ITSS 3311 – Introduction to Programming

**Homework 2**

**Problem 1 (50 points):**

The sales department of a company has gathered monthly sales numbers (number of sold items and the sales revenue in dollars) of each product they have been selling for many years. The new director of the department wants to know how long (how many months) it has taken the department to achieve the first million dollars of sales of each product that it has sold. The department provides a software analyst with the sales data and asks him/her to write a Java program that can provide the information that the director needs (by printing out the information to the console).

For each product, the program should read the monthly sales data from the console and print out the desired information in months. The program should check to be sure that values of monthly sales are not negative.

Use loop in order to ask for input until revenue reaches 1 million.

***Important Notes:***

* *The program can be used for only one product at any time when it runs.*
* *For the purpose of testing, students can make up the data of monthly sales of some imaginary product.*

***Important Notes:***

* *In Eclipse IDE, inside the newly created project* ***HOMEWORK\_2****, students should create a new program, i.e. a class, named:* ***Program\_1*** *under a new package named* ***PROBLEM\_1****for his/her work on this problem.*
* *To submit, students directly submit the .java files, and submit it via* ***E-Learning*** *(attach the file)*

**Problem 2 (50 points):**

The consumer loan department of a bank asks a software analyst to write a Java program that can calculate the following amounts of a loan:

* the monthly payment of a mortgage
* the total payment (after all the monthly payments have been made)
* the total interest (after all the monthly payments have been made)

After reading (from the console) necessary data – the loan amount, the loan period (in months), and the annual interest rate, the program processes the data and prints out (to the console) the following pieces of information in only one line:

* The loan amount
* The loan period (how many months)
* The annual interest rate

Then the program prints out the monthly payment in the next line, and prints out the following pieces of information in another line:

* The total payment
* The total interest

The inputs must be verified to be sure that they are not negative. All the floating-point numbers of the outputs have 2 digits after the floating point.

***Important Notes:***

* *Annual interest rate is entered as percentage, i.e. 4.25 is entered for 4.25%*
* *Formula to compute the monthly payment:*



* *Formula to compute the monthly interest rate (in this formula, interest rate has it real value, not %. To get real value, divide the input of interest rate by 100)*

*Monthly interest rate = annual interest rate / 12*

* *Formula to compute the total payment*

*Total payment = monthly payment \* number of months*

* *Formula to compute the total interest*

*Total interest = total payment - original loan amount*

***Important Notes:***

* *In Eclipse IDE, inside the newly created project* ***HOMEWORK\_2****, students should create a new program, i.e. a class, named:* ***Program\_2*** *under a new package named* ***PROBLEM\_2*** *for his/her work on this problem.*
* *To submit, students directly submit the .java files, and submit it via* ***E-Learning*** *(attach the file)*