OBJECT ORIENTED PROGRAMMING LAB ASSIGNMENT-1

Date-23/02/2016

Submitted by-
NAME- Kavya Atmakuri
ROLL NO.- 14CO123
Section-1

```java
//Int.java
//Get input from the user and print them until zero has been entered
import java.util.Scanner;
class Int
{
        public static void main(String args[])
        {
                int i =1;
                Scanner s = new Scanner(System.in);
                while(i != 0)
                {
                        System.out.println("Please enter any integer, and 0 to exit.");
                        i = s.nextInt();
                        System.out.println(i);
                }
        }
}



//Complexnum.java
//Make a class for complex numbers. Add them, subtract them, find the conjugate depending on uer's
choice
import java.util.Scanner;
class Complex
{
        int r,c;
        Complex add(Complex num2)
        {
                Complex sum = new Complex();
                sum.r = r + num2.r;
                sum.c = c + num2.c;
                return sum;
        }

        Complex sub(Complex num2)
        {
                Complex sum = new Complex();
                sum.r = r - num2.r;
                sum.c = c - num2.c;
                return sum;
        }

        int conjugate()
        {
                c = 0 - c;
                return c;
        }
}
class Complexnum
{
        public static void main(String args[])
        {
                Scanner s = new Scanner(System.in);
                Complex num1 = new Complex();
                Complex num2 = new Complex();

                System.out.println("Enter the first number");
                num1.r = s.nextInt();
                num1.c = s.nextInt();

            System.out.println("Enter the second number");
                num2.r = s.nextInt();
                num2.c = s.nextInt();

                System.out.println("Sum is : "+((num1.add(num2)).r)+"+"+((num1.add(num2)).c)+"i");
                System.out.println("Difference is : "+((num1.sub(num2)).r)+"+"+((num1.sub(num2)).c)
+"i");
                System.out.println("Conjugate of the first number is : "+num1.r+"+"+num1.conjugate()
+"i");
                System.out.println("Conjugate of the second number is : "+num2.r+"+"+num2.conjugate()
+"i");
```

```
        }
}



//Ctr.java
//Print all the characters from a to z using any loop
class Ctr
{
        public static void main(String args[])
        {
                int i;
                for(i='a';i<='z';i++)
                {
                        System.out.println((char)i);
                }
        }
}



//Date.java
//Craete a class containing private fields Day, Month, Year, Hour, Minutes, Seconds
import java.util.Scanner;
class Date
{
        private int d,mnth,yr,hr,minute,sec;
        String tostring()
        {
                String now;
                now = d+"/"+mnth+"/"+yr+" "+hr+":"+minute+":"+sec;
                return now;
        }
        String tostring(String format)
        {
                String s;
                if(format == "DD")
                        s = d+"/"+mnth+"/"+yr;
                else if (format == "TS")
                        s = hr+":"+minute;
                else if (format == "TL")
                        s = hr+":"+minute+":"+sec
                else if (format =="DMTS")
                        s = mnth+"/"+d+"/"+yr+" "+hr+":"+minute;
                else if (format == "DM")
                        s = mnth + "/" + d + "/" + yr;
                else
                        s = "Invalid choice";
                return s;
        }
        public static void main(String args[])
        {
                int ch;
                String format="Empty";
                Date today = new Date();
                Scanner s = new Scanner(System.in);
                System.out.println("Enter date : ");
                today.d = s.nextInt();
                System.out.println("Enter month : ");
                today.mnth = s.nextInt();
                System.out.println("Enter year : ");
                today.yr = s.nextInt();
                System.out.println("Enter Hour : ");
                today.hr = s.nextInt();
                System.out.println("Enter Minutes : ");
                today.minute = s.nextInt();
                System.out.println("Enter Second : ");
                today.sec = s.nextInt();
                System.out.println("The entered info is : "+today.tostring());
                System.out.println("Enter \n 1 for DM format \n 2 for DD format \n 3 for TS format \n
4 for TL format \n 5 for DMTS ");
                ch = s.nextInt();
```

```
                if(ch == 1)
                        format = "DM";
                else if (ch == 2)
                        format = "DD";
                else if (ch == 3)
                        format = "TS";
                else if (ch ==4)
                        format = "TL";
                else if (ch == 5)
                        format = "DMTS";
                System.out.println(today.tostring(format));
        }
}
```

Int.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$ javac Int.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$ java Int
Please enter any integer, and 0 to exit.
1
1
Please enter any integer, and 0 to exit.
2
2
Please enter any integer, and 0 to exit.
3
3
Please enter any integer, and 0 to exit.
4
4
Please enter any integer, and 0 to exit.
5
5
Please enter any integer, and 0 to exit.
6
6
Please enter any integer, and 0 to exit.
7
7
Please enter any integer, and 0 to exit.
8
8
Please enter any integer, and 0 to exit.
9
9
Please enter any integer, and 0 to exit.
0
0
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$
```

Complexnum.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$ javac Complexnum.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$ java Complexnum
Enter the first number
1
3
Enter the second number
2
5
Sum is : 3+8i
Difference is : -1+-2i
Conjugate of the first number is : 1+-3i
Conjugate of the second number is : 2+-5i
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$
```

