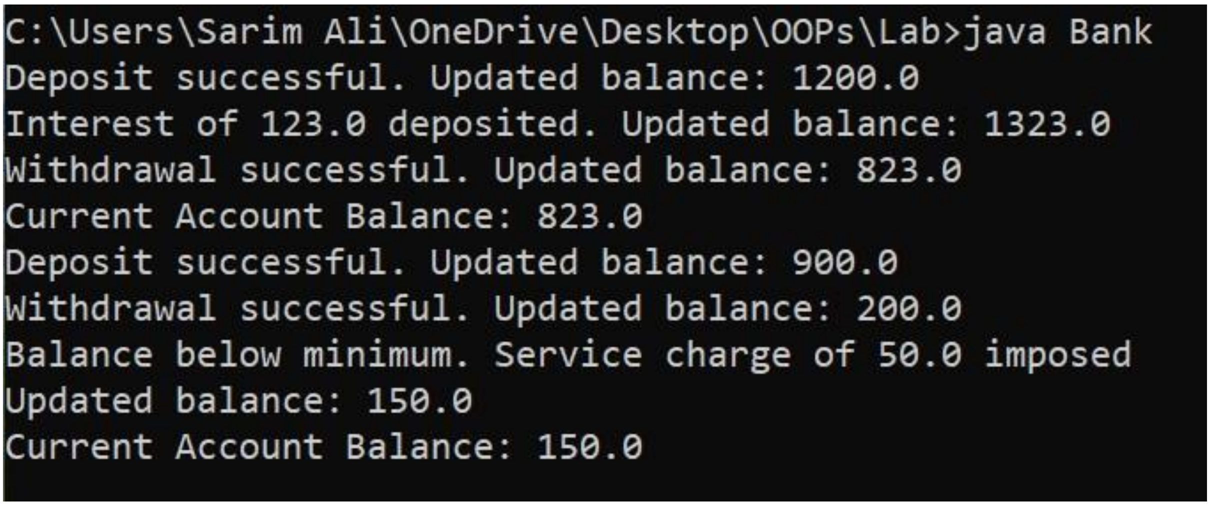
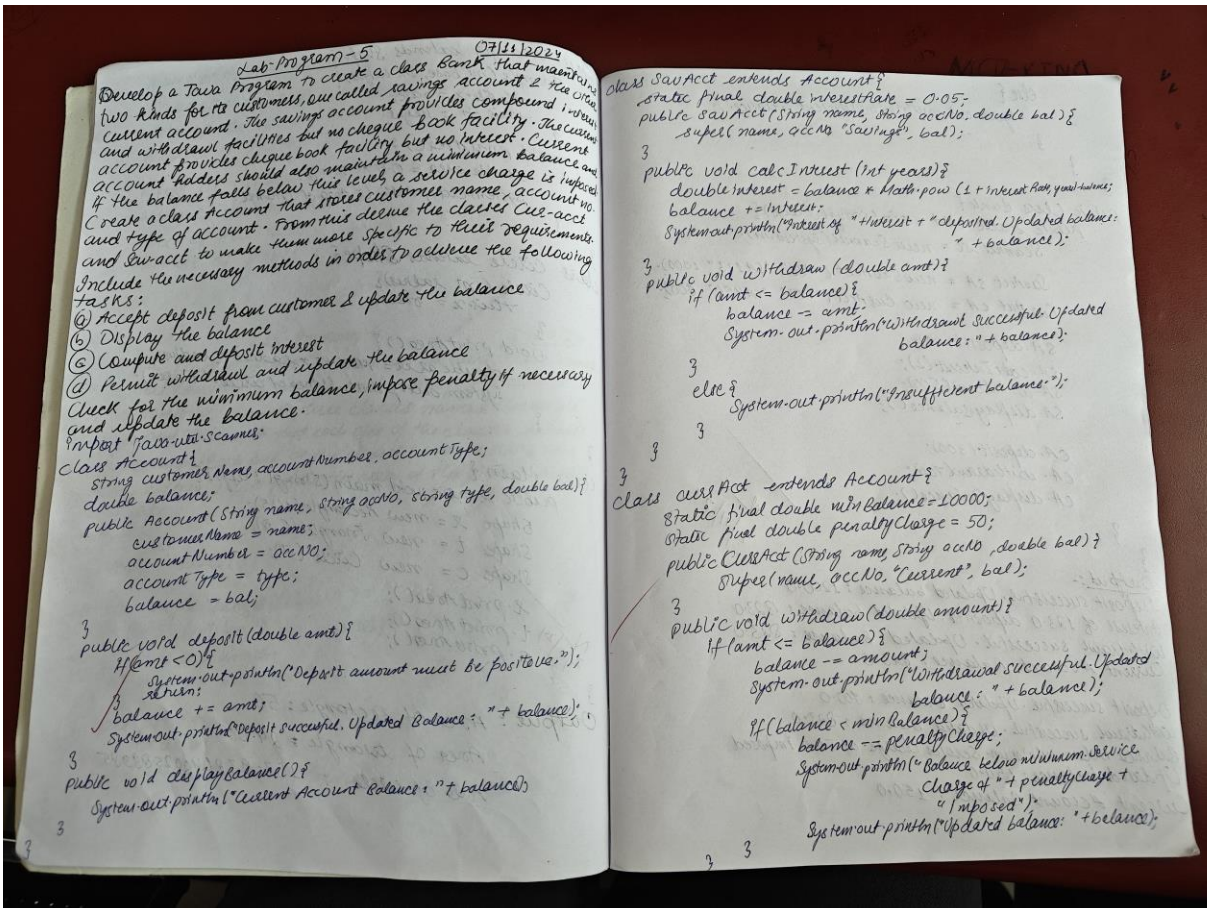
```java
import java.util.Scanner;

class Account {
   String customerName, accountNumber, accountType;
   double balance;

   public Account(String name, String accNo, String type, double bal) {
      customerName = name;
      accountNumber = accNo;
      accountType = type;
      balance = bal;
   }

   public void deposit(double amt){
      if(amt < 0){
         System.out.println("Deposit amount must be positive.");
      }
      balance += amt;
      System.out.println("Deposit successful. Updated balance: " + balance);
   }

   public void displayBalance(){
      System.out.println("Current Account Balance: " + balance);
   }
}

class SavAcct extends Account {
   static final double interestRate = 0.05;

   public SavAcct(String name, String accNo, double bal) {
      super(name, accNo, "Savings", bal);
```

```
    }

    public void calcInterest(int years) {
        double interest = balance * Math.pow(1 + interestRate, years) - balance;
        balance += interest;
        System.out.println("Interest of " + interest + " deposited. Updated balance: " + balance);
    }

    public void withdraw(double amt) {
        if(amt <= balance) {
            balance -= amt;
            System.out.println("Withdrawal successful. Updated balance: " + balance);
        }
        else {
            System.out.println("Insufficient balance.");
        }
    }
}

class CurAcct extends Account {
    static final double minBalance = 10000;
