CITS4401/3301 Software Requirements and Design
Group Project Part 1
Requirements Semester 1 2023

Project Overview

For this project, suppose that you are part of a Software development team at a company called *Power*. You are assigned the task of developing a cybersecurity gaming and training system for the employees. The system should promote meaningful learning through a range of activities, and support assessments that are valid, educative, explicit, reliable and fair. Your group will be required to analyse requirements for the system, refine them through an interview with a stakeholder, and document the results of your analysis.

Project Rules and Deadlines
Part 1: Project Deliverables and Submission Dates

This document describes the first part of the CITS4401 group project. Part 1 (requirements) due in week 7 is worth 15% of the marks for CITS4401. Part 2 (design) due in week 11 is also worth 15%. Each group member is expected to spend around 20 hours on part 1 of the project, including background reading.

All project deliverables (questions and final report) must be submitted in LMS as PDF files by the submission deadlines.

• Submit your responses for Project Tasks 1 and 2, (see below) via LMS (one submission per group) by Saturday 01 April 2023 (week 5). Marks will be assigned for Tasks 1 and 2 will be assessed at this stage. The Unit Coordinator will provide feedback on your draft questions so you can revise them before the interview.

• Interviews with stakeholders will take place during week 6 of the semester.

• Submit your responses for Project Tasks 3 and 4 (see below) as a full project group report via LMS by 8pm on Thursday 20 April 2023 (week 7). Only one person in the group should submit the group report. Ensure that the name and student number of all group members are included in the submission. Also, ensure that your group number is also written on your report.

Late Submissions
The penalties for late submission are described in UWA's Consequences for Late Assignment Submission which is available from the LMS in the unit outline. For special arrangements for covid-19 see the unit outline. Project groups
• Project work will be done in groups of 4 or 5 students assigned by the Unit Coordinator.
• All group members are expected to contribute equal effort to the project. I recommend you maintain a simple spreadsheet, updated weekly. Each team member can summarise the tasks done that week, hours for each, and the members responsible for each task. The

workplan spreadsheet should not be submitted for assessment, but the unit coordinator may ask to review it.
• If you have concerns about your group please speak to the unit coordinator (Dr Mehwish Nasim) as soon as possible.

Academic Conduct
You are expected to have read and understood the University's guides on Academic Conduct which is available from the LMS unit outline. In accordance with this policy, you may discuss with others the general principles required to understand this project, but the work you submit must be the result of your own group's effort.

Project Help on help4401

Please take time to read this project description carefully. Post any requests for clarification to help4401 so that all students may remain equally informed. Further information may be provided as required during the project. All announcements about the project will be posted on help4401.
Read carefully through the following scenario. Some requirements are incomplete or ambiguous. Your task in this project is to analyse the given requirements carefully, identify missing ones and come up with a better subset of requirements. Your group's task as requirements engineers is to clarify some of these issues by means of a planned interview with a relevant stakeholder.

Case Study
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An organisation (*Power*) specialising in critical infrastructure is trying to safeguard their data from major cybersecurity threats. One of the issues is educating the users in the organisation including senior members which include managers, board members and directors, who are well educated but have little knowledge about cyber security. The organisation already have several mandatory training units to teach the staff cyber security-related information, however their efficacy is not established as the organisation faced some recent data breaches. A newly hired staff member who has an advanced degree in cyber security suggests using a gamified approach to train the employees in the organisation. Their suggestion is welcomed and now the organisation wants to create a game called "cyberWin" to educate their employees about the potential risks and cyber threats.

Goals:

Power's main goals are for CyberWin are:

1. Promote meaningful learning for employees through access to high-quality resources and activities.
2. Provide equal opportunities for both tech and non-tech employees to develop and demonstrate their knowledge and skills.

3. Support games and informative material that is valid, educative, explicit, reliable and fair, to maintain Power's integrity.

4. Support efficiency and ease of use for the employees using the system.

Users

The intended users of the game are employees, some teaching staff, visiting staff (such as researchers and interns working with power), and affiliated organisations.

Mandatory features

The CyberWin system must:
1. Encourage employees to become curious and motivated about cyber security, and become proactive learners.
2. Enable staff to publish and deliver course content and including import of existing teaching material on cyber security training.
3. Allow employees to view course items and course announcements.
4. Support version control and data migration for long-term management of learning assets.
5. Be user-friendly, with intuitive and engaging user interfaces
6. Reduce current administration loads for managing and reminding staff to complete their cybersecurity training.
7. The system should automatically be able to create material for games from any new learning material provided by the staff.
8. Cater for diverse learners of different backgrounds, cultures, disability, technical resources, non-native English speakers etc.
9. Enable teaching staff to create new learning content (e.g. quizzes).
10. Allow employees to play the games.
11. Encourage staff to play cybersecurity games from time to time.
12. Integrate with other systems in the organisation, for instance the HR system to find out how the employees are performing.
13. Provide analytics and reports.
14. Support scalable content hosting and learner management.
15. Support certification by rigorous assessment.
16. Support collaboration and interaction with learners and teachers.
17. Branding.
18. Accessible on devices from desktop machines to smartphones.
19. Modular: select system features and pricing eg subscription plans for features and customer support (primarily for affiliated organisations if they wish to use this system).
20. System administrators should be able to add or remove users from the system.
21. Support 3 types of games: i) quizzes, word-puzzles, and hangman.
22. Must be secure
23. Protect users from the unauthorised release of their personal information.
24. Accessible only to properly authenticated users.
25. Undergo rigorous testing before launch.

