Coláiste na Tríonóide, Baile Átha Cliath
Trinity College Dublin
Ollscoil Átha Cliath | The University of Dublin

FACULTY OF ENGINEERING, MATHEMATICS & SCIENCES

SCHOOL OF COMPUTER SCIENCE & STATISTICS

Integrated Computer Science
B.A. (Mod.) Computer Science & Business
B.A. Management Science & Information Systems
Year 4 Annual Examinations

Hilary Term 2017

CS4051 – Human Factors

12th January 2017 **Goldsmith Hall** **09.30-11.30**

Dr. Gavin Doherty

Instructions to Candidates

Answer Question 1 and ONE other question

All questions are marked out of 50

Materials permitted in this examination:

None

All questions refer to the following passage:

A system is to be constructed to allow people to rent out their properties or rooms in their property. People may list one or more rooms in the property to be let individually, or the entire property to be let as a unit. When registering with the system they must provide a scan of an official identification document, an email address and a phone number which are verified. Registered users can then add one or more properties to their account, provide details of these properties, and indicate when they are available. Those renting properties (hosts) are given support in choosing an appropriate price for renting the property (or rooms within it). Pricing may be different over time – it may vary over days of the week or over the year. Some properties are only available for longer term bookings. Payments by guests are made in advance of the stay and are handled through the system, which then sends this money to the host after the customer stay is over. Both guests and those providing properties (hosts) can review each other, and this information is available both to property providers accepting bookings and customers looking for somewhere to stay. A complaints procedure is available to both guests and hosts, which in some cases may involve refunds, additional charges, or claims on insurance for repairs. Reports are available to allow hosts to review their earnings, which may be helpful in making decisions regarding the property and in making tax returns. People looking for somewhere to stay will search by location and may also specify a date. They can then view available properties, and choose the dates they wish to stay. Some properties can be booked immediately, but most involve a request being sent to the host, who may then accept or decline the request depending on their own policies and the reputation of the guest.

Your answer should consider **all** users of the system.

Question 1 (All candidates **must** answer this question)

a) Identify the main tasks in the above application and present an analysis of these tasks. The analysis should go beyond hierarchical task decomposition.

[35 marks]

b) Explain how your analysis would affect the design of the system, giving concrete examples of the design decisions which would be influenced by the analysis. You may use a small number of user interface sketches to illustrate your answer where appropriate.

[15 marks]

[Total 50 marks]

Question 2

a) Which techniques for improving usability would be most relevant to the above system? Justify your choices and describe how you would apply them to the development of the above system.

[25 marks]

b) Consider opportunities for human error when using the above system, and describe how they might be detected, tolerated or recovered from. Make use of the SRK framework where it is helpful to your analysis and include user-interface sketches to illustrate your answer where appropriate.

[25 marks]

[Total 50 marks]

Question 3

a) Analyse how the use of computer-mediated communication between the host and guest might be employed, how it could impact (positively or negatively) on the operation of the service, and how you would investigate these issues during the design process.

[25 marks]

b) Identify three usability metrics relevant to the above system, explain why they are important, and how you would measure them. What values would you compare the measured results to?

[15 marks]

c) Explain the advantages of the MVC User Interface Architecture using an example from the above system.

[10 marks]

[Total 50 marks]