Stock Bot Program Report

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In this exercise, we were tasked with applying our implemented programs, algorithms, and skills, along with the concepts we had learned so far in the course, to create a rudimentary "Stocks Bot" Program. Ideally, this program would be able to examine trends in the data associated with a publicly-traded company's stock, and determine the actions a person should take in trading that stock. In my program, I implemented several methods using other programs such as my Stats Library to calculate averages and examine trends in each day's values. For my stock, I chose Microsoft. I assumed their data may be both volatile and exhibit clear trends that I could compare my program's output to.

I created a simple data structure to hold the associated values for each day in the Stock Market: Open, Low, High, Close, Adjusted Close, and Volume. Most applications of the program examine the close value in determining whether to buy, sell, or hold. More than just looking at one of the values, though, the program instead calculates other aspects of the stock's volatility in order to determine buy and sell amounts. A moving average is taken starting after the first few days of activity, and is compared each day to determine the action the program takes. Then, the RSI is calculated. Based on the value of the RSI, the program gives a number to buy or sell. After these values have been calculated, the program then executes the action at the end of a day. This goes on for the span of a year of market time, after which all shares are sold. The current amount of money is compared to the original, and the program produces an output for the user informing them of their gains or losses.

Initially, I had set the program to simply spend all its money outright, hold it for a year, and then sell. This surprisingly showed a gain of about 50% of our original investment, which followed the trend of the stock over the course of that year. However, I wanted to attempt to follow actual trading behavior and presumptions using things like the RSI and averages of

certain values. So I shifted the actions of the program to follow the habits or best practices noted by some guides found while learning about how to calculate each value like RSI. I was disappointed to see that, following my programmed guidelines, the program then only reported a net gain of about $100 to the initial investment of $5000. This shows the program is indeed functioning according to the actions set, but unfortunately for me, I still have a lot of work to do in identifying the best practices to follow in trying to make the most profit. I am interested in expanding my implementation to try and cover more behaviors experts follow, and to see if further work produces better results and more profit.