COMPSCI 345

Human-Computer Interaction
Assignment Two: Low-Fidelity Design
Worth 10% of your final grade
This assignment is due Monday 30 April 2018 at 4.00pm
This assignment must be done in groups of 4

Aims
The aim of this project is to give you experience with the early stages of user interface design, and user interface design within a group environment.

Background
Delivering high-quality education is a vital goal for any society that wishes to remain competitive in the global economy. Computing offers many opportunities for enhancing the traditional learning experience. One way this can happen is through computer mediation of peer group interaction and feedback in problem-based learning.

Your group has been assigned to design a problem-based learning environment that supports peer group interaction. The system will be aimed at intermediate and secondary school students (ages 11-18). English language markets will be targeted in the first instance, including public and private school systems of various countries (i.e. don't limit your thinking to the NZ domestic market or NCEA standards). Incidentally, your employer is affiliated with a large academic publisher that has a vast array of existing learning materials and capacity to source further material as needed. The assignment for your group is to design the environment that supports students in providing peer feedback to each other as they develop their individual solutions to a problem.

Assume that the system is designed to help students work fairly challenging problems for their age (i.e. to take learning further than typical currently at NZ intermediate school level, more like higher NCEA or starter University levels – high quality work and critical thinking).

The application
Students will be assigned to peer groups (assume a size of 7) and given an assignment to complete online with ongoing feedback from their peers.

Depending on the specific deployment of the system, students may be expected to complete the assignments using in-school or after-school time, or a combination. They may be working in school computer labs (or in a 'bring your own device' setting) or with their own hardware and Internet connection (or using school labs after class hours, e.g. for students who don't have the hardware/connectivity at home or are awaiting pick-up from their parent/guardian). At any rate, you will assume they have good connectivity both to your system's server and to the external Internet (e.g. would allow viewing of video, as well as video upload or live video chat). The student and their peer group members will sometimes, but not always, be working on the assignment – or at least logged into the system – concurrently (i.e. live chat will sometimes be an option, but asynchronous communication must also be supported).

Assume a minimum screen size of a Microsoft Surface (effective size 23.5cm x 13cm). For purposes of paper prototyping, you can design to (the somewhat larger) A4.

Choose **one** of the 3 following domains for your system:
- Art history
- Drama
- Physical education (the 'knowledge' aspects – you're not physically training the user with the system)

Your design should work for a wide range of materials in this domain. However, just to be concrete in your scenarios and in any specific data that your design may show, pick **one** sub-topic within your domain. For example:

- For art history: baroque ecclesiastical architecture, or harmony in Western music;
- For drama: the works of a specific 20th century playwright, or soliloquies in Shakespeare
- For physical education: strength training for contact sports, or the role of lactic acid in exercise

Those are only examples. The choice of sub-topic is yours. Whatever you choose, your design should show the presentation of one precisely-expressed and challenging problem for the students.

Don't worry about navigation aspects above the level of that problem. That is, don't present the design for opening a particular class, or choosing this problem assignment as compared to others they might have that term. Also omit authentication (login) from your screen designs – this might vary from installation to installation, and could well be integrated with a more global login to the school network or such. In the scenario write-up (see list of Deliverables below), this step can be expressed with a statement like "Mary sits down and logs into the system." Similarly, don't include a logout button (or any account or system settings). For the scenario write-up, if appropriate (such as for a scenario in a shared lab) you can add something like "Mary logs out of the system." Also don't worry about the interface by which the students were formed into their 7-student peer groups or how they were informed of the group membership; however, the interface may provide a way to direct messages to specific peer group members or to see if they're online.

Your design must support problem-based learning with peer feedback. All the students of a peer group are each simultaneously tasked to formulate their 'solution' to a problem, for which a problem statement and supporting material (e.g. videos and/or images) is provided online. The students then each construct their individual solution to the problem, including an explanation/justification of their solution. For example, a student may be asked to design (and justify) a training schedule for a specific sports team with particular requirements; or a student may be asked to construct a 'missing' soliloquy for a specific character in a Shakespearean play and then explain key elements of the soliloquy's content and structure. Assume that formulation of the solution and its accompanying explanation is simple text editing, although you may also allow that they insert images or video prepared with tools outside the scope of your design.

The area of emphasis for your design is the interface for peer interaction and feedback – focus on this in your scenarios. Assume a typical workflow is:

- Students discuss the problem a bit as a group shortly after it's assigned and then set to formulating their initial individual solutions
- Students start asking for and providing feedback to their peers
- Students make modifications to their individual solutions in light of peer feedback and possibly ask for more feedback; iterative feedback and revision continues until the assignment deadline is reached.

Key interaction challenges (requirements for your design) include providing an interface for:

- Synchronous chat or messaging; optionally you may design this to include video.
- Navigating among the solutions, the user's own and those of their 6 peer group members
- Entering feedback commentary, possibly including feedback on feedback (agreeing, disagreeing, 'up-voting' or otherwise adding another perspective)
- Reviewing feedback, including recognizing that new feedback has been added

While at this stage we're not doing electronic prototyping and should avoid pinning ourselves down to implementation-specific details, it's reasonable to assume the system is accessed through a Web browser (just to have an idea of what kinds of interaction will seem 'conventional' in the context of use).

