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**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

 **UNIVERSITY EXAMINATIONS 2015/2016**

**YEAR I SEMESTER I EXAMINATION FOR THE DEGREE OF MASTERS IN INFORMATION TECHNOLOGY**

**MIT 3108: HUMAN COMPUTER INTERACTION**

**DATE: APRIL 2016 TIME: 3 HOURS**

**INSTRUCTIONS: ANSWER ANY THREE QUESTIONS**

**QUESTION ONE (20 MARKS)**

In the early nineties, market research studies were carried where a group of people were interviewed to obtain their views on the features they would expect to find in their ideal mobile phone. Some of the people currently used a mobile phone, others did not. Given below are the (edited) texts of their responses.

Mobile phone: User responses;

A: “I want to keep track of the number of calls that I make, and the cost of the calls. Since I use the phone for business it has to be small but powerful but can’t cost a lot to buy. I don’t want to just with that stupid aerial thing that you have to flip up in order to use it and want to be able to keep ringing people back if they’re busy-as I said it has to be hand-held but that’s it really”.

B: “Ohhh – a mobile phone! Well, it just has to ring people and let people ring you, doesn’t it”.

C: “It must be able to store telephone numbers in as I won’t have my telephone book with me but I don’t know how I would search for the numbers – perhaps apad on which you could write them down would and she was so embarrazzed --- what about the buttons will it have press buttons or a dial? Oh, can decide well I like the dial personally I think it’s aesthetically pleasing but some people like buttons I don’t know really. Running them costs a lot of money so I suppose 1 would like to be able to tell how much I would spent that day on calls sort of get bill as I go along I suppose. Will I be able to turn it off? Oh – I have to decide do I?

Well I suppose I should have it with me and on all the time but what if didn’t want to be interrupted so I suppose I would want to turn it off ---- but then I may miss important calls – can I have an answering machine built in as well or something so that it answers my calls if I am not there, that would be nice”.

D: “ I would not use one ever – yuppie toy!”

E: “Well, the buttons would have to feel nice as I hate those plastic, tacky ones you get on those kabambe phones. It is difficult to tell when the button has been pressed sometimes. Some sort of display would be good – I suppose it should have information on the status of things – battery may be and the signal strength, the number I am calling, the previous numbers so that I can scroll back and get them, and perhaps an address book thing that has names and addresses and telephone numbers in. Hmmmm that’s abit bulky right – I would want it to be pocket sized too oh and the batteries should have to last for ages and ages and want to be able to charge it up anywhere like in the car and so on”.

F: “ Oh – I would never have one because what if I lost it? It is not the cost of the phone that’s the problem it’s that someone may ring up their friend in Australia and I would have to foot the bill. It would be okay if only I could use it”.

G: “Wow – mobile phones are great – I want one that rings people up, takes messages, will allow me to send taxes and receive them, will act as a calculator as well – I mean there’s all those number buttons already right? – and an address book and small word. Processor – it’s got to have a display and things right? So it could also be a personal organizer and interface to PCs and suns and Macs and things and it must be small; that’s for certain, it has to be small and the battery has to last for a week or so without being recharged and hand held – no I said that – errrm that’s it. Oh and I want to use it with the interface bit so as I can read my email on the Suns when I am away and stuff.”

H: “ Easy; 1. See the number I am ringing. 2. Be able to redial easily when a number is busy. 3. See the battery strength. 4. See how much its cost me. 5. Have nice buttons to press with good feedback. 6. Not have to reenter all of along number if I make a mistake. That’s all”.

I: “ I would like a system that has an address book in it, but it doesn’t have to be too powerful. Then I want to be able to see what number I am ringing and re – ring it if necessary and see how much the calls have cost. A good aerial will be needed because good reception is really important. Away of barring causing international numbers would be good and away of barring others from using it would also be nice. I would want to turn it off occasionally but I don’t know what would happen if anyone tried to ring me”.

J: “I like them, especially the grey ones – they are better than the black and the pretty light that comes on that’s good too don’t know what it’s for though”.

K: “I don’t like them – because I am abit deaf. They are too quiet for me and I can’t hear what people are saying.”

L: “Ha! What would be nice is a phone with not too many buttons! They all have too many buttons nowadays and I hate that. Keep it simple, reck on”.

