Cardiff School of Computer Science and Informatics

Coursework Assessment Pro-forma

Module Code: CM2101
Module Title: Human Computer Interaction
Lecturer: Dr Alia I Abdelmoty and Dr Daniel Finnegan
Assessment Title: User Interface Design Prototyping
Assessment Number: 1
Date Set: Friday 12th February 2021 (Week 2)
Submission Date and Time: Friday 26th March at 9:30am (Week 8)
Return Date: By Friday 30th April (Week 10)

This assignment is worth 50 % of the total marks available for this module. If coursework is submitted late (and where there are no extenuating circumstances):

> 1   If the assessment is submitted no later than 24 hours after the deadline, the mark for the assessment will be capped at the minimum pass mark;
> 2   If the assessment is submitted more than 24 hours after the deadline, a mark of 0 will be given for the assessment.

Your submission must include the official Coursework Submission Cover sheet, which can be found here:

https://docs.cs.cf.ac.uk/downloads/coursework/Coversheet.pdf

Submission Instructions

All submission should be via Learning Central. Your submission should consist of the following.

Description		Type	Name
Cover sheet	**Compulsory**	One PDF (.pdf) file	[student number].pdf
Interface Design report	**Compulsory**	One PDF (.pdf) or Word file (.doc or .docx) documenting your answer to Parts 1 and 2	[student number]_UI.pdf/docx
Prototype file	**Compulsory**	One Zip (.zip) file	[student number]_Prototype.zip
Heuristic Evaluation	**Compulsory**	Spreadsheet documenting your answer to Part 3	[student number]_HE.xlsx

Any deviation from the submission instructions above (including the number and types of files submitted) may result in a mark of zero for the assessment or question part.

Assignment

Overview

This coursework is a hands-on exercise on user interface design, prototyping and evaluation. Virtual meeting applications (such as Zoom, Teams, Webex, Blackboard collaborate, etc.) have become essential working and social communication tools. There are many applications on the market, and all compete for users.
You will design and prototype a user interface for a virtual meetings application. You will justify your designs using HCI principles and guidelines and carry out an evaluation exercise of your created designs.

Instructions

Part 1: User and Task Analysis
(This task is worth 15 marks (15% of module mark))

a. Identify and describe <u>One primary Persona</u> for your application. Include all components of the persona description, as discussed in the lectures.

   Note: Applications can serve a wide variety of users and as such, may have multiple primary personas. The persona you choose will guide your consideration for the subsequent steps in this exercise. (5 marks))

b. Identify and describe <u>Two primary tasks/use cases in the system (important and frequently used functions by your primary persona)</u>. Provide a brief (text) description of the task/use case and the outline of the steps in the basic flow scenario and the alternative flow scenarios of the use case. (4 marks)

   Note: Tasks such as *Register/Login* are not primary use cases. These are supplementary functions to allow a user to access the primary function of the system.

c. Produce <u>Two State Transition Networks (STNs)</u> to describe the interaction flow in your use case scenarios (for the basic and alternative flows in each use case). Use an abstract depiction of the screens with no detail on design elements of the interface. Your STNs need only depict states and user actions between states in the use case scenarios. (6 marks)

   Note: Generally speaking, an interface state changes when an event occurs. For example, an entry of text in a text field, a click of a button, etc. Your STNs need to depict all possible states of interaction in the use case scenarios.

Part 2: Interface Prototype
(This task is worth 20 marks (20% of module mark))

Design and prototype a user interface for your application that demonstrates clearly the two use cases you defined. The interface should include enough user interaction to allow it to be demonstrated to a user.

> For each use case scenario, you need to produce the following.

> a)   Detailed screen design(s) for every state in the STN.   (Snapshots of the screens (or photos) from the interface you built for your prototype are sufficient).
>
> Indicate the mapping between the screens you include and states/actions on your STN – (ensure you have a complete set of screens for your STNs).

> b)   For EVERY screen/state,

>> i.   Describe the interface elements chosen.

>> ii.   Justify the layout used, e.g. by an appropriate choice of design pattern, or to satisfy a specific usability principle.

>> iii.   Indicate which features you used to provide feedback.

>> iv.   Indicate how the design deals with user error.

Axure is the prototyping tool supported by our Teaching Associate. Interface designs produced using this tool is sufficient for this exercise.
You are free to choose other toolkits or programming languages to develop the interface. However, no additional marks will be awarded for using more sophisticated tools or programming languages.

(10 marks for every use case- a total of 20 marks)

Part 3: Heuristic Evaluation
(This task is worth 15 marks (15% of module mark))

For every use case, do a heuristic evaluation of the individual states of the interface, identifying all usability issues.

