Ex.No: 6	**Java Application to Find the Area of different Shapes**
Date:	

Aim:

To create a Java console application to find the area of different shapes using abstract class concept in java.

Algorithm:

Step 1 Start the Process

Step 2 Prompt user with List Operation Choices
1. Rectangle 2. Triangle 3. Circle 4, Exit
Get the choice from user.

Step 3 If user selects Rectangle

- Step 3.1 Get the Length and Breath from the user
- Step 3.2 Compute Area = Length * Breath
- Step 3.3 Display Area

Step 4 If user selects Triangle

- Step 3.1 Get the Length and Height from the user
- Step 3.2 Compute Area = Length * Height * 0.5
- Step 3.3 Display Area

Step 5 If user selects Circle

- Step 5.1 Get the Radius of the Circle
- Step 5.2 Compute Area = 3.14 * Radius * Radius
- Step 5.3 Display Area

Step 6 If user selects exit end the process

Step 7 Stop the Process

Coding:

Shape.java

```
package com.raja.oopslanb.shapes;

public abstract class Shape {
	double length = 0.0;
	double hight = 0.0;
	public abstract void printArea();
}
```

Rectangle.java

```
package com.raja.oopslanb.shapes;

import java.util.Scanner;

public class Rectangle extends Shape {
	double area = 0.0;

	@Override
	public void printArea() {
		System.out.println("\nRectangle");
		System.out.println("---------\n");
		Scanner input = new Scanner(System.in);
		System.out.println("Enter Length of Rectangle : ");
		this.length = input.nextDouble();
		System.out.println("Enter Breadth of Rectangle : ");
		this.hight = input.nextDouble();
		this.area = this.length * this.hight;
		System.out.println("Area of the Rectangle is : " + this.area);
	}

}
```

Triangle.java

```
package com.raja.oopslanb.shapes;

import java.util.Scanner;

public class Triangle extends Shape {
	double area = 0.0;

	@Override
	public void printArea() {
		System.out.println("\nTriangle");
		System.out.println("---------\n");
		Scanner input = new Scanner(System.in);
		System.out.println("Enter Length of Triangle : ");
		this.length = input.nextDouble();
```

```
		System.out.println("Enter Hight of Triangle : ");
		this.hight = input.nextDouble();
		this.area = 0.5 * this.length * this.hight;
		System.out.println("Area of the Triangle is : " + this.area);
	}

}
```

Circle.java

```
package com.raja.oopslanb.shapes;

import java.util.Scanner;

public class Circle extends Shape {
	double area = 0.0;

	@Override
	public void printArea() {
		System.out.println("\nCircle");
		System.out.println("-------\n");
		Scanner input = new Scanner(System.in);
		System.out.println("Enter Radius of Circle : ");
		this.length = input.nextDouble();
		this.area = Math.PI * this.length * this.length;
		System.out.println("Area of the Circle is : " + this.area);
	}

}
```

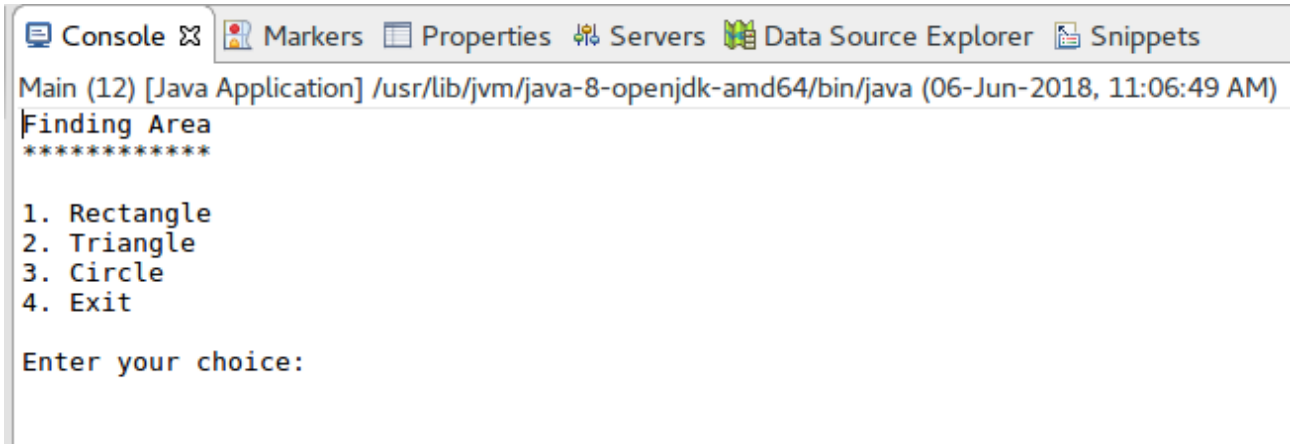
Main.java

```
import com.raja.oopslanb.shapes.Rectangle;
import com.raja.oopslanb.shapes.Shape;
import com.raja.oopslanb.shapes.Triangle;

import java.util.Scanner;

import com.raja.oopslanb.shapes.Circle;

public class Main {
	public static void main(String[] args) {
		Scanner userInput = new Scanner(System.in);
		int choice = 0;
		do {
			System.out.println("Finding Area");
			System.out.println("************");
			System.out.println(
					"\n1. Rectangle" + "\n2. Triangle" + "\n3. Circle" + "\n4. Exit"
+ "\n\nEnter your choice: ");
```

