**Bucks County Community College**

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

**CISC122 Computer Science II**

LAB06, Student Test Grades: An Array of Student Class objects Points: 25

**OBJECTIVE**

* To demonstrate creating an array of Student objects
* To demonstrate how to subscript an array of objects
* To demonstrate using a file look-up

**REQUIRED**

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

1. Grade form **Lab06GradeForm.doc**

2. This program description **Lab06Description.doc**

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

4. Problem Analysis **Lab06ProblemAnalysis.doc**

5. The listing of the source program **Lab06.java**

6. Listing of the input file **Lab06StudentFile.txt**

7. Listing of the student name file **Lab06Names.txt**

8. Listing of the expected results (already created) **Lab06ExpectedResults.xlsx**

9. Listing of the output file **Lab06Report.txt**

**SPECIFICATIONS**

Start with Lab05 and rename it as Lab06

**Create an array of Student class objects**

1. Instead of creating one instance of the Student class, create an array of Student class objects. Create the array as you would for any data type, but use Student objects, 16 elements

EXAMPLE: Student [ ] arrayStudent = new Student [16];

2. Within the loop, input data from the data file into variables

3. Create a single instance of the Student class, using the constructor

4. Place the single instance of the Student class into the array of Student objects

This completes loading the array with Student objects

**Retrieve data from the array of objects (this is to prepare for Labs 07 and 08)**

5. Use a for/loop to go through the array of objects and print the report

Within the loop, create a single instance of the Student class and move the object out of the array into the single instance

6. Use the class method to calculate the total, adjusted total and average

7. Do the following in the application program:

For each student, look up their name from the student name file, using the student id.

Do a sequential search from the file (not an array). Use a value returning method.

The method will open and close the file for each student look-up.

The method header needs throws FileNotFoundException

Declare the student name file in the method

Read the student id and student name, then compare student id to the search id

Once the name is found (or “name not found”), close the file and return the name

8. Print the report (almost exactly as in Lab05 except add the student name)

**PROGRAMMING STYLE**

I find it clearer to use single variables instead of subscripted variables, whenever possible.

When reading the input student file, first place data into a variable

Then create a single object.

Then place the object into the array of objects.

When retrieving data from the array of objects, return each object into a single object

Methods: should have ONE exit point.

For a value-returning method, this means one return statement

**INPUT**

**File:** Student file Lab06StudentFile.txt

**Record**: Student record

**Field Data Type**

Student id# 4 numbers (ex. 1234)

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

**INPUT**

**File:** Student name file Lab06Names.txt

**Record**: Student name record

**Field Data Type**

Student id# 4 numbers (ex. 1234)

Student name String

**OUTPUT**

**File:** Grade Report file Lab06Report.txt

**Record**:

Student Grade Report

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

xxxx xxxxxxxxxxxxxxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxxx xxxx xxx

xxxx xxxxxxxxxxxxxxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxxx xxxx xxx

xxxx xxxxxxxxxxxxxxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxx xxxx xxxx xxx

Total students = xx