pursued, with importance priorities. Also, define the sub-goal for each task. Divide the tasks into subtasks if necessary.

You can define the tasks into many different ways, this is one of them.

Sub-Task	Sub-goal	Priority (1 highest)
Search for a book	Check availability	1
Pick a book status	Book not reserved	1
Enter your information	Authentication	1
Confirm selection	Avoiding errors	2
Review information	feedback	3
Check confirmation number	Tracking the reservation	2