P4:Code

```java
import java.util.Scanner;

abstract class shape
{
    int i1,i2;
    abstract void printarea();

 }

class rectangle extends shape
{
    void printarea()
  {
    System.out.println("\nArea: "+(i1*i2));
  }
}

class triangle extends shape
{
    void printarea()
  {
    System.out.println("\nArea of Triangle: "+(i1*i2/2));
  }

}

class circle extends shape
{
    void printarea()
  {
    System.out.println("\nArea: "+ (3.1415*i1*i1));
  }
}

class shapeMain
{
    public static void main(String args[])
  {
    Scanner get=new Scanner(System.in);
    int choice;
    triangle t= new triangle();
    rectangle r= new 1rectangle();
    circle c =new circle();
    System.out.println("\n 1. Rectangle\n 2. Triangle\n 3. Circle");
    System.out.printf("\nEnter the choice: ");
    System.out.printf("\nEnter the choice: ");
    choice=get.nextInt();
    switch(choice)
    { case 1 :
              System.out.printf("\nEnter Height and Width:");
              r.i1= get.nextInt();
              r.i2= get.nextInt();
              r.printarea();
              break;
      case 2 :
              System.out.printf("\nEnter altitude and base:");
              t.i1= get.nextInt();
              t.i2= get.nextInt();
              t.printarea();
              break;
      case 3 :
              System.out.printf("Enter the radius :");
              c.i1=get.nextInt();
              c.printarea();
              break;
     default : System.out.println("Input Error! ");
               System.exit(0);
    }
  }
}
```

P4:Output

```
 1. Rectangle
 2. Triangle
 3. Circle

Enter the choice: 1

Enter Height and Width:10 4

Area: 40

G:\NoTePadPP\MyJava\OOJ_LAB\Week8>java shapeMain

 1. Rectangle
 2. Triangle
 3. Circle

Enter the choice: 2

Enter altitude and base:10 5

Area of Triangle: 25

G:\NoTePadPP\MyJava\OOJ_LAB\Week8>java shapeMain

 1. Rectangle
 2. Triangle
 3. Circle

Enter the choice: 3
Enter the radius :5

Area: 78.53750000000001
```

P5:Code

```java
import java.util.Scanner;
import java.lang.Math;

abstract class account
{
    String name;
    String accountNo;
    String typeOfAccount;
    double balance;
    Boolean chequeBook;
    abstract void balanceDisplay();
    abstract void balanceCredit();
    abstract void balanceDebit();
    abstract void balanceCheck(double amount);
    abstract void operation();


}
class curAcc extends account
{
    Scanner get = new Scanner(System.in);
    double minBalance;
    curAcc()
    {
        System.out.println("\n <-----Welcome to Currents Account, Enter the below details to create an Account----->");
        System.out.printf(" Name: ");name=get.nextLine();
        typeOfAccount="Current Account";
        chequeBook=true;
        accountNo="SBE-".concat("CUR-").concat(name);
        System.out.printf(" Your Account No is %s ",accountNo);
        minBalance=1000;
        balance=0;
        firstDeposit();
    }
    void firstDeposit()
    {
        System.out.println("\n You need Have min balance of  "+minBalance+" Rupees, else you will be charged "+fineCal()+" every month\n Deposit Now!");
        balanceCredit();
        System.out.printf("\n Thank you are creating An Account!\n ");
        this.operation();
    }
    void fineCheck()
    {
        int k;
        if(balance<1000)
        {   System.out.println("\n You need Have min balance of  "+minBalance+" Rupees, else you will be charged "+fineCal()+"\n Deposit Now!");
            System.out.println(" Press 1 To deposit or you will be charged with"+fineCal());
            System.out.printf(" Choice: "); k=get.nextInt();
            if(k==1)
                balanceCredit();
            else
                balance-=fineCal();
        }
    }
    double fineCal()
    {
        double fine=0;
        if(balance<0)
        {
            fine=100.0;
        }
        else
            if(balance>=0)
        {
            fine=50;
        }
        return fine;
    }

    void balanceCheck(double amount)
    {
        if(amount>balance)
