

DEPARTMENT OF COMPUTER SCIENCE
University of Toronto

CSC 318

THE DESIGN OF INTERACTIVE COMPUTATIONAL MEDIA

FINAL EXAM

17 April 1995, 7:00-9:00 p.m

CLOSED BOOK, CLOSED NOTES

Write all your work in this booklet (20 pages in total).

SCORE _____ OUT OF 100 POINTS

NAME _____

PROJECT TEAM NAME _____

Carefully read and answer the following questions, while thinking about the course notes, readings, guest presentations, and your work on the term project.

Your answers should be as terse and crisp as possible. If you can't say it succinctly, excess verbiage won't help. In fact, it will hurt.

There are sixteen (16) questions. The first nine questions are worth a total of 50%; the final seven questions are worth a total of 50%.

You may want to skim the entire exam at the beginning. Do not spend too much time on any one question.

Good luck.

1. (14 points)

Below is a list of 9 terms that play a role in modern interface design. In not more than 20-30 words each, define seven (7) of the terms and explain the relevance of each concept to user interface design. Choose any 7 out of the 9 terms.

a) *Envisionment* is ...

b) *Affordances* are ...

c) *Magic lenses* are ...

d) *Chartjunk* is ...

e) *The X Window System* is ...

f) *Quasi-experiments* are ...

g) *Protocol analysis* is

h) *Ethnography* is ...

i) *Ergonomics* is ...

2. (4 points)

In no more than 20-30 words each:

- a) describe the technique of contextual inquiry, making clear how it involves aspects of both interviews and observation.*
- b) explain why it was developed and how it is used.*

a)

b)

3. (4 points)

Don Norman cited in his paper that following exercise:

"You have been employed by a manufacturing company to design their new product. The company is considering combining the following into one item:

- AM-FM radio
- Telephone
- Alarm clock (the alarm can turn on a tone, radio, cassette, or CD)
- Desk or bed lamp
- Cassette player
- Telephone answering machine
- Clock
- CD player

The company is trying to decide whether to include a small (two inch screen) TV set and a switched electric outlet that can turn on a coffee maker or toaster.

Your job is (A) recommend what to build, then (B) to design the control panel, and finally (C) to certify that it is actually both what customers want and easy to use."

The following is shown as a sketch for what Norman terms a "completely unacceptable" solution. In not more than 15-30 words each, give two (2) reasons why it is "completely unacceptable." Answers should be listed as 3a) and 3b) on the following page.

3a)

3b)

4. (4 points)

A guest lecturer, Dr. Ben Barkow, discussed Telidon and its ultimate failure.

a) In no more than 15-25 words, what is, or was, Telidon?

b) In no more than 10-20 words each, give two (2) reasons for Telidon's failure.

b1)

b2)

5. (6 points)

There is a fine line in computer systems and other artifacts between functionality and interface, between function and form. Consider, for example, a typical elevator. Buttons outside and inside the doors summon an elevator and direct it to a particular floor. Indicator lights show the floor on which an elevator is located and the direction in which it is moving.

Consider the possibilities for more intelligent control of a bank of 6 or more elevators located in a large building with 30 or more stories, and for better feedback to individuals waiting for these elevators. Suggest one functionality enhancement and one interface enhancement that would be an improvement over current elevators. Describe these in not more than 15-30 words each.

a) Functionality enhancement...

b) Interface enhancement...

6. (4 points)

Describe, in not more than 20-40 words each, one major advantage enjoyed by user testing over usability inspection, and one major advantage enjoyed by usability inspection over user testing.

a) One major advantage enjoyed by user testing over usability inspection.....

b) One major advantage enjoyed by usability inspection over user testing.....

7. (6 points)

List, in no more than 20-30 words each, two (2) specific insights (a, b) into the functionality or interface for your team's term project that arose out of discussions with potential users (whom we shall call informants) that you carried out in Assignment 3. Describe in a few words who these individuals were or what their credentials were (c).

a) First insight...

b) Second insight...

c) Credentials of the informant(s)...