Assignment Deliverables
Your group must produce the following deliverables:
1. Design document, including:
    a. Introduction – Clearly indicate the domain and sub-topic you have chosen. Provide a brief explanation of the approach you took to supporting peer feedback. If you feel it appropriate, cite any specific sources (outside of slides and readings for this course) that were instrumental in your thinking about

the design, particularly any website that your design may resemble closely in specific ways. This section has no upper or lower word limit – your purpose is just to orient the marker and satisfy academic integrity for acknowledgment of sources.

    b. Personas – Present **three** personas. These three personas should be written such that they all can appear together in a peer group (e.g. studying the same class at the same school, or possibly working together through some wider online learning network). Preface the personas by a brief rationale for your choice of personas and their details (100-250 words total across the three personas). In this, cite research that supports some of the decisions you made about your personas (reference list excluded from word count), but you don't need to provide exhaustive support for every detail. There's no word limit for the personas themselves, but 150-250 words each is a good target. If all three personas have some common background (e.g. going to the same school in the same country) you only need to state the common details once and can refer to the earlier persona in the other cases.

    c. Scenarios – Present **three** scenarios consistent with use of the peer interaction and feedback tools your design provides, one from the perspective of each persona. Note other members of the 7-person peer group can be mentioned even if they aren't one of the 3 personas. Aim for an average word length of 150-250 words per scenario, including any headers such as goal statement or data related to PACT analysis.

    d. Visual and Interaction Design – List **three** problems / interaction challenges that your team identified when formulating your design (these will be related to the requirements stated above, but may be more specific). For each, briefly describe the problem and how your design addresses the problem (50-150 words for each of the three entries, optionally including illustrations). Select these to highlight to the marker the most important, clever and/or distinctive elements of your design.

2. Low-Fidelity Prototype. A hand-drawn (pen and/or pencil, not coloured in) physical paper prototype that supports your scenarios. Where appropriate use 'overlay' techniques – i.e. if only a portion of the screen changes then use a smaller-than-A4 piece of paper for the changed section. Instrumental text (e.g. captions, button labels and hyperlinks) should be lettered clearly. For other content text (like the body text of a user's solution) you may choose to use squiggly lines, but consider providing enough legible and meaningful text that the prototype supports the scenarios well (e.g. that we can see who is giving peer comments, or comments on comments, and can tell in a general way what they are commenting on, if that would be helpful). Similarly for images you can use a large X or 'Image goes here' written in a box, but consider using cartoonish illustrations that might distinguish a talking head for a video chat from photo of a building.

3. Video. Not more than 3 minutes duration showing the prototype being 'used' (Wizard of Oz style). One member of your team should operate the prototype. You can have one team member playing just one user, or segment your video into multiple scenarios, perhaps with different user personas; just be sure to show off the key features and the majority, if not all, of the paper components. If your audio isn't clear consider adding subtitles. You could also use subtitles or voice-over to introduce the scenario(s). Note the video does not have to follow exactly the three scenarios in deliverable 1(c), but it can if you wish.

In Assignment Three you will be individually implementing an HTML prototype for the system. Note that you will be allowed to follow the low fidelity design your group develops for the present assignment *but you will not be obliged to do so* (i.e. you will not be marked on how closely your working prototype corresponds to your low-fidelity design).

Group Formation
A good group will have members with a range of skills; look for diversity rather than just for your friends. Groups will be registered in Canvas. Please DO NOT randomly start a new group – identify the members of your group and then register it to one of the numbered groups created by the tutor. If you do not sign yourself up to a group the tutor will assign you to a group. Likewise, if you form a group of 3 expect to have another person assigned by the tutor. There will be no groups of 2, 3, 5, etc. – do not ask (of course we may end up with one odd group but this will probably be people who have dropped out ☺).

Group Marking
Each member of the group will submit a confidential allocation of percentage of work done by all four group members. This will be submitted through a Google doc form, link to be published later. Your mark for this assignment will consist of the marker's grade modified by the average group specification of your contribution.

Submission Format
You should provide the following deliverables for this assignment:

Deliverable	Format	Submission
1	A single PDF document which contains: - The cover page, including link to YouTube video (use template file) - Introduction, Personas, Scenarios, and Visual & Interaction Design documentation	To Canvas (1 per group). Name file to indicate your group number (e.g. G12.pdf)
2	A set of hand-drawn illustrations of the interface (the 'paper prototype') with printout of cover page at front of transparent folder	To physical dropbox in Student Resource Centre – make sure cover page is visible
3	Video of the paper prototype being used	Upload to YouTube and include its link in cover page of 1 (do not revise after the submission deadline)

You should plan to spend no more than 15 hours each on this assignment.

Questions Direct questions about this assignment to Shyamli (ssin820@aucklanduni.ac.nz)

Markers will assess your deliverables as follows:

Criterion	Features	Marks
Personas	Good rationale, including some research. Each is complete, believable and memorable.	16
Scenarios	Goals, contexts and activities of personas are clear. Collectively cover key tasks.	9
Visual and Interaction Design	Identifies important challenges and describes well-reasoned and effective solutions. [Effectiveness considered in concert with paper prototype and video]	15
Design Document Presentation	Overall document reads well, is easy to understand. This includes using correct grammar and spelling.	5
Low-Fidelity Prototype *per se*	Complete for design document scenarios, well-constructed, well-drawn (by hand, but clear).	10
Video *per se*	Makes good use of time (not rushed, doesn't drag). Clear and easy to follow. Illustrates key aspects.	10
Successful Illustration of Design	Details are presented that give a strong sense of what it would be like to use the system and how the design addresses key challenges. [Holistic across the 3 deliverables]	15
Total		**80**