Assignment 1 Writeup

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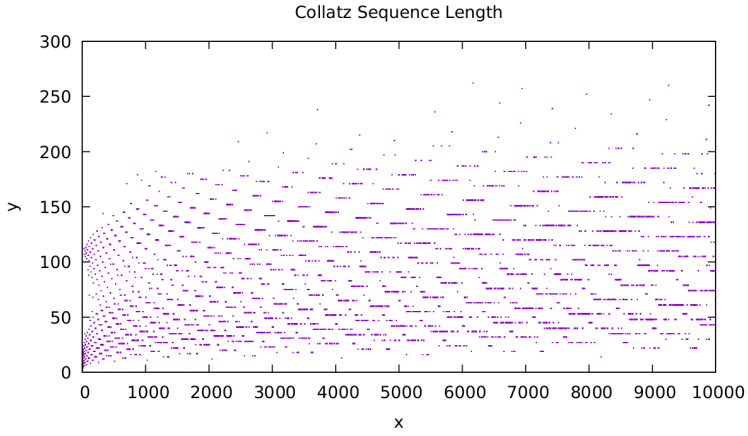
1 Length Graph

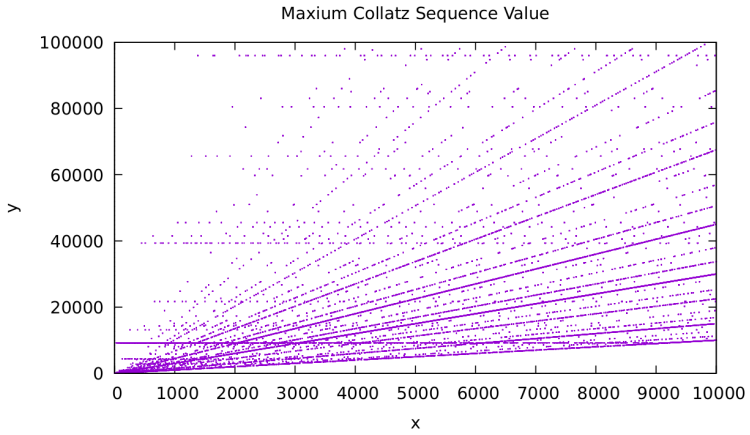
In order to produce the Collatz sequence lengths graph I utilized the Gnuplot command library and formatted it so that I could first iterate through the given parameters. I used echo to print out the iterations of the length I'm on and ran Collatz. Then I used word count to get the count and pipe it out onto my length.dat file. I set my parameters for how I wanted the graph to be by setting up my x, y, header, side header and the title of the graph itself. I adjusted the point size of the points in order for the graph to have more visibility.



2 Max Value Graph

The Maximum Collatz Sequence Value graph followed a similar format to my previous segment of code. I started it off by iterating through 2 to 10000 once again and echoed my next line which would print out the iterations of values made as well as run Collatz followed by sorting it and plotting it onto the value.dat file. Prior to that, I make sure also to set up all my parameters for the graph and set

up my x and y coordinates as well as the different titles. As well as additionally setting up my value.dat file.



3 Histogram Graph

In order to graph my Collatz Sequence Length Histogram I first began by setting up my parameters of 2 to 10000 again in order to then echo the numbers iterating through the sequence. However, I had to do this fairly differently from the former two and figure out a way for the graph to produce a histogram which can be done by using the length.dat file and then sorting it so it'll print the plots for the histogram. This also was followed by setting up the parameters for the histogram graph and also adjusting the style data and box width.