8. (4 points)

In Assignments 4 and 6 you used Director as a prototyping medium. In no more than 20-30 words each, list two (2) specific reasons your team encountered that showed that Director is not an optimal prototyping medium.

a)

b)

9. (4 points)

List, in no more than 20-30 words each, two (2) specific insights into your team's prototype that arose out of the user testing in Assignment 5.

a) *First insight...*

b) *Second insight...*

10. (7 points)

You are in charge of documentation for a new spreadsheet that is to run on leading modern personal computers. Your company has decided that all documentation will be supplied electronically; no paper will be used.

a) Describe, in no more than 10-20 words each, the three (3) most important types of documentation you will provide.

a1)

a2)

a3)

b) Each document will be organized into chapters and sections (requiring chapter and section heads), and will include primary text (explanations) and secondary text (examples, cross-references, etc.) Propose appropriate type faces, styles, weights, and point sizes for each of these four classes of text:

Typeface	Style	Weight	Point size
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Chapter heads

Section heads

Primary text

Secondary text

11. (8 points)

Metaphors are powerful because they give us a language for describing and thinking about interfaces in relation to objects and concepts with which we are already familiar. Thus, in using the desktop metaphor, we can anticipate with assurance the use of objects such as files, folders, and garbage cans and processes such as throwing something away. Consider the design of the system of electronic documentation discussed above in question 10. Suggest two (2) metaphors which might be appropriate for such a system. In each case (and in no more than 5-10 words each) propose three (3) associated objects or processes which could appear in the interface to the system.

a) Metaphor a

a1) Object or process a1

a2) Object or process a2

a3) Object or process a3

b) Metaphor b

b1) Object or process b1

b2) Object or process b2

b3) Object or process b3

12. (7 points)

Identify seven (7) usability problems in the following telephone-based banking system dialogue. Describe each in a few words (not more than 10-15 words each). The dialogue was preceded by user identification and password entry, and the transaction failed because the user had not authorized the bank to accept transfers over the phone.

System: "Enter `1' for account information, `3' for transfers between your accounts—"
User: 3
S: "Enter account to transfer from."
U: 3816749032# (savings account number)
S: "Enter account to transfer to."
U: # (abbreviation that user knows defaults to checking account)
S: "Enter amount in cents."
U: 100000#
S: "From account number thirty-eight sixteen seventy-four ninety thirty-two to account number primary account, a transfer of one thousand dollars is to be made. Press `1' to confirm, `2' to cancel."
U: 1 #
S: "You do not have access to use this function."

a)

b)

c)

d)

e)

f)

g)

13. (6 points)

You are a management consultant and executive recruiter assigned to hire a human-computer interaction professional to work on a team that is to design technology for an “information highway” field trial in Southern Ontario. In not more than 50-75 words, write an appropriate job description for the position. Note : By way of review, a general description of the information highway concept appears in question 14 on the next page.

14. (6 points)

The potential of information highways has been formulated in terms of capabilities such as global information access, interpersonal communications, the 500 channel TV universe, home services such as shopping and banking, and access to educational and medical resources. Using no more than 15-20 words each, formulate and briefly describe in very specific terms a list of the “top three (3)” functional requirements for an information highway system.

a)

b)

c)

15. (8 points)

In no more than 50-75 words and one or two sketches, describe the hardware for the information highway home console and propose an interface for an information highway system that provides the functionality listed in question 14.

16. (8 points)

Consider the diagram we discussed in lecture 22:

Task

People

Technology

Organizational structure and culture

Although we formulated this in the context of organizations, similar concepts apply to technology introduced into the home and into the social structures of home, family, and community. In not more than 100-125 words, discuss some of the people, social, and organizational issues raised by the development of information highways which may affect whether they succeed or fail.

THIS IS THE END OF THE FINAL EXAM. PLEASE CHECK YOUR WORK.

WE HOPE THAT YOU HAVE ENJOYED AND PROFITED FROM THIS COURSE.