Ctr.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$ javac Ctr.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$ java Ctr
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
v
w
x
y
z
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$
```

Date.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$ javac Date.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$ java Date
Enter date :
12
Enter month :
3
Enter year :
2016
Enter Hour :
12
Enter Minutes :
1
Enter Second :
21
The entered info is : 12/3/2016 12:1:21
Enter
 1 for DM format
 2 for DD format
 3 for TS format
 4 for TL format
 5 for DMTS
2
12/3/2016
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/lab1$
```

```
//Person.java
/*Create a class Person with the following properties:
Public fields: ID, Name, YearOfBirth
Now take input (ID, Name, YearOfBirth) from the user and print it in the format :
ID | Name | Age*/

import java.util.Scanner;
import java.util.Date;
class Person{
    int id;
    String nam;
    Date dob;

    public static void main(String args[])
    {
        Person p=new Person();
        Scanner s=new Scanner(System.in);
        System.out.println("Enter id,name, DOB(dd,mm,yy)");
        p.id=s.nextInt();
        p.nam=s.next();
        int dd,mm,yy;
        dd=s.nextInt();
        mm=s.nextInt();
        yy=s.nextInt();
        p.dob=new Date(yy,mm,dd);
        System.out.println("id,name,age "+p.id +"  "+p.nam+"  "+(2016-p.dob.getYear()));
    }
}



//Person2.java
/*The above approach is not correct. The field should be private always. To access fields outside the
class, we must define get/set methods for the fields.*/

import java.util.Scanner;
import java.util.Date;
class Person{
    private int id;
    private String nam;
    private Date dob;
    int getID()
    {
        return id;
    }
    String getnam()
    {
        return nam;
    }
    Date getdob()
    {
        return dob;
    }
    void setID(int i)
    {
        id=i;
    }
    void setnam(String n)
    {
        nam=n;
    }
    void setdob(Date d)
    {
        dob=new Date();
        dob=d;
    }
}
class Person2
{
    public static void main(String args[])
    {
        int dd,mm,yy;
```

```
        Person p=new Person();
        Scanner s=new Scanner(System.in);
        System.out.println("Enter id,name, DOB(dd,mm,yy)");

        int i=s.nextInt();
        String n=s.next();

        dd=s.nextInt();
        mm=s.nextInt();
        yy=s.nextInt();

        Date d=new Date(yy,mm,dd);
        p.setID(i);
        p.setnam(n);
        p.setdob(d);

        System.out.println("id,name,age "+p.getID() +"  "+p.getnam()+"  "+(2016-p.getdob().getYear()));
    }
}



//Person3.java
/*Now define the following constructors in the Person class
Person(int ID, String Name, int YearOfBirth)
Person(String Name, int YearOfBirth) - generate the ID randomly in this case*/

import java.util.Scanner;
import java.util.Date;
class Person{
    private int id;
    private String nam;
    private Date dob= new Date();
    int getID()
    {
        return id;
    }
    String getnam()
    {
        return nam;
    }
    Date getdob()
    {
        return dob;
    }
    Person(int i, String n, Date d)
    {
        id=i;
        nam=n;
        dob=d;
    }
    Person(String n, Date d)
    {
        id=9999;
        nam=n;
        dob=d;
    }
}
class Person3
{
    public static void main(String args[])
    {
        int dd,mm,yy;
        Person p;
        Scanner s=new Scanner(System.in);
        System.out.println("Enter id (-1 if no ID), name, DOB(dd,mm,yy)");

        int i=s.nextInt();
        String n=s.next();

        dd=s.nextInt();
        mm=s.nextInt();
```

```
        yy=s.nextInt();

        Date d=new Date(yy,mm,dd);

        if(i==-1)
            p=new Person(n,d);
        else
            p=new Person(i,n,d);

        System.out.println("id,name,age "+p.getID() +"  "+p.getnam()+"  "+(2016-p.getdob().getYear()));
    }
}



//Person4.java
/* Create the following method in the Person class:
void CopyTo(Person p) - It will copy the fields of current(or this) Person into the Person p.*/

import java.util.Scanner;
import java.util.Date;
class Person{
    private int id;
    private String nam;
    private Date dob;
    void CopyTo(Person p)
    {
        p.id=id;
        p.nam=nam;
        p.dob=new Date();
        p.dob=dob;
    }
    int getID()
    {
        return id;
    }
    String getnam()
    {
        return nam;
    }
    Date getdob()
    {
        return dob;
    }
    void setID(int i)
    {
        id=i;
    }
    void setnam(String n)
    {
        nam=n;
    }
    void setdob(Date d)
    {
        dob=new Date();
        dob=d;
    }
}
class Person4
{
    public static void main(String args[])
    {
        int dd,mm,yy;
        Person p=new Person();
        Scanner s=new Scanner(System.in);
        System.out.println("Enter id,name, DOB(dd,mm,yy)");

        int i=s.nextInt();
        String n=s.next();

        dd=s.nextInt();
        mm=s.nextInt();
```

```
        yy=s.nextInt();

        Date d=new Date(yy,mm,dd);
        p.setID(i);
        p.setnam(n);
        p.setdob(d);

        Person p2=new Person();
        p.CopyTo(p2);

        System.out.println("id,name,age (copied contents) "+p2.getID() +"  "+p2.getnam()+"  "+(2016-
p2.getdob().getYear()));
    }
}



//Bank.java
/*Create a BankAccount class.
Some of the fields can be CustomerID, Amount, AccountType (Current, Saving).
The customer must deposit some amount while opening the account. The account can never have Zero
balance.
The valid operations are deposit, withdraw, checkBalance, closeAccount (exit the menu and set amount
to 0)*/

import java.util.Scanner;
class acc{
    private int id;
    private double amt;
    private char type;
    acc(int i, double a, char t)
    {
        id=i;
        amt=a;
        type=t;
    }
    double deposit(double d)
    {
        amt+=d;
        return amt;
    }
    double withdraw(double d)
    {
        if(amt>=d)
            amt-=d;
        else
            System.out.println("Balance too low to withdraw ");
        return amt;
    }
    double chkbal()
    {
        return amt;
    }

}
class Bank{
    public static void main(String args[])
    {
        acc a1;
        int ch;
        Scanner s=new Scanner(System.in);
        System.out.println("Enter ID, amount, TYPE(c/s) ");
        int i=s.nextInt();
        double a=s.nextDouble();
        char t=s.next().charAt(0);
        a1=new acc(i,a,t);
        System.out.println("Enter choice- 1.Deposit    2. Withdraw    3. Check Balance   4. Close
Account ");
        do
        {
            System.out.println("Enter choice- ");
            ch=s.nextInt();
```

```
            switch(ch)
            {
                case 1: System.out.println("Enter amount ");
                    i=s.nextInt();
                    a1.deposit(i);
                    System.out.println("Amount is "+ a1.chkbal());
                    break;

                case 2: System.out.println("Enter amount ");
                    i=s.nextInt();
                    a1.withdraw(i);
                    System.out.println("Amount is "+ a1.chkbal());
                    break;

                case 3: System.out.println("Amount is "+ a1.chkbal());
                    break;
                default: System.exit(0);
            }

            System.out.println("CONTINUE? (0/1) ");
            ch=s.nextInt();
        }while(ch==1);
    }
}
```

