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JAVA Assignment 1

Question 1

```java
import java.util.Scanner;

abstract class BankAccount {
    private double balance;
    int numberOfDeposit = 0;
    int numberOfWithdrawal = 0;
    double annualInterestRate;

    public BankAccount(double bal,double rate){
        balance = bal;
        annualInterestRate = rate;
    }

    public void deposit(double depositAmount){
        balance = balance + depositAmount;
        numberOfDeposit++;
    }
```

```java
public void withdraw(double withdrawAmount){

    balance = balance - withdrawAmount;

    numberOfWithdrawal++;

}


public void calcInterest(){

    double monthlyInterestRate = annualInterestRate / 12;

    double monthlyInterest = balance * monthlyInterestRate;

    balance = balance+ monthlyInterest;

}


public abstract void monthlyProcess();


public void setBalance(double bal){

    balance = balance + bal;

}


public void setNumberOfDeposit(int num){

    numberOfDeposit = num;

}


public void setNumberOfWithdrawal(int num){
```

```java
            numberOfWithdrawal = num;

    }


    public double getBalance(){

        return balance;

    }


    public int getNumberOfDeposit(){

        return numberOfDeposit;

    }


    public int getNumberOfWithdrawal(){

        return numberOfWithdrawal;

    }


    public double getAnnualInterestRate(){

        return annualInterestRate;

    }

}

class SavingsAccount extends BankAccount{
```

```java
    public boolean active;
    int serviceCharge;


    public SavingsAccount(double bal,double rate){
        super(bal,rate);


        if(super.getBalance() > 25)
            active = true;
        else
            active = false;
    }


    public void withdraw(double withdrawAmount){
        if(active == true && super.getBalance() >=
withdrawAmount){
            super.withdraw(withdrawAmount);
            System.out.println("The saving account is currently
Active");
            System.out.printf("The balance after withdrawal is
%.2f: ",super.getBalance());
        }
        else{
            System.out.println("Transaction failed.....");
        }
```

```java
        }
    public void deposit(double depositAmount){
            super.deposit(depositAmount);
            System.out.printf("The balance after deposit is %.2f : ",super.getBalance());
            // if(active == false && super.getBalance() > 25){
            //      active = true;
            //      System.out.println("Your account is now Active.....");
            // }
    }


    public void monthlyProcess(){
            serviceCharge=0;
            if(super.getNumberOfWithdrawal() > 4){
                    System.out.println("You have reached the monthly limit of withdrawal.\nFee of $1 is charged");
                    super.setBalance(-1);
                    serviceCharge = serviceCharge +1;
            }
            if(super.getBalance() < 25){
                    System.out.println("Can not withdraw money your account balance is less than minimum");
                    System.out.println("Your account is now Inactive.....");
                    active = false;
```

```
            }


            super.calcInterest();

            super.setNumberOfDeposit(0);

            super.setNumberOfWithdrawal(0);

            System.out.printf("Your balance After adding monthly
interest is : %.2f\n",super.getBalance());



        }
}
public class BankAccountTest{

        public static void main(String[] args) {


                Scanner sc=new Scanner(System.in);

                System.out.println("Please enter your account balance : ");

                double balance = sc.nextDouble();


                System.out.println("Please enter the annual interest rate : ");

                double annualInterestRate = sc.nextDouble();


                SavingsAccount s = new
SavingsAccount(balance,annualInterestRate);

                int choice,num;

                do{
```

```java
            System.out.println("0. Exit\n1. Deposit\n2.
Withdrawal\n3. Monthly Process\n4. Check Balance");

            System.out.println("Enter choice : ");

            choice = sc.nextInt();


            switch(choice){
                case 0 :

                        return;


                case 1 :

                        do{

                                System.out.println("Please enter the
amount you want to deposit : ");

                                double depositAmount =
sc.nextDouble();

                                s.deposit(depositAmount);

                                System.out.println("\nDo you want to
make any more deposits? If yes please enter 1 and if no please enter 0");

                                num=sc.nextInt();

                        }while(num != 0);

                        break;


                case 2 :

                        do{
```
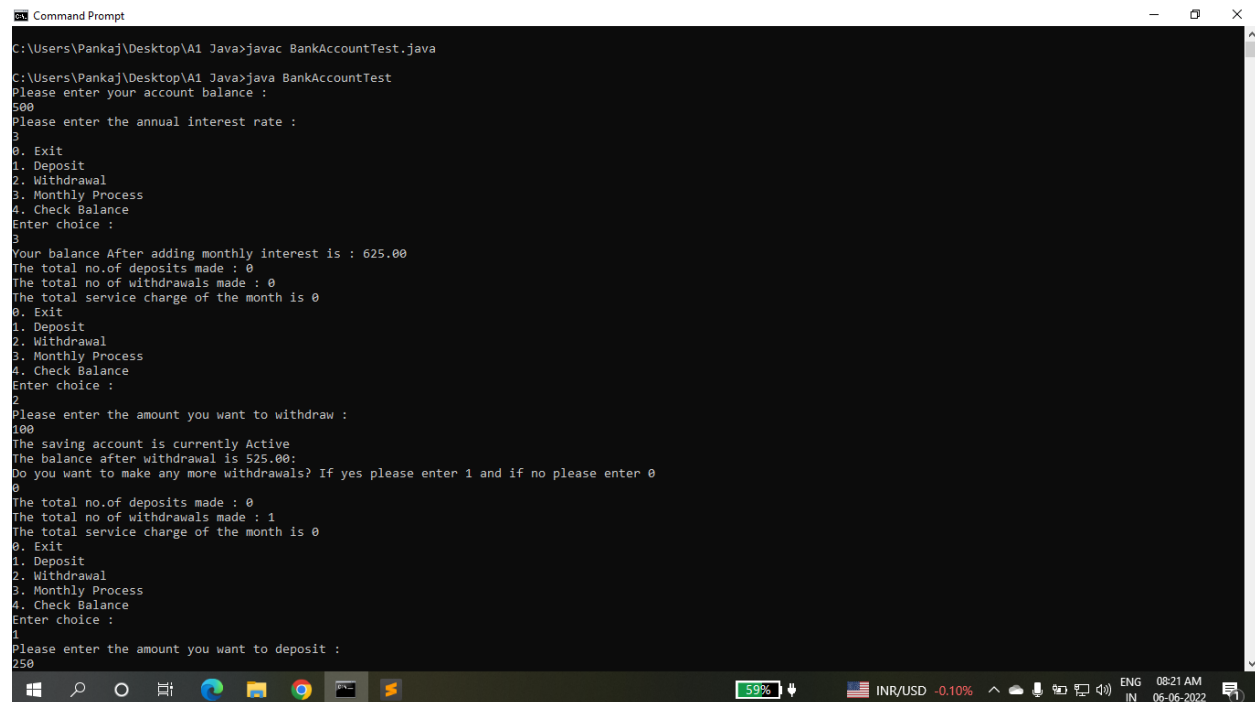
```
                              System.out.println("Please enter the
amount you want to withdraw : ");

                              double withdrawAmount =
sc.nextDouble();

                              s.withdraw(withdrawAmount);

                              System.out.println("\nDo you want to
make any more withdrawals? If yes please enter 1 and if no please enter
0");

                              num=sc.nextInt();

                         }while(num != 0);

                         break;


              case 3 :

                    s.monthlyProcess();

                    break;


              case 4 :

                    System.out.printf("Your balance is %.2f :
\n",s.getBalance());

              }

         System.out.println("The total no.of deposits made :
"+s.numberOfDeposit);

         System.out.println("The total no of withdrawals made :
"+s.numberOfWithdrawal);
```

