

Homework 2

CSCI-SHU 210 Data Structures

John Iacono

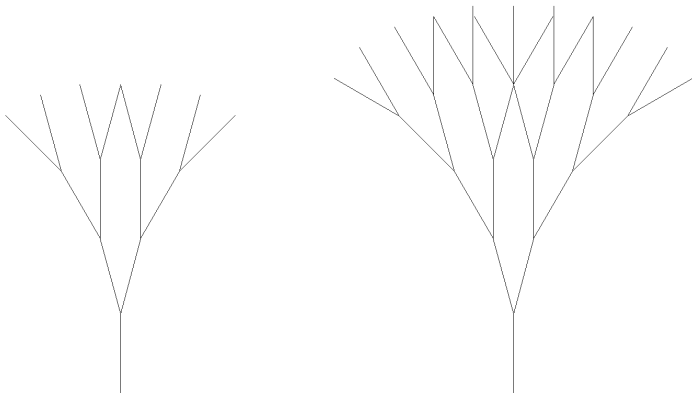
Fall 2014

1 Programming Part

Your task this week is to code in pygame something that draws a tree recursively. Your code must be recursive!

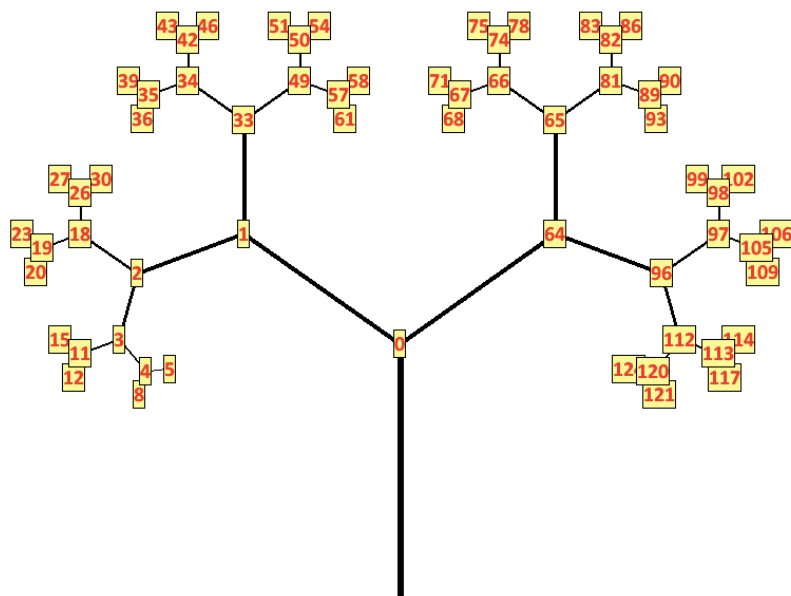
1.1 Task 1

Make a very basic recursive tree. Allow different size trees.



1.2 Task 2

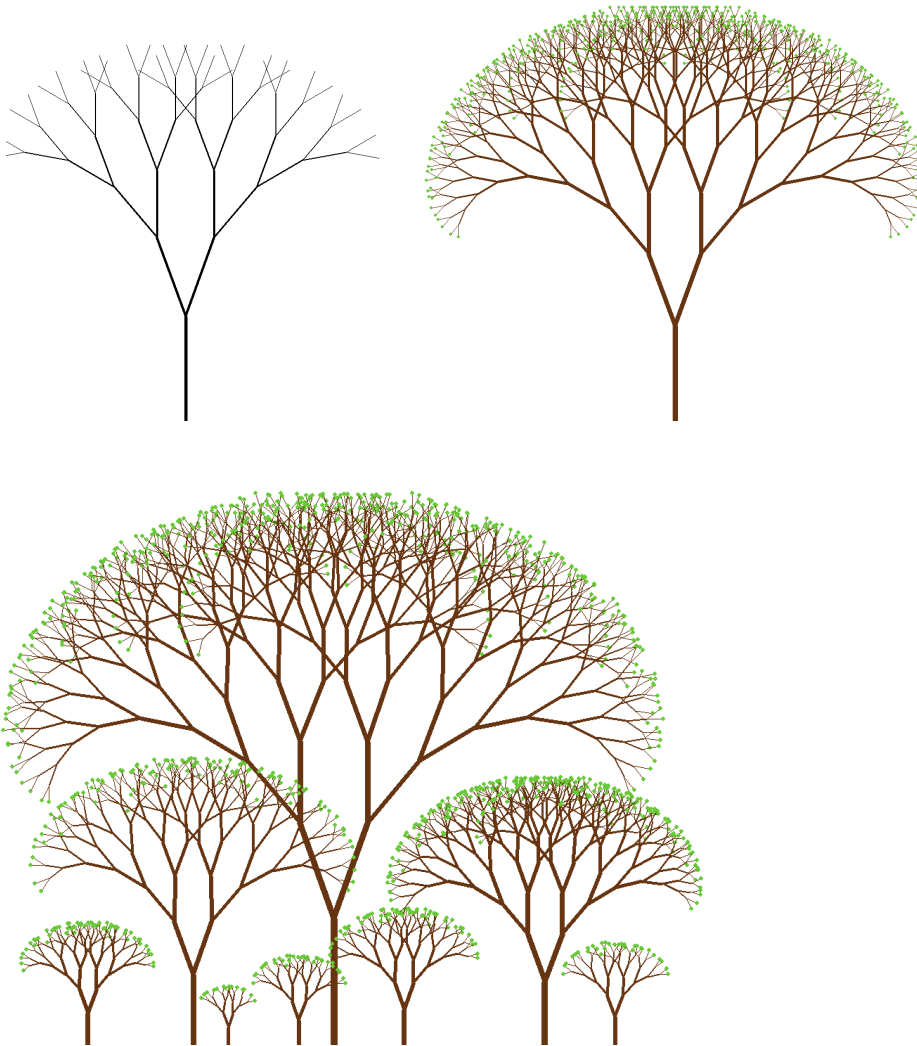
Try numbering the nodes. Number them however you like so long as they are all different consecutive integers. Display the numbers. Think: How many leaves will a tree of size n have? Below you see one possible way of numbering and displaying the numbers.



1.3 Task 3

You should use your creativity to try to make it as interesting as possible. Here are some ideas:

- Thickness of the tree branches
- Length of branches (smaller towards the top)
- Colors
- Leaves
- Multiple trees
- Movement
- Growth
- Interactivity



2 Reading

We have covered Chapters 1-4 of the book so far. Please make sure you have read them in full.

3 Writing part

1. C-3.40
2. C-3.50
3. R-3.17 (You must use the definition of big-O. Do not be informal.
4. C-4.20 (provide code)
5. C-4.10 (provide code)

4 When and how due

Hand in everything the same way you did for HW1. Due date is Thursday September 18th at 11:55PM. You will go over the HW in personal meetings on Friday the 19th.

5 Help!

Please do not hesitate to contact Ben or John if you have any questions. We are here to help! John's official office hours are Wednesday 3-5PM, in 1226, but you can try to stop in at any time.