Report on the usability issues in an objective manner and present the issues in a systematic and standard format using the templates (Excel spreadsheet) provided and discussed in the lectures. Your report should include,

a) the usability problems you identified with some justification of the severity score assigned to the problems and your suggestions for addressing the issues you identified in subsequent revisions of the interface, and, (8 marks)

b) the good design features that should be maintained in any subsequent revision of the application. (7 marks)

Learning Outcomes Assessed

Awareness and hands-on experience of user-centred interface design, prototyping and evaluation methods

1. Appreciate the importance and context of HCI and human factors in the software development lifecycle.
2. Recognise the importance of identifying in the design of interactive systems.
3. Apply task analysis and dialogue design methods to facilitate effective interaction design.
4. Demonstrate awareness of design patterns for effective user interface design.
5. Utilise usability guideline and principles in the design and evaluation of interface prototypes.

Criteria for assessment

Credit will be awarded against the following criteria.

Component & Contribution	Fail < 40%	pass (40-49%)	2:2 (50-59%)	2:1 (60-69%)	First >=70%
Part 1 (a) (5 marks)	Personas are missing or not clearly justified for the application.	Personas identified but not convincingly justified Sketchy description of Personas that will not support its utility for design.	Suitable choice of Personas to represent user segments Sketchy description of Personas that will not support its utility for design.	Persona described in general terms, but is not specific enough to clarify its specific needs from the application.	Persona explained clearly: Which functions of the application are important to this person? How (context, platform) and When (how often) will this person use the application?
Part 1(b) (4 marks)	Use cases are not described.	Some used case are defined but are not justified as primary for the persona. Brief descriptions provided of one or both use cases, but missing alternative scenarios	Good choice of primary use cases, but may not be optimal primary functions for the chosen persona. Brief descriptions provided of one or both use cases, but basic and alternative scenarios are not clear or complete .	Good choice of primary use cases that are relevant to the chosen primary persona Good description of both use cases with clear and complete outline of basic scenarios.	Excellent account of use cases and their relevance to the chosen primary persona. Excellent account of both use cases and complete account of basic and alternative scenarios.
Part 1(c) (6 marks)	STNs are missing or do not relate to identified use case scenarios.	STN presented for one of the use cases or for both but with much missing or inaccurate details	STN includes most of possible states of the interface, but some states may be missing.	STN includes all possible states of the interface. User actions are mostly included, but	STN includes all possible states of the interface. User actions are clear and describe the

			Some user actions are annotated. Some steps of the use case scenario are not included in the STN.	some may be missing STN accounts for all steps of the use case scenario from start to end.	transition needed between states. STN accounts for all steps of the use case scenario from start to end.
Part 2 (20 marks)	Prototype is not working or missing substantial parts of states and actions. Poor presentation of report with little justification of design choices. Poor use of language.	Some states and/or user actions are missing. Sketchy report that provides little justification of choice of interface components, feedback and error design. Sketchy reference to usability guidelines and principles/design patterns. Report contains some spelling or grammatical errors.	Some states and/or user actions are missing. Acceptable report that provides some justification of choice of interface components, feedback and error design. Sketchy reference to usability guidelines and principles/design patterns. Report contains some spelling or grammatical errors. Adequate presentation	Prototype includes most but not all possible states and user actions. Reasonably thorough justification of choice of interface components, feedback and error design. Some reference to usability guidelines and principles including design patterns is made for some parts of the design. Report contains minor spelling or grammatical errors. Consistent presentation style used.	Prototype includes all possible states and user actions. Excellent report fully justifying choice of interface components (possibly by comparing alternative choices), feedback and error design. Exhaustive reference to usability guidelines and principles including design patterns are suitably made throughout. Report contains no spelling or grammatical errors. Excellent presentation.
Part 3(15 marks)	HE misses most of the usability issues, is not consistently or exhaustively applied. Mention of good usability features is patchy across the interface. .	HE considers the usability of some aspects of the considered states, but there are obvious omissions of major usability issues. Some usability problems are recorded but are not convincing Mention of good usability features is patchy across the interface.	HE considers the usability of some aspects of the considered states, but there are obvious omissions of major usability issues. Usability problems are recorded in an adequate but sometimes inconsistent format. Mention of good usability features is patchy across the interface.	HE considers the usability of most aspects of the considered states. Usability problems are recorded in a consistent format. Good usability features are mostly explored, but not exhaustively reported.	HE considers the usability of all aspects (selection of interface components, layout, error handling, feedback, etc.) of the considered states. Usability problems are recorded in an exhaustive and consistent format. Good usability features are explored fully and documented appropriately.

Feedback and suggestion for future learning

Feedback on your coursework will address the above criteria. Feedback and marks will be returned by Friday 30th April 2021 via Learning Central. There will be opportunities for additional feedback on request.

Feedback from this assignment will help you with your future final year project work.