

| Paper Code | Examiner | Department | Email of Examiner | Ext |
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Xi'an Jiaotong-Liverpool University

西交利物浦大學

Semester 2, 2022/23 Resit Exam

Undergraduate - Year 3

Human-Centric Computing

Exam Duration: 2 Hours

Crash Time Allowed: 15 Minutes

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 marks**. This exam consists of **three questions** in total. The mark allocated for each question is indicated at the end of the question.
3. Answer **ALL** questions. There is **NO** penalty for providing a wrong answer.
4. Write down your solutions on the answer booklet. Clearly indicate the **question numbers** before your solutions. Submit your notes together with your answer booklet.
5. Only **English** solutions are accepted. 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.
7. The duration is **2 hours**.

Question 1 Design (40 marks)

- (a) What are the **four** phases of the double diamond of design? Please draw the diagram. Is interaction design a linear process or an iterative process? Discuss how you have followed this in your group project. Give specific examples. [10]
- (b) Identify **three** design principles. For each design principle, give a specific example of 'bad design' and explain how it violates the design principle. [9]
- (c) XJTLU is planning to design a seat reservation system for students to book self-study seats in the library. Who should be involved in the design? Are they users or stakeholders? What is the difference between users and stakeholders? To what degrees can users be involved in interaction design? What are the advantages and disadvantages? [12]
- (d) Name **three** interface types that you have used. What kind of interface did your group project mainly designed for? Explain why you designed that way and how it is different from or similar to the other two by giving specific examples. [9]

Question 2 Prototyping (30 marks)

- (a) What does fidelity mean in a prototype? Please list the advantages for high- and low-fidelity prototypes respectively. [10]
- (b) Please list the **five** dimensions in measuring the fidelity of prototypes. How will you design low-fidelity and high-fidelity prototypes in each of the **five** dimensions for a social media application? [10]
- (c) Please describe what is **wizard-of-oz** tool/method in prototyping. What are its advantage and disadvantage? Imagine you are designing an AI-based chatting system, how would you use it to test the prototype? Please provide the answer in detailed steps. [10]

Question 3 Evaluation (30 marks)

- (a) Suppose you work for the XJTLU sports centre to help them redesign the WeChat mini-program, aiming to support the students and staff members to better make use of the sports centre facilities and training courses. How will you discover potential requirements? What data gathering techniques you plan to use? Please give specific examples to explain how you plan to do it. [10]
- (b) After several weeks of hard work, your team has developed *XJTLU Sports Centre Mini-program 2.0*. Now you want to use an experimental study to investigate whether the user experience with the app have been improved. What are the independent variable and dependent variable in this experiment? What is the null hypothesis? 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. [10]
- (c) The new design of the *XJTLU Sports Centre Mini-program* has been a great success and well received among students and staff members. For the next step, you are asked to design a *Security* function which is for the teacher and security staff on duty to use during the patrol. They need to walk around the sports centre to check out different rooms and areas, and to check in at specific check-in points. How can you obtain in-depth understanding about their requirements? What, where, when and how can you evaluate your design? Please provide as many details and examples as you can, and make it clear if you are making assumptions and claims. [10]

———— *End of Questions* ————