Project Description

In this project, you will develop an automated trading system that is designed to trade only two Exchange-Traded Funds (ETFs): FNGU and FNGD. These ETFs are highly volatile as they are 3x leveraged. The top holdings of these ETFs include mainly so-called FANG companies, plus others such as META (Facebook), AMZN, AAPL, NFLX, GOOGL, MSFT, TSLA, NVDA, AMD, and SNOW. If most of the holdings are up, FNGU will be up, but FNGD will be down. On the other hand, if the majority of holdings are down, FNGU will be down, but FNGD will be up. In other words, they are inverse to each other, so you can buy and sell for profit based on either direction without sell-shorting.

The trading system should have at least the following basic features:

1. Download the historical data of FNGU and FNGD for the past three years between 01/01/2020 and Yesterday from any data source (e.g., Yahoo Finance) and save them in JSON format on your local machine. The downloaded data should include Date, Open, High, Low, Close, and Volume. Note that the data source may be changed later.
2. Create a user interface (GUI or command line) for the user to display the data from the saved data and draw a graph for the selected symbol (either FNGU or FNGD) and date period.
3. Implement at least two trading strategies (a) Moving Average Cross-over and (b) Bollinger Band Bounce. You are free to add or mix different strategies for higher returns.
4. The initial balance of your trading account will be $100,000. Implement a simple backtesting method to calculate the total gain or loss from every trade for the selected period and display the final performance of each trading strategy in terms of total $ return and % return, assuming the trading fee is zero (free).

These requirements may be changed as you go through the project life cycle. There will be multiple assignments to complete this project.

The recommended programming languages are either Python or JavaScript (TypeScript).