Assignment: 4

Problem Statement:- Design a base class shape with two double type values and member functions to input the data and compute_area() for calculating area of figure. Derive two classes' triangle and rectangle. Make compute_area() as abstract function and redefine this function in the derived class to suit their requirements. Write a program that accepts dimensions of triangle/rectangle and display calculated area. Implement dynamic binding for given case study. Aim :- To Study Polymorphism using Java

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1.Shape.java

```java
import java.util.Scanner; public

abstract class Shape
{
        double height, width;
public double getHeight()
    {
            return height;
    }
    public void setHeight(double height)
    {
            this.height = height;
    }
    public double getwidth()
    {
            return width;
    }
```

```java
        public void setwidth (double width)
         {
                this.width = width;
        }
        void input()
        {
                Scanner sc=new Scanner(System.in);
System.out.println("Enter height:");          height=sc.nextDouble();
                System.out.println("Enter width :");
width=sc.nextDouble();
        }
        public abstract double compute_area();
}
```

2.Triangle.java

```java
public class Triangle extends Shape
{ double area; //@Override    public
double compute_area()
        {
                height=this.getHeight();
        width=this.getwidth();
area=(height*width)/2;              return
area;
        }
}
```

3.Rectangle.java

```java
public class Rectangle extends Shape
```

```java
{ double area;
        //@Override
         public double compute_area()
        {
                height=this.getHeight();
        width=this.getwidth();
area=height*width;              return
area;
        }
}
```

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4. Area.java
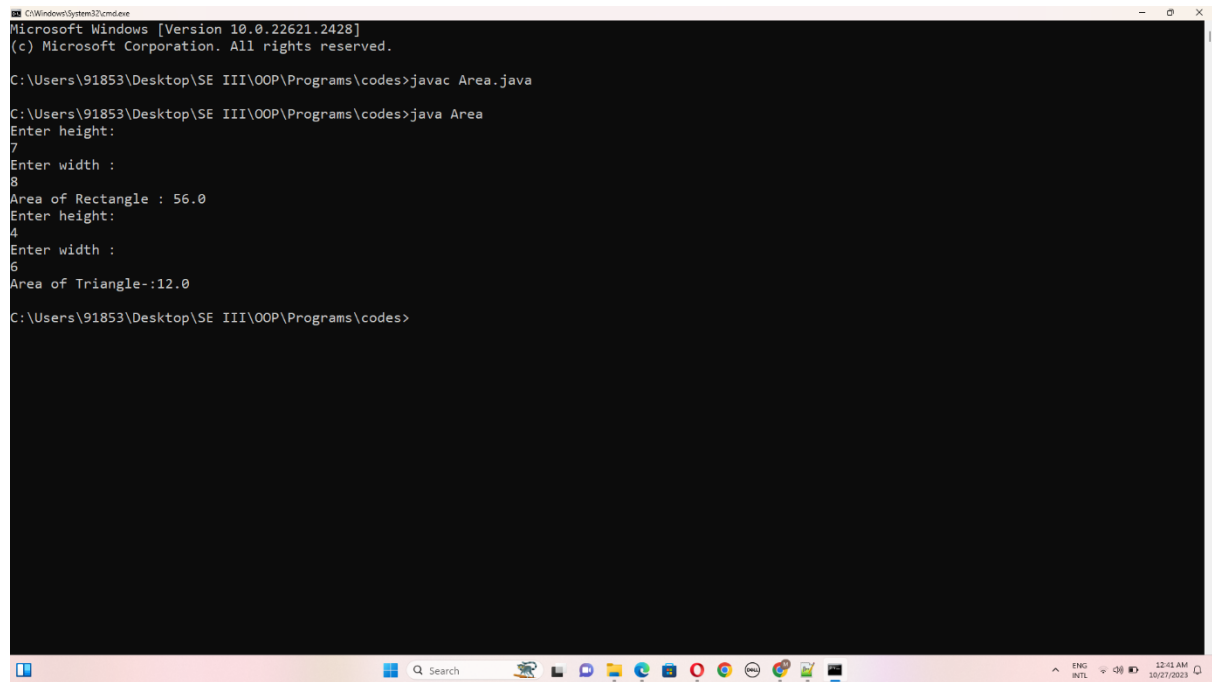
```java
public class Area
{
public static void main(String[] args)
        {
        double area;
        Shape s;
        Rectangle r=new Rectangle();
        s=r;


        s.input();
area=s.compute_area();
        System.out.println("Area of Rectangle : "+
area);   Triangle t=new Triangle();     s=t;
        s.input();
area=s.compute_area();
        System.out.println("Area of Triangle-:"+area);
        }
```

```
}
```

Outputs-: