BSc, BEng and MEng Degrees Degrees Examination 2020-21

DEPARTMENT OF COMPUTER SCIENCE

Human-Computer Interaction 1 (HCI1)

Open Group Assessment: Design Project

Issued: Wednesday 20th January, 2021, 09:00 noon
Submission due: Wednesday 12th May, 2021 12:00 noon
Feedback and Marks due: Wednesday 9th June, 2021, 12:00 noon

All groups should submit their answers through the electronic submission system: http://www.cs.york.ac.uk/student/assessment/submit/ **by 12:00 noon on Wednesday 12th May, 2021.**

An assessment that has been submitted after this deadline will be marked initially as if it had been handed in on time, but the Board of Examiners will normally apply a lateness penalty.

Your attention is drawn to the section about Academic Misconduct in your Departmental Handbook: https://www.cs.york.ac.uk/student/handbook/

The names of all of your group members should be listed on the front cover of your assessment report. **Do not include exam numbers in the report, as these are private to individuals**.

Any queries on this assessment should be posted on the Assessment QA thread of the HCI1 VLE Discussion Board. Answers will be posted on the same thread within 24-48 hours, not including weekends. Queries will be answered until the end of week 1 of the Summer term.

General Description

The following is the Open Assessment for the module Human-Computer Interaction 1 (HCI1) in the Department of Computer Science at the University of York. This assessment comprises three parts:

- Part 1: Group Assessment - Interactive System Design and Evaluation
    - You will undertake the design of an interactive system in a small group of 5-6 people, based on cohort sizes taking the module. You will be allocated to pre-assigned groups. Group membership will be posted on the VLE site for the module.
    - The assessment involves submitting a group report and a log book of group activities.
- Part 2: Group Assessment – Prototype Demonstration
    - As a group, you will demonstrate your design to an audience of students and lecturers during practical sessions in the Summer Term. We will provide feedback for your project.
- Part 3: Peer Assessment
    - You will undertake a peer assessment of your group members. For group members who are not performing in a substantial and meaningful way towards the completion of the assessment, marks will be deducted.

There will be no programming required as part of this assessment. Instead, all answers will be judged on the soundness of their application of the user-centred design concepts and techniques, and an understanding of users, as applied to the design problem.

Deliverables

Each group is required to submit two deliverables. Formatting requirements are explained in detail in the sections below.

1) A Group Assessment Report of between 5000-6000 words.
2) A Group Logbook.
3) A presentation which includes a demonstration of the low-fidelity prototype that has been designed.
4) In addition, each group member is required to submit a peer assessment form.

Design Problem

Your group will work on the following brief:

Delivery platforms allow users to search across a range of food and drink options, specify the delivery location, pay online and share reviews of their experience. During the Covid-19 pandemic, the food and drink industry has increasingly turned to delivery apps such as Deliveroo, JustEat and UberEats in an effort to maintain an income and support staff.

The catering outlets across the University of York campus are experiencing similar challenges - your group has been tasked with designing a food delivery app for these outlets that would allow students and staff to order food and drinks to a location on campus.

Users should be able to complete the following three activities, which will be reflected as a component of functionality within the application:

1) Search across a range of campus-based catering outlets for different food and drinks options before selecting and paying for their order;
2) Select a delivery location on the University of York campus (east and west);
3) Allow users to create and share reviews of their experience.

In addition, your group is required to design one additional component of functionality for users that emerges from your user requirements gathering work.

Part 1: Group Assessment – Interactive System Design [90 marks total]

Each group will conduct a user-centred design lifecycle for an interactive system, including:

- Development of the initial user requirements through personas and scenario-based design;
- Creation of a low-fidelity prototype;
- Evaluation of the low-fidelity prototype through an expert inspection method;
- Refinement of at least one component of functionality of the prototype based on the results of the inspection.

Format:

There are **two** pieces of work to be submitted for Part 1 of this assessment:

1. **Group Assessment Report**, which presents Part 1.1-1.3 in this section
2. **Group Logbook**, presenting Part 1.4.

Group Assessment Reports should have a main body of 5000-6000 words (10-12 pages), which will document the work undertaken in Parts 1.1, 1.2 and 1.3. In addition to this, the report may have up to 10 pages of appendices that contain additional material such as interview questions, ethics documents, tables with details of usability problems, and app screenshots. These appendices must be referred to in the text of the main document or they will not be considered in marking.

The report should be single-spaced using a Sans Serif 12-point font.

Group Assessment Reports should include a title page, with title, the group number and group member names (not examination numbers) clearly stated on the title page. They should also include a Table of Contents page. This front matter is not included in the word limit for the report.

References and appendices are also excluded from the word count.

