MAKERERE UNIVERSITY

SCHOOL OF COMPUTING AND INFORMATICS TECHNOLOGY

END OF SEMESTER I EXAMINATION 2013/2014

PROGRAMME: BCSC, BIS, BIT

YEAR OF STUDY: III

COURSE NAME: USER INTERFACE DESIGN

COURSE CODE: CSC 3103

DATE: MONDAY 13th – JAN – 2014   Time: 4:00pm   – 7:00 pm

EXAMINATION INSTRUCTIONS

1. **ATTEMPT ALL QUESTIONS IN SECTION A (40 MARKS)**
2. **ATTEMPT THREE (03) QUESTIONS IN SECTIONS B (60 MARKS)**
3. **DO NOT OPEN THIS EXAM UNTIL YOU ARE TOLD TO DO SO**
4. **ALL ROUGH WORK SHOULD BE IN YOUR ANSWER BOOKLET**

SECTION A [40 marks]. Write short and precise answers, giving examples where necessary

   I.   Define the following terms as far as user interface design is concerned.
            a. Usability   **(2 Marks)**
            b. Ethnographic Observation   **(2 Marks)**
  II.   Participatory design is one of the ways one can gather User interface requirements, state
         two disadvantages of Participatory Design.   **(2 Marks)**
 III.   In Practice, the make-up of any design team depends on the kind of interactive product
         being built. Who do you think would need to be involved in developing:

         a) A public kiosk providing information on the location of for instance restaurants, coffee
         shops, the cinema or any other exhibits available in a large shopping mall. **(2 Marks)**

         b) An Interactive Website to accompany a TV Series.   **(2 Marks)**

  IV.   State three guidelines for organizing the display of a user-interface   **(3 Marks)**
   V.   Briefly describe the four pillars of Interaction Design.   **(8 Marks)**
  VI.   As user interfaces have become more prominent, serious legal issues have emerged. State
         three Legal Issues that may affect the design and implementation of User Interfaces. **(3
         Marks)**
 VII.   State any three expert review methods used to evaluate user interface Designs.
VIII.   Describe three principles of direct manipulation   **(6 Marks)**
  IX.   Give four benefits of direct manipulation over command line interfaces. **(4 Marks)**
   X.   Describe any two guidelines that can be used for constructing system messages **(4
         Marks)**
  XI.   Describe one advantage of an Asynchronous Distributed Interface over an interface that
         is Synchronously Distributed.   **(2 Marks)**

SECTION B [60]

Question 1

a) A popular word processor previously contained an anthropomorphic character to assist users while using the product. Explain four disadvantages that are associated with this design.

(4 Marks)

b) For the following three items, find the problems in each of the following error messages produced by a source code compiler. Briefly state your reasoning and suggest a better message.

    i) SYNTAX ERROR   **(4 Marks)**

    ii) INCORRECTLY FORMED RHS OF EXPRESSION. BAILING OUT ON LINE 6.

                                         (4 Marks)

    iii) ILLEGAL OPERATION. PROCESS KILLED!!!   **(4 Marks)**

c) Briefly explain four of the Eight Golden Rules of Interface Design. State an example you have seen on a device, computer interface or web site that violates those rules.   **(4 Marks)**
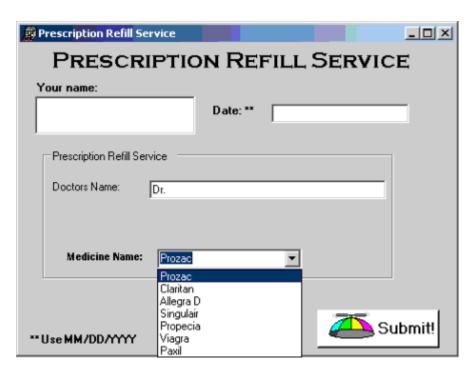
Question 2

a) One argument against the current interface design of a popular word processor is that it has all the functional menu items appearing together which causes the interface to be too complex. This complexity results in a confusing and frustrating experience for novice users. An alternative design is to provide different levels of functional complexity, so users can choose the level that is suitable for them, then advance to higher level as they get familiar with the tool, thus feel more comfortable and learn more efficiently. You are asked to conduct usability testing to compare these two designs.

    i) Which type of usability testing should be used for this situation? Explain why. **(4 Marks)**

    ii) Describe three general principles of subject selection in usability testing.   **(6 Marks)**

    iii) List and briefly describe the steps in the usability testing you would conduct.   **(8 Marks)**

Question 3

a) An airline company is designing a new on-line reservation system. They want to add some direct-manipulation features. For example, they would like customers to click a map to specify the departure cities and the destinations, and to click on the calendar to indicate their schedules.

From your point of view,

    i)   Explain three benefits of the new idea compared with their old system, which required the customer to do the job by typing text.   **(6 Marks)**

    ii) Explain three problems of the new idea compared with their old system, which required the customer to do the job by typing text.   **(6 Marks)**

b) Refer to the following interface:

    i)   Name two ways you could update the above interface to support the principles of direct manipulation.   **(4 Marks)**

    ii) Draw a sketch of your redesign.   **(4 Marks)**

Question 4

1. Describe four guidelines that can be used for constructing system messages.

   (4 Marks)
2. Abbreviations for commands are often attractive for power users. Describe three strategies that could be used to abbreviate a command set. **(6 Marks)**
3. Explain three situations when command languages can be attractive for users.

   (6 Marks)
4. Compare command language interfaces to direct manipulation interfaces.

   (4 Marks)

Question 5

a) Differentiate effectiveness, efficiency, and satisfaction by giving examples of each from your experiences with software interfaces. **(6 Marks)**
b) Is each of the following examples from word processing software a test of effectiveness, or of efficiency? Justify each answer.
   i) Number of keystroke and mouse movements needed to copy a section of text. **(2 Marks)**
   ii) Ability to change page margins **(2 Marks)**
   iii) Maximum limit on the size of document files **(2 Marks)**
   iv) The fact that the computer must be rebooted in order for changes in default settings to take effect **(2 Marks)**
   v) Availability of a feature to sum up the numbers in a table's columns **(2 Marks)**
c) In certain interfaces, it is necessary to inform users of an abnormal condition or time-dependent information. It is important that the display of this information catches the user's attention. Suggest two ways a designer can successfully attract attention. **(4 Marks)**

END