

**From: M.usman  
To: shahid bhatti  
Roll no. : FA24-BCS-149   
Assigment 3**

**Main:**

**public class Main {**

**public static void main(String[] args) {**

**double g = 5.0;**

**Shape shape ;**

**Shape2D shape2D;**

**Shape3D shape3D;**

**Circle circle=new Circle("Circle",25.0);**

**System.*out*.println(circle.area());**

**Rectangle rectangle=new Rectangle("rectangle",5.0,5.9);**

**Cube cube=new Cube("cube",5.0);**

**rectangle.setHeight(10);**

**rectangle.setWidth(10);**

**System.*out*.println(rectangle.area());**

**Sphere sphere= new Sphere("Sphere",5.6);**

**System.*out*.println(sphere.area());**

**System.*out*.println(sphere.volume());**

**System.*out*.println(cube.area());**

**System.*out*.println(cube.volume());**

**Shape[] arr = new Shape[20];**

**arr[0]=cube;**

**arr[1]=rectangle;**

**arr[2]=circle;**

**arr[3]=sphere;**

**for (int i=4; i<arr.length-10; i++){**

**circle.setRadius(g+i);**

**arr[i]=circle;**

**}**

**for (int i=10; i<arr.length-5; i++){**

**sphere.setRadius(g+i);**

**arr[i]=sphere;**

**}**

**for (int i=15; i<arr.length; i++){**

**cube.setSide(g+i);**

**arr[i]=cube;**

**}**

**ShapeUtils shapeUtils=new ShapeUtils();**

**ShapeUtils.*displayshapes*(arr);**

**shapeUtils.drawShapes(arr);**

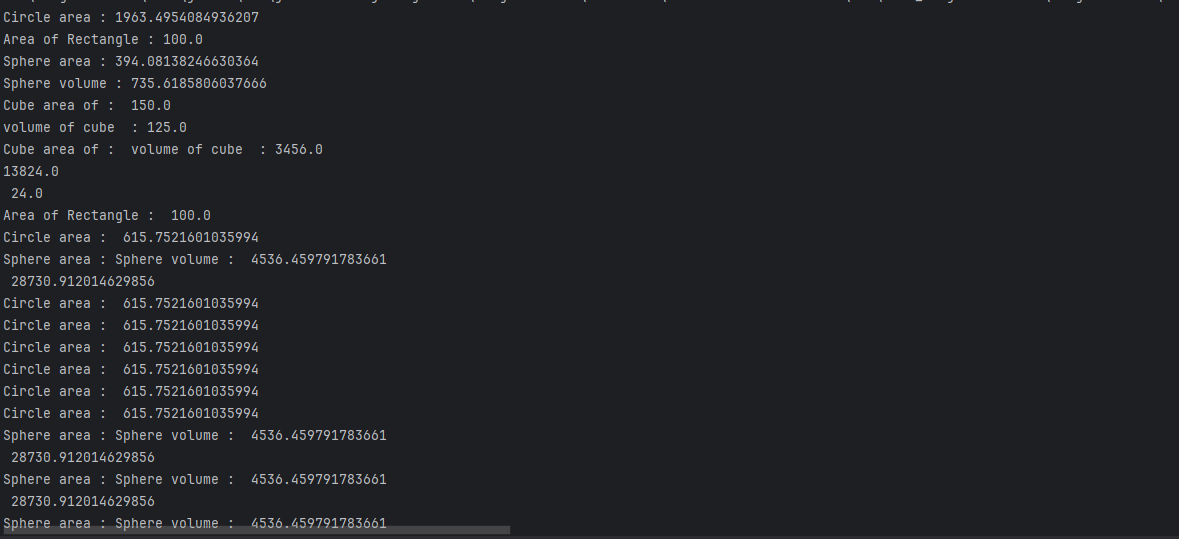
**Rectangle rectangle2 = new Rectangle("REC" , 6.9 ,7.1);**

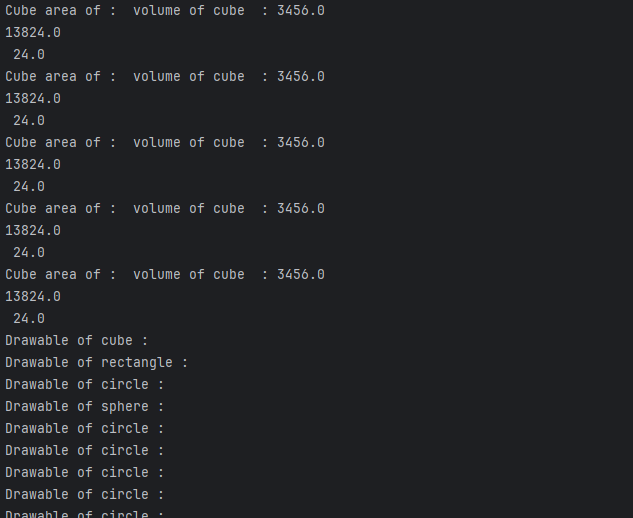
**shapeUtils.doRectanglesIntersect(rectangle,rectangle2);**

**}**

**}**

**Output :**

****

****

****