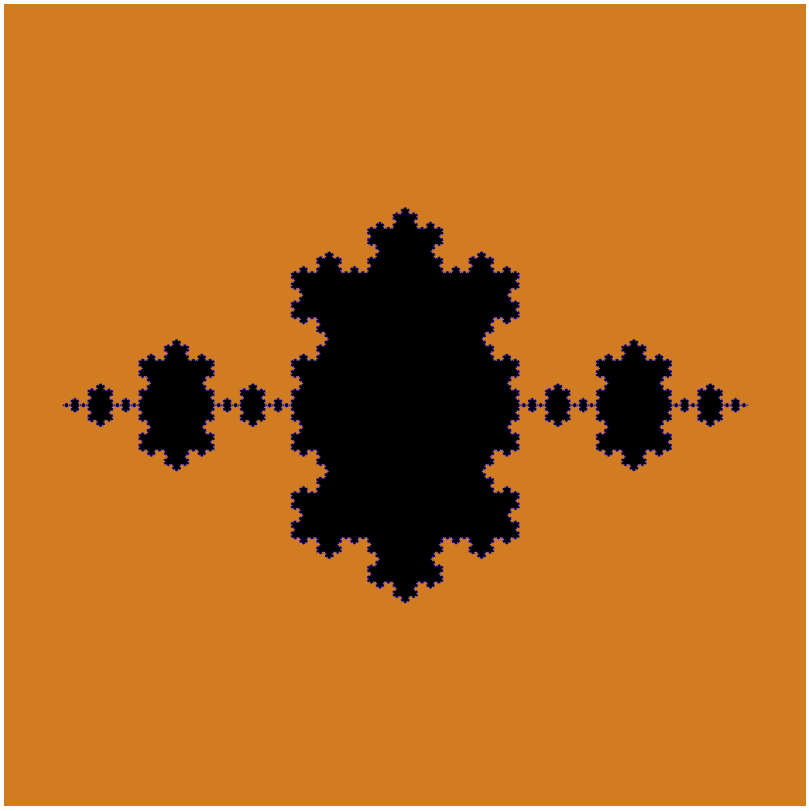
Recursive Algorithms applied to Computer Graphics

