Lab 8: Build a Java program for finding the areas of different shapes like square, rectangle, triangle(3 sides given) with respective parameters. Implement a common interface called figure which implements three classes namely Sqr1, Rect1 and Tria1 with parameterized constructors of respective dimensions. Create a reference to the interface and store the objects of the classes into the reference pointer of the interface in the main class.

```
package Interface2;

interface figure {
        double Area();
   }

// subclass implementing interface
class Rect1 implements figure{
        int  length,breadth;
        Rect1(int length,int breadth)
        {
                this.length=length;
                this.breadth=breadth;
        }
        public double Area()
        {

                return length*breadth;
        }
}

//subclass implementing interface
class Tria1 implements figure{
        int side1,side2,side3;
        Tria1(int side1,int side2,int side3)
        {
                this.side1=side1;
                this.side2=side2;
                this.side3=side3;
        }

        public double Area()
                {
                        float s=(side1+side2+side3)/2;
                        return Math.sqrt(s*(s-side1)*(s-side1)*(s-side1));
                }
        }

//subclass implementing interface
class Sqr1 implements figure{
        int side;
```

```
        Sqr1(int side)
        {
                this.side=side;
        }
        public double Area()
        {
                return side*side;
        }
}

// main class
public class  Interface_Construct   {

        public static void main (String[] args)
      {
                 // creating a reference to the interface
                   figure f;
                 // creating an object for the class
                   Rect1 r= new Rect1(5,8);
                 // storing the object into the reference pointer
                   f=r;

                   System.out.println("The area of rectangle is "+f.Area());

                   Tria1 t= new Tria1(5,6,7);
                   f=t;

                   System.out.println("The area of triangle is  "+f.Area());

                   Sqr1 s= new Sqr1(5);
                   f=s;

                   System.out.println("The area of square is    "+f.Area());                                    }
                }
```

o/p

```
The area of rectangle is 40.0
The area of triangle is  24.0
The area of square is    25.0
```

LAB 8 Exericise

Write a Java programming to create a banking system with two classes - SavingsAccount, and CurrentAccount with attributes namely balance and interestRate which implement an interface named Account with the methods named deposit(double amount), withdraw(double amount), applyInterest() and getBalance() to deposit, withdraw, calculate interest, and view balances respectively. Include the constructors in the aforementioned two classes to initialize the attributes Initial balance and InterestRate. Display the transaction details as shown below.

o/p

Checking Initial Balance of SavingsAccount
Current balance in SavingsAccount is 10000.0
~~~~~~
Withdrawing 1000 from SavingsAccount
Checking the current Balance of SavingsAccount
Current balance in SavingsAccount is 9000.0
~~~~~~
Applying interest to the SavingsAccount
Current balance in SavingsAccount is 9900.0
~~~~~~
Checking Initial Balance of CurrentAccount
Current balance inCurrentAccount is 10000.0
~~~~~~
Withdrawing 1000 from CurrentAccount
Checking the current Balance of CurrentAccount
Current balance in CurrentAccount is 9000.0
~~~~~~
Applying interest to the CurrentAccount
Current balance in CurrentAccount is 10170.0
~~~~~~