LAB PROGRAM 5

Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account and the other current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed. Create a class Account that stores customer name, account number and type of account. From this derive the classes Curr-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks: • Accept deposit from customer and update the balance. • Display the balance. • Compute and deposit interest • Permit withdrawal and update the balance • Check for the minimum balance, impose penalty if necessary and update the balance.

```
import java.util.Scanner;


class Account{
   String cName,accNum,accType;
   public static final String ANSI_RED = "\u001B[31m";
   public static final String ANSI_GREEN = "\u001B[32m";
   public static final String ANSI_RESET = "\u001B[0m";
   Scanner sc = new Scanner(System.in);


   Account(String name,String accNo,String accType){
      this.cName = name;
      this.accNum = accNo;
      this.accType = accType;
   }
   Account(){};
```

```
}

class CurrentAcc extends Account{
   double balance = 5000,rate = 0.06;
   int time = 5;
   private boolean canWithdraw = false;

   CurrentAcc(String name,String accNo,String accType){
      super(name,accNo,accType);
      System.out.println("New Customer: " + cName);
   }

   void getBalance() {
      System.out.format("Your balance: %f\n",balance);
   }

   void deposit(double amount){
      char choice;
      System.out.println("Deposit. Account holder: " + cName + " Amount: " +
amount);
      System.out.println("Approve Deposit?(Y/S): ");
      choice = sc.next().charAt(0);
      if(choice == 'Y' || choice == 'y'){
         balance+=amount;
         System.out.println(ANSI_GREEN + "Deposit approved. Updated balance:
" + balance + ANSI_RESET);
      }else{
```

```
            System.out.println(ANSI_RED + "Deposit not approved" + ANSI_RESET);
        }
    }

    void withdraw(double amount){
        System.out.println(ANSI_RED + "This account cannot withdraw any funds"
+ ANSI_RESET);
    }

    void calcInterest() {};
    void checkMinAmount(){
        if(balance < 3000){
            balance-=500;
            System.out.println(ANSI_RED + "Balance under minimum amount to be
maintained." + ANSI_RESET);
            System.out.println(ANSI_RED + "Penalty imposed. Updated balance: " +
balance + ANSI_RESET);
        }
    }
}

class SavingsAcc extends Account{
    double balance = 5000,rate = 0.06;
    private boolean canWithdraw = true;

    SavingsAcc(String name,String accNo,String accType){
        super(name,accNo,accType);
```

```
        System.out.println("New Customer: " + cName);
    }

    void getBalance() {
        System.out.format("Your balance: %f\n",balance);
    }

    void deposit(double amount){
        char choice;
        System.out.println("Deposit. Account holder: " + cName + " Amount: " +
amount);
        System.out.println("Approve Deposit?(Y/S): ");
        choice = sc.next().charAt(0);
        if(choice == 'Y' || choice == 'y'){
            balance+=amount;
            System.out.println(ANSI_GREEN + "Deposit approved. Updated balance:
" + balance + ANSI_RESET);
        }else{
