CSC 440/540 Software Engineering Team Project - Iteration 1

In order to complete the first iteration, each team must create requirements and design documents, select a set of use cases and plan development for the first iteration, and create a working system that satisfies the requirements described in the selected set of use cases.

1. Iteration Plan

The iteration plan describes a team's plan for features to design, implement, and test during a single iteration. Teams must implement the Iteration Plan as a board named Iteration 1 Plan in Trello. For a team member to receive full credit for the iteration, there must evidence in the Iteration 1 Plan board in Trello that each team member has had tasks assigned to them that were completed during the iteration. Each team member should have an approximately the same number of Trello tasks. Some tasks may be assigned to multiple team members, but these tasks should be rare. If many tasks are assigned to multiple members or some members have too few tasks, then break down the tasks into smaller subtasks and assign those to individual members until each team member has approximately the same amount of work to complete during the iteration.

The iteration plan must include the following elements, each of which must be implemented as one or more lists.

1. High level objectives.
2. List of use cases to implement or partially implement.
3. List of work items with assignments to team members and deadlines.
4. Evaluation criteria.

High level objectives for the first iteration must include delivery of a demo of a working system, in addition to implementing selected use cases. The selected use cases should be the use cases documented for the Inception phase. If the team identifies new use cases that are necessary to demo a working system at the end of iteration 1, then the team must document these use cases and submit an updated Use Case Model document.

Work item assignments must include development of requirements and design documents, as well as implementation and testing of selected use cases. It is recommended to have multiple lists for work items: todo, in-progress, and done. Each high level objective should have multiple work items associated with it. Evaluation criteria should include tests, both rails tests and manual tests. It is a good idea to assign a group member who did not implement a part of the system to test the system in their browser.

Evaluation criteria must include the percentage of tests to be passed before the system is ready to demo (a number typically close to but less than 100%). Tests of specific use cases or features may be singled out as critical to success of the iteration. Another evaluation criterion should be a favorable response to the demo by the instructor and classmates from other teams.

2. Updated Vision

Update the project vision statement using feedback from the instructor on the team's Inception Phase deliverables.

3. Requirements Document

The Requirements Document describes the requirements via use cases, including a use case model diagram, short descriptions of use cases, and a subset of those use cases (the ones to be implemented in this iteration) in fully dressed format. The document also includes analysis of requirements, including a domain model diagram and system sequence diagrams for the fully dressed use cases.

Use Case Model

The Use Case Model for this iteration documents the entire set of use cases with a use case context diagram (see the example in Figure 6.3 of the textbook), and fully dressed versions of at least **4** use cases using the template in Section 6.8 of the textbook, and brief descriptions for all of the remaining use cases.

Domain Model

Draw a domain model for the project based on the use cases and vision created during the Inception Phase.

System Sequence Diagrams

Develop system sequence diagrams (SSDs) for the relevant elements in the Domain Model, including at least one SSD for the basic flow of each use case implemented in this iteration. There must be at least one SSD for an alternate flow of one of the selected use cases.

4. Design Document

The design document describes the design of the project, explaining how the selected use cases for this iteration will be implemented. Teams must identify which classes were created or expanded for this iteration and must document those classes with text and with design class diagrams and interaction (sequence) diagrams. All classes, methods, and attributes used in this iteration must be documented in the diagrams. The text of the document must explain why classes and methods were created and these explanations must tie the classes back to the use cases they serve.

The design document must also describe database design, tying your classes to the tables implemented in the database. Include all rails commands used to create and modify database tables.

5. Presentation

Each team must present their Iteration 1 work, with a focus on requirements analysis, describing which use cases were chosen for this iteration and why. The presentation should also describe how the domain model was created and show system sequence diagrams for the basic flows of each implemented use case. (This will be scheduled slightly after the due date and does not have to follow the written presentation slide-for-slide.)

Do not read the components of the diagrams to the class. The audience can read the diagrams on the slides. The purpose of the presentation is explain the analysis and design decisions that went into the UML diagrams. If team members disagreed on a decision on how to design the application, note that in your presentation and explain both sides of the disagreement and how the team can to a final decision. The presentation must include a demo of the application's functionality.

6. Demo Requirements

The demo must be given using a version of the application deployed to Heroku and include all use cases implemented during iteration 1. The demo must include the ability to ask and answer a question, but does not need to include user accounts in any way (so there is no need for session management or login/logout functionality) or the reputation system (so there is no need to be able to vote on questions or answers.)

Deliverables

By EOD on the due date in Blackboard, the team must have completed the following deliverables. All document deliverables must be stored under the `deliverables/iteration1` directory in the team git repository. Other deliverables will be stored in Trello. All source code for this submission must be tagged with the name "Iteration1Final". The Blackboard submission will be the URL of the git repository and the URL of the Iteration 1 application running on Heroku.

1. Create Iteration 1 Plan as a Trello board. All work items should be marked as complete or as deferred to the next iteration.
2. Upload the Vision as a PDF document to the team git repository under a path named `deliverables/iteration1`.
3. Upload Requirements document as a PDF file to the team git repository under a path named `deliverables/iteration1`. This document must include:
    1. Table of contents.
    2. Use Case model diagram with at least six use cases.
    3. At least four fully dressed use cases that were implemented in this iteration.
    4. Domain model.
    5. System sequence diagrams for basic flows of all use cases and for alternate flows that are sufficiently complex to benefit from a SSD.

4. Upload Design document as a PDF document to the team git repository under the same path `deliverables/iteration1`. This document must include:
    1. Table of contents.
    2. Design class diagram with all classes and associations.
    3. Design level sequence diagrams.
    4. Discussion of design decisions.
    5. Discussion of database design.
5. Prepare a presentation on the progress made in analysis, design, and implementation of the system during iteration 1. [The verbal presentation may be a more informal version of the presentation slides.]
6. Prepare a demo of the working system to present in class, which must satisfy the requirements above.
7. The current, working source code (including the deployment script) for the system must be available in the repository and tagged with the name "Iteration1Final".
8. Each team member must fill out the peer evaluation, which will be used in computing the individual work multiplier for the project grade. (To be done via a separate Blackboard assignment/drop box, 10% of the grade for this assignment).