COS420 – Introduction to Software Engineering – Project Description – Spring 2020

Project Overview:

For the project, the students must develop a mobile (Android) or a web application. The high-level topics are given by the instructor; however, the students need to define the detail of the topic by themselves. The students need to identify 4 – 6 clients for their app from the university for eliciting and validating the requirements (i.e. focus group) and for the usability study and acceptance testing.

The topics of the applications are:

- Health monitoring applications – Fitness monitoring applications; Sleep assessment applications; Diet and health tracker.
- Shopping applications – Sell stuff online; Shop Smarter; Home Remodeling.
- Education applications – Teaching computer science/code to girls; Kid's learning platforms.
- Financial application – Managing banking accounts and credits; Managing spending.
- Social networking – Photo/video sharing apps; Dating application; University meetups or clubs.
- Gaming applications – Strategy games; Board or card games; Games for kids under 5 or 6-8.

The teams should have **five to six** students. For the project, each team needs to identify the topic and the category of the application, writes a user story about their application and provide a comparison between their application and the existing ones. Next, each team will gather requirements including necessary security and privacy requirements, design the software, use architect and design patterns to satisfy those requirements, implement a secure application and thoroughly validate that the application through extensive testing. Each team has to follow software project management guidelines and must have a thorough configuration management plan.

Initial group selection will be done by the instructor. To ensure more balanced groups, the instructor will pick the group members based on the questionnaires given on the first day of the class and based on the stated preference of the students.

After the initial selection, the students will have 2 full days to come up with arguments as to why they would want to be in another group. After the two days grace period, the groups will be counted as final.

Note that, to have diverse topics, the teams cannot have similar topics for their projects in the course. Each topic will be assigned to the teams based on first come first served.

Students need to check the syllabus for the potential presentation dates and pick the two preferred dates. The dates will be assigned based on first come, first served.

Students need to submit their group's name, two preferred topics and two preferred presentation dates via email to sepideh.ghanavati@maine.edu by January 26th, 2020, 6:00 PM.

The topic and the category of the application shall be approved by the instructor before the project is started.

Total mark for the project is calculated out of 100. However, it is worth 35% of the total final mark.

- Deliverable 0 – 2.5%
- Deliverable 1 – 20%
- Deliverable 2 – 25%
- Deliverable 3 – 25%

- Deliverable 4 – 15%
- Proposal Presentation – 2.5%
- Final Presentation – 10%

The instructor periodically checks the GitHub repository and tracks each student's participation/ contribution. Note that the GitHub shows the contributors, the distribution and the percentage of the contributions. Each student will also be marked individually based on their contribution on the GitHub. If the instructor decides that a student's participation in any of the deliverables is not satisfactory, the student will lose mark.

General Guideline for All Deliverables:

- All documents should be uploaded and updated on GitHub by the person who either created the document or last updated the document.
- The documents should be submitted in Word or PDF format.
- Only Blackboard submissions are accepted. Submission via email, in person or any other form will be marked as 0.
- The file name should have the following format: GroupName_Deliverable_i_ [Name of the Document]. (i = 0..4). **If the name does not follow this format, the team will lose 50% of the total mark of the deliverable.**

Required Artifacts for Each Deliverable:

Deliverable 0 – Due date: February 4th, 2020, 11:59PM Eastern Time. (2.5%)

- Project description document (which includes Group Name, Team Members, App Name, App description and general overview of similar apps) – Two to Four Pages.
- User story document – Two Pages.
- Set up a GitHub repository (Configuration Management Repository) and invite Dr. Ghanavati and Ms. Sanonda Gupta as a contributor.

Deliverable 1 – Due date: February 25th, 2020, 11:59PM Eastern Time. (20%)

- Sprint 1 review – Software and Documents
- Daily Scrum – The progress should be reported on GitHub and ZenHub. *Check the requirements for this on "Detail of Project Document".*
- Update Project Description and User Story documents.
- Create Product Backlog and Sprint Backlog documents.
- Create the Team Member Report document.
- Set up Kanban board on ZenHub and invite Dr. Ghanavati and Ms. Sanonda Gupta as a contributor to it.
- Create the Software Requirements Specification (SRS) document.
- Create the Use Case Models and Descriptions document.
- Create Sprint Review document.
- Create Peer-Review Report document.
- Start the software development and push to GitHub as you progress.

Deliverable 2 – Due date: March 15th, 2020, 11:59PM Eastern Time. (25%)

- Sprint 2 and 3 reviews – Software and Documents

- Daily Scrum – The progress should be reported on GitHub and ZenHub. *Check the requirements for this on "Detail of Project Document".*
- Update Project Description and User Story documents (if required).
- Update Product Backlog and Sprint Backlog documents.
- Update the Team Member Report document.
- Update Kanban board on Zenhub.
- Update SRS document.
- Update Use Case Models and Descriptions document with potential new use cases.
- Update Peer-Review Report document.
- Perform and create Focus Group document. *Follow the guidelines for focus group from "Detail of Project Document".*
- Create Sequence Diagram document.
- Create the Domain Model document.
- Create Sprint Review document for sprint 2 and 3.
- Update GitHub and push software development to GitHub as you progress.
- A new version of the application should be available on GitHub. The software should include all the dependencies and should be downloadable including the jar file. It also needs to include README file.

Deliverable 3 – Due date: April 10th, 2020, 11:59PM Eastern Time. (25%)

- Sprint 4 and 5 reviews – Software and Documents
- Daily Scrum – The progress should be reported on GitHub and ZenHub. *Check the requirements for this on "Detail of Project Document".*
- Update Product Backlog and Sprint Backlog documents.
- Update the Team Member Report document.
- Update Kanban board on Zenhub.
- Update SRS document.
- Update Use Case Models and Descriptions document with potential new use cases.
- Update Sequence Diagram document.
- Update the Domain Model document.
- Update the Architecture Design document with its description.
- Update Peer-Review Report document.
- Create the Architecture Design document with its description.
- Create the Detailed Design document, with design patterns and your own models.
- Create the Configuration Management Plan document.
- Create Sprint Review document for sprint 4 and 5.
- Update GitHub and push software development to GitHub as you progress.
- A new version of the application should be available on GitHub. The software should include all the dependencies and should be downloadable including the jar file. It also needs to include README file.

Deliverable 4 – Due date: May 1st, 2020, 11:59PM Eastern Time. (15%)

- Sprint 6 review – Software and Documents
- Daily Scrum – The progress should be reported on GitHub and ZenHub. *Check the requirements for this on "Detail of Project Document".*
- Finalize Product Backlog and Sprint Backlog documents.

- Finalize the Team Member Report document.
- Finalize Kanban board on Zenhub.
- Finalize SRS document.
- Finalize Use Case Models and Descriptions document.
- Finalize Sequence Diagram document.
- Finalize the Domain Model document.
- Finalize the Architecture Design document.
- Finalize the Detailed Design document, with design patterns and your own models.
- Finalize the Configuration Management Plan document.
- Complete Test Plan document: Unit testing (screenshots), use case testing, acceptance testing.
- Perform Usability Study and create relevant documents for it. *Follow the guidelines for the usability study from "Detail of Project Document".*
- Create a document with remaining tasks and the future implementation plan.
- Complete Peer-Review Report document.
- The final version of the application and its test cases should be available on GitHub. The software should include all the dependencies and should be downloadable including the jar file. It also needs to include README file.

Deliverables – Detail of each of the deliverable's artifacts is given in *"Detail of Project Document".*

Presentations – Refer to syllabus for the dates and *"Presentation Details Document"* for details.