Practice Questions for CS160 Fall 2008 Midterm

1. Name the 3 main stages of the design cycle.
2. What is the main difference between the design cycle and the waterfall model
3. Name at least 4 affordances that are unique to mobile devices versus laptops
4. What's conceptul model? Please give a real world example of conceptual model.
5. What is "Zone of Proximal Development"? Please explain it in one sentence and then use no more than two sentences to give a real world example of ZPD.
6. Give 4 key attributes of a direct manipulation system?
7. In the event loop model of interface design, why is it important for the event loop to run in a separate thread from the main application?
8. What is a callback method? How might it be used for event handling?
9. Name 3 different discount usability methods.
10. What is GOMS analysis? What are its advantages and disadvantages over other evaluations techniques?
11. Suppose you perform a KLM analysis of an interface and find that it will require 12 seconds to use. But when you ask users to really use the system you find that it takes them at least 16 seconds to use the system. Name at least 2 possible reasons for the discrepancy.
12. Using one sentence per heuristic, describe each of these heuristics from Nielsen for evaluating user interfaces.

1) Match between system and the real world

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2) User control and freedom

3) Consistency and standards

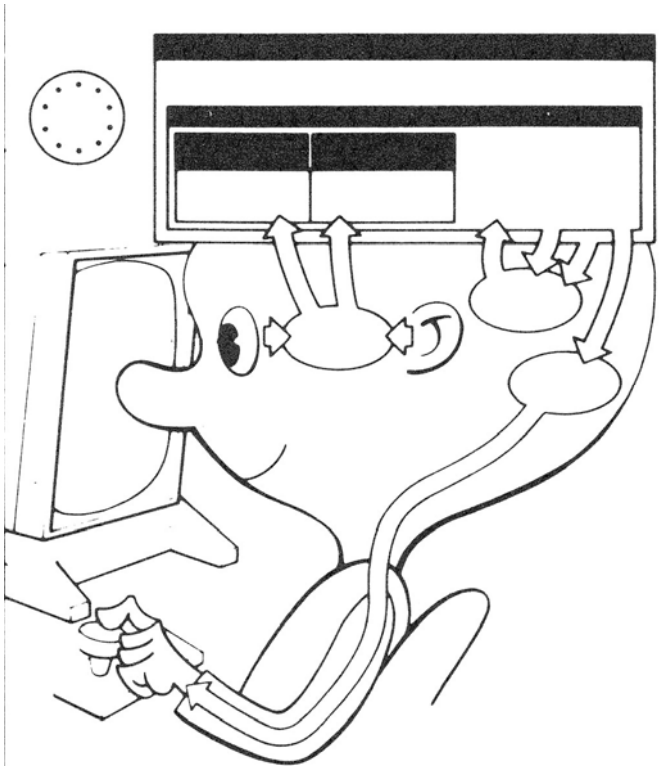
4) Error prevention

5) Recognition rather than recall

6) Flexibility and efficiency of use

13. Why does Nielsen advocate using more than one evaluator when using heuristic evaluation?
14. Describe 2 advantages of using a low-fidelity sketched storyboard over carefully designed high-fidelity images in the early stages of interface design.

15. Label the 5 major parts of the human processor model and any associated sub-parts.



16. Briefly explain what each of the 5 main parts of the model does.

17. Describe how the model can be used to analyze the amount of time a person would take to react to the appearance of a symbol on a screen (The screen is initially blank. A symbol appears on it and the user must hit a button upon seeing the symbol.).
18. Describe problems, failures or other aspects that may be missing from the model.
19. Suppose you have developed a new text entry interface for cell phones. You want to rigorously compare your interface to current text entry interfaces using the scientific method (i.e. hypothesis testing).
20. State a testable hypothesis and explain what the independent and dependent variables of your experiment will be. Make sure that at least one of your independent variables has more than three levels. Then state the corresponding null hypothesis
21. Describe at least one control and one random variable in your experiment.
22. Describe whether your experiment will be a between subjects or a within-subjects experiments Explain the pros and cons of each.
23. Once you have collected the data for your experiment, explain how you will aggregate the data and present the results. Then explain how your will check whether or not your results are statistically significant. Explain which statistical analysis techniques you will use
24. A new web browser company asks you to test whether it is better to list entries in your web browser history in alphabetical order by title or by reverse chronological order of when you visited them. You will perform this test by picking five (5) web pages from your subject's actual web browser history (after gaining permission to view it), and asking the participant to find them in their web browsing history. To design the experiment, you will have to decide how to treat each of the following factors. For each factor, describe what it means in a sentence or two, and provide examples (according to the minimum number requested) of each for the web browsing history experiment:

- independent variable (at least 1 example)

- dependent variable (at least 3 examples)

- control variable (at least 1 example)

- random variable (at least 2 examples)

- confound (at least 1 example)

25. You have just been hired by a company who is designing a new wheelchair. They see a new market for a new wheelchair that is lightweight and easy to collapse and transport. This would make it both easier for the patient using the wheelchair and the people who are involved with caring for and transporting that patient. They want you to conduct a contextual inquiry to identify the key design features that this new wheelchair should have. How would you approach conducting this contextual inquiry in the following areas:

    What people would you identify wanting to observe (list at least 3):

    Where would you go to find people to observe (list at least 2):

    What activities would you try to observe with your participants (list at least 3):

    How would you record your observations and briefly explain why (sentence or two):

26. Draw the model for the design process that we've been using for this class. We have discussed in class many reasons why following this design process leads to better HCI products. Provide two (2) important reasons why, in your opinion, following this process leads to better HCI products and briefly explain why: List one application, tool, or other activity you use in facebook. Consider the design of this tool- what user need does it fulfill? Based on your personal experience or your observations in the class assignments, briefly explain how the tool's design fulfills that need.

27. Briefly describe the difference between recall and recognition in the human memory with regard to using computer interfaces. Use the difference between recall and recognition to briefly describe the relative advantages and disadvantages between the Command Line interface and the Direct Manipulation interface.