

IS4300 - Final Exam

Name _____

Table 1. Classes of usability problems

- A. visibility problem
- B. feedback problem
- C. conceptual model problem
- D. affordance problem
- E. internal consistency problem
- F. external consistency problem
- G. simplicity problem
- H. problem preventing errors / not allowing error recovery
- I. problem not speaking the user's language

Table 2. Usability metrics

- M. learnability
- N. efficiency
- O. memorability
- P. error rate
- Q. satisfaction

Table 3. Measure Types

- R. ordinal
- S. nominal
- T. ratio
- U. interval

I. Concepts & Definitions (25%)

1. Which of the following describes Fitt's Law. Check one.

$T = a \times d + s^b$

$T = a + b \times \log_2(d/s + 1)$

$s = T \times \log_2(1/d + a)$

$d = s + b \times \log_2(T + 1)$

$a = b + \log_2(d/s + T)$

T = time
d = distance to target
s = size of target
a,b = constants

2. Which of the following menus would Fitt's law predict results in the lowest and highest efficiency? Click one box in each column.

2a.

2b.

Lowest

Highest

Standard drop-down menu.

Standard pop-up menu.

Pie pop-up menu.

Toolbar along top of window.

Floating tool palette.

3. You conduct a study of a new inventory tracking system by giving it to 20 clerks in your company and seeing how long it takes them to reach 100 entries/day and 1% error rate proficiency, and seeing how it compares to a competitor's product using the same 20 clerks and metric during a subsequent week.

a. Is this a formative or summative evaluation (check one)?

Formative. Summative.

b. Is this a between- or within-subjects study (check one)?

Between-subjects. Within-subjects.

c. Is this a pilot study (check one)?

Yes. No.

d. What would Nielsen call the outcome measure (Table 2)_____

e. What is the category of the outcome measure (Table 3)_____

f. What descriptive statistics would you use on the outcome measure_____

(assuming _____)

g. What is a valid criticism of this study design, given the information provided (check one)?

- Not enough subjects.
- Data has a bi-modal distribution.
- Study lacks external validity.
- Outcome measure lacks reliability.
- Learning may be a possible carryover effect.

4. What is the best remediation for autonomy concerns in human subjects studies? (check one)

- Randomization
- Eligibility criteria
- Power analysis
- Informed consent
- Within-subjects design
- Full disclosure of risks
- Ensuring no discrimination in recruitment

5. What is the best remediation for beneficence concerns in human subjects studies? (check one)

- Randomization
- Eligibility criteria
- Power analysis
- Informed consent
- Within-subjects design
- Full disclosure of risks
- Ensuring no discrimination in recruitment

6. What is the best remediation for justice concerns in human subjects studies? (check one)

- Randomization
- Eligibility criteria
- Power analysis
- Informed consent
- Within-subjects design
- Full disclosure of risks
- Ensuring no discrimination in recruitment

7. List two possible returns on investment for usability engineering.

a.

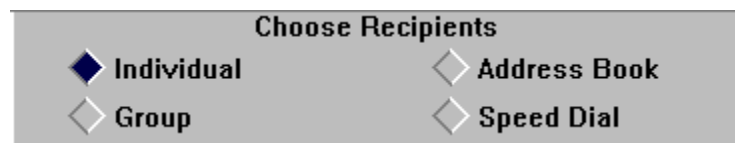
b.

II. UI Critique (20%)

For each of the following, list the single most significant usability problem in Table 1 that applies:

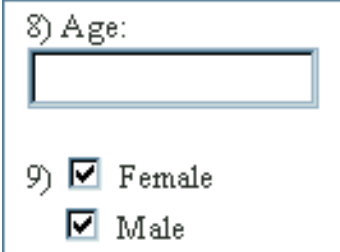
8. An IBM application presents users with the following dialogue. Only one diamond at a time can be selected, and when clicked causes a modal dialogue box to appear associated with the selection.

8. _____



9. The following is a dialogue from a shoe sales site to let customers indicate information about themselves.

9. _____



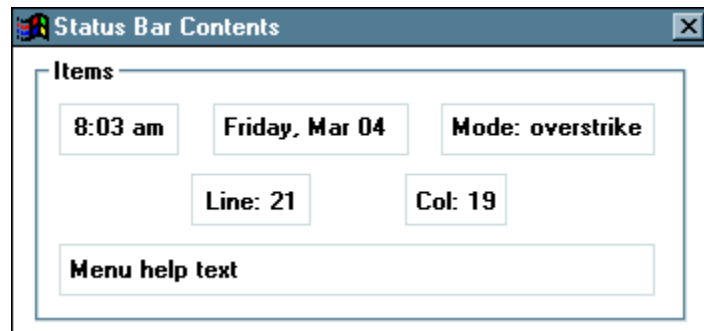
The image shows a form with a text input field labeled "8) Age:" and two checkboxes labeled "9) Female" and "9) Male", both of which are checked.

10. _____

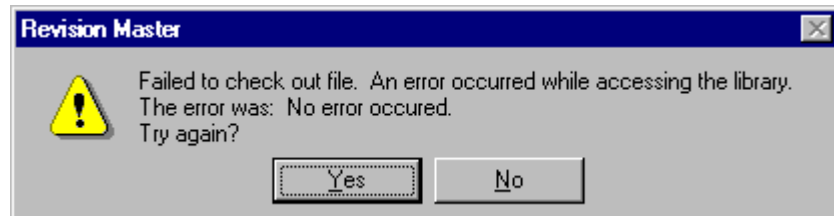


11. The following dialogue allows users to customize the status bar at the bottom of an application window, by dragging any of the widgets in the "Items" pane to the status bar. No instructions, tooltips, or other hints are provided telling users how to do this, so new users have no clue how to use it.