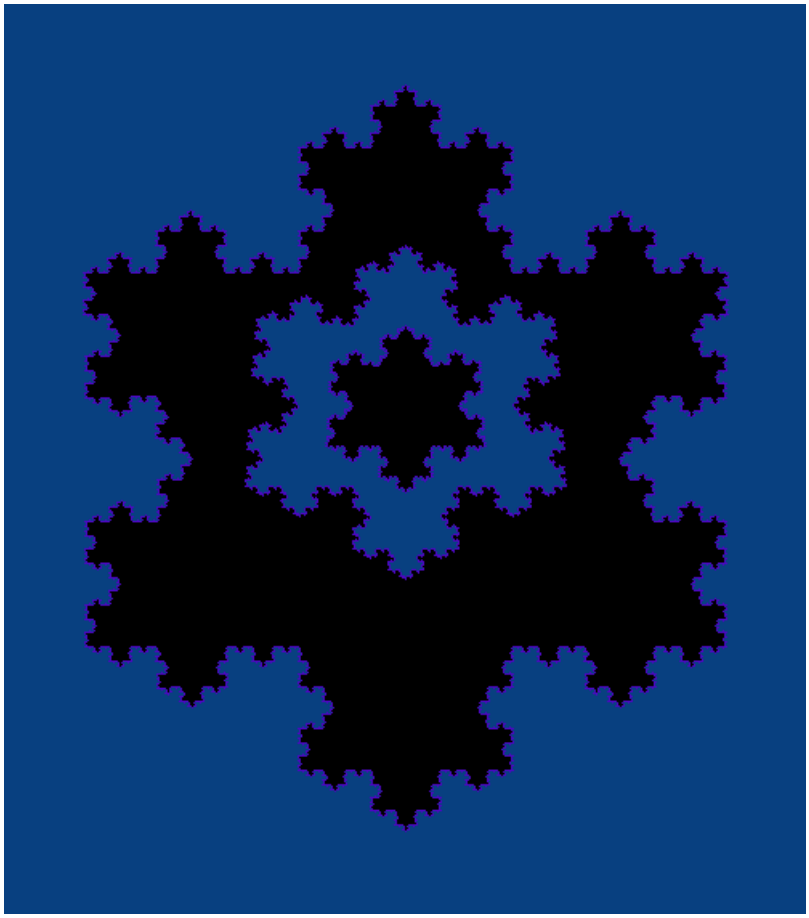
Description

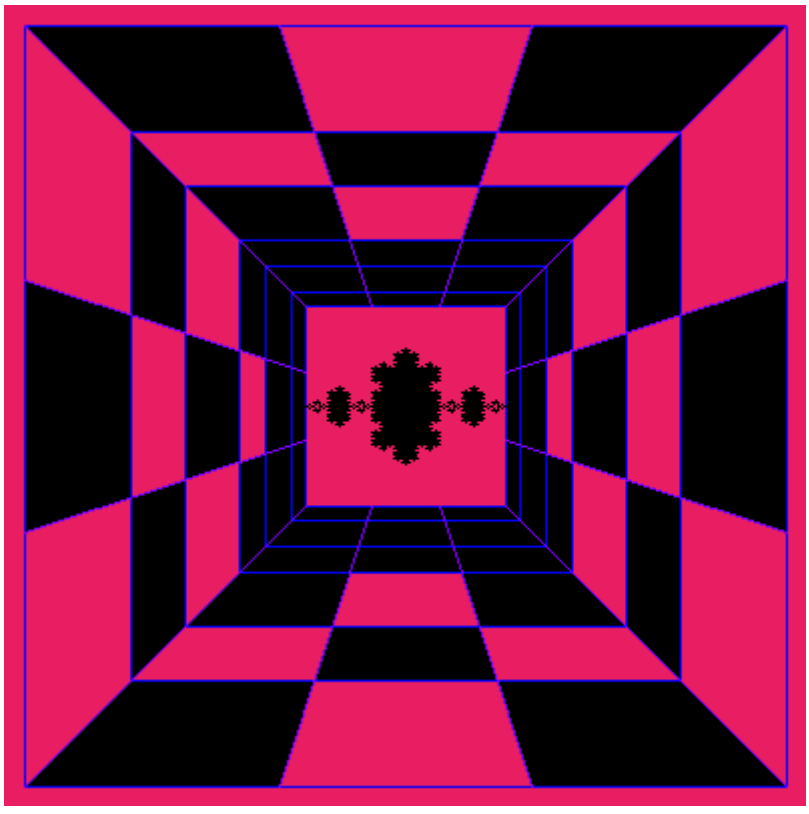
This program consists of two recursive algorithms, Koch Curve and Flood Fill. After reading an input text, it returns an image.

Visuals

Some of images generated using those recursive algorithms







Usage

The program must receive an input file with the commands to create the image. The following commands are available:

> ***SET_PIXEL*** *: Receive a coordinate pair (x,y) and color that pixel.*
> ***SET_COLOR****: Receive a RGB configuration and defines the color that SET_PIXEL will use.*
> ***DRAW_LINE****: Receive two coordinate pairs (x1,y1),(x2,y2) and draw through two points.*
> ***KOCH_CURVE****: Receive two coordinate pairs and a threshold number, that define the minimum length a line can be.*
> ***REGION_FILL****: Receive a coordinate point and begin to color every point around it, until it finds a boundary.*

For example, the first image is generated by the following *.txt* file:

```
SET_COLOR 0 0 255
KOCH_CURVE 148 1024 1900 1024 5
KOCH_CURVE 1900 1024 148 1024 5
SET_COLOR 210 124 34
REGION_FILL 100 100
```

To compile and run it, navigate to the **src** folder on the command line and type:

```
javac Main.java
java -Xss200M Main [path to input file] [name of output image].png
```

The **-Xss200M** term alters the java call stack memory from **1M** to **200M** to run the program. The region fill algorithm, consumes a lot of memory, so if you have problems with stackOverFlow try to use a higher call stack size.