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Backtesting StockBot

The trading bot uses three different types of algorithms to determine sell/buy orders.

1. Buy and hold for a year or more. Ie. Some form of long hold that you can theoretically exit from
2. Use RSI + Moving Average to determine buy and sell points.
3. Monthly dollar cost averaging, sells at the end of data set

The stock I choose for my Bot is VOO. I know that it is a growth stock but I was curious on what my StockBot would do with the portfolio.

I used the Closing Prices for my Algorithms

A graph showing a price

Description automatically generated

For my trading portfolio, I allocated 10,000 dollars for the StockBot to trade.

This is my Moving Average compared to the RSI

**Algorithm 1**, is implemented by buying lump sum of VOO.

A screen shot of a computer

Description automatically generated

Skipping the first 28 days of the CSV, the StockBot buys VOO with 20% of the portfolio, rounded down, at the closing price. It continues to do that for the RSI period of 14 days, totaling 28 shares and with the average cost of $351.34. The StockBot does not allocate the remaining funds to buy partial shares of a stock, so it remains in the portfolio as a cash balance.

By the end of the holding period, The StockBot sells all shares of VOO.

A screen shot of a computer

Description automatically generated

Conclusion: The portfolio is emptied out with 0 shares left at the end of the CSV. The StockBot ends up making money as an outcome, which is to be expected as VOO is a growth stock of a net $2004.24.

**Algorithm 2**, the StockBot is programmed to buy and sell whether RSI is oversold/overbought and MA is lower/higher than current price. It is programed to buy stocks if the RSI is oversold (under 31) and the current price is below the moving average over a 14 day period at a time.

It displays the current balance of the account

A black screen with white numbers

Description automatically generated

The RSI and MA for the 14 day period

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Description automatically generated

How much the account is worth at the end of the dataset

A screen shot of a computer

Description automatically generated

It is still holding 2 shares of VOO and the average cost of both is $381.86.

Conclusion: With algorithm 2, I end up netting $296.16. It isn’t much when compared to the total account balance at the start, having $10,000. It is a surprise that the Bot is net positive as VOO’s price is continuing to climb, being a growth stock.

**Algorithm 3**, I implemented the Bot to start trading with 20% of the portfolio, as I did with Algorithm 1, buying at the closing price. It continues to buy VOO every 30 days with 20% of what’s left of the portfolio until it can not buy anymore and holds the stock.

By the end the Bot, still has an account balance. This means that the Bot did not finish buying VOO until it ran out of money.



What was left at the end of the dataset before it sold all the shares it was holding.

A screen shot of a computer

Description automatically generated

After when it sold all the shares

A screenshot of a computer screen

Description automatically generated

Conclusion: The account is net positive of $697.81. With the shares it was holding the value of the stock went up so the value of the account also went up.