CS F213: OOP Lab 2- Constructors and Strings

Rishab Khincha, Mayur Arvind, Madhur Kalia, Soundarya Krishnan

August 27, 2019

The objective of this lab is to test the understanding of constructor overloading and strings in Java. Please read the questions thoroughly before answering.

In this lab, we will try to simulate the working of a bank. To do so, we will create two classes BankAccount and Bank.

BankAccount contains information about the user, and also keeps track of the number of transactions performed. We can choose to open a BankAccount with different details, so as to customize it as per user requirement. Each account keeps track of the number of transactions. If this number exceeds the maximum allowed, then a service charge of 5% (of the amount deposited or withdrawn) is levied.

Bank contains information about various bank accounts in the bank. We create multiple instances of BankAccount inside the Bank, and perform transactions from one account to another.

Read the following steps carefully:

- Download the docs.zip from the gitlab repository and extract it.
- Open index.html page. This page contains all the information about the class and methods to be created.
- For this lab, you have to create two classes named Bank and BankAccount. Define the properties and methods as described in the javadoc.
- Go through the javadoc carefully, and take care of the method signatures.
- No main method has to be created in any class.
- Make sure the parameter types, return types, and print statements match exactly as given in the javadoc.
- Download Lab2_BlackBox.zip and extract it
- Copy both your java files in student_solution
- Then run ./execute.sh from the terminal while in the Lab2_BlackBox folder.

Some functions that may be of use:

1. String Tokenizer:

```
StringTokenizer st1 =
        new StringTokenizer("Hello People How are you", " ");
    while (st1.hasMoreTokens())
        System.out.println(st1.nextToken());
```

Output:

```
Hello
People
How
are
you
```

2. toUpperCase():

```
String str = "Hello WorLD";
// converting string str to uppercase letter
String str2 = str.toUpperCase();
System.out.println(str2);
```

Output:

```
HELLO WORLD
```

3. .substring()

```
String Str = new String("abcdefghijklmnopqrs");
// using substring() to extract substring
// returns The World
System.out.print("The extracted substring is : ");
System.out.println(Str.substring(10));
```

Output:

```
klmnopqrs
```

The testcases are as follows:

1. Testcase 1: BankAccount(int acc_no) and BankAccount(int acc_no, double balance): 1 mark
2. Testcase 2: BankAccount(int acc_no, String email) and BankAccount(int acc_no, String email, double balance): 2 marks
3. Testcase 3: deposit and withdraw functions: 2 marks
4. Testcase 4: Bank(String name): 1 marks
5. Testcase 5: createAccount() and createAccount(double balance): 1 mark
6. Testcase 6: createAccount(String email) and createAccount(String email, double balance): 1 mark
7. Testcase 7: transaction function: 2 marks