Group Logbooks will detail activities and meetings undertaken by the group to achieve the assessment. A template will be provided but the logbooks will have no word or page limit. They should be single-spaced using a Sans Serif 12-point font. The logbooks should be shared with team members and the module leader at the beginning of the assessment period using a platform such as Google Drive.

Submission:

One individual in each group should be assigned the role of submitting the Group Assessment Report and the Group Logbook for the group.

This submission will be done via the electronic submission system for the department. The group must package their report and their logbook into one compressed archive file (either zip or tar.gz), as the submission system will only accept ONE FILE. The file should be labelled HCI1-Group-X.y where X is your group number and y is the extension of the file.

Part 1.1 User Requirements Gathering (15 marks)

(i) Each group will conduct appropriate elicitation activities with users regarding their requirements to address the Design Problem. Groups should conduct a minimum of *2 user interviews per group member*. Students should note that these minimum numbers do not necessarily mean that they will have sufficient information to inform the design of the system in terms of user goals. If you have interviews that yield data that is low in quality (e.g. answers are vague, answers without sufficient detail), you may need to collect more in order to properly define your interactive system.

Students should collect informed consent forms with appropriate statements of confidentiality and anonymity, name and email contact details for each individual who participated in the elicitation activities.

(ii) The report should describe how you undertook the elicitation activities, what user groups you engaged with and why those groups were selected. You should also include an analysis of what you found in your data regarding the goals and needs of users of your interactive system.

NOTE: A statement of ethics must be included in the report. Group members should conduct appropriate informed consent procedures and a fast-track ethics form should be completed by the group and sent to the lecturers to be approved before any interviewing can take place. Up to 10 marks will be deducted from groups who conduct interviews without ethics approval.

(iii) Using information from the elicitation activities, groups will define *two personas* that can be used in the user-centred design process. For each persona, describe *two goals* that could be satisfied by your interactive system prototype.

Marking Criteria:
Marks will be awarded for:

- A clear explanation of data collection and analysis;
- The quality and appropriateness of the interview approach adopted;
- The quality of the personas and the appropriateness of the user goals presented;
- Demonstrating how the personas link back to the data collected.

Part 1.2 Scenario-Based Design (15 marks)

(i) Each group will undertake scenario-based design of an interactive system that addresses the Design Problem. The report should present:

- One detailed Problem (as-is) Scenario that describes current user practice in relation to the Design Problem described in this document. The scenario should involve one of the personas presented in the report.
- One claims analysis of that Problem Scenario
- One detailed Activity (to-be) Scenario that introduces the interactive system. The scenario should involve one of the personas presented in the report.
- Scenarios should include:
    - The setting/context of the interactive system;
    - The actors who will undertake tasks in the system;
    - Concepts that need to be understood by users to use the interactive system;
    - A set of tasks that can be undertaken by users in the system;
    - The criteria by which users will know they have accomplished their goals.
- One claims analysis that demonstrates how the described interactive system improves on the current user practices

Marking Criteria:
Marks will be awarded for:

- A Problem Scenario specified to an appropriate level of detail;
- An Activity Scenario specified to an appropriate level of detail;
- Appropriate Claims Analyses;
- A clear explanation of how the scenarios link back to data gathered from the user requirements gathering activities in Part 1.1.

Part 1.3 Interactive System Prototype and Evaluation (60 marks)

Groups will undertake the design and evaluation of a low-fidelity interactive system prototype. This interactive system should encompass all of the tasks that you have identified in your elicitation activities and scenario-based design activities (Parts 1.1 and 1.2).

This prototype should use the principles for good interaction design and an understanding of users as discussed in the module. Specifically, students should apply:

- Tog's Design Principles for the Web
- The Research Based Web Usability Guidelines from usability.gov
- Design principles found in the readings in the "About Face" textbook

Students should also keep in mind the broad principles from Shneiderman, Nielsen and Norman when preparing their prototypes.

NB: If you wish to apply other design principles, you should discuss this with the Lecturers before you use them in your prototype design.

Part 1.3.1 Interactive System Prototype (43 marks)

(i) The report should provide a general introduction to the interactive system and explain how it addresses the goals of the users described in the personas created in Part 1.1.

(ii) The report will describe **four** substantial, complex components of the functionality in the prototype (the three outlined above, and one of the chosen by the group). The report should provide screenshots to illustrate these components of functionality.

(iii) The report should describe the design rationale behind each component of functionality in terms of how it satisfies the user requirements derived from the personas developed in Part 1.1 and activities presented in the scenarios in Part 1.2. The report should discuss what key design principles, and knowledge of user capabilities influenced the design.

Marking Criteria:

Up to 3 marks will be awarded for the general introduction to the prototype system.

