Cardiff School of Computer Science and Informatics

Coursework Assessment Pro-forma

Module Code: CM2101
Module Title: Human Computer Interaction
Lecturer: Dr Alia I Abdelmoty
Assessment Title: User Interface Design Prototyping
Assessment Number: 1
Date Set: Monday 5th February 2024 (Week 2)
Submission Date and Time: by *9:30am* Thursday 21st March 2024 (Week 8)
Feedback return date: By Monday 22nd April 2024 (Week 10)

If you have been granted an extension for Extenuating Circumstances, then the submission deadline and return date will be later than that stated above. You will be advised of your revised submission deadline when/if your extension is approved.

If you defer an Autumn or Spring semester assessment, you may fail a module and have to resit the failed or deferred components.

If you have been granted a deferral for Extenuating Circumstances, then you will be assessed in the next scheduled assessment period in which assessment for this module is carried out.

If you have deferred an Autumn or Spring assessment and are eligible to undertake summer resits, you will complete the deferred assessment in the summer resit period.

If you are required to repeat the year or have deferred an assessment in the resit period, you will complete the assessment in the next academic year.

As a general rule, students can only resit 60 failed credits in the summer assessment period (see section 3.4 of the academic regulations). Those with more than 60 failed credits (and no more than 100 credits for undergraduate programmes and 105 credits for postgraduate programmes) will be required to repeat the year. There are some exceptions to this rule and they are applied on a case-by-case basis at the exam board.

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.

Extensions to the coursework submission date can ***only*** be requested using the Extenuating Circumstances procedure. Only students with ***approved*** extenuating

circumstances may use the extenuating circumstances submission deadline. Any coursework submitted after the initial submission deadline without *approved* extenuating circumstances will be treated as late.

More information on the extenuating circumstances procedure can be found on the Intranet: https://intranet.cardiff.ac.uk/students/study/exams-and-assessment/extenuating-circumstances
https://intranet.cardiff.ac.uk/students/study/your-rights-and-responsibilities/academic-regulations

By submitting this assignment you are accepting the terms of the following declaration:

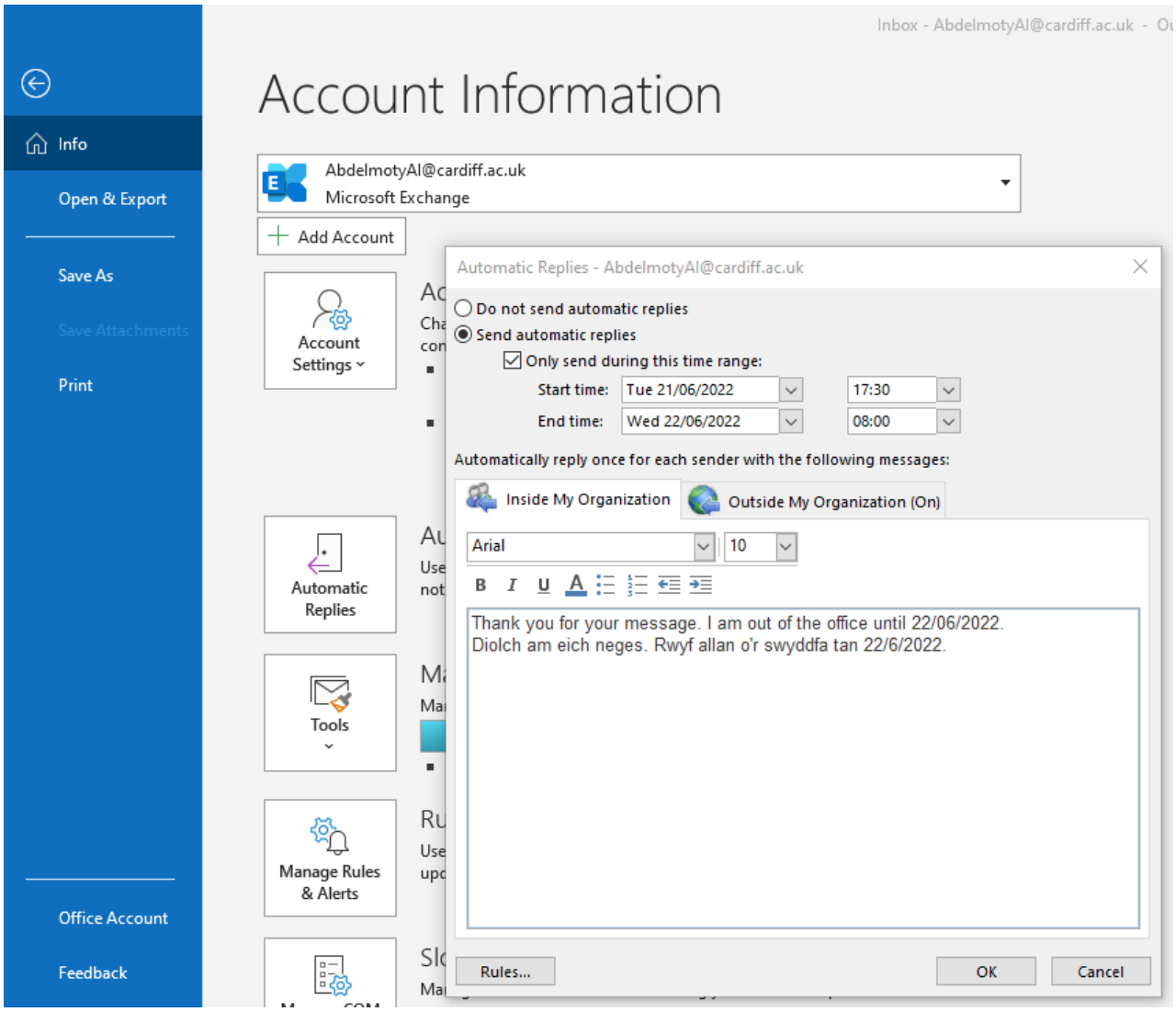
I hereby declare that my submission (or my contribution to it in the case of group submissions) is all my own work, that it has not previously been submitted for assessment and that I have not knowingly allowed it to be copied by another student. I declare that I have not made unauthorised use of AI chatbots or tools to complete this work, except where permitted. I understand that deceiving or attempting to deceive examiners by passing off the work of another writer, as one's own is plagiarism. I also understand that plagiarising another's work or knowingly allowing another student to plagiarise from my work is against the University regulations and that doing so will result in loss of marks and possible disciplinary proceedings[1].

