Module Code	Examiner	Academic Unit	Tel
CPT208	Yue Li	Computing	3223

Xi'an Jiaotong-Liverpool University

西交利物浦大学

2nd Semester, 2023/24 Resit Examination

Human-Centric Computing

Time Allowed: 2 Hours

Instructions to Candidates

1. This is an open-book examination with invigilation. You are allowed to take one-page notes with you. Please complete the assessment independently and honestly.

2. Total marks available are **100**.

3. This exam consists of **three questions**. The mark allocated for each question is indicated at the end of the question.

4. Answer **ALL** questions. There is **NO** penalty for providing a wrong answer.

5. Only **English** solutions are accepted. Answer should be written in the answer booklet provided. Clearly indicate the **question numbers** before your solutions. Submit your notes together with your answer booklet. Make sure your writings are clear to read.

6. All materials must be returned to the exam supervisor upon completion of the exam. Failure to do so will be deemed academic misconduct and will be dealt with accordingly.

Question 1   Discovering Requirements and Design   (40 marks)

As the lead designer for a startup aiming to create a **mobile health application** to facilitate patient-physician communication, you are charged with guiding your team through the human-centred design process. The app should enable patients to schedule appointments, chat with their healthcare providers, keep track of their medical history, and receive health tips.

(a) Describe the four phases of the design process from the problem space to the design space. Please specify the key activities and goals to be accomplished within each phase to refine the app.   [10]

(b) Identify and explain three design principles that are critical to consider while designing the interface and interactions for the mobile health application. Provide specific examples of how each principle applies to the specific aspects of the application you are developing.   [12]

(c) Discuss three different strategies you would employ to recruit participants for user research and usability testing of the mobile health application. Consider the target user group for this health app, explain how you ensure a diverse and representative sample of participants.   [9]

(d) Explain why diversity and inclusiveness are critical when designing the mobile health application. Describe three methods you would employ to ensure the application is accessible to users with different types of disabilities.   [9]

Question 2   Prototyping   (30 marks)

You are part of a design team tasked with creating a **Virtual Reality (VR)** application to help students in the **Architectural Design** programme visualise and interact with their work. The application aims to enhance their learning experience by providing an immersive experience of the three-dimensional representations of architectural models. Your role is to lead the prototyping phase of this human-centred design project.

(a) In the context of the VR application for architectural design, list two benefits and two drawbacks of starting with low-fidelity prototypes. At what point in the design process would you transition from low-fidelity to high-fidelity prototyping, and why?   [10]

(b) Discuss the importance of involving various stakeholders (i.e., architectural students, professors, and industry professionals) during the prototyping phases. What kinds of roles do they play in the design and Will you seek for different feedback from them? Please give specific examples.   [10]

(c) Draw a storyboard with three scenarios to show the common usage of this application. What are the advantages of storyboard during the prototyping of the VR application for architectural students?   [10]

Question 3   Evaluation   (30 marks)

You work for a company that develops the note-taking app, *GoodNote*. Now the company is planning to launch a new version called *SuperNote*, and you are asked to **systematically evaluate the two apps using experimental design**.

(a) How can you apply quantitative and qualitative methods in the evaluation? Name a typical example for each and compare and contrast the differences. Give specific details to explain how the two methods can be used in the given context.   [15]

(b) Your team plans to use an experimental study to investigate whether the note-taking efficiency and user experience with the new version have been improved. What are the independent variable(s) and dependent variable(s) in this experiment? What are the null hypotheses? Provide a detailed experimental plan that describes your preparations, the experimental settings, what users need to do, how to collect, analyse and interpret the data.   [15]

———— *End of Questions* ————