Lab-7: Overriding

Objective

You will learn to apply the concept of Overriding methods

Exercise

Look at the Account class *Account*.java (below) and write a main method in a different class to briefly experiment with some instances of the Account class.

a) Using the Account class as a base class, write two derived classes called *Saving* and *Checking*. A *Saving* object, in addition to the attributes of an *Account* object, should have an *interest* variable and the constructor method. A *Checking* object, in addition to the attributes of an *Account* object, should have an *"overdraft"* limit variable. Ensure that you have **overridden** methods of the *Account* class as necessary in both derived classes.

b) Now create a test class which contains instances of the *Account* class, the *Saving* class, and the *Checking* class. Create some test accounts (some of each type).

c) Write an *prediction( )* method, which make a prediction of the balance giving the number of the months for each account.

d) Write an *detectOverdraft( )* method, which detect overdraft in all checking accounts.

Hints:

- Note that the balance of an account may only be modified through the deposit(double) and withdraw(double) methods.
- The Account class should not need to be modified at all.
- Be sure to test what you have done after each step.

```
public class Account
{
 private double bal;  //The current balance
 private int accnum;  //The account number


 public Account(int a)
 {
       bal=0.0;
       accnum=a;
 }

 public void deposit(double sum)
 {
       if (sum>0)
           bal+=sum;
       else
           System.err.println("Account.deposit(...): "
                           +"cannot deposit negative amount.");
 }

 public void withdraw(double sum)
 {
       if (sum>0)
           bal-=sum;
       else
           System.err.println("Account.withdraw(...): "
                           +"cannot withdraw negative amount.");
 }

 public double getBalance()
 {
       return bal;
 }

 public double getAccountNumber()
 {
       return accnum;
 }

 public String toString()
 {
       return "Acc " + accnum + ": " + "balance = " + bal;
 }


   }
```