[1] https://intranet.cardiff.ac.uk/students/study/exams-and-assessment/academic-integrity/cheating-and-academic-misconduct

Assignment

Overview

This coursework is a hands-on exercise on user interface design, prototyping and evaluation.
Consider the *Automatic Replies* function in the Microsoft Outlook application, as shown in the figure below. This is a function that allows users to set automatic replies to emails. For example, if the user is on holiday, the user could set up an automatic reply message to say that It will not be possible to read emails until the returns from holiday.
The function is limited in how time is specified-- it only allows the specification of one continuous time frame, between a start time and end time, as shown in the picture.
A user may wish to post these replies on specific dates or on specific days of the week for a certain period, or even on specific hours of working days, etc. This is currently not possible!



You are required to re-design the Automatic Replies Window shown in the picture above and produce a prototype for this redesigned interface. The redesigned interface should allow the following tasks. Task (1) is the same as that provided by the current interface. Task (2) is a new function that is not provided by the current interface.

1. Set a date/time range for the auto replies, as is already allowed in the current interface.
   For example, set an auto reply to occur only between date 1 (time x), and date 2 (time y).
2. Set auto replies to occur only during specific days of the week between date ranges. The system should allow the user to create different auto replies for different date/time criteria.
   For example, set one auto reply to occur on Saturdays and Sundays between date 1 and date 2, and set another auto reply to occur on weekday evenings between date 1 and date 2, etc.

For this exercise, you may consider one group of senders only – "Inside My Organization", as shown in the picture above.

You are free to customise the existing design of this interface in ways you see fit. You may leave the interface design for function 1 as it is in the current interface, or you can choose a different design pattern for the two functions.

You will justify your designs using HCI principles and guidelines and carry out a heuristic evaluation exercise of your created designs.

Instructions

Part 1: Interface Prototype
(This task is worth 30 marks/50)

a) Produce State Transition Networks (STNs) to describe the interaction flow in the **basic use case scenario that implements function 2 above. Include in your answer one possible error alternative scenario that can occur for this use case.**

   Note: Your basic use case scenario should demonstrate the successful setting of more than one specific auto reply message as explained above, and should finish by the user successfully completing this task.
   Your use case can assume that the user has Outlook opened successfully.
   Note also that a good design should allow the user to recognise whether automatic replies are set in the system, before and after this scenario.
   (5 marks)

b) Design and prototype a user interface that clearly demonstrates the use case scenario you defined in (a). The interface should include enough user interaction to allow it to be presented and evaluated by a user.

   Axure and Balsamiq are the prototyping tools recommended. Interface designs produced using these tools are 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.

i. Produce detailed screen design(s) for every state in the STNs (Snapshots of the screens (or photos) from the interface you built for your prototype are sufficient).

   Clearly label the screen designs to reference the states you defined in your STNs and ensure that you have a complete set of screen designs for your STNs.

   (10 marks)

ii. Explain the design and layout of the states used in the scenario.
Give an account and justification of the interface elements used in the design-- appropriateness of the interface controls, design patterns adopted, usability guidelines and/or platform specific rules, information organisation and visual layout features.

