Probability and Applied Statistics Project 2

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# Program 1 – Part 1

Tester

The tester class of Program 1 takes userInput of a max, min, increment, salt and smooth values. Using those inputs it creates the list of X and Y and outputs to a .csv file. It then simultaneously fishes for a .csv input in order to continue the program. It takes .csv input and proceeds to use the Helper class to call the salt method. After a salted list is returned, it then calls the smooth method to attempt to smooth out the data.

-Output is done using the .write method

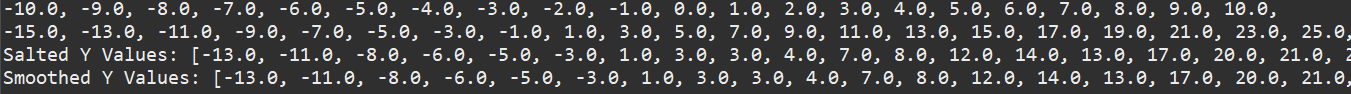
-Input is done making use of a stringbuilder and .split method.

Input

A screenshot of a computer program

Description automatically generated

Output



Helper

Helper has two methods, salt and smooth, to lessen the burden on the tester class. The salt method uses the Random class to salt the data using userInput. The smooth class then asks for the salted data which the tester class provides.

# Program 1 – Part 2

Part 2.m

This can do everything Program 1 can but in Octave. It showcases a visual graph of X and Y, plotting it on Octave’s GUI before outputting to a .csv file. The simultaneous input and output is simply obtained through Octave’s csvwrite and csvread methods. The salter and smoother then replicate what the program does in java, involving the same math and loops.

-Octave Graph Plot

A screen shot of a graph

Description automatically generated

-CSV Output

A number on a black background

Description automatically generated

# Program 1 – Part 3

Tester

The tester of Part 3 has the same function as the first except it makes use of the API JFreeCharts to make a graph directly on the screen when ran in java.

-JFreeChart

A graph of a graph showing a line

Description automatically generated with medium confidence

Helper

The helper class functions the same as in Part 1 except it makes use of the Apache Commons Statistics Library to create a DescriptiveStatistics object. This is used as a dataset to store information and aid the smoothing method.

# Stock Bot

Input

The Input class of the Stock Bot looks for a .csv stock file to translate into data structures. After translating and putting the values into their rightful data structures it calls upon the RSI helper class to calculate RSI and MA.

-RSI and MA caculations

A computer screen with numbers and letters

Description automatically generated

RSI

The RSI class has two methods, one to calculate RSI and one to calculate MA. These methods are simple and use the general RSI calculations for RSI and the smoothing algorithm from Program 1 for MA.