**Bucks County Community College**

**Department of Science, Technology, Engineering & Mathematics (STEM)**

**CISC122 Computer Science II**

LAB05, Student Test Grades with Arrays from Student Class Points: 25

**OBJECTIVE**

* To demonstrate creating a Student class and creating and using a Student object
* To demonstrate creating arrays and initializing the array from a data file
* To demonstrate various ways to utilize arrays

**REQUIRED**

A report of your work, in a flat pocket folder, in the following order:

1. Grade form **Lab05GradeForm.doc**

2. This program description **Lab05Description.doc**

3. The source listing of the Student class **Student.java**

4. Problem Analysis **Lab05ProblemAnalysis.doc**

5. The listing of the source program **Lab05.java**

6. Listing of the input file **Lab05StudentFile.txt**

7. Listing of the expected results (already created) **Lab05ExpectedResults.xlsx**

8. Listing of the output file **Lab05Report.txt**

**SPECIFICATIONS**

Write a class for Student grade data

and write a program to create an object from this class and use it to produce a report

Write a class for Student grade data:

1. The class will have the following fields:

Student id

An array of ten test grades

2. Create void “set” methods to store values in Student id and the array

3. Create a value-returning “get” method to retrieve values from the fields, one for each field

4. Create a constructor with arguments for Student id and the array (use set methods)

5. Create a noArg constructor (use set methods, consider what the default values should be)

6. Create a method to calculate the total of test grades

7. Create a method to calculate the adjusted total, dropping the lowest test score and replace it with the highest test score (highest test counts twice, drop lowest test) see Lab05Logic

8. Create a method to calculate the average of the ten test grades based upon the adjusted total and round to the nearest integer

Create Lab05

9. Input data from the Lab05StudentFile.txt

10. Create an object from the Student class and use the constructor to place values into the object

11. Use the class method to calculate the total

12. Use the class method to calculate the adjusted total

13. Use the class method to calculate the average

14. Use data from the object and write the report to an output file

15. Accumulate and print the number of students

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**INPUT**

**File:** Student file Lab05StudentFile.txt

**Record**: Student record

**Field Data Type**

Student id# 4 numbers (ex. 1234)

Ten test scores integers (valid numbers are 0 -100)

**OUTPUT**

**File:** Grade Report file Lab05Report.txt

**Record**:

Student Grade Report

ID# /-----------------------TEST Scores--------------------------/ Total Adj Total Avg

xxxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxxx xxxx xxx

xxxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxxx xxxx xxx

xxxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxxx xxxx xxx

Total students = xx