



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2018 – 2nd Year Examination – Semester 3

IT3405 – User Interface Design
Part 2 - Structured Question Paper

13th May 2018
(ONE HOUR)

To be completed by the candidate

BIT Examination Index No:

Important Instructions:

- The duration of the paper is **1 (one) hour**.
- The medium of instruction and questions is in English.
- This paper has **2 questions** and **09 pages**.
- **Answer all questions.** All questions carry equal marks.
- Write your answers in English using the space provided in this question paper.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.
If a page is not printed, please inform the supervisor immediately.
- Calculators are **not** allowed.

Questions Answered

Indicate by a cross (x), (e.g.

X

) the numbers of the questions answered.

	Question numbers	
	1	2
To be completed by the candidate by marking a cross (x).		
To be completed by the examiners:		

- 1) (a) Define what is meant by rich interaction and write down two (2) examples that use rich interaction. [10 Marks]

ANSWER IN THIS BOX

Rich interaction is a technology that uses voice commands, facial recognition, and gesture controls to interact with a computer. It is an interaction model that can support several input methods and that responds intuitively and in a timely fashion. The computer and the applications “perceive” the user’s intentions based on the sensor data it collects.

Some examples:

1.You use voice commands to ask your computer to start the eReader app, open your favorite book title in the digital library, and use hand gestures to turn the pages without touching the screen.

2.In a 3D Car racing video game, the app detects the angles and gestures of how the player holds the steering wheel and controls the vehicle’s movements.

3. The proximity sensor of a smartphone - when you bring the phone near to your ear the screen automatically turns off and changes loud speak mode if it is on.

- (b) Assume you are designing a new mobile phone. For this purpose, you need to address a list of specific questions about the usability of your design as given below. For each of the following questions, identify and write down what level of fidelity in the prototype is most appropriate.

- (i) Is it possible for users to figure out how to sync their calendar with Bluetooth connections?
- (ii) Is it possible for users to figure out how to turn off the mobile phone?
- (iii) Do users know where to find specific addresses within the address book menu?
- (iv) What font size do users find most readable as the default GUI text?

[12 Marks]

ANSWER IN THIS BOX

- (i) High fidelity prototype
- (ii) Low fidelity prototype
- (iii) Low fidelity prototype
- (iv) High fidelity prototype

- (c) Read the following scenario and identify if this is a Gulf of Execution or a Gulf of Evaluation. Justify your answer.

The mobile beeps and the owner of the new mobile phone notices that it is clearly a different beep compared to when somebody gives him a call. The screen indicates that he has received a text message, but it does not guide him on how to get access to that message.

[6 Marks]

ANSWER IN THIS BOX

This is a gulf of execution.

The user can derive what is meant by the system/output. Next, he wants to read that text message but the interface hardly gives a clue as to 'how to do it'.

- (d) Consider a part of the home page of a local fashion store as shown below to answer the questions below.



- (i) Identify three (3) good design considerations and three weak design errors.

[10 Marks]

ANSWER IN THIS BOX

Good considerations

- Menu items are logically arranged.
- Clickable hyperlinks (Affordance)
- The style is good with a picture banner to attract the customers' attention
- Contact information is given

Weak design errors

- The search function is missing
- Different Font size and due to that no attraction to the shop title
- The banner wording is confusing due to the font type
- Shop logo is not presented.
- Where you are: Breadcrumb navigation is missing or the currently pressed menu is not indicated

(ii) Sketch a design for the “Store Locator” page.

[12 Marks]

ANSWER IN THIS BOX

A possible answer:



Search for a Store

Enter a City ...

Search

Store Locator

All stores island wide

Mount Lavinia BranchNo: 223, Galle Road, Mount
Lavinia

Tel: 011 2738965

Mon.-Fri.: 9:00AM -9:00PM

Sat.: 10:00AM-1:00PM

Nugegoda BranchNo: 540, Stanly Thilkarathna
Mawatha

Tel: 011 577 7766

Mon.-Fri.: 9:00AM -9:00PM

Sat.: 10:00AM-1:00PM

Sun.: 11:00AM-1:00PM

Map of Sri Lanka and
indicators for each store

- 2) (a) Write down four (4) differences between short-term and long-term memory.