        {
            System.out.printf("\n The Withdraw Amount exceeds the Balance, check your balance and try again! ");
            balanceDisplay();
            operation();
        }
    }
    void balanceCredit()
    {
        double amount;
        System.out.printf("\n Enter the amount to deposit: ");
        amount=get.nextDouble();
        balance+=amount;
        System.out.printf("\n %.4f amount is Credited, Total balance = %.4f ",amount,balance);
        fineCheck();
    }
    void balanceDebit()
    {
        double amount;
        System.out.printf("\n Enter the amount to Withdraw: ");
        amount=get.nextDouble();
        balanceCheck(amount);
        balance-=amount;
        System.out.printf("\n %.4f amount was Debitted, Total balance = %.4f ",amount,balance);
        fineCheck();
    }

    void balanceDisplay()
    {
        System.out.printf("\n Total balance = %.4f ",balance);
    }
    void operation()
    {
        int choice,flag=0;
        do
        {
            System.out.printf("\n Enter the choice:\n 1.Deposit\n 2.Withdraw\n 3.Display Balance\n 4.Exit\n Choice: ");
            choice=get.nextInt();
            switch(choice)
            {
                case 1 : this.balanceCredit();
                         break;
                case 2 : this.balanceDebit();
                         break;
                case 3 : this.balanceDisplay();
                         break;
                case 4 : System.exit(0);

                default: System.out.printf(" \n Error input Give choice again! ");
                         operation();
            }
            System.out.printf("\n Do you wish to continue? Press 1 to continue :");
            flag=get.nextInt();
        }while(flag==1);
    }

}
class savAcc extends account
{
    Scanner get = new Scanner(System.in);
    double interestRate;
```

```
    Scanner get = new Scanner(System.in);
    double interestRate;
    double interest;
    int years;
    savAcc()
    {
        System.out.println("\n <-----Welcome to Savings Account, Enter the below details to create an Account----->");
        System.out.printf(" Name: ");name=get.nextLine();
        typeOfAccount="Savings Account";
        chequeBook=false;
        accountNo="SBE-".concat("SAV-").concat(name);
        System.out.printf(" Your Account No is %s ",accountNo);
        balance=0;
        interestRate=0.08;
        interest=0;
        firstDeposit();
    }
    void firstDeposit()
    {
        int k;
        System.out.printf("\n Do you wish to deposit money now? Press 1 to deposit : ");
        k=get.nextInt();
        if(k==1)
        balanceCredit();
        System.out.printf("\n Thank you are creating An Account!\n ");
        this.operation();
    }
    void operation()
    {
        int choice,flag=0;
        do
        {
            System.out.printf("\n Enter the choice:\n 1.Deposit\n 2.Withdraw\n 3.Display Balance\n 4.Interest Display\n 5.Exit\n Choice: ");
            choice=get.nextInt();
            switch(choice)
            {
                case 1 : this.balanceCredit();
                         break;
                case 2 : this.balanceDebit();
                         break;
                case 3 : this.balanceDisplay();
                         break;
                case 4: this.compoundInt();
                        break;
                case 5 : System.exit(0);
```

```
                case 5 : System.exit(0);

                default: System.out.printf(" \n Error input Give choice again! ");
                         operation();
            }
            System.out.printf("\n Do you wish to continue? Press 1 to continue :");
            flag=get.nextInt();
        }while(flag==1);
    }

    void balanceCheck(double amount)
    {
        if(amount>balance)
        {
            System.out.printf("\n The Withdraw Amount exceeds the Balance, check your balance and try again! ");
            balanceDisplay();
            operation();
        }
