**Sultan Qaboos University**

**College of Science - Department of Computer Science**

**COMP2101: Introduction to Computer Science – Spring 2013**

**Assignment 4**

**Due date: 4/5/2013, 23:55 pm (through Moodle)**

**Name: ………………………………………..…………….. ID:………………………………. Section:………….**

**DELIVERABLE**:

1. Submitacompressedfoldercontaining2filesyourworddocumentfileassolutiontopart1 andtheC++programfile(.cpp)asyoursolutiontopart2ofthisassignmentquestion.Name yourfolder withyourIDnumber.
2. NameyourdocumentsasHW4\_xxxxx(forpart1)andHW4\_xxxxx.cpp(forpart2),whereyour ownstudentIDshouldreplacethestring "xxxxx".Forexamplea studentwithID**38000**shouldsubmit One compressed file called **38000**containingtwo filescalledone called **HW4\_38000.doc**and the other called **HW4\_38000.cpp**.
3. Sendyourcompressedfile named withyourIDthrough moodle**beforetheduedate**.

**Gradingtable:**

|  |  |
| --- | --- |
| **Part 1**: | **/5** |
| **Part2** | **/15** |
| Comments &style | /1 |
| Fileand variable declarations | /1 |
| Filehandling(open,input, errorchecking) | /2 |
| Screen output | /2 |
| Repetitioncontrolstructures | /2 |
| Selection controlstructures | /2 |
| Arrayhandling(declaration, accessing, etc) | /3 |
| Correctcomputations | /2 |
| **Total** | **/20** |

**Part 1:**

Submit a word document containing algorithm in pseudocode to solve the problem described in Part2. Nameyour word document file as described above.

**Part 2:**

**Problem Definition**

Letter grades are sometimes assigned to numeric scores by using a scheme called “grading on the curve”. In this scheme a letter is assigned to a numeric score according to the following table:

**Thenumeric score(x) Lettergrade**

F

D

C

B

A

Where *m* is the mean and *σ*(sigma) is the standard deviation.

The standard deviation is calculated by the given formulae:

where, *xi*:individual grade,

m: mean of all grades,

and n: number of all grades.

**Requirements**

Write aC++ program that reads studentsID, name, and marks from an input file (file name should be supplied by the user) and stores the mintoaonedimensionalarray.Your program should display on the screen the number of students in each letter grade.Its houldalsodisplaythemeanandthe standarddeviationofthescores.[*Note:the maximum number of scores is*100]. Figure1 and Figure2 below show a sampleof theinputfiles (marks.txt) and related output display.

Figure2: Sample output display

Figure1: Sample input file "marks.txt"

91543 Ahmed 67

92654 Salim 75

93283Ali84

94671Muna94

95826Amjad68

96183Salma85

97628Dina49

98232Khalid55

98654 Said74

96163Nasser73

Please enter file name containing students marks: marks.txt

The distribution of the marks are:

ID Name Grade Letter Grade

=== ===== ===== =========

91543 Ahmed 67 ……

……… ……… …. …...

A: 1

B: 2

C: 5

D: 1

F: 1

Total number of marks is 10

Average of all marks is 72.4

Standard deviation is 12.92

Press any key to continue**\_**