COS420 – Introduction to Software Engineering – Project Description – Spring 2019

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; Meditation and yoga.
- Education applications – Language Learning; Teaching math to elementary schools; Applications similar to blackboard; Learn to code for kids.
- Financial application – Managing banking accounts and credits; Online banking applications.
- 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; Simulations; Trivia, etc.

The teams should have either four or five students. For the project, each team needs to identify the topic and the category of the application, writes a user story about their app and provides a comparison between their app 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 the 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.

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.

Each team will deliver the application in iterations throughout the semester. Several deliverables are to be submitted at checkpoints throughout the term as described below.

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 40% 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%

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

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.

Deliverable 0 – Due date: February 6th, 2019, 11:55 PM 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.
- 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_0_[Name of the Document]. **If the name does not follow this format, the team will lose 50% of the total mark of the deliverable.**

Deliverable 1 – Due date: February 24th, 2019, 11:55 PM 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 Description document.
- Create Sprint Review document.
- Set up a GitHub repository (Configuration Management Repository) and invite Dr. Ghanavati and Ms. Sanonda Gupta as a contributor.
- Start the software development and push to GitHub as you progress.
- All document 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_1_[Name of the Document]. **If the name does not follow this format, the team will lose 50% of the total mark of the deliverable.**

Deliverable 2 – Due date: March 17th, 2019, 11:55 PM 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 <u>SRS</u> document.
- Update <u>Use Case Models and Descriptions</u> document with potential new use cases.
- Perform and create <u>Focus Group</u> document. *Follow the guidelines for focus group from "Detail of Project Document".*
- Create <u>Sequence Diagram</u> document.
- Create the <u>Domain Model</u> document.
- Create the <u>Architecture Design</u> document with its description.
- Create <u>Sprint Review</u> 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.
- 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_2_[Name of the Document]. **If the name does not follow this format, the team will lose 50% of the total mark of the deliverable.**

Deliverable 3 – Due date: April 12th, 2019, 11:55 PM 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 <u>Product Backlog</u> and <u>Sprint Backlog</u> documents.
- Update the <u>Team Member Report</u> document.
- Update Kanban board on Zenhub.
- Update <u>SRS</u> document.
- Update <u>Use Case Models and Descriptions</u> document with potential new use cases.
- Update <u>Sequence Diagram</u> document.
- Update the <u>Domain Model</u> document.
- Update the <u>Architecture Design</u> document with its description.
- Create the <u>Detailed Design</u> document, with <u>design patterns</u> and your own models.
- Create the <u>Configuration Management Plan</u> document.
- Create <u>Test Plan</u> document. The document will be used as a placeholder for deliverable 4.
- Create <u>Sprint Review</u> 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.
- 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_3_[Name of the Document]. **If the name does not follow this format, the team will lose 50% of the total mark of the deliverable.**

Deliverable 4 – Due date: May 5th, 2019, 11:55 PM 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.
- The final version of the application and its test cases should be available on GitHub and should be configurable.
- 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_4_[Name of the Document]. **If the name does not follow this format, you will lose 50% of the total mark of the deliverable.**

Presentations – Refer to the syllabus and presentation detail document (12.5%)