Arranging Fractals

The first part of code in this project was getting actual fractals to be drawn. At first I just drew the fractal all in canvas with fillRect, but I quickly realized that if I wanted to do anything with scaling individual parts of the fractals it was going to be much more complicated that way. So i decided to make a class called Square, that way I can hold all the data easily. The fractal I drew was a **Sierpinski Carpet**, in which the squares themselves are actually fairly self contained. From there the strategy was to “arrange” the fractal (put all the squares at the center of their position as if they are at full scale), and then scale each square by the frequency data over 256. I also realized that its much easier to have multiple fractals rather than 1 deep one (exponential growth is tough).

Visualizing Data

At first I took an average of the first third of the fractals, as I only had 3 fractals then, but I realized that the average doesn’t move enough to make an interesting visualization. Instead what I do is I sample at a point evenly distributed along the data array for each fractal. In addition to this, depth levels don’t show unless a threshold is reached in the scale factor

Fitting the fractals

Next was actually fitting the fractals on the screen. Some simple math gave me how much space per fractal is available on the screen, and then I space them out by an amount scaled by the number of fractals. Because they need to shrink in width to fit more as more fractals are added, they also shrink in height.

Image Data Issues

I also ran into performance issues, as checking every pixel in the canvas in addition to multiple fractals shuts the whole system down. What I did instead was to have only the fractals have their colors inverted, and I only check for the rows in which fractals could actually be drawn, using the data from fitting the fractals.

Resources

I used Bootstrap to get my UI done

Grade

In terms of grades, I’m proud of what I did. Unfortunately this is a super busy time, so I wasn’t able to get all of the rubric points hit, such as a radio button control. I would have also really liked to use multiple fractals, and even got started on the code for a Sierpinski triangle, but its been a real tight 2 weeks for me. Still, I really appreciate the extensions you have given us with this, I definitely would not have been able to do what I did for this without it. Overall I’d give myself a 85%