NUI Galway
OÉ Gaillimh

Autumn Examinations 2016/ 2017

Exam Code(s)	3BCT121; 3BA1; 4BA1
Exam(s)	B.Sc. in Computer Science and Information Technology B.A.
Module Code(s)	CT318
Module(s)	Human Computer Interaction
Paper No. Repeat Paper	1
External Examiner(s) Internal Examiner(s)	Professor Liam Maguire Dr. Michael Schukat Ms. Karen Young*
Instructions:	Candidates should answer **Question 1** and **any two other** questions. All questions carry equal marks.
Duration	2 hours
No. of Pages	3
Requirements: None	Release to Library: Yes ☐ No ☐

Q.1 You have been asked to design an application for recording and analysing match scores suitable for many different sporting environments. The initial brief requires the application to be developed to record scores (from play and frees), frees, substitutions, yellow and red cards in GAA matches. The mobile phone is the likely device of choice for this application given the use context. The system must be easy to use, and enable quick data entry, as well as ease of data transfer or comparative analysis of statistics across matches, teams etc.

This system will be competing against a variety of other applications in appstores and so must be very well designed to appeal to its audience.

The company has indicated that they want an initial design submission from you to include the following:

(a) A PACT analysis for this application.

(6)

(b) A paper prototype of three of the interface screens, representing the system's functional organisation and overall "look and feel". Clearly outline your rationale for each of the design choices you make (e.g. interaction styles).

(9)

(c) An evaluation plan for the system which will support comprehensive testing of your design, clearly outlining what activities, when, how and by whom the evaluation activities will be undertaken.

(5)

Q. 2. (a) Interaction Design is concerned with the design of digital devices to meet the *physical*, *emotional* and *intellectual* needs of the people using these devices. Analyse the contribution of the **models** and **frameworks** covered in this course to meeting this design goal throughout all stages of the Systems Development Lifecycle (SDLC).

(10)

(b) Effective **error messages** are critical to good user interaction design. What is the purpose of error messages? What factors are important in their design? Design an appropriate error message for a user who is unsuccessfully trying to gain access to a service they do not currently have clearance to access.

(5)

(c) Given that good design is dependent on good designers, not expensive tools, comment on the role of **software tools** in interaction design. Support your answer with relevant examples.

(5)

Q. 3. (a) "*Perfection is attained not when there is no longer anything to add, but when there is no longer anything to take away*" (Antoine de Saint Exupery, 1954)

Analyse the above statement in light of your study of effective **visual design**, including consideration of its application to a ***website of your choice*** in your answer.

(8)

(b) Which interaction style would you apply to the design of each of the following and why?

- A home energy-consumption monitor.
- A travel plan management system with both a mobile and web interface.
- An online stock trade tracking application with graphical visual output.

(6)

(c) Effective interaction design involves achieving a balance between *divergent* and *convergent* design thinking. *Laseau's* Design Funnel clearly integrates these two processes. Using this funnel elaborate on the different activities involved during the elaboration and reduction design phases for the ***mobile sporting*** application described in Q.1 above.

(6)

Q.4 (a) Effective interaction design is ultimately about the correct assignment of responsibilities to the parties participating in the interaction, i.e. the human and the computer.

(i) From your study of the various theories, models, processes, and techniques of interaction design, comment on the validity of the above statement.

(6)

(ii) Discuss issues of the allocation of functions between people and software specifically in the context of a ***blood glucose monitoring*** system for diabetics.

(4)

(b) You have been asked to design a *remote control* device that can be used to control the lighting, heating, curtains/blinds for both domestic and public settings. Prepare a prototype design, outlining the *user considerations* you found relevant in solving this problem.

(6)

(c) Explain Norman's *gulf of execution* and *gulf of evaluation* as they relate to successful interaction design, using appropriate examples.

(4)