OOJ LAB-WEEK 8-LAB PROGRAMS

Program and Output

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Program 1-

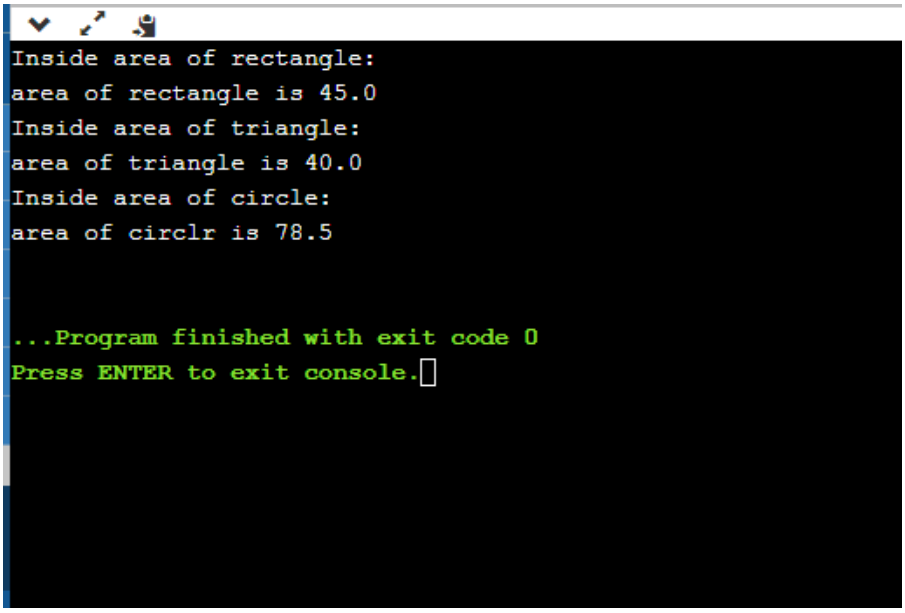
Develop a Java program to create an abstract class named Shape that contains two integers andan empty method named printArea( ). Provide three classes named Rectangle, Triangle andCircle such that each one of the classes extends the class Shape. Each one of the classes containonly the method printArea( ) that prints the area of the given shape.

```
abstract class Shape{
   int dim1;
   int dim2;
    Shape(int a,int b)
   {
      dim1=a;
      dim2=b;
   }
   Shape(int a)
   {
      dim1=a;
   }
   abstract double PrintArea();
}
class Rectangle extends Shape{
   Rectangle(int a, int b)
```

```
    {
        super(a,b);
    }
    double PrintArea()
    {
        System.out.println("Inside area of rectangle:");
        return dim1*dim2;
    }
}
class Triangle extends Shape{
    Triangle(int a,int b)
    {
        super(a,b);
    }
    double PrintArea()
    {
        System.out.println("Inside area of triangle:");
        return dim1*dim2/2;
    }
}
class Circle extends Shape{
    Circle(int a)
    {
        super(a);
    }
    double PrintArea()
```

```
    {
        System.out.println("Inside area of circle:");
        return 3.14*dim1*dim1;
    }
}
class Main{
    public static void main(String ss[]){
        Rectangle r=new Rectangle(9,5);
        Triangle t=new Triangle(10,8);
        Circle c=new Circle(5);
        System.out.println("area of rectangle is "+r.PrintArea());
        System.out.println("area of triangle is "+t.PrintArea());
        System.out.println("area of circlr is "+c.PrintArea());
    }
}
```

Output-



Program 2-

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 name,type;

   int accno;

   float bal=0;

   float pen=100;


Account(){

   Scanner ss=new Scanner(System.in);

   System.out.println("Enter name, account no. and type of account:");

   name=ss.next();

   accno=ss.nextInt();

   type=ss.next();

}


}


class curr_acct extends Account{
```

```
float dep,wit;

void deposit(){
   Scanner ss=new Scanner(System.in);
   System.out.println("Enter amount to be deposited:");
   dep=ss.nextInt();
   bal=bal+dep;
   System.out.println("updated balance after deposit: "+bal);
}

void withdraw(){
   Scanner ss=new Scanner(System.in);
   System.out.println("enter amount to be withdrawn:");
   wit=ss.nextInt();
   /*float b=bal-wit;
   if(b<500)
   {
      System.out.println("Insufficient balance");
   }
   else
   {*/
      bal=bal-wit;
   System.out.println("Updated balance after withdrawal: "+bal);
   //}
}
```