26. Employees should be able to see the leaderboard.

Optional features

1. Commercialisation options (eg charging for professional development units).

2. CyberWin will maintain information about the system and its use in order to report to Power on how well the system is meeting its goals.

Project Tasks

1. Identify the stakeholders in the proposed system. For each stakeholder, give a brief (just a sentence or two) description of what their interest in the system is. A user story would be ideal. How will this system help that stakeholder do their work better? What benefits will they gain from the system? What risks will it pose to them?

2. Select *one* type of stakeholder to interview. You will interview a representative from this stakeholder group for this project. Create a set of interview questions for them which will help you clarify details about the requirements of the CyberWin system. Important: your group should not try to cover the requirements for the whole system. You should focus on the requirements of your chosen stakeholder.
You will have 15 to 20 minutes to meet with your stakeholder representative, ask questions, and record their answers, so make sure your questions can be asked and answered in this amount of time. The time is short, so it is important that you plan your interview. For each interview question, state the question, and also write down the following:

1. What project detail or requirement does this question aim to clarify?
2. In what way is the original detail or requirement ambiguous, imprecise, contradictory, or in some other way lacking? If it is ambiguous, give examples of two different interpretations which could be placed on it.
3. What are some of the possible answers you envisage to your question? How will you use them to make the project requirements more precise?

3. Conduct your stakeholder interview and record the outcomes. You will need to record:
- Where and when the meeting was held
- Who was in attendance
- What answers were given to your questions
- Any other information you obtained

These details should be included in your final report. (There is no particular page limit, but ensure that your documentation of the meeting is clear, comprehensible, and satisfies the requirements above.)

4. Using the information obtained from the stakeholder interview, write down a subset of system requirement specifications that are relevant for your stakeholder. Your system requirement specifications should be:

- relevant
- precise
- unambiguous
- consistent
- comprehensible, and
- testable.

For each item in your specifications

1. Detail the particular specification using an appropriate template, and

2. Explain how it meets the criteria above, and (if relevant) how your questions helped you refine it. Remember that you do not need to write down requirement specifications for the entire system; just for your stakeholder.

Your interview questions should relate to some detail or user requirement you aimed to clarify, and the specifications should be derived from these. Sometimes, one question might result in several requirement specifications, or several questions might be needed to clarify one requirement specification. These specifications (and your discussion/justification of them) should be included in your final report. There is no particular page limit on this section of the report. In general, however, you should aim to have at least 4 specification requirement items, and no more than 8.

You may choose to use the Volere Snow Card template shown in lectures and available from https://www.volere.org/atomic-requirement-download/, using only the categories that are important for your requirements. But you can choose any format for recording the requirements so long as they are concise and clear.

Submit your report, containing sections for tasks 3 and 4. One person should submit for the whole group. The group report should meet the following requirements:

- It should be in PDF format and use A4 size pages. It should clearly show the name and student number of each member of the group.

- The font for body text should be between 11 and 14 points. The report should contain numbered headings, with useful heading titles. Any diagrams, charts or tables used must be legible and large enough to read when printed. All pages (except possibly the cover, if you have one) should be numbered.
- If you give scholarly references (though you are not required to), you may use any standard citation style you wish, as long as it is consistent.

Preparation for next submission: Additionally, each group member should draft a Professional Reflection on this project (up to half a page). You do NOT need to submit it now.

Once you finish the second phase of the project in May'23, update your reflection and submit it. The reflection can address any aspects of the project or group work that you found useful/surprising/difficult/etc. For some useful guides on how to write professional reflections are available from the universities of UWA, Monash or Melbourne see: https://www.uwa.edu.au/students/-/media/Project/UWA/UWA/Students/Docs/STUDYSmarter/A7-Reflective-writing.pdf https://www.monash.edu/rlo/assignment-samples/information-technology/reflective-writing-in-it https://students.unimelb.edu.au/academic-skills/explore-our-resources/developing-an-academic-writing-style/reflective-writing.

Feedback

Each group has opportunities for feedback on their project, through review of your draft interview questions and also by appointment with the Unit Coordinator any time up until the week the project is due. That is, feedback appointments are available up to the end of Friday 15 April 2023 (week 6). Do not leave everything to the final week.

Assessment
The project will be marked out of 30 using the following criteria. Details of the tasks are provided above.

Part 1 group submission:
• List of identified stakeholders: 4 marks
Criteria: Identifies main stakeholders; justifies the choice of stakeholders; assumptions described and justified; succinct.

• List of questions and justifications: 8 marks
Criteria: Identifies relevant questions for this stake-holder; justifications given for each question (see project task 3 details); assumptions described and justified; succinct and clear questions; good plan for limited interview time.

Part 2 group submission:

• Interview record: 5 marks
Criteria: Records meeting details (see project task 4 details); clear documentation of the answers given; any assumptions or unresolved issues are recorded.

• System requirement specifications and justifications: 10 marks
Criteria: Succinct and clear statement of requirements; Justified validation for each of the requirements.

• Presentation of the group report: 3 marks
Criteria: Professional presentation of the group report.