Person.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$ java Person
Enter id,name, DOB(dd,mm,yy)
321
bing
12
12
1993
id,name,age 321  bing  22
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$
```

Person2.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$ java Person2
Enter id,name, DOB(dd,mm,yy)
312
chanandler
31
2
1995
id,name,age 312  chanandler  21
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$
```

Person3.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$ java Person3
Enter id (-1 if no ID), name, DOB(dd,mm,yy)
-1
monica
21
7
1987
id,name,age 9999  monica  29
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$
```

Person4.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$ java Person4
Enter id,name, DOB(dd,mm,yy)
312
joey
21
12
1985
id,name,age (copied contents) 312  joey  30
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$
```

Bank.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$ javac Bank.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$ java Bank
Enter ID, amount, TYPE(c/s)
931
10000
c
Enter choice- 1.Deposit    2. Withdraw    3. Check Balance   4. Close Account
Enter choice-
3
Amount is 10000.0
CONTINUE? (0/1)
1
Enter choice-
1
Enter amount
200
Amount is 10200.0
CONTINUE? (0/1)
1
Enter choice-
2
Enter amount
100
Amount is 10100.0
CONTINUE? (0/1)
1
Enter choice-
4
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopk$
```

```java
//Geom.java
/*Create a base class Shape with the following methods:
double getArea() - return the area of the shape.
double getPerimeter() - return the perimeter of the shape.
void Draw() - print the shape type like circle, rectangle etc.
Now derive two classes from the Shape class.
Circle with a field Radius
Rectangle with fields length and breadth.
These classes should override the methods defined in the Shape class.*/

import java.util.Scanner;
class Shape{
    double getArea()
    {
        return 0;
    }
    double getPerimeter()
    {
        return 0;
    }
    void Draw()
    {
        System.out.println(" ");
    }
}
class Circle extends Shape{
    private float r;
    Circle(float r1)
    {
        r=r1;
    }
    double getArea()
    {
        return 3.1415*r*r;
    }
    double getPerimeter()
    {
        return 2*3.1415*r;
    }
    void Draw()
    {
        System.out.println("CIRCLE");
    }
}
class Rectangle extends Shape{
    private float l, h;
    Rectangle(float l1, float h1)
    {
        l=l1;
        h=h1;
    }
    double getArea()
    {
        return l*h;
    }
    double getPerimeter()
    {
        return 2*(l+h);
    }
    void Draw()
    {
        System.out.println("RECTANGLE");
    }
}
class Square extends Rectangle{
    Square(float l)
    {
        super(l,l);
    }
    void Draw()
    {
        System.out.println("SQUARE");
```

```
    }
}



//Geom2.java
/*Now derive a class Square from the class Rectangle.
From the constructor of Square class, call the constructor of Rectangle class.
Do not override first two methods in this case, because the logic of finding area and perimeter is
same for both Square and Rectangle.
Add the option of creating a Square in your menu.*/

import java.util.Scanner;
class Shape{
    double getArea()
    {
        return 0;
    }
    double getPerimeter()
    {
        return 0;
    }
    void Draw()
    {
        System.out.println(" ");
    }
}
class Circle extends Shape{
    private float r;
    Circle(float r1)
    {
        r=r1;
    }
    double getArea()
    {
        return 3.1415*r*r;
    }
    double getPerimeter()
    {
        return 2*3.1415*r;
    }
    void Draw()
    {
        System.out.println("CIRCLE");
    }
}
class Rectangle extends Shape{
    private float l, h;
    Rectangle(float l1, float h1)
    {
        l=l1;
        h=h1;
    }
    double getArea()
    {
        return l*h;
    }
    double getPerimeter()
    {
        return 2*(l+h);
    }
    void Draw()
    {
        System.out.println("RECTANGLE");
    }
}
class Square extends Rectangle{
    Square(float l)
    {
        super(l,l);
    }
    void Draw()
```

```
    {
        System.out.println("SQUARE");
    }
}
class Geom2{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in);
        int ch,n,yn;
        float l,h,r;
        do{
            System.out.println("Enter choice 0-Rectangle 1-Circle 2-Square");
            ch=s.nextInt();
            if(ch==0)
            {
                Rectangle rect;
                do
                {
                    System.out.println("Enter valid length, breadth");
                    l=s.nextFloat();
                    h=s.nextFloat();
                }while(l<=0 || h<=0);
                rect=new Rectangle(l,h);
                do{