System.out.println("The total service charge of the month is "+s.serviceCharge);

}while(choice != 0);

}

}

Output

```
Enter choice :
1
Please enter the amount you want to deposit :
250
The balance after deposit is 775.00 :
Do you want to make any more deposits? If yes please enter 1 and if no please enter 0
0
The total no.of deposits made : 1
The total no of withdrawals made : 1
The total service charge of the month is 0
0. Exit
1. Deposit
2. Withdrawal
3. Monthly Process
4. Check Balance
Enter choice :
2
Please enter the amount you want to withdraw :
300
The saving account is currently Active
The balance after withdrawal is 475.00:
Do you want to make any more withdrawals? If yes please enter 1 and if no please enter 0
1
Please enter the amount you want to withdraw :
75
The saving account is currently Active
The balance after withdrawal is 400.00:
Do you want to make any more withdrawals? If yes please enter 1 and if no please enter 0
0
The total no.of deposits made : 1
The total no of withdrawals made : 3
The total service charge of the month is 0
0. Exit
1. Deposit
2. Withdrawal
3. Monthly Process
4. Check Balance
Enter choice :
1
Please enter the amount you want to deposit :
50
The balance after deposit is 450.00 :
Do you want to make any more deposits? If yes please enter 1 and if no please enter 0
```



```
3. Monthly Process
4. Check Balance
Enter choice :
1
Please enter the amount you want to deposit :
50
The balance after deposit is 450.00 :
Do you want to make any more deposits? If yes please enter 1 and if no please enter 0
1
Please enter the amount you want to deposit :
50
The balance after deposit is 500.00 :
Do you want to make any more deposits? If yes please enter 1 and if no please enter 0
0
The total no.of deposits made : 3
The total no of withdrawals made : 3
The total service charge of the month is 0
0. Exit
1. Deposit
2. Withdrawal
3. Monthly Process
4. Check Balance
Enter choice :
0

C:\Users\Pankaj\Desktop\A1 Java>
```