S.No: 24	Exp. Name: ***program to create a super class called Figure that it returns the area of a rectangle and triangle***	Date:2023-12-03

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Aim:

Write a java program to create a super class called Figure that receives the dimensions of two dimensional objects. It also defines a method called area that computes the area of an object. The program derives two sub-classes from Figure. The first is Rectangle and second is Triangle. Each of the sub classes override area() so that it returns the area of a rectangle and triangle respectively

Source Code:

AbstractAreas.java

```
import java.util.*;
abstract class Figure
   {
        double dim1;
        double dim2;
        double dim3;
        double dim4;
        Figure(double a,double b)
      {
         dim1=a;
         dim2=b;
         dim3=a;
         dim4=b;
      }
      abstract void area();
   }
class Rectangle extends Figure
   {
      Rectangle(double a,double b)
      {
      super(a,b);
   }
void area()
   {
   double Area=dim1*dim2;
   System.out.println("Rectangle:");
   System.out.println("Area is "+Area);
   }
}
class Triangle extends Figure
   {
      Triangle(double a,double b)
      {
         super(a,b);
      }
      void area()
      {
         double Area=(dim3*dim4)/2;
         System.out.println("Triangle:");
         System.out.println("Area is "+Area);
      }
   }
```

```
class AbstractAreas
   {
      public static void main(String args[])
      {
         System.out.println("Enter lenght and breadth of Rectangle :");
         Scanner input = new Scanner(System.in);
         double dim1=input.nextDouble();
         double dim2=input.nextDouble();
         System.out.println("Enter height and side of Triangle :");
         Scanner input1 = new Scanner(System.in);
         double dim3=input1.nextDouble();
         double dim4=input1.nextDouble();
         Rectangle r=new Rectangle(dim1,dim2);
         Triangle t=new Triangle(dim3,dim4);
         Figure figuref;
         figuref = r;
         figuref.area();
         figuref=t;
         figuref.area();
      }
   }
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter lenght and breadth of Rectangle : 12
14
Enter height and side of Triangle : 7
5
Rectangle:
Area is 168.0
Triangle:
Area is 17.5

Test Case - 2
User Output
Enter lenght and breadth of Rectangle : 4
8
Enter height and side of Triangle : 5
3
Rectangle:
Area is 32.0
Triangle:
Area is 7.5

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