                    System.out.println("Enter choice 1- Display shape type 2-Area 3-Perimeter");
                    n=s.nextInt();

                    switch(n)
                    {
                        case 1: rect.Draw();
                                break;
                        case 2: System.out.println("Area="+rect.getArea());
                                break;
                        case 3: System.out.println("Perimeter="+rect.getPerimeter());
                        default:break;
                    }
                    System.out.println("Continue with rectangle? (0/1)");
                    yn=s.nextInt();
                }while(yn==1);
            }
            else if(ch==1)
            {
                Circle c;
                do
                {
                    System.out.println("Enter valid radius");
                    r=s.nextFloat();
                }while(r<=0);
                c=new Circle(r);
                do{

                    System.out.println("Enter choice 1- Display shape type 2-Area 3-Perimeter");
                    n=s.nextInt();
                    switch(n)
                    {
                        case 1: c.Draw();
                                break;
                        case 2: System.out.println("Area="+c.getArea());
                                break;
                        case 3: System.out.println("Perimeter="+c.getPerimeter());
                        default:break;
                    }
                    System.out.println("Continue with circle? (0/1)");
                    yn=s.nextInt();
                }while(yn==1);
            }
            else if(ch==2)
            {
                Square sq;
                do
                {
```

```
                    System.out.println("Enter valid length");
                    l=s.nextFloat();
                }while(l<=0);
                sq=new Square(l);
                do{

                    System.out.println("Enter choice 1- Display shape type 2-Area 3-Perimeter");
                    n=s.nextInt();

                    switch(n)
                    {
                        case 1: sq.Draw();
                                break;
                        case 2: System.out.println("Area="+sq.getArea());
                                break;
                        case 3: System.out.println("Area="+sq.getPerimeter());
                        default:break;
                    }
                    System.out.println("Continue with square? (0/1)");
                    yn=s.nextInt();
                }while(yn==1);
            }
            System.out.println("Continue? (0/1)");
            yn=s.nextInt();
        }while(yn==1);
    }
}



//Geom3.java
/*Derive a class Cylinder from Circle.
What extra fields are to be added?
What functions should be overridden?
Add the option of creating a Cylinder in your menu.*/

import java.util.Scanner;
class Shape{
    double getArea()
    {
        return 0;
    }
    double getPerimeter()
    {
        return 0;
    }
    void Draw()
    {
        System.out.println(" ");
    }
}
class Circle extends Shape{
    private float r;
    Circle(float r1)
    {
        r=r1;
    }
    double getArea()
    {
        return 3.1415*r*r;
    }
    double getPerimeter()
    {
        return 2*3.1415*r;
    }
    void Draw()
    {
        System.out.println("CIRCLE");
    }
}
class Cylinder extends Circle{
    private float h;
```

```
    Cylinder(float r1, float h1)
    {
        super(r1);
        h=h1;
    }
    double getArea()
    {
        return (2*super.getArea())+(super.getPerimeter()*h);
    }
    double getVolume()
    {
        return (super.getArea()*h);
    }
    void Draw()
    {
        System.out.println("CYLINDER");
    }
}
class Rectangle extends Shape{
    private float l, h;
    Rectangle(float l1, float h1)
    {
        l=l1;
        h=h1;
    }
    double getArea()
    {
        return l*h;
    }
    double getPerimeter()
    {
        return 2*(l+h);
    }
    void Draw()
    {
        System.out.println("RECTANGLE");
    }
}
class Square extends Rectangle{
    Square(float l)
    {
        super(l,l);
    }
    void Draw()
    {
        System.out.println("SQUARE");
    }
}
class Geom3{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in);
        int ch,n,yn;
        float l,h,r;
        do{
            System.out.println("Enter choice 0-Rectangle 1-Circle 2-Square 3-Cylinder");
            ch=s.nextInt();
            if(ch==0)
            {
                Rectangle rect;
                do
                {
                    System.out.println("Enter valid length, breadth");
                    l=s.nextFloat();
                    h=s.nextFloat();
                }while(l<=0 || h<=0);
                rect=new Rectangle(l,h);
                do{
                    System.out.println("Enter choice 1- Display shape type 2-Area 3-Perimeter");
                    n=s.nextInt();
                    switch(n)
                    {
```

```
                case 1: rect.Draw();
                        break;
                case 2: System.out.println("Area="+rect.getArea());
                        break;
                case 3: System.out.println("Perimeter="+rect.getPerimeter());
                default:break;
            }
            System.out.println("Continue with rectangle? (0/1)");
            yn=s.nextInt();
        }while(yn==1);
    }
    else if(ch==1)
    {
        Circle c;
        do
        {
            System.out.println("Enter valid radius");
            r=s.nextFloat();
        }while(r<=0);
        c=new Circle(r);
        do{
            System.out.println("Enter choice 1- Display shape type 2-Area 3-Perimeter");
            n=s.nextInt();
            switch(n)
            {
                case 1: c.Draw();
                        break;
                case 2: System.out.println("Area="+c.getArea());
                        break;
                case 3: System.out.println("Perimeter="+c.getPerimeter());
                default:break;
            }
            System.out.println("Continue with circle? (0/1)");
            yn=s.nextInt();
        }while(yn==1);
    }
    else if(ch==2)
    {
        Square sq;
        do
        {
            System.out.println("Enter valid length");
            l=s.nextFloat();
        }while(l<=0);
        sq=new Square(l);
        do{
            System.out.println("Enter choice 1- Display shape type 2-Area 3-Perimeter");
            n=s.nextInt();
            switch(n)
            {
                case 1: sq.Draw();
                        break;
                case 2: System.out.println("Area="+sq.getArea());
                        break;
                case 3: System.out.println("Perimeter="+sq.getPerimeter());
                default:break;
            }
            System.out.println("Continue with square? (0/1)");
            yn=s.nextInt();
        }while(yn==1);
    }
    else if(ch==3)
    {
        Cylinder cl;
        do
        {
            System.out.println("Enter valid radius,height");
            r=s.nextFloat();
            h=s.nextFloat();
        }while(r<=0 || h<=0);
        cl=new Cylinder(r,h);
        do{
```