            System.out.println(ANSI_RED + "Deposit not approved" + ANSI_RESET);
        }
    }

    void calcInterest(){
        double CI;

        CI = (balance * (Math.pow((1+((rate/12)/100)),12))) - balance;
        balance+=CI;
```

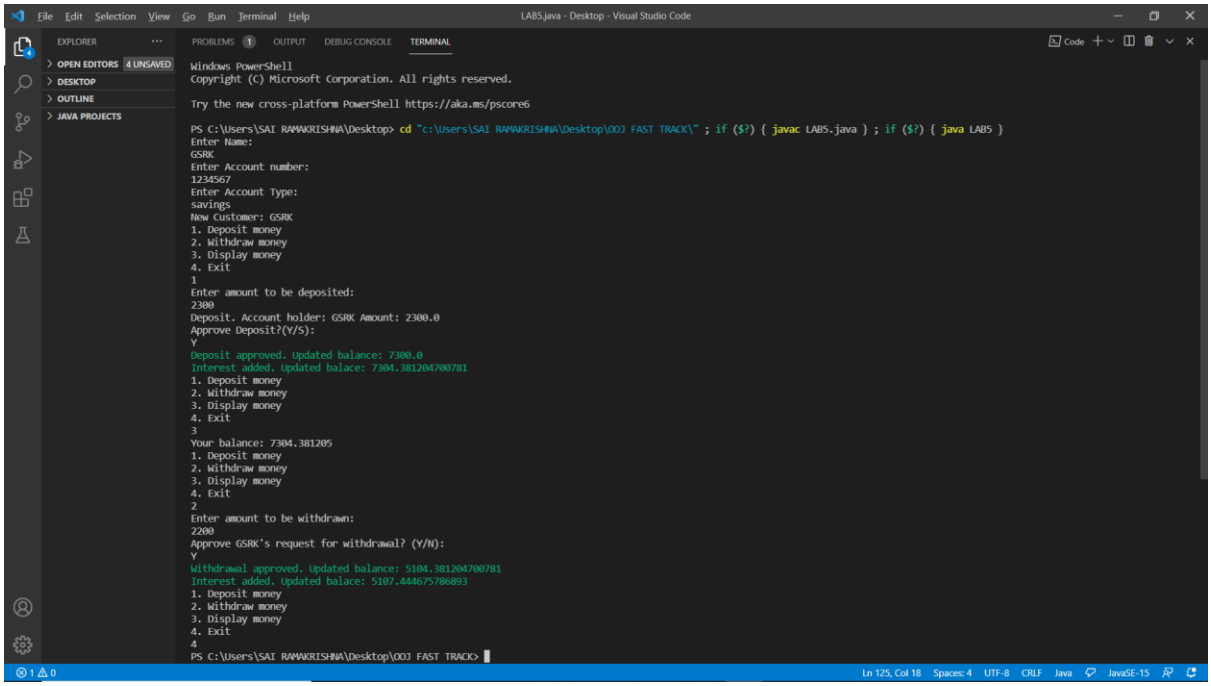
```
    System.out.println(ANSI_GREEN + "Interest added. Updated balace: " +
balance + ANSI_RESET);
  }


  void withdraw(double amount){
    char choice;


    if(this.canWithdraw){
      if(balance < amount){
        System.out.println("Account balance is lower than amount to be
withdrawn");
        return;
      }
      System.out.println("Approve " + cName + "'s request for withdrawal?
(Y/N): ");
      choice = sc.next().charAt(0);
      if(choice == 'Y' || choice == 'y'){
        balance-=amount;
        System.out.println(ANSI_GREEN + "Withdrawal approved. Updated
balance: " + balance + ANSI_RESET);
      }else{
        System.out.println(ANSI_RED + "Withdrawal not approved" +
ANSI_RESET);
      }
    }else{
      System.out.println(ANSI_RED + "Your Account type doesn\'t allow
withdrawals" + ANSI_RESET);
    }
```

```
    }

    void checkMinAmount(){
        if(balance < 3000){
            balance-=500;
            System.out.println(ANSI_RED + "Balance under minimum amount to be maintained." + ANSI_RESET);
            System.out.println(ANSI_RED + "Penalty imposed. Updated balance: " + balance + ANSI_RESET);
        }
    }
}



public class Lab11 {
    public static void main(String[] args) {
        int c;
        double temp;

        String name,accNo,accType;

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter Name: ");
        name = sc.nextLine();
        System.out.println("Enter Account number: ");
```

```
        accNo = sc.nextLine();
        System.out.println("Enter Account Type: ");
        accType = sc.nextLine();

        if(accType.charAt(0) == 'c'){
            CurrentAcc a = new CurrentAcc(name, accNo, accType);
            while(true){
                System.out.println("1. Deposit money\n2. Withdraw money\n3.
Display money\n4. Exit");
                c = sc.nextInt();
                switch(c){
                    case 1: {
                        System.out.println("Enter amount to be deposited: ");
                        temp = sc.nextDouble();
                        a.deposit(temp);
                        a.checkMinAmount();
                        break;
                    }
                    case 2: {
                        System.out.println("Enter amount to be withdrawn: ");
                        temp = sc.nextDouble();
                        a.withdraw(temp);
                        a.checkMinAmount();
                        break;
                    }
                    case 3: {
                        a.getBalance();
```

```
                break;
            }
            case 4: {
                System.exit(0);
                break;
            }
            default: System.out.println("Enter the correct options");
        }

    }

}else if(accType.charAt(0) == 's'){
    SavingsAcc a = new SavingsAcc(name, accNo, accType);
    while(true){
        System.out.println("1. Deposit money\n2. Withdraw money\n3.
Display money\n4. Exit");
        c = sc.nextInt();
        switch(c){
            case 1: {
                System.out.println("Enter amount to be deposited: ");
                temp = sc.nextDouble();
                a.deposit(temp);
                a.calcInterest();
                a.checkMinAmount();
                break;
            }
            case 2: {
```

```
                System.out.println("Enter amount to be withdrawn: ");
                temp = sc.nextDouble();
                a.withdraw(temp);
                a.calcInterest();
                a.checkMinAmount();
                break;
            }
            case 3: {
                a.getBalance();
                break;
            }
            case 4: {
                System.exit(0);
                break;
            }
            default: System.out.println("Enter the correct options");
          }

        }

      }else{
        System.out.println("Enter valid type... Exiting");
      }
    }
}
```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PS C:\Users\SAI RAMAKRISHNA\Desktop> cd "c:\Users\SAI RAMAKRISHNA\Desktop\OOJ FAST TRACK\" ; if ($?) { javac LAB5.java } ; if ($?) { java LAB5 }
Enter Name:
GSRK
Enter Account number:
1234567
Enter Account Type:
savings
New Customer: GSRK
1. Deposit money
2. Withdraw money
3. Display money
4. Exit
1
Enter amount to be deposited:
2300
Deposit. Account holder: GSRK Amount: 2300.0
Approve Deposit?(Y/S):
Y
Deposit approved. Updated balance: 7300.0
Interest added. Updated balace: 7304.381204700781
1. Deposit money
2. Withdraw money
3. Display money
4. Exit
3
Your balance: 7304.381205
1. Deposit money
2. Withdraw money
3. Display money
4. Exit
2
Enter amount to be withdrawn:
2200
Approve GSRK's request for withdrawal? (Y/N):
Y
Withdrawal approved. Updated balance: 5104.381204700781
Interest added. Updated balace: 5107.4446757868893
1. Deposit money
2. Withdraw money
3. Display money
4. Exit
4
PS C:\Users\SAI RAMAKRISHNA\Desktop\OOJ FAST TRACK>
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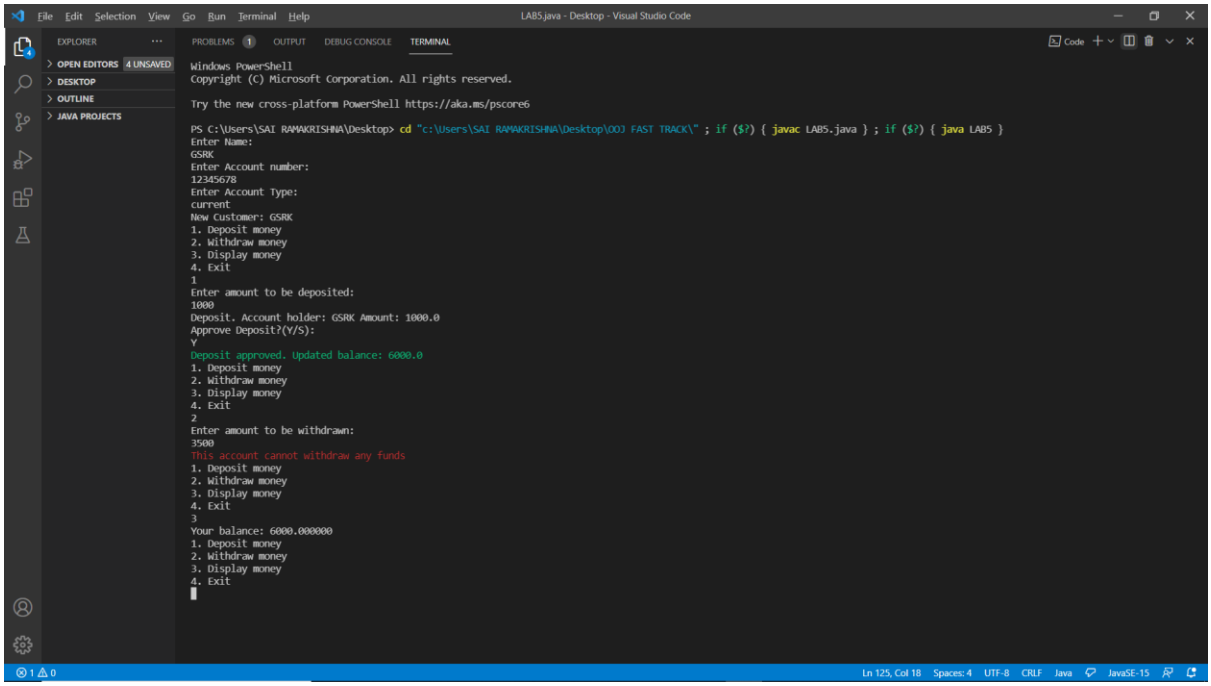
Spaces: 4
UTF-8
CRLF
Java
JavaSE-15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Enter Name:
GSRK
Enter Account number:
12345678
Enter Account Type:
current
New Customer: GSRK
1. Deposit money
2. Withdraw money
3. Display money
4. Exit
1
Enter amount to be deposited:
1000
Deposit. Account holder: GSRK Amount: 1000.0
Approve Deposit?(Y/S):
Y
Deposit approved. Updated balance: 6000.0
1. Deposit money
2. Withdraw money
3. Display money
4. Exit
2
Enter amount to be withdrawn:
3500
This account cannot withdraw any funds
1. Deposit money
2. Withdraw money
3. Display money
4. Exit
3
Your balance: 6000.000000
1. Deposit money
2. Withdraw money
3. Display money
4. Exit
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Spaces: 4
UTF-8
CRLF
Java
JavaSE-15