**CSE1341 – Lab #2**

**PRE-LAB [10 points]**

**Must be done prior to your lab session.**

Create a Java program named Square.java that prompts for the length of one side. It then calculates and displays the area and perimeter of the square.

**$ java Square**

What is the length of the square? **5**

The area of the square is 25

Bring the compiled program (*.class file)* along with the *.java* source file to your lab session. Demonstrate the working program to your lab instructor for pre-lab credit.

**LAB [90 points]**

NOTES: Use the given notes as a guide for the program logic. These comments must

be included in the programs to explain the logic followed.

Each program should compile without errors and should run to produce outputs

described for each exercise. The following points will be discounted if the related

element is missing or incorrect:

Reasonable output formatting [20 points]

Proper names for classes and variables [15 points]

Comments [15 points]

Program doesn't compile [ 20 points]

Source code (java file) missing [ 15 points]

Executable (class file) missing [15 points]

The following programs are all based on the spreadsheet assignments you completed for lab 1.

Complete the code for each of the three programs so they compile and run successfully.

1. [10 points] Create a Java program named Rectangle.java that prompts for the lengths of two sides. It then calculates and displays the area and perimeter of the rectangle.

$ **java Rectangle**

What is the length of the Rectangle? **4**

What is the length of its Width? **5**

The area of the rectangle is 20

1. [10 points] Create a Java program named TargetProfit.java which prompts for a target profit margin and cost. It then calculates and displays the recommended retail price .

$ **java TargetProfit**

What is the profit margin (%) target? **10**

What is the cost of the product? **10**

The target price is $ 11.00

1. [20 points] Create a Java program named Circle.java that does the following:
   1. Prompts for the lengths of radius. It then calculates and displays the area and circumference of the circle.
   2. Prompts for the circumference. It then calculates and displays the diameter of the circle.

The printed output should be rounded to the nearest hundredth.

***Hint:*** *You will need to use the value of* ***pi****. See the java.lang.Math library class.*

$ **java Circle**

Enter the radius of a Circle: **6**

The area of the circle is 113.10

The circumference of the circle is 37.70

Enter the circumference of a Circle: **40**

The diameter of the circle is 12.73

1. [50 points] Create a Java program named Inventory which prompts the user to enter four values for each of three inventory items: UPC code, quantity, cost, and price. Your program will calculate the profit for each item as both dollars and percent. After the user enters all twelve values, a summary report of the inventory will print, along with the sum total of the profit dollars. (This is the same problem you solved in lab #1 but with fewer values.) The output should match the sample output shown below.

**Notes:**

* This will require several variables – use a separate variable for each value
* Be sure to use the correct primitive types for each variable
* Use *printf* with formatting symbols to align the printed output of your inventory
  + Align column headers with corresponding data in each row
  + Round *double* values to the nearest hundredth for dollars and percents

$ **java Inventory**

Enter UPC: **111222**

Enter quantity: **40**

Enter cost: **7.99**

Enter price: **15.99**

Enter UPC: **111333**

Enter quantity: **30**

Enter cost: **6.1**

Enter price: **18.99**

Enter UPC: **111444**

Enter quantity: **147**

Enter cost: **2.34**

Enter price: **7.99**

  UPC Code   Quantity       Cost      Price  Profit $  Profit %

    111222         40 $     7.99 $    15.99 $  320.00   100.13%

    111333         30 $     6.10 $    18.99 $  386.70   211.31%

    111444        147 $     2.34 $     7.99 $  830.55   241.45%

Total potential profit: $  1537.25

Submit the *java* and *class* files via Canvas (as a single zip-file). Include a comment block at the top of each *Java* file that includes your name, student id number, and “Lab 2-Fall 2017”.

**This assignment is due by 6:00AM Saturday, September 23.**