```
                    System.out.println("Enter choice 1- Display shape type 2-Area 3-Volume");
                    n=s.nextInt();
                    switch(n)
                    {
                        case 1: cl.Draw();
                                break;
                        case 2: System.out.println("Area="+cl.getArea());
                                break;
                        case 3: System.out.println("Perimeter="+cl.getVolume());
                        default:break;
                    }
                    System.out.println("Continue with cylinder? (0/1)");
                    yn=s.nextInt();
                }while(yn==1);
            }
            System.out.println("Continue? (0/1)");
            yn=s.nextInt();
        }while(yn==1);
    }
}
```

Geom.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$ java Geom
Enter choice 0-Rectangle 1-Circle
0
Enter valid length, breadth
12
3
Enter choice 1- Display shape type 2-Area 3-Perimeter
1
RECTANGLE
Continue with rectangle? (0/1)
1
Enter choice 1- Display shape type 2-Area 3-Perimeter
2
Area=36.0
Continue with rectangle? (0/1)
1
Enter choice 1- Display shape type 2-Area 3-Perimeter
3
Perimeter=30.0
Continue with rectangle? (0/1)
0
Continue? (0/1)
1
Enter choice 0-Rectangle 1-Circle
1
Enter valid radius
-3
Enter valid radius
3
Enter choice 1- Display shape type 2-Area 3-Perimeter
2
Area=28.2735
Continue with circle? (0/1)
0
Continue? (0/1)
0
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$
```

Geom2.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$ javac Geom2.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$ java Geom2
Enter choice 0-Rectangle 1-Circle 2-Square
0
Enter valid length, breadth
2
2
Enter choice 1- Display shape type 2-Area 3-Perimeter
2
Area=4.0
Continue with rectangle? (0/1)
0
Continue? (0/1)
1
Enter choice 0-Rectangle 1-Circle 2-Square
2
Enter valid length
5
Enter choice 1- Display shape type 2-Area 3-Perimeter
1
SQUARE
Continue with square? (0/1)
1
Enter choice 1- Display shape type 2-Area 3-Perimeter
2
Area=25.0
Continue with square? (0/1)
0
Continue? (0/1)
1
Enter choice 0-Rectangle 1-Circle 2-Square
1
Enter valid radius
5
Enter choice 1- Display shape type 2-Area 3-Perimeter
1
CIRCLE
Continue with circle? (0/1)
1
Enter choice 1- Display shape type 2-Area 3-Perimeter
2
Continue with circle? (0/1)
0
Continue? (0/1)
0
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$
```

Geom3.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$ javac Geom3.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$ java Geom3
Enter choice 0-Rectangle 1-Circle 2-Square 3-Cylinder
0
Enter valid length, breadth
1
2
Enter choice 1- Display shape type 2-Area 3-Perimeter
2
Area=2.0
Continue with rectangle? (0/1)
1
Enter choice 1- Display shape type 2-Area 3-Perimeter
1
RECTANGLE
Continue with rectangle? (0/1)
0
Continue? (0/1)
1
Enter choice 0-Rectangle 1-Circle 2-Square 3-Cylinder
3
Enter valid radius,height
2
-1
Enter valid radius,height
2
1
Enter choice 1- Display shape type 2-Area 3-Volume
1
CYLINDER
Continue with cylinder? (0/1)
1
Enter choice 1- Display shape type 2-Area 3-Volume
2
Area=37.698
Continue with cylinder? (0/1)
1
Enter choice 1- Display shape type 2-Area 3-Volume
3
Perimeter=12.566
Continue with cylinder? (0/1)
0
Continue? (0/1)
0
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$
```

