

Fractals and the Beauty of Nature
DM550 - Fall Project 2017

Chanthosh Sivanandam
Erik Andersen
Henrik Flindt

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1 Sierpinsky Triangle

1.1 Specification and design

We began by trying to implement an algorithm for the Sierpinsky triangle which was build upon the idea of placing inverted triangles inside other triangles. It turned out to be overly complicated, but it yielded som rather interesting results, which can be seen here:



(a) An unsuccessul attempt

(b) Another unsuccessul attempt

After meddling around for some time, we decided to go with a more convenient approach, and quickly came up with a succesful algorithm, that gave the expected result.

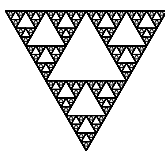


Figure 2: Sierpinsky triangle with 5 subdivisions.

1.2 Implementation and testing

We used an iterative development process, meaning we started out by making a small piece of the code work in one iteration. Through testing, trial and error the goal of the iterative step was reached and we then carried on with the next step, where more code was implemented and tested. After several steps, we realized that our approach was overly complicated, so we started again from scratch. This time we did not care for optimization of the algorithm, and we solely focused on correctness.¹

¹The source code for this part of the project can be found in the file `sierpinsky-triangle.py`

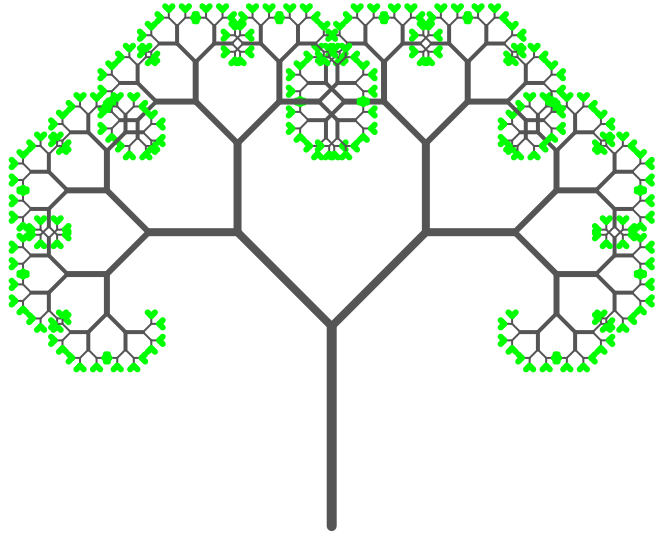


Figure 3: Binary tree