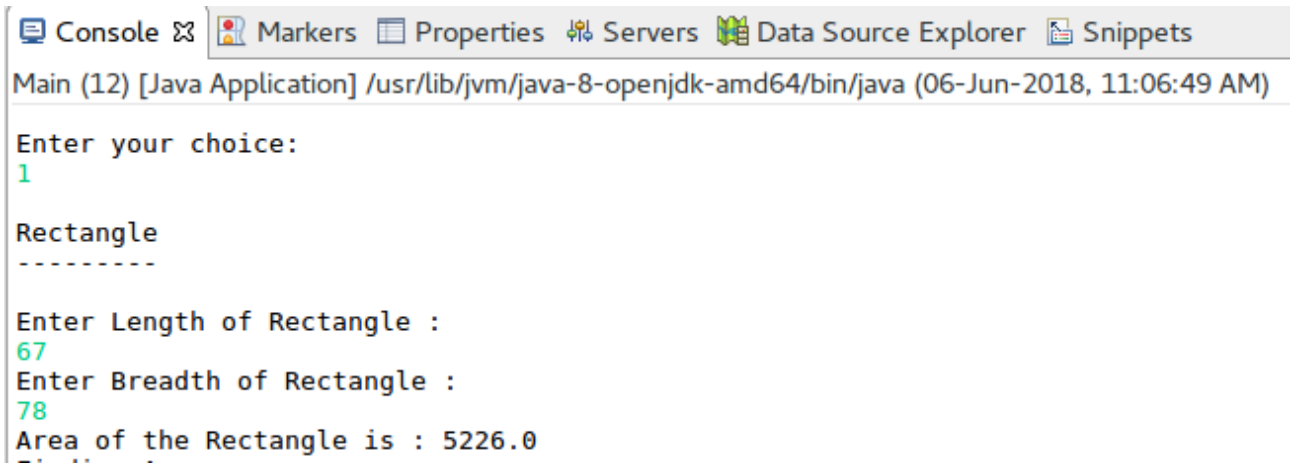
```
                choice = userInput.nextInt();
                switch (choice) {
                case 1:
                        Shape rt = new Rectangle();
                        rt.printArea();
                        break;
                case 2:
                        Shape tr = new Triangle();
                        tr.printArea();
                        break;
                case 3:
                        Shape cr = new Circle();
                        cr.printArea();
                        break;
                case 4:
                        System.out.println("\n\nThank You !!!");
                        userInput.close();
                        break;
                default:
                        System.out.println("Please enter valid input");
                        break;
                }
        } while (choice != 4);
    }
}
```

Output:

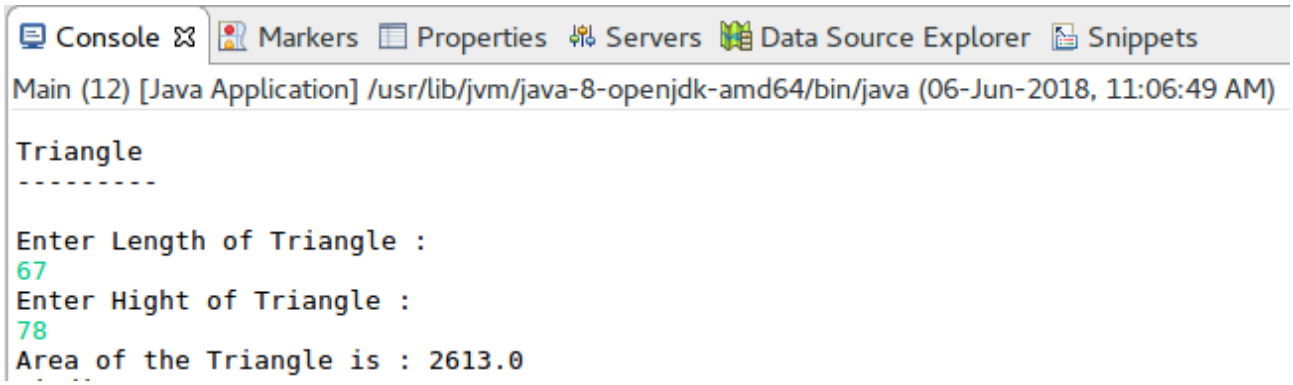
Choice



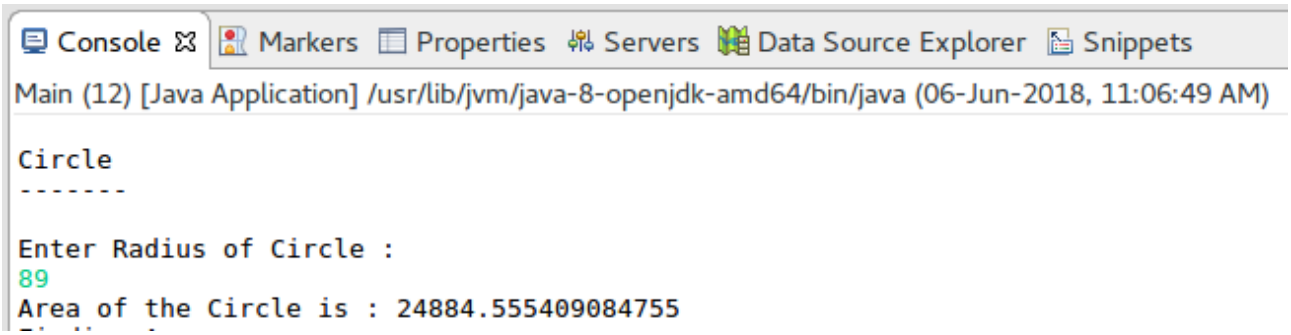
Rectangle



Triangle



Circle



Result:

The Java console application to find the area of different shapes using abstract class concept in java was developed and tested successfully.