Main Code:

public class App {

public static void main(String[] args) {

Shape shape;

Shape2D shape2d;

Shape3D shape3d;

Circle circle = new Circle("Circle 1", 4.0, false);

Rectangle rectangle = new Rectangle("Rect 1", false, 10.0, 5.0, 0, 0);

Rectangle rectangle2 = new Rectangle("Rect 1", false, 10.0, 4.0, 0, 2);

Rectangle rectangle3 = new Rectangle("Rect 1", false, 10.0, 5.0, 12, 6);

double cArea = circle.area();

double rArea = rectangle.area();

double rParameter = rectangle.perimeter();

Sphere sphere = new Sphere("Sphere 1", 4.0);

Cube cube = new Cube("Cube 1", 4.0);

double sVolume = sphere.volume();

double cVolume = cube.volume();

System.out.println("Circle Area: " + cArea);

System.out.println("Rectangle Area: " + rArea);

System.out.println("Rectangle Perimeter: " + rParameter);

System.out.println("Sphere Volume: " + sVolume);

System.out.println("Cube Volume: " + cVolume);

Shape[] shapes = new Shape[20];

for (int i = 0; i < 19; i++) {

shapes[i] = new Circle("Circle " + i, 4.0, false);

i++;

shapes[i] = new Rectangle("Rect " + i, false, 10.0, 5.0, i + 2, i + 3);

i++;

shapes[i] = new Sphere("Sphere " + i, 4.0);

i++;

shapes[i] = new Cube("Cube " + i, 4.0);

}

ShapeUtils.DisplayShapes(shapes);

ShapeUtils.increaseRectLength(shapes, 10);

System.out.println(" ");

System.out.println(" ");

ShapeUtils.DisplayShapes(shapes);

ShapeUtils.drawDrawables(shapes);

System.out.println("================");

System.out.printf("Rec 1 intersect with Rec 2:" + ShapeUtils.isIntersecting(rectangle, rectangle2)); // Should

// be

// true

System.out.println(" ");

System.out.printf("Rec 2 intersect with Rec 3:" + ShapeUtils.isIntersecting(rectangle, rectangle3)); // Should

// be

// false

}

}

Output:  