Bank3.java

```
Menu- 1.Deposit    2. Withdraw    3. Check Balance   4. Close Account
1
Enter amount
6000
Cannot deposit this much
Amount is 1000.0
CONTINUE? (0/1)

^Z
[2]+  Stopped                 java Bank3
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$ javac Bank3.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$ java Bank3
Enter ID, amount, TYPE(c/s), Password
123
1000
c
qwert
Menu- 1.Deposit    2. Withdraw    3. Check Balance   4. Close Account
1
Enter amount
6000
Cannot deposit this much
Amount is 1000.0
CONTINUE? (0/1)
1
Menu- 1.Deposit    2. Withdraw    3. Check Balance   4. Close Account
1
Enter amount
200
Amount is 1200.0
CONTINUE? (0/1)
1
Menu- 1.Deposit    2. Withdraw    3. Check Balance   4. Close Account
3
Amount is 1200.0
CONTINUE? (0/1)
1
Menu- 1.Deposit    2. Withdraw    3. Check Balance   4. Close Account
4
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/OOPK2$
```

```
//bankacc.java
/*In your BankAccount class (from the previous lab), Add a new field password. Modify the constructors
and methods accordingly.
Add the following restrictions:
(i) A current/saving account holder should not be able to deposit more than Rs 5000/Rs 10000  at a
time respectively.
(ii) if three successive withdraw operations are performed at a time. The account should get Blocked.
For any next Withdraw user should be asked to enter the password. After that account should again
become unblocked.*/

import java.util.Scanner;
class acc
{
        private int id;
        protected double amt;
        String password;
        acc(int i, double a, String p)
        {
                id=i;
                amt=a;
                password=p;
        }
        double deposit(double d)
        {
                amt+=d;
                return amt;
        }
        double withdraw(double d)
        {
                if(amt>=d)
                        amt-=d;
                else
                        System.out.println("Balance too low to withdraw ");
                return amt;
        }
        double chkbal()
        {
            return amt;
        }
        void clsacc()
        {
                amt=0;
        }

}

class savingacc extends acc
{
    savingacc(int i, double a, String p)
    {
        super(i,a,p);
    }
    double deposit(double d)
    {
                if(d>5000)
                {
                        System.out.println("not possible");
                        return amt;
                }
                amt+=d;
                return amt;
    }
}

class currentacc extends acc
{

    currentacc(int i, double a, String p)
    {
        super(i,a,p);
    }
    double deposit(double d)
```

```
    {
                if(d>10000)
                {
                        System.out.println("not possible");
                        return amt;
                }
                amt+=d;
                return amt;
    }
}

class bankacc{
        public static void main(String args[])
        {
                acc a1;
                int ch;
                Scanner s=new Scanner(System.in);
                System.out.println("Enter ID, amount, TYPE(c/s),PASSWORD ");
                int i=s.nextInt();
                double a=s.nextDouble();
                char t=s.next().charAt(0);
                String p=s.next();
                if(t == 'c')
                    a1=new currentacc(i,a,p);
                else
                    a1=new savingacc(i,a,p);
                int count=0;
                String temppass;
                System.out.println("Enter choice- 1.Deposit    2. Withdraw    3. Check Balance   4.
Close Account ");
                do
                {
                        System.out.println("Enter choice- ");
                        ch=s.nextInt();
                        switch(ch)
                        {
                                case 1: System.out.println("Enter amount ");
                                        i=s.nextInt();
                                        a1.deposit(i);
                                        System.out.println("Amount is "+ a1.chkbal());
                                        break;

                                case 2:count=count+1;
                                        if(count==4)
                                        {
                                                System.out.println("Account blocked");
                                        }
                                        else
                                        {
                                                if(count==5)
                                                {
                                                        count=0;
                                                        System.out.println("Enter password");
                                                        temppass=s.next();
                                                        if(!temppass.equals(a1.password))
                                                        {
                                                                System.out.println("Access
denied");count=3;break;
                                                        }
                                                        else
                                                                System.out.println("Access granted");
                                                }
                                                System.out.println("Enter amount ");
                                                i=s.nextInt();
                                                a1.withdraw(i);
                                                System.out.println("Amount is "+ a1.chkbal());
                                        }
                                        break;

                                case 3: System.out.println("Amount is "+ a1.chkbal());
                                        break;
                                default: break;
```

```
                        }
                        System.out.println("CONTINUE? (0/1) ");
                        ch=s.nextInt();
                }while(ch==1);
        }
}
```

Bankacc.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopprint$ javac bankacc.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopprint$ java bankacc
Enter ID, amount, TYPE(c/s),PASSWORD
123
1000
c
qwert
Enter choice- 1.Deposit    2. Withdraw    3. Check Balance   4. Close Account
Enter choice-
1
Enter amount
6000
Amount is 7000.0
CONTINUE? (0/1)
1
Enter choice-
2
Enter amount
10
Amount is 6990.0
CONTINUE? (0/1)
1
Enter choice-
2
Enter amount
10
Amount is 6980.0
CONTINUE? (0/1)
1
Enter choice-
2
Enter amount
10
Amount is 6970.0
CONTINUE? (0/1)
1
Enter choice-
2
Account blocked
CONTINUE? (0/1)
1
Enter choice-
2
Enter password
qwer
Access denied
CONTINUE? (0/1)
1
Enter choice-
2
Account blocked
CONTINUE? (0/1)
1
Enter choice-
2
Enter password
qwert
Access granted
Enter amount
10
Amount is 6960.0
CONTINUE? (0/1)
0
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopprint$
```

```
//Package vehicles
/*Q1 - Create an interface Vehicle with the methods:
turnIgnitionOn(), turnIgnitionOff(), IncreaseSpeed(int amt), DecreaseSpeed(int amt), GetSpeed()
Now create a class Car that implements this interface.

Q2 - Create another interface Flyable with the following methods:
takeOff(), land()
Now create a class Helicopter that will implement both Vehicle and Flyable

Note -
In the definition of the functions, you can just print "Taking off..." / "Landing..."

Q3 - Create a package named vehicles. And include the above interfaces and classes in that package.
Now import this package and use the classes in a new file.*/


//Flyable.java

package vehicles;
interface Flyable{
        public void TakeOff();
        public void Land();
}



//Vehicle.java

package vehicles;
interface Vehicle{
        public void turnIgnitionOn();
        public void turnIgnitionOff();
        public int IncreaseSpeed(int amt);
        public int DecreaseSpeed(int amt);
        public int GetSpeed();
}



//Car.java

package vehicles;
public class Car implements Vehicle{
        int speed,ignition;
        public Car()
        {
                speed=0;
                ignition=0;
        }
        public void turnIgnitionOn()
        {
                ignition=1;
        }
        public void turnIgnitionOff()
        {
                ignition=0;
                speed=0;
        }
        public int IncreaseSpeed(int amt)
        {
                if(ignition==0)
                        return -1;
                speed+=amt;
                return 0;
        }
        public int DecreaseSpeed(int amt)
        {
                if(ignition==0)
                        return -1;
                speed-=amt;
                if(speed<=0)
                {
```

