

CP317B Project Requirements 2024 Fall

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Introduction

The project is a group of three to four students work. The purpose of this project is to provide an opportunity for students experience what software engineering is, and to understand file input and output from software perspective. The evaluation of the project consists of two portions such that project presentation and project report. The presentation section measures your verbal communication skills and the understanding of software engineering, and the report section measures your writing communication skills and the understanding of software design document.

Project requirements

1. Design and develop a software application to read two text files and format the data output to a new file (Note: the format of input file and output file is described in Appendix A). The design should contain both architecture design and detailed design.
2. The software must use at least two of the following Object-Oriented programming features.
(1) Inheritance, (2) Polymorphism, (3) Encapsulation, (4) Abstraction
3. The project requires to use one of **compile languages** such as C++, C#, and Java (**not scripting languages like Python, JavaScript, PHP etc.**). Please refer to Appendix B for APIs of C++ and Java
4. The software must be reliable. Your group should apply “offensive programming” technique which we will learn in this course.
5. The output file must be sorted by using the student ID.
6. The operating system is your choice, it could be Windows OS, MAC, or Linux.
7. Re-engineering is permitted. However, you must understand the implementation in detail, and online AI tools such as **ChatGPT is prohibited**.
8. If your team selects re-engineering, you must tell the audiences about the source in the presentation and must cite the source in your project report.

Evaluation schemes

The project will be evaluated in two sections. One is project presentation, and the other is project report. The evaluation rubrics are in appendixes of CP317B course syllabus that has been uploaded in MyLearningSpace.

1. Project Presentation
You will have 6 minutes to present your group project (3 minutes theory and 3 minutes demonstration). The presentation material such as PowerPoint slides must be delivered into myls.
2. Project Report (Software Design Document (SDD))

Write a project report (SDD) by end of this semester. The report should be like a software design document which should contain both architecture design and detailed design.

Notes

1. **I suggest that you start with writing the software design document (SDD) in which you design how the software work. After you have a draft of the SDD, you start the implementation.**
2. It is better to have regular meetings for the group work and to discuss the progresses and problems. For example, weekly meetings.
3. It is better to divide the group project into partitions and certain individuals are responsible for certain parts. For example, two people focus on presentation and other two focus on project report.

Appendix A

The formats of the two input files NameFile.txt and CourseFile.txt are as follows.

NameFile.txt

Student ID	Student Name
123456789	John Hay
223456789	Mary Smith
....

CourseFile.txt

Student ID	Course Code	Test 1	Test 2	Test 3	Final exam
423456789	CP317	75.3	80.4	60.3	70.5
223456789	CP414	80.2	90.5	50.4	75.6
123456789	CP460	60.5	70.6	80.6	80.6
....				

Note 1: the student ID, student name, course code, and the grades will be separated with comma in the input files. The two input files will be uploaded in myls around week 7.

Note 2: the student ID and students' name are unique. However, one student may take multiple courses.

The format of the output file is as follows.

Student ID	Student Name	Course Code	Final grade (test 1,2,3-3x20%, final exam 40%)
123456789	John Hay	CP460	66.7
223456789	Mary Smith	CP414	74.8
....	

Note 3: each test weighs 20% and the final exam weighs 40%. The final grade is calculated with the following: (test,1,2,3) 3x20% + (final exam) 40% = 100%.

Note 4: all the grades should be decimal number with one digital after the dot.

Appendix B – reference resources

1. C++ APIs

<https://cplusplus.com/doc/tutorial/files/>

2. Java APIs

<https://www.javatpoint.com/java-io>