**LEBANESE AMERICAN UNIVERSITY**

**School of Arts and Sciences**

**Department of Computer Science and Mathematics**

**LAB 8**

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**Problem 1:**

Write a program that represents the Gradebook of the class Csc243..The program takes the Grades of the students in the class till the user enters -1 to quits.. The main class must have a constructor for the course name and set and get methods, a displayMessage() to to display the msg and determineClassAverage() to calculate the average.. Although each grade is an integer, the averaging calculation is likely to produce a number with a decimel point, so this class uses a type double to do so. Then write a GradeBookTest and create GradeBook object and invoke its determineClassAverage method.  
  
  
**Output:**  
  
Welcome to the Grade book for  
Csc 243 Introduction to Object Oriented Programming  
  
Enter grade or -1 to quit: 97  
Enter grade or -1 to quit: 88  
Enter grade or -1 to quit: 72  
Enter grade or -1 to quit: -1  
  
Total of the 3 grades entered is 257  
Class average is 85.67

Solution: <http://www.javaproblems.com/2012/12/java-classes-practice-grade-book-class.html>

**Problem 2:**

Write a class StringManipulation that contains one instance variable stringValue with the corresponding setter and getter methods. Your constructor should allow the user to initialize the value of stringValue. Inside the class, you will include two methods; The First method isPalindrome(), will return true if the string is equivalent when read from left to right or from right to left. The second method, reverse() will return the string in reverse. In your tester class, StringManipulationTester, you will ask the user to input 2 strings and print if the string is a palindrome then print it in reverse. Sample output:

Please enter string 1 value:

lol

The string is a palindrome

The string in reverse is lol

Please enter string 2 value:

wolf

The string is not a palindrome

The string in reverse is flow

Solution: <http://www.javaproblems.com/2012/12/java-classes-practice-string.html>

**Problem 3:**

1. Create a class **Rectangle**. The class has attributes **length** and **width**, each of which defaults to 1. It has methods that calculate the **perimeter** and the**area** of the rectangle. It has *set* and *get* methods for both **length** and **width**. The *set* methods should verify that **length** and **width** are each floating-point numbers larger than 0.0 and less than 20.0.
2. Create a more sophisticated **Rectangle** class than the one you created in (a). This class stores only the Cartesian coordinates of the four corners of the rectangle. The constructor calls a *set* method that accepts four sets of coordinates and verifies that each of these is in the first quadrant with no single *x-* or *y*-coordinate larger than 20.0. The *set* method also verifies that the supplied coordinates do, in fact, specify a rectangle. Provide methods to calculate the **length**,**width**, **perimeter** and **area**. The length is the larger of the two dimensions. Include a predicate method **isSquare** which determines if the rectangle is a square.

Solution: <http://www.javaproblems.com/2013/12/creating-rectangle-class-in-java.html>