

# Design Document for Assignment 1

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October 2, 2022

Rebuild the collatz executable

Initialize all of the .dat files

For loop iterating from 2 to 10,000:

- Making ./collatz a parameter

- Creating the length variable by using the wc command on the collatz parameter

- Creating the value variable by using the sort and tail command on the collatz parameter

- Printing (iterator, length) to the temporary graph1.dat file

- Printing (iterator, value) to the temporary graph2.dat file

- Printing length to its own length.dat file to be used for later

- Initializing a variable named total which will hold the sum of each collatz sequence

- Nested for loop which iterates through the collatz parameter and each number of the collatz sequence

- Printing (iterator, total) to the temporary graph4.dat file

Sorting the length.dat file with the sort and uniq command and appending it to the graph3.dat file

Going into non-interactive mode for gnuplot for graph1

- Setting the terminal pdf so the format is PDF

- Setting the output pdf to set a final destination

- Setting xlabel, ylabel, xtics, ytics, xrange, yrange, and title to specify restrictions and titles

- Removing floating text

Plotting graph1.dat file

Going into non-interactive mode for gnuplot for graph2

Setting the terminal pdf so the format is PDF

Setting the output pdf to set a final destination

Setting xlabel, ylabel, xtics, ytics, xrange, yrange, and title to specify restrictions and titles

Removing floating text

Plotting graph2.dat file

Going into non-interactive mode for gnuplot for graph3

Setting the terminal pdf so the format is PDF

Setting the output pdf to set a final destination

Setting xlabel, ylabel, xtics, ytics, xrange, yrange, and title to specify restrictions and titles

Removing floating text

Plotting graph3.dat file while reversing the (x,y) coordinates

Going into non-interactive mode for gnuplot for graph4

Setting the terminal pdf so the format is PDF

Setting the output pdf to set a final destination

Setting xlabel, ylabel, xtics, ytics, xrange, yrange, and title to specify restrictions and titles

Removing floating text

Plotting graph4.dat file