Cryptocurrency Trading Bot

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9. May 2022

This report is made for semestral work in class BI-PYT.

1 Introduction

With young people beginning to more and more care about the stock market and more modern ways of investing, such as NFTs or cryptocurrencies, many new inexperience people dive into those fields without any knowledge about how each specific field works, so they in more cases instead of making money, end up losing them. That's one of the reasons why having a bot that trades and analyze your investments for you is not that bad of an idea; of course assuming the bot analyzes the investments correctly.

Therefore the goal of this semestral work is to make trading bot that trades cryptocurrencies for you, based on your inputted criteria. User only input basic information; amount of money they wish to invest and for how long they want to have their money invested. The bot takes care of the rest, including trading, saving information about the trades and graphing the final statistics.

2 Bot Sections

The bot is dived into multiple programs.

1. The main one is taking care of the actual trading

3. The Third one is saving files into their corresponding locations

4. The Fourth one is completely separate and takes care of plotting the price and money and how they changed over time

2.1 Input

User is asked to input only 2 parameters, the first one is the amount of money that will be used for trading and the second one is either for how long the user wants to let the bot trade with the money or how risky the bot should trade. While the risk factor is affecting which cryptocurrencies it's gonna use to trade with and the *stop-loss* and *take-profit*.

2.2 Trading

Trading is realized that way, that bot is scraping a site to get details about the specific currency and waiting for the right time to invest. After the initial investment, files that will store the history of the trading are created. Then roughly every 5 minutes bot checks the current value of the currency and performs certain actions such as logging if the currency is above or below our sell level, or logging the current value every hour. A special function for buying crypto will be triggered when the currency price decrease to a specific level, the bot will buy some amount to *support* the currency.

2.3 Saving To Files

Every buy and sell action is saved to *.xlsx* files. While the program is running there are 2 important files among all of them. One that keeps the information about the currency and another one that serves as *timeline*. To this document statistics about the currency and user's money are being saved. At the end of the bot, which is triggered either by the user's action or when the bot reaches the date that's been inputted at the begging, all files except the timeline are deleted. The timeline is stored in a folder called History from which it can be plotted using a separate python program.

2.4 Plotting

After the bot is done, or after manually dragging the timeline file to the History folder, the file can be plotted with a separate program called *graph*.py. The program asks for the name of the file that the user wishes to open, which is simply the date when the bot finished or when the user chose to stop the bot. After inputting the date, 2 windows appear. The first window shows how currency changed over time and at which points we bought or sold the currency, and the other one shows how the user's money changed over time.

Pictures serve only as an example of what plotting looks like. Realistic results will take way more time. Right now graphs look the same, but when running

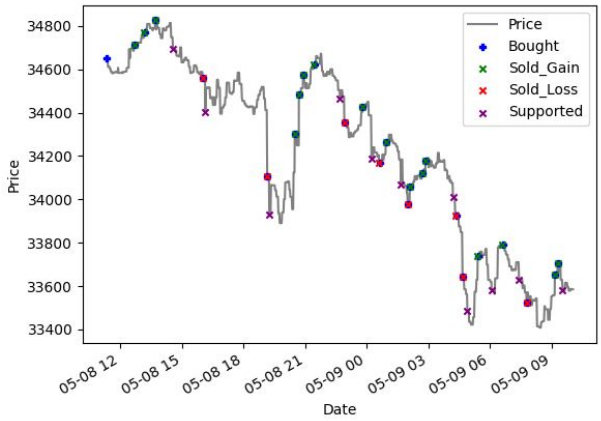

Figure 1: Price changed over time with marks showing when certain actions has been performed

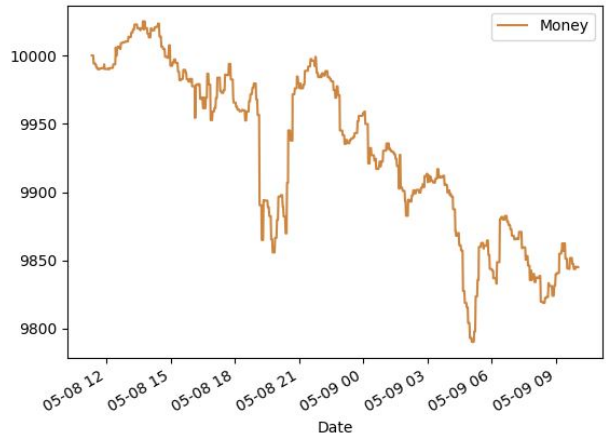

Figure 2: Money changed over time

the bot for longer, graphs will differ.

3 Results

Since this trading bot has been implemented with custom equations for calculating different values and limits, there wasn't that much time left for testing. 2 weeks of testing is not even close to the minimum that a trading bot should go through. Therefore I had to adjust the settings manually which usually resulted in losing money. On the other hand, when talking about the technical side of the bot, I would say it is decently good (for my standards). The input, saving, and plotting are working exactly as desired. The trading part is questionable because there is A LOT to take into account, calculating limits, updating currency values, and way more. So the results were correct, although usually not satisfying.

4 Conclusion

I wanted to make this project for a long time. I think after a few years it will get to the point where it might be useful. There are so many more functions that I want to implement, but currently, there's no time for that. Similarly, there is a bunch of stuff that can be improved, including the math, performance, and more options in regards to when to buy and sell the currency. I am hoping that in the future I am going to be able to improve the bot and use it myself.

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