   (15 marks)

Report guidelines:
Answers to b (i) should be in the form of a set of annotated images/snapshots of your interface states, referring to the use case scenario and states defined in your STNs.
Answers to b (ii) should aim to write a maximum of one page per state in the STN.

Part 2: Heuristic Evaluation
(This task is worth 20 marks/50)

For the scenarios you implemented in part 1, 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 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,

   (10 marks)

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

   (10 marks)

Report guidelines:
You need to use the HE spreadsheet template provided. Use one sheet in the spreadsheet for every screen/state that you described in Part 1 and ensure that you label the sheets with the name of the corresponding state.

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 guidelines 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)	*0-2 marks* *STNs are sketchy, with missing states and actions or do not depict interaction flow in the use case, e.g. it describe data flow and program logic instead.*	*2-3 marks* *STN may be incomplete; no clear start and finish; missing states or actions; diagram is not fully annotated. User actions are mostly included, but some may be missing.* *Correct format of STN is adopted.*	*3-4 marks* Same as Excellent criteria but may be missing some state or actions, or presentation is not clear.	*3-4 marks* Same as Excellent criteria but may be missing some state or actions, or presentation is not clear.	*4-5 marks* *STN includes all possible states of the interface.* *Clear indication of start and end state. User actions are clear and describe the transition needed between states.* *STN accounts for all steps of the use case scenario from start to end.*
Part 1(b)(i) (10 marks)	*0-4 marks*	*4-5 marks*	*5-6 marks*	*6-7 marks*	*7-10 marks*

	Screen designs are missing or does not address the use case correctly. Prototype is not working or missing substantial parts of states and actions.	*Basic attempt at the solution, with some presentation of the screen states for the use case. May be missing some state or actions for the basic or error scenarios. Prototype is provided but may be failing to demonstrate the use case successfully.*	*Prototype implements the required functions. Implementation style is adequate. Some states and/or user actions are missing. Prototype successfully implemented to demonstrate the interactions. Report describes the screen states clearly.*	*Prototype implements the required functions. Implementation style is good, but is lacking a professional approach. Prototype successfully implemented to demonstrate the interactions. Report describes the screen states clearly.*	*Prototype implements the required functions fully. A convincing implementation that shows a professional approach and attention to detail, e.g. style guides to platform considered. Prototype includes all possible states and user actions for the use case and alternative flow. Prototype successfully implemented to demonstrate the interactions. Report describes the screen states clearly.*
Part 1(b) (ii) (15 marks)	*0-6 marks* *Poor presentation of report with little justification of design choices. Poor use of language.*	*6-7 marks* *Sketchy report that provides little justification of choice of interface components, feedback and error design.* *Some acceptable level of detail in justification provided for some parts of the design.*	*7-9 marks* *Adequate report that provides some justification of choice of interface components, feedback and error design. Adequate level of detail in justification provided for some parts of the design. Attempt at some reference to*	*9-12 marks* *Reasonably thorough justification of choice of interface components, feedback and error design. Good reference to usability guidelines and principles including design patterns is made for some parts of the design. Report*	*12-15 marks* *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*

		Attempt at some reference to usability guidelines and principles but is not well tied to the design.	*usability guidelines and principles but is not well tied to the design.* *Some acceptable level of detail in justification provided for some parts of the design. Attempt at some reference to usability guidelines and principles but is not well tied to the design.*	*contains minor spelling or grammatical errors.*	*design patterns are suitably made throughout.* *Excellent presentation.*
Part 2 (20 marks)	*0-7 marks* *HE misses most of the usability issues, is not consistently or exhaustively applied.* *Mention of usability features is patchy across the interface.*	*7-9 marks* *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 not fully justified* *Adequate mention of usability features is patchy*	*9-11 marks* *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.*	*11-14 marks* *HE considers the usability of most aspects of the considered states.* *Usability problems are recorded in a consistent format.* *Very Good usability features mostly explored, but not exhaustively reported.*	*14-20 marks* *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.* *Excellent and exhaustive reference to usability features; explored fully and*

		across the interface.			*documented appropriately.*

Feedback and suggestion for future learning

Feedback on your coursework will address the above criteria. Feedback and marks will be returned by Monday 22nd April 2024 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.

Submission Instructions

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

Description		Type	Name
Interface Design report	**Compulsory**	One PDF (.pdf) or Word file (.doc or .docx) documenting your answer to Part 1	[student number]_UI.pdf/docx
Prototype file	**Compulsory**	One Zip (.zip) file with your prototype implementation	[student number]_Prototype.zip
Heuristic Evaluation	**Compulsory**	Spreadsheet documenting your answer to Part 2	[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.

Staff reserve the right to invite students to a meeting to discuss coursework submissions

Support for assessment

Questions about the assessment can be asked on the Discussion Forum on LC, and in the online lecture slots dedicated for coursework support as will be explained by the lecturer in due course.

Support for the programming elements of the assessment will be available in the lab classes.