**PJ 2 – Student GPA Report**

For PJ 2, you must use **Java** to implement **public class Student** to get at least 7 students’ information, and generate a student GPA report in a professional format.

Each student must have the following 5 attributes (i.e., instance variables, fields, or properties):

* 1. private String **studentID** ; // student’s ID, such as 1
  2. private String **lastName** ; // student’s last name, such as Doe
  3. private String **firstName** ; // student’s first name, such as John
  4. private double **gpa** ; // student’s GPA, such as 3.0
  5. private String **phoneNumber** ; // student’s phone number, such as 626-111-1111

You must declare 3 **static** global variables with proper initial values, and 5 **static** global arrays to hold up to 12 students records with 5 fields per record. They should be declared as follows:

**private** **static** **int** *countStudents* = 0; // count the total number of students

**private** **static** **double** *totalGpa* = 0.0; // total GPA sum of all students. Don’t use float

**private** **static** **double** *averageGpa* = 0.0; // average GPA of all students. Don’t use float

**static** String[] *sidA* = **new** String[12]; // 5 static parallel arrays of 12 items each

**static** String[] *lnameA* = **new** String[12];

**static** String[] *fnameA* = **new** String[12];

**static** **double**[] *gpaA* = **new** **double**[12];

**static** String[] *phoneA* = **new** String[12];

You must create one constructor, 5 accessors (getters), and 5 mutators (setters) for this Student class.

The constructor method **Student** must do all the following completely and properly:

1. create a new student by assigning attributes with all the data arguments being passed;
2. **countStudents++ ;** // increment the student count by one since we just added a new student
3. update the current GPA total and average properly as follows:

**totalGpa += gpa ;** // add this student’s gpa to totalGpa

**averageGpa = totalGpa / countStudents ;**  // computer current averageGpa

1. call ***printStudentRecord*** to print the complete record nicely for this new student
2. add this student record into the 5 arrays for those 5 fields respectively.

You must also create the following 2 **static** **methods**:

(a) ***toString***– to form a student record properly as a string for printing;

(b) ***printStudentRecord*** – to print the student record in a nice format using ***toString*** method.

Therefore, you should create at least 13 methods or functions.

You must write a **while loop** asking the user to enter student id, last name, first name, GPA, and phone number. Then, you print the student record nicely, and show the current student count, total GPA, and average GPA. Then, continue asking the user to enter next student’s data. If the student id is 0 (i.e., zero), exit the while loop, print a student GPA **report**, thank the user, and stop your program nicely .

You must test your program (as follows) in your static void ***main*** method. Another optional way (if you know how) is to write a **client class** to test your program accordingly.

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You must run **3** test cases for your program. Your **test case #1** must look as follows:

**Welcome to use the Student GPA System of** **Dr. Simon Lin**! 🡸 must use your name

1=====================================================.

>> Please enter student id, last name, first name, GPA, and phone number>

**1 Doe John 3.0 626-111-1111**

Student id: 1, Last Name: Doe, First Name: John, GPA: 3.00, Phone Number: 626-111-1111

Current Student Count: 1, Total GPA: 3.00, Average GPA: 3.00

2=====================================================.

>> Please enter student id, last name, first name, GPA, and phone number>

**2 Smith Mary 4.0 626-222-2222**

Student id: 2, Last Name: Smith, First Name: Mary, GPA: 4.00, Phone Number: 626-222-2222

Current Student Count: 2, Total GPA: 7.00, Average GPA: 3.50

3=====================================================.

>> Please enter student id, last name, first name, GPA, and phone number>

**3 Stone Joe 2.0 626-333-3333**

Student id: 3, Last Name: Stone, First Name: Joe, GPA: 2.00, Phone Number: 626-333-3333

Current Student Count: 3, Total GPA: 9.00, Average GPA: 3.00

4=====================================================.

>> Please enter student id, last name, first name, GPA, and phone number>

**4 Lin Steve 1.0 626-444-4444**

Student id: 4, Last Name: Lin, First Name: Steve, GPA: 1.00, Phone Number: 626-444-4444

Current Student Count: 4, Total GPA: 10.00, Average GPA: 2.50

5=====================================================.

>> Please enter student id, last name, first name, GPA, and phone number>

**5 Li Pete 3.0 626-555-5555**

Student id: 5, Last Name: Li, First Name: Pete, GPA: 3.00, Phone Number: 626-555-5555

Current Student Count: 5, Total GPA: 13.00, Average GPA: 2.60

6=====================================================.

>> Please enter student id, last name, first name, GPA, and phone number>

**6 Bee Scott 4.0 626-666-6666**

Student id: 6, Last Name: Bee, First Name: Scott, GPA: 4.00, Phone Number: 626-666-6666

Current Student Count: 6, Total GPA: 17.00, Average GPA: 2.8333333

7=====================================================.

>> Please enter student id, last name, first name, GPA, and phone number>

**7 Codd April 3.80 626-777-7777**

Student id: 7, Last Name: Cod, First Name: April, GPA: 3.80, Phone Number: 626-777-7777

Current Student Count: 7, Total GPA: 20.80, Average GPA: 2.9714

8=====================================================.

>> Please enter student id, last name, first name, GPA, and phone number>

**0 0 0 0 0**

9=**====================================================.**

**Student GPA Report:**

ID Last Name First Name GPA Phone Number

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**1 Doe John 3.0 626-111-1111**

**2 Smith Mary 4.0 626-222-2222**

**3 Stone Joe 2.0 626-333-3333**

**4 Lin Steve 1.0 626-444-4444**

**5 Li Pete 3.0 626-555-5555**

**6 Bee Scott 4.0 626-666-6666**

**7 Codd April 3.8 626-777-7777**

**The average GPA of the above 7 students is 2.9714**

10**====================================================.**

**Thank you for using the Student GPA System of** **Dr. Simon Lin**. 🡸 must use your name

11=====================================================.

**How to submit your project?**

(1) Each program must be well-documented with block comments and proper line comments. The

beginning of each program must have a block comment to show your name, date, and purpose.

The following is an example of block and line comments.

// Author: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡸 You must put your name here

// Date: 🡸 You must put today’s date here

// Purpose: 🡸 You must put your purpose here

(2) You must submit the following 2 items through Canvas <https://ilearn.laccd.edu/> :

(a) Your source program (for example, CS136-PJ2-program**.java** file), and

(b) Your WORD document (for example, CS136-PJ2-report**.docx** file) containing your source program listing,

and the complete input & output of your 3 test cases.

**You must not submit a zip file to Canvas.**

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**// Please delete everything above this line to make this your report Word document to be submitted.**

**PJ 2 Report My Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**A. The following is my Java program with colors:**

**// You must copy your Java program from Eclipse into here so that it is colored.**

**// You must not show screen prints here.**

**B. The following is the complete output of my 3 test cases.**

**// Please copy your complete console output and paste into here for each test case.**

**Test Case 1:**

**Test Case 2:**

**Test Case 3:**