    static final double penaltyCharge = 50;

    public CurAcct(String name, String accNo, double bal) {
        super(name, accNo, "Current", bal);
    }

    public void withdraw(double amount) {
        if(amount <= balance) {
            balance -= amount;
            System.out.println("Withdrawal successful. Updated balance: " + balance);
            if(balance < minBalance) {
                balance -= penaltyCharge;
                System.out.println("Balance below minimum. Service charge of " + penaltyCharge + "
imposed");
                System.out.println("Updated balance: " + balance);
            }
        }
        else {
            System.out.println("Insufficient balance.");
        }
    }
}

public class Bank {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        SavAcct sA = new SavAcct("ABC", "SA123", 1000);
        CurAcct cA = new CurAcct("XYZ", "CA456", 600);

        sA.deposit(200);
        sA.calcInterest(2);
        sA.withdraw(500);
        sA.displayBalance();

        cA.deposit(300);
        cA.withdraw(700);
        cA.displayBalance();
    }
}
```



```
C:\Users\Sarim Ali\OneDrive\Desktop\OOPs\Lab>java Bank
Deposit successful. Updated balance: 1200.0
Interest of 123.0 deposited. Updated balance: 1323.0
Withdrawal successful. Updated balance: 823.0
Current Account Balance: 823.0
Deposit successful. Updated balance: 900.0
Withdrawal successful. Updated balance: 200.0
Balance below minimum. Service charge of 50.0 imposed
Updated balance: 150.0
Current Account Balance: 150.0
```



