

## Opgave 5.1

```
import java.io.*;
import java.util.*;

public class Shape {}

public class LineSegment extends Shape {
    int x1, y1, x2, y2;

    public LineSegment(int x1, int y1, int x2, int y2) {
        this.x1 = x1; this.y1 = y1;
        this.x2 = x2; this.y2 = y2;
    }

    public String toString() {
        return "LineSegment (" + x1 + ", " + y1 + ") " +
            "(" + x2 + ", " + y2 + ") ";
    }
}

public class Rectangle extends Shape {
    int x, y, width, height;

    public Rectangle(int x, int y, int width, int height) {
        this.x = x; this.y = y;
        this.width = width; this.height = height;
    }

    public String toString() {
        return "Rectangle (" + x + ", " + y + ") " +
            "\t[width = " + width + ", height = " + height + "] ";
    }
}

public class Circle extends Shape {
    int x, y, radius;

    public Circle(int x, int y, int radius) {
        this.x = x; this.y = y;
        this.radius = radius;
    }

    public String toString() {
        return "Circle (" + x + ", " + y + ") " +
            "\t[radius = " + radius + "] ";
    }
}
```

```

public class ShapeTest {
    public static void main(String[] args) {
        Shape[] shape = new Shape[100];
        int shapes = 0;

        try {
            BufferedReader in = new BufferedReader(
                new FileReader("shapes.txt"));
            String line;
            while ((line = in.readLine()) != null) {
                StringTokenizer st = new StringTokenizer(line);
                if (!st.hasMoreTokens())
                    continue;
                String shapeName = st.nextToken();
                try {
                    if (shapeName.equalsIgnoreCase("LineSegment"))
                        shape[shapes] = new LineSegment(
                            Integer.parseInt(st.nextToken()),
                            Integer.parseInt(st.nextToken()),
                            Integer.parseInt(st.nextToken()),
                            Integer.parseInt(st.nextToken()));
                    else if (shapeName.equalsIgnoreCase("Rectangle"))
                        shape[shapes] = new Rectangle(
                            Integer.parseInt(st.nextToken()),
                            Integer.parseInt(st.nextToken()),
                            Integer.parseInt(st.nextToken()),
                            Integer.parseInt(st.nextToken()));
                    else if (shapeName.equalsIgnoreCase("Circle"))
                        shape[shapes] = new Circle(
                            Integer.parseInt(st.nextToken()),
                            Integer.parseInt(st.nextToken()),
                            Integer.parseInt(st.nextToken()));
                    else
                        throw new RuntimeException("Unknown shape: " + line);
                } catch (NumberFormatException e) {
                    throw new RuntimeException("Illegal format: " + line);
                }
                shapes++;
            }
        } catch (IOException e) {
            throw new RuntimeException(e.toString());
        }

        for (int i = 0; i < shapes; i++)
            System.out.println(shape[i]);
    }
}

```