FINDING THE AREA OF DIFFERENT SHAPES

AIM:

To write a java program to find the area of different shapes by using abstract class.

ALGORITHM:

1. Import the java packages.
2. Create an abstract class named Shape that contains two integers and an empty method named printArea().
3. Create a class Rectangle that extends the class Shape. Override the method printArea () by getting Width and Length then compute the area and prints the area of the Rectangle.
4. Create a class Triangle that extends the class Shape. Override the method printArea () by getting Base and Height then compute the area and prints the area of the Triangle.
5. Create a class Circle that extends the class Shape. Override the method printArea () by getting the Radius, then compute the area and prints the area of the Circle.
6. By using Scanner class get the input during runtime.
7. Create object for a class in memory and assign it to the reference variable, then the method is invoked.

PROGRAM:

*//File Name should be **Area.java***

```
import java.io.*; import
java.util.*;

abstract class Shape
{  double a = 0.0, b = 0.0;  abstract
   public void printArea();
}

class Rectangle extends Shape
{  double area = 0.0;
public void printArea()
 {
    System.out.println("Area of Rectangle");
```

```
   System.out.println("----------");
   Scanner in = new Scanner(System.in);
  System.out.println("Enter the Width:");       this.a =
  in.nextDouble();
   System.out.println("Enter the Length:");
   this.b = in.nextDouble();
   this.area = a*b;   /*  (width*length)   */
   System.out.println("The area of rectangle is:"+this.area);
 } }

class Triangle extends Shape
{  double area = 0.0;
public void printArea()
 {
   System.out.println("-----Area of Triangle-----");
   System.out.println("----------");
   Scanner in = new Scanner(System.in);
  System.out.println("Enter the Base:");         this.a =
  in.nextDouble();
   System.out.println("Enter  the  Height:");      this.b  =
  in.nextDouble();     this.area  =  0.5*a*b;         /*     1/2
  (base*height)  */  System.out.println("The area of triangle
  is:"+this.area);
 } }

class Circle extends Shape
{  double area = 0.0;
public void printArea()
 {
   System.out.println("-----Area of Circle-----");
   System.out.println("----------");
   Scanner  in  =  new  Scanner(System.in);
  System.out.println("Enter  the  Radius:");
  this.a  =  in.nextDouble();     this.area  =
  3.14*a*a;   /*  3.14*r*r   */
   System.out.println("The area of circle is:"+this.area);
 } }

public class Area
{
```

```
 public static void main(String[] args)
 {
       System.out.println("-----Finding the Area of Shapes:-----");
    Shape s;
    s=new Rectangle();
    s.printArea(); s=new
    Triangle();
    s.printArea(); s=new
    Circle(); s.printArea();
  }
}
```

NOTE:

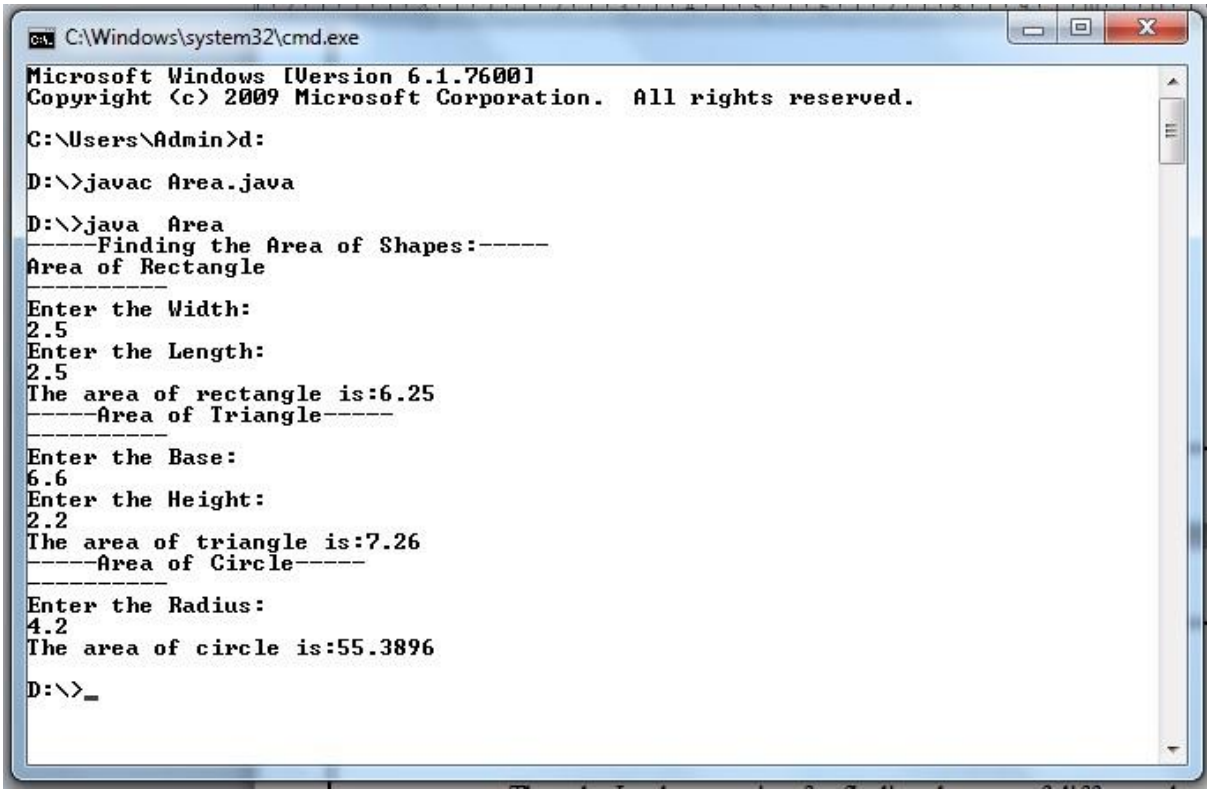
To Compile:

javac Area.java

To Run:

java Area

OUTPUT:



RESULT:

Thus the Implementation for finding the area of different shapes using abstract class has been successfully executed.