Lab-Program-5 07/11/2024

Develop a Java Program to create a class Bank that maintains two kinds for its customers, one called savings account & the other current account. The savings account provides compound interest and withdrawl 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 no. and type of account. From this derive the classes Cur-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks:

(a) Accept deposit from customer & update the balance
(b) Display the balance
(c) Compute and deposit interest
(d) Permit withdrawl and update the balance
Check for the minimum balance, impose penalty if necessary and update the balance.

```
import java.util.Scanner;
class Account{
    String customerName, accountNumber, accountType;
    double balance;
    public Account(String name, String accNO, String type, double bal){
        customerName = name;
        accountNumber = accNO;
        accountType = type;
        balance = bal;

    }
    public void deposit(double amt){
        if(amt <0){
            System.out.println("Deposit amount must be positive.");
            return;
        }
        balance += amt;
        System.out.println("Deposit successful. Updated Balance: " + balance);
    }
    public void displayBalance(){
        System.out.println("Current Account Balance: " + balance);
    }
}

class SavAcct extends Account{
    static final double interestRate = 0.05;
    public SavAcct(String name, String accNo, double bal){
        super(name, accNo "Savings", bal);
    }
    public void calcInterest (int years){
        double interest = balance * Math.pow (1 + interestRate, years)-balance;
        balance += interest;
        System.out.println("Interest of " +interest + " deposited. Updated balance:
                                        " + balance);
    }
    public void withdraw (double amt){
        if (amt <= balance){
            balance -= amt;
            System.out.println("Withdrawl successful. Updated
                                balance: " + balance);
        }
        else{
            System.out.println("Insufficient balance.");
        }
    }
}
class currAct extends Account{
    static final double minBalance = 10000;
    static final double penaltyCharge = 50;
    public CurrAct (String name, String accNo, double bal){
        super(name, accNo, "Current", bal);
    }
    public void withdraw(double amount){
        if(amt <= balance){
            balance -= amount;
            System.out.println("Withdrawal successful. Updated
                                balance: " + balance);
            if(balance < minBalance){
                balance -= penaltyCharge;
                System.out.println("Balance below minimum. Service
                                Charge of " + penaltyCharge +
                                " Imposed").
                System.out.println("Updated balance: " +balance);
            }
        }
        else {
            System.out.println("Insufficient balance.");
        }
    }
}
public Class Bank {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        SavAcct SA = newSavAcct ("ABC", "SA123", 1000).
        CurAcct CA = new CurAcct ("XYZ", "CA456", 600).

        SA.deposit(200);
        SA.calcInterest(2);
        SA.withdraw(500);
        SA.displayBalance();

        CA.deposit(300);
        CA.withdraw(700);
        CA.displayBalance();
    }
}
```

7/11/24

Output:-

```
Deposit successful. Updated balance : 1200.0
Interest of 123.0 deposited. Updated balance : 1323.0
Withdrawl successful. Updated balance : 823.0
Current Account Balance : 823.0

Deposit successful. Updated balance : 900.0
Withdrawl successful. Updated balance : 823.0
Balance below minimum. Service charge of 50.0 imposed
Updated balance : 150.0
Current Account Balance : 150.0
```