[12 Marks]

ANSWER IN THIS BOX

Possible answers (Any 4 answers out of them)

- Short-term memory, as the name suggests, is capable of storing information for shorter periods of time whereas long-term memory is capable of storing information for longer periods.
- Short-term memory also has a more limited capacity than long-term memory.
- Long-term memory is often characterized by the ease of recall. It is highly associative and persistent. In contrast, in short-term memory, particular items can be recalled but often only with conscious effort.
- Items may gradually be acquired by long-term memory through repeated rehearsal in short-term memory.
- Short-term memory is also more vulnerable to interference effects compared to long-term memory
- Short-term memory can also be thought of as the working memory. Therefore, any processing of information in long-term memory can also be vulnerable to the problems that affect short-term memory.
- *(Some solutions may refer to the 7 + or - 2 heuristic for non-associative capacity of short term memory.)*

- (b) Expert users may not be good sources of information when it comes to gathering requirements for an interactive system. Do you agree with this statement? Justify your answer.

[10 Marks]

ANSWER IN THIS BOX

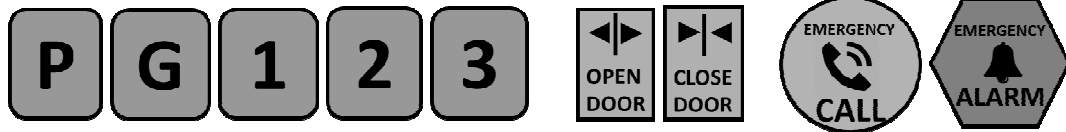
Yes. Expert users often develop skills that are highly embedded into their system that they find it difficult to explain the nature of their tasks during the interaction. For example, in general context, an expert might not be able to explain how to cycle a bike. Experts may have forgotten what it is like to be a novice user and therefore, they may only provide a very narrow perspective on a potential design. Domain experts may have little appreciation about novel ways of performing a task with a software support and maybe overly committed to existing approaches etc. Therefore, they will not be good sources of information when it comes to gathering requirements for an interactive system.

- (c) As a UI Designer, you are asked to design an elevator panel for a small hotel. The panel will require buttons for five floors (parking, ground floor, first floor, second floor, and third floor), door open, door close, emergency alarm, and activate emergency intercom. When designing the elevator panel, one of the main requirements of the hotel is that all buttons should be in one single row.

Sketch a design of the elevator panel and provide a brief justification for the design of each button.

[15 Marks]

ANSWER IN THIS BOX



To address similarity, simplicity, and consistency, the buttons which are used to perform similar functions are designed with the same shape and color.

For visibility and to distinguish buttons based on functionalities, buttons with similar functionalities are placed together.

The door control buttons also have labels in addition to images, because people can just look at the wording rather than trying to interpret the meaning of the arrows.

Emergency Alarm button can be given in red color to grab attention during an emergency.

Emergency intercom and emergency alarm have icons and wording to allow people to quickly press the buttons in an emergency without thinking. Familiarity is considered here.

- (d) What do you mean by an error message? Being a UI Designer, write down five (5) guidelines /recommendations that you will follow to design good error messages?

[13 Marks]

ANSWER IN THIS BOX

An error message is information displayed when an unexpected condition occurs, usually on a computer or other device. On modern operating systems with graphical user interfaces, error messages are often displayed using dialog boxes. Error messages are used when user intervention is required, to indicate that the desired operation has failed, or to relay important warnings (such as warning a computer user that they are almost out of hard disk space). Error messages are seen widely throughout computing and are part of every operating system or computer hardware device. Proper design of error messages is an important topic in usability and other fields of UID.

Guidelines/recommendations: (Any 5 guidelines of the following)

- Avoid using threatening or alarming language in messages (e.g. fatal error, run aborted, kill job, catastrophic error)
- Do not use double negatives as they can be ambiguous.
- Use specific, constructive words in error messages (e.g. avoid general messages such as 'invalid entry' and use specifics such as 'please enter your name').
- Take care when wording and presenting alerts and error messages
- Make the system 'take the blame' for errors (e.g. 'illegal command' versus 'unrecognized command').
- NOT USE ALL UPPERCASE LETTERS as it looks as if you are shouting – instead, use a mixture of uppercase and lowercase.
- Use attention-grabbing techniques cautiously (e.g. avoid overusing 'blinks' on Web pages, flashing messages, 'you have mail', bold colors, etc.).
- Not use more than four different font sizes per screen.
- Not over-using audio or video.
- Use colors appropriately and make use of expectations (e.g. red = danger, green = ok).
