UNIVERSITY OF LONDON

GOLDSMITHS COLLEGE

Department of Computing

B. Sc. Examination 2019

IS53034B
Interaction Design

Duration: 2 hours 15 minutes

Date and time:

This paper is in two parts: part A and part B. You should answer ALL questions from part A and TWO questions from part B. Part A carries 40 marks, and each question from part B carries 30 marks. The marks for each part of a question are indicated at the end of the part in [.] *brackets.*

There are 100 marks available on this paper.

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FROM THE EXAMINATION ROOM

Part A

Short Answer Questions

Question 1

(a) What does Schneiderman's Golden Rule "Permit Easy Reversal Of Actions" mean? Provide one common example of this in current technology. [5]

Question 2

(a) Describe the process of running an A/B test on a website. [5]

Question 3

(a) Provide THREE examples of elements of design which may need to be considered when localising a product. Why is localisation important? [5]

Question 4

(a) If you were to evaluate how successfully tourists use the TfL Oyster Ticket machines in London tube stations, what is ONE example of quantitative data and ONE example of qualitative data that could be collected? How would you collect this data? [5]

Question 5

(a) Provide ONE advantage and ONE disadvantage of using a focus group to collect data when designing a new product. [5]

Question 6

Fitts's Law is $MT = a+b.\log_2(A/W +1)$.

(a) Explain what MT, A and W stand for. [5]

(b) What phenomena does Fitts's Law describe? Provide one example from everyday technology where Fitts's Law is used. [5]

Question 7

(a) Describe what a post-completion error is and why it occurs. [5]

Part B

Long Answer Questions

Question 8 Design

You are going to design a device to help children understand the nutritional value of different food items. This might include information about vitamins, proteins, fibre, fat, sugar, calories contained within the food and how it relates to their daily nutritional needs. The device should be made for the home and should be stand alone. This means the device should not just describe a website, app or computer program.

(a) Describe what existing data you can use to understand your users. [4]

(b) You are going to send a questionnaire to parents to elicit information that can help you design the device. Describe FOUR questions that you would include in the questionnaire that would help you develop a suitable interaction design for the device. Justify the inclusion of each question. [8]

(c) Create an initial sketch for a prototype device. Annotate the sketch when you have used a rule or guideline to inform your design or when you have made a decision based on (imagined) questionnaire results. Ensure you use at least FOUR annotations [18]

Question 9 Experiment

You have been asked to design a controlled experiment to investigate two different methods of searching for programmes on a smart TV using the TV remote control. You want to know which approach is "better" - using the directional arrows on the TV remote (up, down, left, right) to navigate an onscreen QWERTY keyboard, or using the letters written on each key of the remote. This would work by assigning letters to numbers on the remote, the 2 key is 'abc', the 3 key is 'def' an so on. To use this system, users must press a number multiple times to choose the relevant letter. The word 'fad' for instance would be typed by pressing 3-3-3-2-3.

(a) Describe your one-tailed hypothesis, including how you will define "better". Ensure you justify why you made this prediction. [5]

(b) Write a method section for your experiment. Ensure you include the following headings:

i. Participants [3]

ii. Design [7]

iii. Materials [4]

iv. Procedure [6]

(c) What would you need to do with your collected data to determine whether your hypothesis was correct? [5]

Question 10 Evaluation

You are asked to aid a local coffee shop with the evaluation of a new system to allow people to order coffees using an interactive kiosk. The intention is that the staff will only have to make the coffee and give it to customers - the new system should be responsible for taking orders.

The design of the system is currently a touch screen panel around A4 in size. It is mounted 150 cm (around 5 feet) above the ground. The screen displays the names for the various coffees and other snacks they sell. In total there are 76 different coffee combinations and snacks. A user must select each item they want by tapping on it and adding it to their basket. The system has a contactless card reader mounted next to it that allows the customer to pay for their final order.

(a) List TWO accessibility concerns you have about the current system. [4]

(b) List THREE changes would you make to make the system more accessible to users. [9]

(c) What information organisation structure would you recommend the coffee shop use to arrange their product menu so that a user can navigate it easily on the screen? Why would you choose this structure? [5]

(d) Describe THREE pieces of information or metrics that you would collect to evaluate the success of the system as it is currently. Why would you collect each of those piece of data? [12]