Assignment 8

Purpose : Understand and implement the Concept of a reusable component.

**********BussinesLogic Package**********

1) Circle .java

```
package shape;
public class Circle extends Shape {

	private int radius;
	public Circle(Point center,int radius) {
		super(center);
		this.radius=radius;
		// TODO Auto-generated constructor stub
	}


	@Override
	public double area() {
		// TODO Auto-generated method stub
		return Math.PI*radius*radius;
	}

	@Override
	public double perimeter() {
		// TODO Auto-generated method stub
		return Math.PI*2.0*radius;
	}

}
```

2) DrawingBoard.java

```
package board;
import java.util.HashSet;
import java.util.Set;
import shape.Shape;

public class DrawingBoard {

	private Set<Shape> shapes=new HashSet<Shape>();
	public void add(Shape shape)
	{shapes.add(shape);}

	public double totalArea()
	{
		double totalArea=0;
		for(Shape shape: shapes)
		{
			totalArea+=shape.area();
```

```
                }
                return totalArea;
        }
}
```

3) Shape.java

```
package shape;

public abstract class Shape {

        private Point center;

        public Shape (Point center)
        {

        }
        public abstract double area();
        public abstract double perimeter();
        public Point getCenter() {
                return center;
        }
        public void setCenter(Point center) {
                this.center = center;
        }


}
```

4) Point.java

```
package shape;

public class Point {

        private int x;
        private int y;
        public Point(int x, int y) {
                super();
                this.x = x;
                this.y = y;
        }
        public int getX() {
                return x;
        }
        public void setX(int x) {
                this.x = x;
        }
```

```
	public int getY() {
		return y;
	}
	public void setY(int y) {
		this.y = y;
	}


}
```

5) Square.java

```
package shape;

public class Square extends Shape {

	private int side;

	public Square(Point center, int side) {
		super(center);
		this.side = side;
	}

	@Override
	public double area() {
		// TODO Auto-generated method stub
		return side*side;
	}

	@Override
	public double perimeter() {
		// TODO Auto-generated method stub
		return 4*side;
	}

}
```

**********Client Package**********

Entry.java

```
package test;
import board.DrawingBoard;
import shape.Circle;
import shape.Point;
import shape.Square;

public class Entry {

	/**
	 * @param args
	 */
	public static void main(String[] args) {
		// TODO Auto-generated method stub
DrawingBoard board=new DrawingBoard();
Circle circle=new Circle(new Point(20,20),5);
System.out.println(circle.perimeter());
Square square=new Square(new Point(30,30),5);
System.out.println(square.perimeter());
board.add(circle);
board.add(square);
System.out.println(board.totalArea());
	}


}


/*
Output-:


31.41592653589793
9.0
87.53981633974483
*/
```