    }
    void balanceCredit()
    {
        double amount;
        System.out.printf("\n Enter the amount to deposit: ");
        amount=get.nextDouble();
        balance+=amount;
        System.out.printf("\n %.4f amount is Credited, Total balance = %.4f ",amount,balance);

    }
    void balanceDebit()
    {
        double amount;
        System.out.printf("\n Enter the amount to Withdraw: ");
        amount=get.nextDouble();
        balanceCheck(amount);
        balance-=amount;
        System.out.printf("\n %.4f amount was Debitted, Total balance = %.4f ",amount,balance);

    }
    void balanceDisplay()
    {
        System.out.printf("\n Total balance = %.4f ",balance);
    }
    void compoundInt()
    {
        int k;
```

```
        if(balance==0)
        {
            System.out.printf("\n You have Zero balance : Press 1 to Deposit and  try again : ");
            k=get.nextInt();
            if(k==1)
            balanceCredit();
            operation();
        }
        System.out.printf("\n Enter the No of years: ");
        years=get.nextInt();
        interest=balance*Math.pow((1+interestRate),years)-balance;
        System.out.printf("\n Initial Balance:%.4f\n Interest:%.4f",balance,interest);
        balance+=interest;
        System.out.printf("\n Final Balance:%.4f ",balance);
    }
}


class bank
{

    public static void main(String[] args)
    {
        int savCount=0,curCount=0,k,n=0;
        Scanner get = new Scanner(System.in);
        System.out.printf("\n Enter the No Of Accounts(MAX is 20): ");
        n=get.nextInt();
        savAcc s[];
        curAcc c[];
        s=new savAcc[10];
        c=new curAcc[10];

        do
        {

        System.out.printf("\n <-----Enter the Type Of Account-----> ");
        System.out.printf("\n 1.Savings\n 2.Current\n Choice: ");
        k=get.nextInt();
        switch(k)
        {
            case 1: s[savCount++]=new savAcc();
                    break;

            case 2: c[curCount++]=new curAcc();
                    break;
```

P5:Output

```
Enter the No Of Accounts(MAX is 20): 2

<-----Enter the Type Of Account----->
1.Savings
2.Current
Choice: 1

<-----Welcome to Savings Account, Enter the below details to create an Account----->
Name: Amarnath
Your Account No is SBE-SAV-Amarnath
Do you wish to deposit money now? Press 1 to deposit : 1

Enter the amount to deposit: 10000

10000.0000 amount is Credited, Total balance = 10000.0000
Thank you are creating An Account!

Enter the choice:
1.Deposit
2.Withdraw
3.Display Balance
4.Interest Display
5.Exit
Choice: 2

Enter the amount to Withdraw: 5000

5000.0000 amount was Debitted, Total balance = 5000.0000
Do you wish to continue? Press 1 to continue :4

<-----Enter the Type Of Account----->
1.Savings
2.Current
Choice: 2

<-----Welcome to Currents Account, Enter the below details to create an Account----->
Name: Gils
Your Account No is SBE-CUR-Gils
You need Have min balance of  1000.0 Rupees, else you will be charged 50.0 every month
Deposit Now!
```

```
Deposit Now!

Enter the amount to deposit: 1001

1001.0000 amount is Credited, Total balance = 1001.0000
Thank you are creating An Account!

Enter the choice:
1.Deposit
2.Withdraw
3.Display Balance
4.Exit
Choice: 2

Enter the amount to Withdraw: 500

500.0000 amount was Debitted, Total balance = 501.0000
You need Have min balance of  1000.0 Rupees, else you will be charged 50.0
Deposit Now!
Press 1 To deposit or you will be charged with50.0
Choice: 2

Do you wish to continue? Press 1 to continue :1

Enter the choice:
1.Deposit
2.Withdraw
3.Display Balance
4.Exit
Choice: 3

Total balance = 451.0000
Do you wish to continue? Press 1 to continue :1

Enter the choice:
1.Deposit
2.Withdraw
3.Display Balance
4.Exit
Choice: 1

Enter the amount to deposit: 1000

1000.0000 amount is Credited, Total balance = 1451.0000
Do you wish to continue? Press 1 to continue :1

Enter the choice:
1.Deposit
```

```
1.Deposit
2.Withdraw
3.Display Balance
4.Exit
Choice: 4
```