11. _____

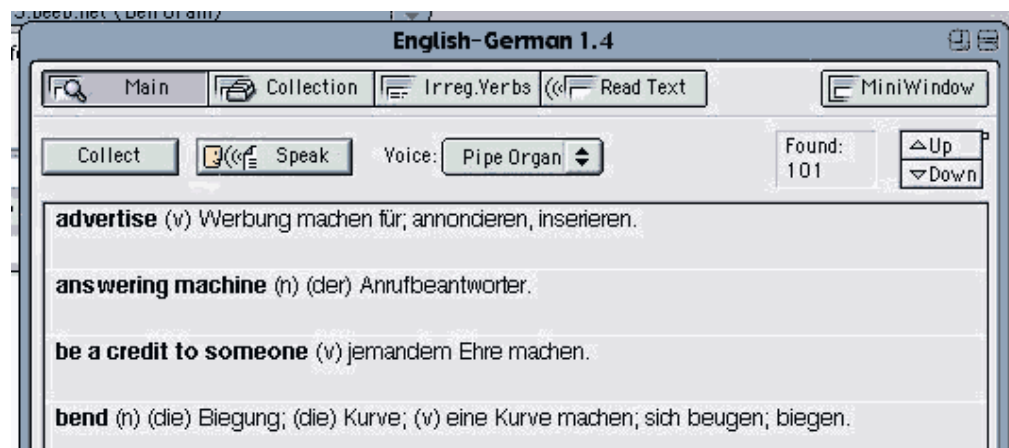


12. _____

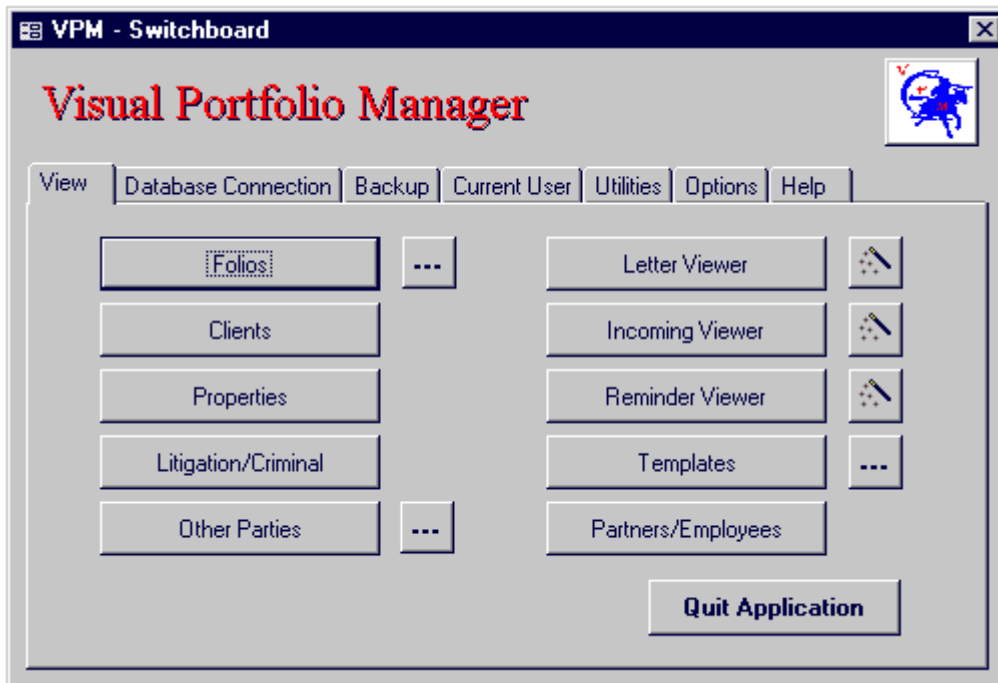


13. The following dialogue presents a list of matches for a given word in a dictionary. To scroll through the list, "Up/Down" buttons at the upper right are clicked, and the tiny dot to the right of these buttons indicates what portion of the list is currently displayed.

13. _____



14. The tabs in the following dialogue each present a list of buttons to perform various actions.



14a. What is the primary usability problem (Table 1) _____

14b. Suggest a re-design.

15. Critique the following website homepage. This company sells water treatment chemicals. The home page features a giant Flash interface, with an animated circle of icons representing their products and services (you click on one to navigate). The soldier periodically waves his flaming sword around. Refer both to Table 1 and the web-site-specific issues we discussed in class to identify the most significant problems.



18 blank horizontal lines for writing.

III. Design Problems (25%)

16. The Boston Mayor's office has asked you to create an application to let users share pot hole locations in Boston area roads. You are asked to design user interfaces for a desktop Windows application, a web site, and an iPhone.

16a. Sketch the main page of the Windows Application. You can use call-outs to annotate what the most important controls do.

16b. Sketch the home page of the web site. You can use call-outs to annotate what the most important controls and hyperlinks do. Justify differences from 16a.

16c. Sketch the home page of the iPhone app. You can use call-outs to annotate what the most important controls do. Justify differences from 16a.

IV. Usability Test Plan (30%)

17. You have just finished development of a new Kinect game "Boston Scholar: Winter Edition", in which players have to run for the subway on icy sidewalks, chase landlords through dilapidated apartments to get their heat turned on, and shovel snow to get to school. Gamespot wants to run a story on your game, but they want hard data first, so your boss asks you to conduct a summative usability study comparing BSWE to Dance Central 3. Write a detailed test plan, including a detailed analysis plan describing all statistics you would use.

17. continued

17. continued

17. continued