M: “ I don’t understand them. I never know which button to press to get the phone to ring and which to press to stop a call, and I can never work out how to answer it either. – do you just pick it up or what? And what are the letters on the number buttons for? You know the 1 has ‘abc’ on it and so on”.

N: “ What’s a mobile phone – accord less one? Oh, one of those things. Now I don’t want one of those – they are like half a house brick --- oh, I can choose can I well I just want the same as I have got at home – small, you know, but having it portable. That’s all I want”.

**Required:**

You have been asked to design a mobile phone taking into account the user views expressed. There are a number of factors that have to be considered in the design, ranging from the way information entered into the system and the manner in which is presented back to the user, through aesthetic judgements to the functionality that the system should offer.

1. Read the user responses given and then analyze them under the following headings. Functionality interface and Aesthetics. [9 marks]
2. You will use this analysis as the basis of your design. Having decided upon well the relevant information, now design your phone. You have produce two views of the phone in all: the first is a picture of the phone as it appears to the user, with no additional labelling – make this as high quality as you can.

Imagine it is the sort of picture that would appear in a bronchure advertising the phone. The second view is of the same phone, but should be viewed from above. An addition set of pictures of parts of the phone should also be provided that should enable you to run through a typical interaction with a prospective user, showing the display state when they perform certain action to achieve a certain function. Do all these designs separately in your answer book, using shading and different viewpoints as appropriate. [6 marks]

1. Discuss how you would go about evaluating your design using heuristic evaluation. [5 marks]

**QUESTION TWO (20 MARKS)**

A new start-up, Twende Kazi Co. Ltd., is designing a system for hospitals that will allow receptionists, to check in people at the hospital faster. They wish to develop an interface that meets both the receptionist and patient’s needs. Describe three expert review methods. For each of them, discuss how it would be applied to the interface described for the start – up.

**QUESTION THREE (20 MARKS)**

1. The following is a transcript from an audio recording of a usability session between ALi: (the researcher) and Fatuma: (a participant)

Ali: Hey, Futuma, thanks for coming in today. Ready to get started?

Futuma: Sure:

Ali: Ok, your task is to use this interface to enter a purchase order. Tell me what you are thinking each time you do something.

Futuma: Ok. Ummm, I think I would start by -------

Ali: (Interrupting and pointing) Just click on that menu, right there.

Futuma: Oh, Ok. So in this menu, I would choose this thing that says ‘PO’

Ali: That’s not right! Why would you do that? Everyone knows ‘PO’ stands for post office. That’s for skipping packages. You are supposed to be working for purchase orders. That’s funny! I am totally going to tell all the guys about your answer over drinks tonight.

Fatuma: That’s not very nice. I don’t think I am interested in doing this anymore.

Ali: Oh, come on, I was just joking. You can’t quit now! I need to run some more participants to make sure we have got this interface right.

1. Provide the evaluation technique Ali is attempting to use. [1 mark]
2. Discuss two ways Ali is making mistakes in his use of the evaluation technique you listed in part (a) [4 marks]
3. Discuss three different ethical violations occurred in this scenario. [9 marks]
4. Cognitive walk though is considered a “ discount formative evaluation technique for learnability”. Discuss the terms “discount”, formative”, and “learnability” in relation to cognitive walkthough. In other words, what about a cognitive walkthough makes it these things? [6 marks]

**QUESTION FOUR (20 MARKS)**

1. Explain what is meant by the “gulf of execution, and the “gulf of evaluation”. [5 marks]
2. Discuss how the idea of Direct Manipulation help designers bridge the “gulf of execution” and the “gulf of evaluation”. [4 marks]
3. Write a Likert scale question, and provide labels for a 5 point response scale, intended to elicit the responder’s attitude toward the use of location aware cell phones that would allow the phone owner to receive SMS notification of sales at any store that the phone is near. [10 marks]
4. Provide a clear reason for Likert scale questions having an odd number of responses.

**QUESTION FIVE**

Discuss the guidelines you would use when in corporating colour “in an interface. In your discussion. Explain the empirical psychological evidence which supports the guidelines; state whenever the guidelines conflict, with any other known guidelines, and describe the principles of interaction that they support.