

SER 216 Software Enterprise II - Course Project

Software Maintenance, Testing & Quality

Instructions:

The goal of this project is to provide an opportunity for you will learn more about Software Testing (i.e. various tools, creating software test plan, performing software testing) and performing Software Maintenance activities of the software development lifecycle. You will work in assigned groups of 2 to 4 students.

Your project submissions should be made via Blackboard by the specified deadline. You will finish this project maintenance effort by completing a series of different task assignments. There is a deliverable you will submit at the end of each task assignment. Each team will be provided one existing software product (an open-source product, a research software tool, a software game, etc.). Your team will utilize that software product for each of the weekly Software Testing and Maintenance tasks. The individual team task assignments are:

1. Setup and execute the software product
 - a. Make contact with your team members
 - b. Download source code provided on Blackboard, create an Eclipse project and build it
 - c. Understand how the software works
 - d. Use the software as an end-user

Deliverables: none

Due Date: April 2, 2016 (11:59pm)

2. Software Design: Understand the code
 - a. Analyze the design and the code
 - b. Create use case diagram and class diagram artifacts for the existing source code. Capture all classes in the code base. Create and Activity diagram and State chart where needed to model dynamic behavior of the system. Use an UML tool of your choice to create these diagrams.

Deliverables: UML Diagrams as picture files (group submission via Blackboard).

Due Date: April 9, 2016 (11:59pm)

3. Software Testing Tools Report

A consolidated list of open source software testing tools is available at:

<http://www.opensourcetesting.org/>

Each team is required to survey available tools and select **TWO** testing tools (not used previously in our class) from this list provided, each from a different category of tools (such as Unit Testing, Functional Testing, Defect tracking, Performance Testing, etc.). A tool not listed within the above web site may also be selected upon approval from the instructor.

Each team will provide a written report with description of the 2 chosen tools via Blackboard. For each tool, you must download the tool and learn to use it. Your written reports must address the topical aspects represented by the questions below.

- Who (company or individual) developed the tool? What is the cost to the tool user?
How do you acquire it?
- What testing purpose does the tool serve (i.e. what problem does it attempt to solve?, how does it improve productivity?)?
- What programming language(s) does the tool support, if any?
- In what phase of software testing is the tool useful?
- What do you need to do in order to use the tool?
 - How do you install it?
 - How do you configure it?
 - How do you use it?
- What are the strengths of the tool?

Deliverables: UML Diagrams as picture files (via Blackboard)

Due Date: April 16, 2016 (11:59pm)

4. Create a Software Test Plan

Create a Software Test Plan that includes a detailed description of the testing activities (e.g. individual test cases), a description of the coverage of the testing effort, etc. A Test Plan template will be provided.

Deliverables: Test Plan document (group submission via Blackboard).

Due Date: April 23, 2016 (11:59pm)

5. Produce a Test Plan Results Report (based on your testing activities)

Perform testing based on your test plan. Organize and present a list of bugs you found as well as possible product enhancements in a test plan report. A Test Plan report template will be provided.

Deliverables: Test Plan document (group submission via Blackboard).

Due Date: April 30, 2016 (11:59pm)

6. Summary Report (after implementation of bug fixes and enhancements)

Implement the prioritized bug fixes and enhancements that you identified in the previous step and regression test the software thoroughly.

Deliverables:

- Compressed folder that contains the complete source code
- Executable jar file
- Summary Report that addresses the following:
 - Description of the goals of the testing effort
 - What are the results of the testing? What coverage did you achieve?
 - What did you discover?
 - Summary of bug fixes and enhancements (i.e. fixed/not fixed status, rationale if bugs/enhancements not fixed)
 - How would you improve your team process in the future?

Deliverables: Summary Report document (group submission via Blackboard).

Due Date: May 3, 2016 (11:59pm)

7. Peer Review Submission (individual submissions via Blackboard).

Using the provided template, each team member will individually assess their own project participation/contribution as well as other team members. Each team member will individually submit via Blackboard.

Deliverables: Summary Report document (via Blackboard).

Due Date: May 3, 2016 (11:59pm)

Grading Rubric:

1. Project Setup and Familiarization	0 points
2. Deliverable – Software Design (UML Diagrams)	40 points
3. Deliverable – Software Testing Tool Reports (2)	80 points
4. Deliverable - Software Test Plan	70 points
5. Deliverable – Test Plan Results Report	40 points
6. Deliverable - Implementation of Changes	40 points
Deliverable - Summary Report	40 points
7. Individual Contribution Report and Peer Review	40 points

Total: 350 points

