CMPT220 - Program 3
Program Due: Monday, February 17, before 9:00 a.m. (Submitted on iLearn)
Bring hardcopy to class to turn in
Name the project **Prog3YourLastName**
Name the class **HospitalYourLastName**

The purpose of this program is to learn about methods and to continue to master conditional statements and loops. This program will help our Hospital process insurance payments.

Patients are charged based on their Insurance Plan, their total Household Income, and the number of days they stay in the hospital (which could be from 1 day to one year). All patients are charged an Admittance Fee of $500 when they are admitted to the hospital. Patients are also charged a Service Fee, based on the given chart. However, long-term patients receive a Discount of $300 for every week they stay in the hospital. A long-term patient is one who stays **more than** 25 days. You are to write a program to accomplish these tasks, using methods to do the work.

The main**()** method will ask for the following (**in this order!**):
Patient ID -- any integer,
** Household Income – a double, which must be non-negative,
** Insurance Plan – a single character,
'B' for Blue Plus,
'M' for Med-Health,
'H' for Health Plan,
'N' for No Insurance
** Number of Days -- an integer between 1 and 365, inclusive.
** means the value must be validated!

main**()** will then use the following methods to complete its work.

The method calcPerDiem**()** accepts as parameters the Insurance Plan and the Household Income and will compute and return the Per Diem Rate using the following table (Use a **switch** statement on Insurance Plan, then a nested **if-else** to determine the Per Diem rate.):

Insurance Plan	**Household Income**	**Per Diem (charge per day)**
Blue Plus	less than $15,000	$50
	$15,000 - $67,500	$85
	more than $67,500	$150
Med-Health	less than $20,000	$65
	$20,000 - $75,000	$100
	more than $75,000	$200
Health Plan	less than $17,500	$55
	$17,500 - $63,000	$90
	more than $63,000	$150
None	All income brackets	$500

The method calcServiceFee() accepts as parameters the per diem rate and the number of days and returns the service fee, which is the Per Diem multiplied by the number of days in the hospital.

The method calcDiscount() accepts a single parameter (the number of days) and calculates and returns the Discount (if any), which is the number of weeks in the hospital multiplied by $300. This **only** applies to long-term patients (patients who were in the hospital for more than 25 days).

The method calcTotalBill() accepts as parameters the Service Fee and the Discount and calculates the total bill by adding the service fee to the admittance fee, then subtracting the discount.

The method outputResults() accepts as parameters all of the data required so that it can neatly output the Patient ID number, Household Income, Insurance Plan (print the full name of the plan), Number of Days, Admittance Fee, Per Diem Rate, Service Fee, Discount, and Total Bill (in this order, nicely formatted).

Once you have your program working for a single patient, add a "big" loop, which will allow your program to work for multiple patients. You'll still print out information about each individual patient. Your program will continue to run until the user enters the value 0 (zero) for a Patient ID. (Inputting the number zero for the patient ID will terminate the loop.)

You will want to keep track of the following values:

- the number of patients processed,
- the highest Bill amount,
- the Patient ID associated with the highest Bill amount,
- the lowest Bill amount,
- the Patient ID associated with the lowest Bill amount,
- the total cost of all Bills processed, and
- the average cost of Bill amounts.

[**HINT**: Which of these can you determine *inside* the big loop and which of these must you wait until *after* the big loop is finished?]

As you process each patient's bill, you'll print out the data about that bill. After the user enters a Patient ID of 0, your program will print a summary including the number of patients processed, the highest Bill amount, the patient ID associated with the highest bill amount, the lowest Bill amount, the patient ID associated with the lowest bill amount, the total cost of all bills processed, and the average bill cost **(in this order).** Of course, you'll want to label and properly format these, too! ☺

Remember to use mnemonic variable names, to prompt the user for input, and to properly label and format the output (use a dollar sign, 2 digits after the decimal point, etc., on output).

Be sure that you use **different** variable names for formal and actual parameters when you call these methods!!!!!