```
                        speed=0;
                }
                return 0;

        }
        public int GetSpeed()
        {
                return speed;
        }
}



//Helicopter.java

package vehicles;
public class Helicopter implements Vehicle,Flyable{
        int speed,ignition;
        public Helicopter()
        {
                speed=0;
                ignition=0;
        }
        public void TakeOff()
        {
                System.out.println("\nTaking off");
        }
        public void Land()
        {
                System.out.println("\nLanding");
        }
        public void turnIgnitionOn()
        {
                ignition=1;
        }
        public void turnIgnitionOff()
        {
                ignition=0;
                speed=0;
        }
        public int IncreaseSpeed(int amt)
        {
                if(ignition==0)
                        return -1;
                speed+=amt;
                return 0;
        }
        public int DecreaseSpeed(int amt)
        {
                if(ignition==0)
                        return -1;
                speed-=amt;
                if(speed<=0)
                {
                        speed=0;
}
                return 0;
        }
        public int GetSpeed()
        {
                return speed;
        }
}



//Automobile.java

import vehicles.Car;
import java.util.Scanner;
public class Automobile{
        public static void main(String args[])
```

```
	{
		Car c=new Car();
		int ch,yn,amt;
		Scanner s=new Scanner(System.in);
		do{
			System.out.println("\nEnter choice 1.Turn on ignition 2.Turn off ignition
3.Decrease speed 4.Increase speed 5.Display speed");
			ch=s.nextInt();
			switch(ch)
			{
				case 1: c.turnIgnitionOn();
					break;
				case 2: c.turnIgnitionOff();
					break;
				case 3: System.out.println("\nEnter value to decrease speed by");
					amt=s.nextInt();
					if(c.DecreaseSpeed(amt)==-1)
						System.out.println("\nCannot decrease speed");
					break;
				case 4: System.out.println("\nEnter value to increase speed by");
					amt=s.nextInt();
					if(c.IncreaseSpeed(amt)==-1)
						System.out.println("\nCannot increase speed");
					break;
				case 5: System.out.println("Speed is "+c.GetSpeed());
				default: break;
			}
		System.out.println("\nContinue? (1/0)");
		yn=s.nextInt();
		}while(yn==1);
	}
}



//Automotive.java

import vehicles.Helicopter;
import java.util.Scanner;
public class Automotive{
	 public static void main(String args[])
	{
		Helicopter c=new Helicopter();
		int ch,yn,amt;
		Scanner s=new Scanner(System.in);
		do{
			System.out.println("\nEnter choice 1.Take Off 2.Turn on ignition 3.Turn off
ignition 4.Decrease speed 5.Increase speed 6.Display speed 7.Land");
			ch=s.nextInt();
			switch(ch)
			{
				case 1: c.TakeOff();
					break;
				case 2: c.turnIgnitionOn();
					break;
				case 3: c.turnIgnitionOff();
					break;
				case 4: System.out.println("\nEnter value to decrease speed by");
					amt=s.nextInt();
					if(c.DecreaseSpeed(amt)==-1)
						System.out.println("\nCannot decrease speed");
					break;
				case 5: System.out.println("\nEnter value to increase speed by");
					amt=s.nextInt();
					if(c.IncreaseSpeed(amt)==-1)
						System.out.println("\nCannot increase speed");
					break;
				case 6: System.out.println("Speed is "+c.GetSpeed());
					break;
				case 7: c.Land();
		    break;
				default: break;
```

```
                        }
                System.out.println("\nContinue? (1/0)");
                yn=s.nextInt();
                }while(yn==1);
        }
}
```

Package vehicles

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ javac -d . Vehicle.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ javac -d . Car.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ javac -d . Automobile.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ javac -d . Flyable.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ javac -d . Helicopter.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ ls
Automobile.java  Automotive.java  Car.java  Flyable.java  Helicopter.java  Vehicle.java  vehicles
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ cd vehicles
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops/vehicles$ ls
Automobile.class  Car.class  Flyable.class  Helicopter.class  Vehicle.class
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops/vehicles$
```

Automotive.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ javac Automotive.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ java Automotive

Enter choice 1.Take Off 2.Turn on ignition 3.Turn off ignition 4.Decrease speed 5.Increase speed 6.Display speed 7.Land
1

Taking off

Continue? (1/0)
1

Enter choice 1.Take Off 2.Turn on ignition 3.Turn off ignition 4.Decrease speed 5.Increase speed 6.Display speed 7.Land
5

Enter value to increase speed by
50

Cannot increase speed

Continue? (1/0)
1

Enter choice 1.Take Off 2.Turn on ignition 3.Turn off ignition 4.Decrease speed 5.Increase speed 6.Display speed 7.Land
2

Continue? (1/0)
1

Enter choice 1.Take Off 2.Turn on ignition 3.Turn off ignition 4.Decrease speed 5.Increase speed 6.Display speed 7.Land
5

Enter value to increase speed by
60

Continue? (1/0)
1

Enter choice 1.Take Off 2.Turn on ignition 3.Turn off ignition 4.Decrease speed 5.Increase speed 6.Display speed 7.Land
6
Speed is 60

Continue? (1/0)
1

Enter choice 1.Take Off 2.Turn on ignition 3.Turn off ignition 4.Decrease speed 5.Increase speed 6.Display speed 7.Land
7

