**Q2.Create a superclass called Shape with an abstract method calculateArea() that returns the area of the shape. Implement subclasses Rectangle, Circle, and Triangle that inherit from the Shape class. Implement the calculateArea() method in each subclass to calculate and return the area of a rectangle, circle, and triangle, respectively. Then, create a class called ShapeCalculator with a method printArea(Shape shape) that accepts an object of type Shape and prints its area. Demonstrate polymorphism by passing instances of different subclasses to the printArea() method.**

**=> package MockTest.MockTest2;  
  
import java.util.Scanner;  
  
*//Create a superclass called Shape with an abstract method calculateArea() that returns the area of the shape. Implement subclasses Rectangle, Circle, and Triangle that inherit from the Shape class. Implement the calculateArea() method in each subclass to calculate and return the area of a rectangle, circle, and triangle, respectively. Then, create a class called ShapeCalculator with a method printArea(Shape shape) that accepts an object of type Shape and prints its area. Demonstrate polymorphism by passing instances of different subclasses to the printArea() method.*abstract class Shape {  
 public abstract double calculateArea();  
}  
  
class Rectangle extends Shape {  
 private double length;  
 private double width;  
  
 public Rectangle(double length, double width) {  
 this.length = length;  
 this.width = width;  
 }  
  
 public double calculateArea() {  
 return length \* width;  
 }  
}  
  
class Circle extends Shape {  
 private double radius;  
  
 public Circle(double radius) {  
 this.radius = radius;  
 }  
  
 public double calculateArea() {  
 return Math.*PI* \* radius \* radius;  
 }  
}  
  
class Triangle extends Shape {  
 private double base;  
 private double height;  
  
 public Triangle(double base, double height) {  
 this.base = base;  
 this.height = height;  
 }  
  
 public double calculateArea() {  
 return 0.5 \* base \* height;  
 }  
}  
  
class ShapeCalculator {  
 public void printArea(Shape shape) {  
 double area = shape.calculateArea();  
 System.*out*.println("Area: " + area);  
 }  
}  
  
public class Q2 {  
 public static void main(String[] args) {  
 ShapeCalculator calculator = new ShapeCalculator();  
  
 System.*out*.print("Enter the shape name :");  
 Scanner sc=new Scanner(System.*in*);  
 String shapeName=sc.next();  
 shapeName=shapeName.toLowerCase();  
  
 if (shapeName.equals("rectangle")){  
 System.*out*.print("Enter length of the rectangle :");  
 int length=sc.nextInt();  
 System.*out*.print("Enter width of the rectangle :");  
 int width=sc.nextInt();  
 Rectangle rectangle = new Rectangle(length, width);  
 calculator.printArea(rectangle);  
  
 } else if (shapeName.equals("circle")) {  
 System.*out*.print("Enter redius of the circle :");  
 int redius=sc.nextInt();  
 Circle circle = new Circle(redius);  
 calculator.printArea(circle);  
  
 } else if (shapeName.equals("triangle")) {  
 System.*out*.print("Enter base of the triangle :");  
 int base=sc.nextInt();  
 System.*out*.print("Enter height of the triangle :");  
 int height=sc.nextInt();  
 Triangle triangle = new Triangle(base, height);  
 calculator.printArea(triangle);  
  
 }else System.*out*.println("Enter the currect shape name :");  
 }  
}**