```
    void penalty(){
        if(bal<500)
        {
            bal=bal-pen;
            System.out.println("Updated balace after imposing penalty: "+ bal);
        }
        else
        System.out.println("No penalty imposed, balance:"+bal);
    }
    }

    class sav_acct extends Account{
        float dep,wit,r,t,n,ci;

        void depositc(){
            Scanner ss=new Scanner(System.in);
            System.out.println("enter amount to be deposited:");
            dep=ss.nextInt();
            System.out.println("enter rate%, time in years and number of times interest is
compunded per year:");
            r=ss.nextInt();
            t=ss.nextInt();
            n=ss.nextInt();
            ci=dep*((float)Math.pow((1+(r/(100*n))),(n*t)));
            bal=bal+ci;
            System.out.println("Updated balance after computing CI: "+bal);
        }
```

```
    void withdrawc(){
        Scanner ss=new Scanner(System.in);
    System.out.println("enter amount to be withdrawn:");
    wit=ss.nextInt();
    /*float b=bal-wit;
    if(b<500)
    {
        System.out.println("Insufficient balance");
    }
    else
    {*/
        bal=bal-wit;
    System.out.println("Updated balance after withdrawal: "+bal);
    //}
    }
}

class Bank{
    public static void main(String sss[]){
        Scanner ss=new Scanner(System.in);
        int opt;
        int ch;
        //Account a=new Account();
        System.out.println("choose type of account:");
        System.out.println("1.savings account\n2.current account\n");
```

```
        opt=ss.nextInt();
        if(opt==1){
           System.out.println("****SAVINGS ACCOUNT****");
           System.out.println("_____no chequebook services available_____");
           sav_acct s=new sav_acct();
           System.out.println("1.deposit with compound interest\n2.withdraw\n3.exit\n");
           do
           {
           System.out.println("enter choice");
           ch=ss.nextInt();
           switch(ch)
           {
              case 1:s.depositc();break;
              case 2:s.withdrawc();break;
              case 3:break;
           }
           } while(ch!=3);

        }

        if(opt==2){
           System.out.println("****CURRENT ACCOUNT****");
           System.out.println("_____chequebook services available_____");
           curr_acct c=new curr_acct();
           System.out.println("1.deposit\n2.withdraw\n3.check minimum
balance/penalty\n4.exit\n");
           do
```

```
        {
        System.out.println("enter choice");
        ch=ss.nextInt();
        switch(ch)
          {
            case 1:c.deposit();break;
            case 2:c.withdraw();break;
            case 3:c.penalty();break;
          }
        }while(ch!=4);
      }
    }
}
```

Output-

Savings:

```
choose type of account:
1.savings account
2.current account

1
****SAVINGS ACCOUNT****
_____no chequebook services available_____
Enter name, account no. and type of account:
mal 123 savings
1.deposit with compound interest
2.withdraw
3.exit

enter choice
1
enter amount to be deposited:
5000
enter rate%, time in years and number of times interest is compunded per year:
5 10 12
Updated balance after computing CI: 8235.103
enter choice
2
enter amount to be withdrawn:
7000
Updated balance after withdrawal: 1235.1025
enter choice
1
enter amount to be deposited:
100
enter rate%, time in years and number of times interest is compunded per year:
4 8 11
```

```
Enter name, account no. and type of account:
mal 123 savings
1.deposit with compound interest
2.withdraw
3.exit

enter choice
1
enter amount to be deposited:
5000
enter rate%, time in years and number of times interest is compunded per year:
5 10 12
Updated balance after computing CI: 8235.103
enter choice
2
enter amount to be withdrawn:
7000
Updated balance after withdrawal: 1235.1025
enter choice
1
enter amount to be deposited:
100
enter rate%, time in years and number of times interest is compunded per year:
4 8 11
Updated balance after computing CI: 1372.7354
enter choice
3


...Program finished with exit code 0
Press ENTER to exit console.
```

Current:

```
choose type of account:
1.savings account
2.current account

2
****CURRENT ACCOUNT****
_____chequebook services available_____
Enter name, account no. and type of account:
mal 1234 current
1.deposit
2.withdraw
3.check minimum balance/penalty
4.exit

enter choice
1
Enter amount to be deposited:
2000
updated balance after deposit: 2000.0
enter choice
2
enter amount to be withdrawn:
1400
Updated balance after withdrawal: 600.0
enter choice
3
No penalty imposed, balance:600.0
enter choice
2
enter amount to be withdrawn:
200
```

```
Updated balance after withdrawal: 600.0
enter choice
3
No penalty imposed, balance:600.0
enter choice
2
enter amount to be withdrawn:
200
Updated balance after withdrawal: 400.0
enter choice
3
Updated balace after imposing penalty: 300.0
enter choice
1
Enter amount to be deposited:
500
updated balance after deposit: 800.0
enter choice
2
enter amount to be withdrawn:
100
Updated balance after withdrawal: 700.0
enter choice
3
No penalty imposed, balance:700.0
enter choice
4


...Program finished with exit code 0
Press ENTER to exit console.
```