

Group Software Research & Development Assignment

Introduction

In this assignment you are required to break into groups of 3 and form a software development team (with discussion from your lab lecturer groups of 2 or 4 may be allowed in certain circumstances).

Your team has been tasked with solving a software problem which is defined in the **problem statement** section below. The assignment has been designed to ensure full coverage of all content delivered within the module, as such, to be successful you will need to be familiar with all lecture and lab material delivered to-date.

This assignment is worth **12% of your overall grade**. Keep in mind that successful completion of this assignment will mean you are very well prepared for your exam paper in January. Please familiarise yourself with the marking scheme at the end of this document to understand what is required as assignment deliverables.

Be sure to delegate tasks to team member. Clever allocation of tasks versus team resources will significantly lessen the work load on each person. Also, you are required to use GIT to manage your project between the team members. All projects should be hosted on **GitHub**.

Once you have completed Lab 5, you and your team may use all lab time for the remainder of the semester to completing this work.

Problem statement

You are required to develop a C++ Multiple Choice Quiz application to aid students taking the module “Software Design & Quality” study for their exams. Users will be presented with a randomly chosen set of 10 questions from a question bank and be presented with a choice of solutions. The user must then chose a correct answer and move to the next question. The application will generate a report of how well the student did after the quiz has completed. The student’s result is saved to their profile. The application can manage many student profiles and can generate an overall class report. The quiz may be administrated by an admin user. An admin user has full access to all student’s attempts, but a student user can only see their own attempts as such Student’s must login to their profile before starting the quiz. Students are allowed have multiple attempts which are all persistently saved against their individual profile. Questions and solutions are saved in a simple text file which is read by the quiz application.

Submission Deadline

Each Team must submit their assignment work by Friday 18th of December by 5pm to the submission link on Moodle (Week 13). Hardcopies are **NOT** required.

Submission Details

- SRS Document with ATP
- Analysis Document
- Design Document
- Working C++ Implementation
- Gtest Test Harness Design Document
- Include a .txt file with a link to the GitHub account hosting the project
- Individual Statement of Team participation*

Zip these and upload via moodle. **ALL** team members must upload the team's solution to their moodle accounts

* Each team member must provide a statement about how they contributed to the team. What activities they did and what work they individually delivered.

Marking Scheme

Description	Marks /100
General Documentation (10 marks)	
Formatting/Document Structure	6
Sentence structure	2
Punctuation	2
SRS Document (10 marks)	
Requirements Analysis (Requirement Quality Goals met)	5
Acceptance Testing Plan (ATP)/Blackbox Testing	5
Analysis Document (20 marks)	
High-level Use Case Analysis	5
High-level Sequence Diagram	5
High-level Activity Diagram	5
High-level State Diagrams	5
Design Document (20 marks)	
Fully Dressed Use Case Analysis	5
Detailed Sequence Diagrams	5
Consideration of the Open Closed Principle etc. (Think Abstraction!)	5
Final Refined Class Diagram	5
Implementation (20 marks)	
C++ Coding (Correct implementation of associations etc. see Moodle wk 5)	10
Adherence to Class Diagram	5
Coding Documentation (Doxygen)	5
White Box Testing Design (10 marks)	
Branch/Path Coverage Analysis for major "Units"	5
"Google-Test" Test harness designed and defined	5
Evidence of Teamwork/use of GIT (10 marks)	10