For each component of functionality, up to 10 marks are awarded for:

- Clear discussion of the purpose of the functionality within the context of the overall prototype;
- Explanation of the design rationale, with reference to how this relates to the personas and scenarios;
- Clear discussion of the design principles and capabilities of users considered in the development of the interactive system prototype, showing how these have influenced the design;
- Use of screenshots to illustrate and explain the design – remember to label your figures.

Part 1.3.2: Expert Inspection Evaluation of the Prototype (17 marks)

(i) The group should undertake a Collaborative Heuristic Evaluation (CHE) of their own interactive system prototype.

The report on this evaluation should include a description of the methodology undertaken and problems detected by group members in the evaluation. The report should include the severity rating recorded by each group member for each problem detected, and the mean severity rating for each problem.

Groups may use either the Nielsen and Molich Heuristics for interactive systems or the Petrie and Power Heuristics for Interactive Web Applications.

(ii) For *one* of the four components of functionality, the group should propose a re-design. You should explain your choice of functionality, based on the number of usability problems detected, the severity of the usability problems detected or the importance of the functionality.

You should describe the usability problems found with this functionality in the original version of the prototype using screenshots for reference.

You should then present your redesign, describing (with screenshots to illustrate) how the redesign addresses these problems.

You should justify the changes you have made in terms of how they address the heuristics violated in the original design.

Marking Criteria:

- Appropriate description of the CHE method.
- Clear reporting of usability problems and severity ratings.
- Analysis and presentation of the re-design of one component of the prototype.

Part 1.4: Group Logbook (No Direct Contribution to Mark, but if the logbook is not submitted, there is a penalty of 10 marks)

Each group will maintain a logbook of activities and meetings undertaken by the group. The logbook should be shared on a platform such as Google Drive so that all members can have access to the document. The link should also be sent to the module leader: Leonardo Sandoval-Guzman (leonardo.sandoval@york.ac.uk).

A template will be provided but for each meeting the group holds (face-to-face or online), the group members should record at a minimum:

- A list of attendees of the meeting;
- An agenda for the meeting;
- Action items completed or missed from the previous meeting;
- Action items assigned to group members to be completed for the next meeting.

Group Logbooks should also contain records of who conducted what elicitation activities, who contributed to the design, who participated in the expert inspection evaluation, and who contributed to the report.

Group Logbooks should be submitted with your project report (as part of the .zip or tar.gz file submitted on behalf of the group).

Group Logbooks will not be marked, but will be used as evidence for the performance of individual group members in Part 3 of this assessment

Failure to submit the logbook will result in a 10-mark deduction for all group members.

Part 2 Group Presentation of the Prototype (10 marks)

Each group will give a 5-minute demonstration of the prototype system that they have built. The presentations will take place in a 'trade fair' environment during a practical slot in the Summer Term. The audience for the presentation will be the Lecturers and demonstrators for the module, and the members of other student groups in your practical slot.

In addition to demonstrating the functionality of the prototype system, you should describe the design and explain how it addresses the design problem presented above.

Marking Criteria

Marks will be awarded for the following:

- A clear demonstration of how users will interact with the prototype;
- A clear explanation of how the design principles taught during HCI1 have influenced the design of the prototype;
- A clear explanation of how the functionality of the system fits the needs of users.

Part 3: Peer Assessment (Potential Adjustment of Marks)

Students will submit a peer assessment for each group member. The assessment will consist of a set of Likert scales as set by the lecturers as well as an opportunity for open-ended comments regarding group member performance. This information will be submitted *in confidence* to the lecturers through an online survey mechanism that will be linked from the VLE site for the module.

Peer assessments are due on the assessment submission date.

Failure to submit valid peer assessments will result in a 10-mark deduction for the submitting student.

The peer assessment reports will be used as follows. The marking team will examine the peer assessment reports as part of their marking of the assessment. If a substantial number of members of a group report that a particular student has underperformed as a group member and not contributing in a substantial and meaningful way to the project, then the marking team will examine

the Group Logbook for evidence to support these reports. If evidence – in the form of missed action items, failure to attend meetings, low participation in activities or other supporting information – is found in the Logbook, then this will be taken into account as evidence of the case against the student concerned.

If, according to the judgment of the Lecturers, the case is unclear, then an interview will be held with the student in question by the Lecturers and one other member of staff. During that interview, the student will be questioned regarding their participation and their understanding of the contents of the project.

If it is deemed from all of this evidence that a student did not participate in the overall group project in a substantial and meaningful way, there will be a deduction to that student's overall mark on the assessment. Deductions will usually be 10%. However, a student who did not contribute, or who actively detracted from the group's performance, could – at the Lecturers' discretion –have a much larger deduction, including receiving a 100% deduction of marks for the assessment.

END OF PAPER