COMP 203 Data Structures and Algorithms, Fall 2022
Instructor: Cavidan Yakupoğlu Karaağaç
Lab 2
Credits: Zafer Aydın

The lab is open book. Submit your Java codes to Canvas.

**Assignment**

1. (a) The PredatoryCreditCard class provides a processMonth() method that models the completion of a monthly cycle. Modify the class so that once a customer has made ten calls to the charge method during a month, each additional call to that method in the current month results in an additional $1 surcharge. Hint: define an instance variable that counts the number of times the charge method is called, initialize that variable in the constructor, update it inside the charge method, and reset it inside processMonth() (i.e. set it to zero once processMonth() is called)

(b) Implement a class called CreditCardTest, which has a main method that performs the following:

- Instantiates a PredatoryCreditCard object with the following inputs for the constructor: limit equal to 1000, initial balance equal to 0, annual percentage rate equal to 0.2 and the remaining inputs can take arbitrary values.
- Calls the charge method of the PredatoryCreditCard class 15 times by writing a for loop each time charging 1 dollars.
- Calls the getBalance() method after the for loop and displays the balance information on the screen.

2. (a) Write a Java class called AbsDiffProgression that extends the Progression class so that each value in the progression is the absolute value of the difference between the previous two values. You should include a default constructor that starts with 2 and 200 as the first two values and a parametric constructor that starts with a specified pair of numbers as the first two values.

(b) Implement a class called ProgressionTest, which has a main method that generates and displays 10 numbers on the screen using the class you implemented in part (a) and by calling the printProgression method with an input argument of 10.

**Submission**

Files to submit are

Question 1:

CreditCard.java
PredatoryCreditCard.java
CreditCardTest.java

Question 2:

AbsDiffProgression.java
Progression.java
ProgressionTest.java