**COMP 1603 Computer Programming III**

**2018/2019 Semester 2**

**Assignment 1**

**Date Due: Wed. 20th February, 2019 at 10:00 pm**

**Submission:** Upload a zip file containing your **source code, input file and output file** to My Elearning by the deadline. Name your source file your first name initial + last name e.g. MSlater for Marcus Slater. Place your name and ID at the top of your source code file. In the documentation at the top of your source code, indicate what percentage of your program worked. E.g. “My program worked 95%, but could not process two lines of data properly”.

**Problem**

You are required to process some input data related to students and their scores in Mathematics and English.

The input, via a text file **“input.txt”**, consists of an ID number (integer) followed by two scores (integer) which are separated by whitespace. The first score represents the candidate’s score in Mathematics and the other represents the score in English. Data is terminated by a line containing 0 only. Output is to an output file **“output.txt”**.

Sample Data

3000 54 90

2500 80 92

3200 43 23

0

**You MUST use at least 10 lines of input data in your file for testing. No data validation is necessary.**

Write a program, ***COMP1603Asg1.cpp***, to read the input data and generate the following output which is printed to the screen:

1. The number of candidates

2. The highest mark obtained in each subject

3. The average mark in each subject

4. For each student, print student ID together with the marks obtained in both subjects as well as the grade awarded. The grading scheme follows:

A (90-100), B (80-89), C (60-79), D (50-59), F (< 50)

**Note that after the grades are determined, they are to be stored in memory using pointers and then printed by accessing the memory locations referenced by the grade pointers. Use a function to determine each grade.**

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**Your program should use only variables that refer to memory addresses, except those which refer to input and output.** This means that you must create all the memory locations required by the program, except those directly related to reading from and writing to files. This requirement was explained in the lectures.  **[PTO]**

**Mark Scheme**

Compiles without errors 1

The number of candidates 1

The highest mark obtained in each subject 2+2=4

The average mark in each subject 2+2=4

For each student, print student ID together with the marks obtained in both subjects as well

as the grade awarded **as specified**. 5

Worked+followed all instructions and seamless execution 5

**TOTAL 20 marks**

Notes-

If program did not compile but some reasonable logic is seen, a maximum of **6 marks** overall can be awarded.

Your program must not prompt for any data. The program must execute seamlessly.