Landing

Continue? (1/0)
0
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$
```

Automobile.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ javac Automobile.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$ java Automobile

Enter choice 1.Turn on ignition 2.Turn off ignition 3.Decrease speed 4.Increase speed 5.Display speed
1

Continue? (1/0)
1

Enter choice 1.Turn on ignition 2.Turn off ignition 3.Decrease speed 4.Increase speed 5.Display speed
3

Enter value to decrease speed by
10

Continue? (1/0)
1

Enter choice 1.Turn on ignition 2.Turn off ignition 3.Decrease speed 4.Increase speed 5.Display speed
5
Speed is 0

Continue? (1/0)
1

Enter choice 1.Turn on ignition 2.Turn off ignition 3.Decrease speed 4.Increase speed 5.Display speed
4

Enter value to increase speed by
60

Continue? (1/0)
1

Enter choice 1.Turn on ignition 2.Turn off ignition 3.Decrease speed 4.Increase speed 5.Display speed
2

Continue? (1/0)
0
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/kavs_oops$
```

```java
//Package Bankpackage
/*Do the same thing for your bank account program. Create a package
Bank which includes BankAccount, SavingBankAccount, and
CurrentBankAccount classes.*/

//bnkacc.java

package Bankpackage;
interface bnkacc{
    public double deposit(double d);
    public double withdraw(double d);
    public double chkbal();
    public void clsacc();
}

//acc.java

package Bankpackage;
import java.util.Scanner;
public class acc implements bnkacc
{
        private int id;
        protected double amt;
        String password;
        public acc(int i, double a, String p)
        {
                id=i;
                amt=a;
                password=p;
        }
        public double deposit(double d)
        {
                amt+=d;
                return amt;
        }
        public double withdraw(double d)
        {
                if(amt>=d)
                        amt-=d;
                else
                        System.out.println("Balance too low to withdraw ");
                return amt;
        }
        public double chkbal()
        {
            return amt;
        }
        public void clsacc()
        {
                amt=0;
        }

}



//savingacc.java

package Bankpackage;
import java.util.Scanner;
public class savingacc extends acc implements bnkacc
{
    public savingacc(int i, double a, String p)
    {
        super(i,a,p);
    }
    public double deposit(double d)
    {
                if(d>5000)
                {
                        System.out.println("not possible");
                        return amt;
```

```
                }
                amt+=d;
                return amt;
    }
}



//currentacc.java

package Bankpackage;
import java.util.Scanner;
public class currentacc extends acc implements bnkacc
{

    public currentacc(int i, double a, String p)
    {
        super(i,a,p);
    }
    public double deposit(double d)
    {
                if(d>10000)
                {
                        System.out.println("not possible");
                        return amt;
                }
                amt+=d;
                return amt;
    }
}



//bankacc.java

import java.util.Scanner;
import Bankpackage.currentacc;
import Bankpackage.savingacc;
class bankacc{
        public static void main(String args[])
        {
                acc a1;
                int ch;
                Scanner s=new Scanner(System.in);
                System.out.println("Enter ID, amount, TYPE(c/s),PASSWORD ");
                int i=s.nextInt();
                double a=s.nextDouble();
                char t=s.next().charAt(0);
                String p=s.next();
                if(t == 'c')
                    a1=new currentacc(i,a,p);
                else
                    a1=new savingacc(i,a,p);
                int count=0;
                String temppass;
                System.out.println("Enter choice- 1.Deposit    2. Withdraw    3. Check Balance   4.
Close Account ");
                do
                {
                        System.out.println("Enter choice- ");
                        ch=s.nextInt();
                        switch(ch)
                        {
                                case 1: System.out.println("Enter amount ");
                                        i=s.nextInt();
                                        a1.deposit(i);
                                        System.out.println("Amount is "+ a1.chkbal());
                                        break;

                                case 2:count=count+1;
                                        if(count==4)
                                        {
```

```
                                        System.out.println("Account blocked");
                                }
                                else
                                {
                                        if(count==5)
                                        {
                                                count=0;
                                                System.out.println("Enter password");
                                                temppass=s.next();
                                                if(!temppass.equals(a1.password))
                                                {
                                                        System.out.println("Access
denied");count=3;break;
                                                }
                                                else
                                                        System.out.println("Access granted");
                                        }
                                        System.out.println("Enter amount ");
                                        i=s.nextInt();
                                        a1.withdraw(i);
                                        System.out.println("Amount is "+ a1.chkbal());
                                }
                                break;

                        case 3: System.out.println("Amount is "+ a1.chkbal());
                                break;
                        default: break;
                }
                System.out.println("CONTINUE? (0/1) ");
                ch=s.nextInt();
        }while(ch==1);
    }
}
```

Bankacc.java

```
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopprint$ javac bankacc.java
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopprint$ java bankacc
Enter ID, amount, TYPE(c/s),PASSWORD
123
1000
c
qwert
Enter choice- 1.Deposit    2. Withdraw    3. Check Balance   4. Close Account
Enter choice-
1
Enter amount
6000
Amount is 7000.0
CONTINUE? (0/1)
1
Enter choice-
2
Enter amount
10
Amount is 6990.0
CONTINUE? (0/1)
1
Enter choice-
2
Enter amount
10
Amount is 6980.0
CONTINUE? (0/1)
1
Enter choice-
2
Enter amount
10
Amount is 6970.0
CONTINUE? (0/1)
1
Enter choice-
2
Account blocked
CONTINUE? (0/1)
1
Enter choice-
2
Enter password
qwer
Access denied
CONTINUE? (0/1)
1
Enter choice-
2
Account blocked
CONTINUE? (0/1)
1
Enter choice-
2
Enter password
qwert
Access granted
Enter amount
10
Amount is 6960.0
CONTINUE? (0/1)
0
kavya-a@kavyaa-hp-pavilion-15-notebook-pc:~/Desktop/oopprint$
```