IICS

FACULTY OF INFORMATICS

University of Wollongong

CSCI124

July Session 2014

Assignment 1

*(Individual Work – 6% of subject marks)*

**Objective:**

In this assignment, you will learn to write programs in multiple source files, using file processing, and data structures to process a number of records.

**Remember that:**

**1. All programs should be able to run on the lab’s computers.**

**2. You must put the following information on the header of each text and source file you will be submitting in this assignment:**

**Student’s full name:**

**Student’s ID:**

**Modification Date:**

**Purpose of this file (or program):**

**3. Assignments that are not able to be compiled will result in zero mark given to the assignment.**

**4. You must only use the C++ features that have already been covered in the lectures**

Problem Specification:

A small college in Subang Jaya maintains text files to keep the records of the student grades according to the subject codes. The files are:

1. Subjects.txt
   * This file contains all the subject codes and title offered for a particular semester. The sample file content may be as follows. The first line indicates the number of records available in the file.

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CSCI114 Procedural Programming

CSCI103 Problem Solving and Algorithm

CSCI124 Applied Programming

CSCI110 Introduction to W3 Technologies

CSCI204 Object and Generic Programming

1. For each subject in Subjects.txt, there is a file that contains the details of the students taking the subject. The details include Student ID, Student name, and Total Marks. The sample file content for CSCI124.txt is as follows. The first line also indicates the number of records available in the file.

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J14011123

Mun Hao Run

87.5

J14036721

Tee Fu Hao

74.9

J13022703

Lee Zhen Zhi

82.0

J13026354

Tan Shou Heng

59.3

Your task is to write a menu driven C++ application that allows the user to perform the following operations on the data read from the files above:

1. Add a new student record to a specified subject code.
2. Delete a student record from a specified subject code.
3. Modify the mark for a specified student ID for a specified subject code.
4. Generate a grade report for a specified subject code. A sample grade report is as follows:

Subject Code: CSCI124

Subject Title: Applied Programming

Student ID Student Name Mark Grade

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J14011123 Mun Hao Run 87.5 HD

J14036721 Tee Fu Hao 74.9 D

J13022703 Lee Zhen Zhi 70.0 C

J13026354 Tan Shou Heng 59.3 P

Think of a suitable data structure to store all the records. All records should be read from the files and stored in the data structure when your program starts. All operations should be performed only on this data structure throughout the execution of your program. You should also provide an option to terminate from the program. Before your program terminates, update all related files used in the program. All options should be written in individual functions and stored in suitable interface and implementation files. Provide a driver program in a file named main.cpp.

**Assessment Criteria**

|  |  |
| --- | --- |
| **Assessment Criteria** | **Marks Allocated** |
| Correctness | 1 |
| Coding | 3 |
| Readability and Documentation | 1 |
| Output (clear and well formatted) | 1 |
|  |  |
| **Total** | **6** |

Submission:

You are to submit the softcopy of the project containing all files (.cpp, .h, and sample text files used) to Moodle.

The completed Assignment must be submitted latest by **Tuesday, 9th September 2014 , at 5 pm**.

Late submissions will be marked with a 25% deduction for each day.

Submissions more than three days late will not be marked, unless an extension has been granted.