Quantitative Momentum

Colab Notebook Link - https://colab.research.google.com/drive/1e0S9c_53TzVfZo3TMNTsMGP1ePy78LGp?usp=sharing

1. ## Gathering Data:

   The code starts by fetching historical stock price data using the yfinance library. It collects the data for a list of stock symbols from the S&P 500 index.

2. ## Data Preprocessing:

   The code preprocesses the data by extracting the adjusted close prices and organizing them into a DataFrame. It also retrieves information about stock additions and removals from the S&P 500 index.

3. ## Handling Missing Data:

   To account for survivorship bias, the code identifies newly added or removed stocks that are not present in the historical data and assigns NaN values to them in the DataFrame.

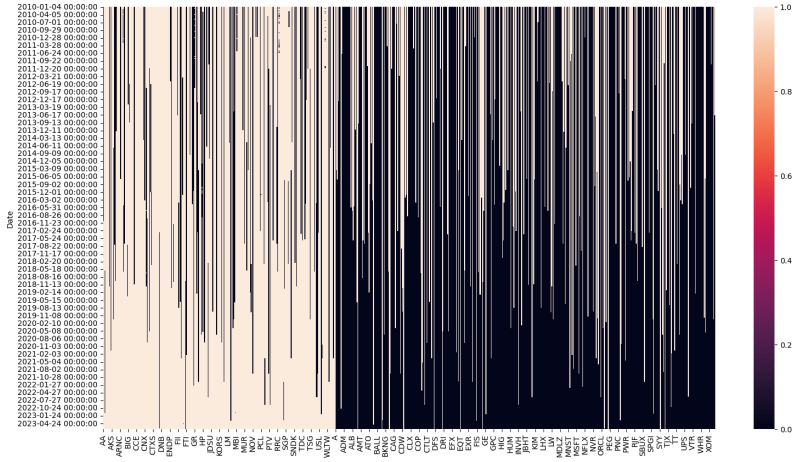
4. ## Strategy Implementation:

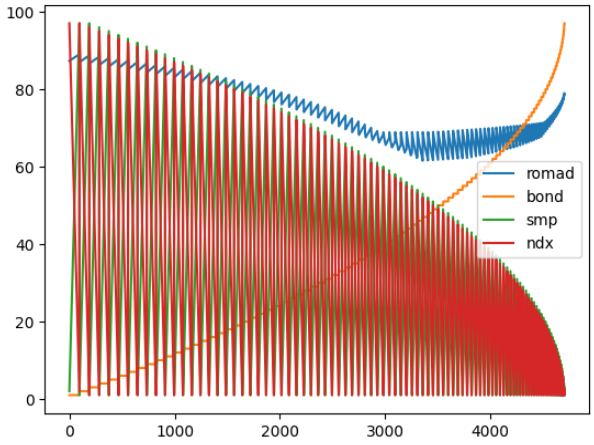
   The code calculates the monthly returns of each stock and identifies the top-performing stocks based on their relative performance over the past year excluding the previous month. It selects the top 10 stocks with the highest returns for each month.

5. ## Performance Evaluation:

   The code calculates the average monthly return of the selected stocks and computes the cumulative returns by multiplying the monthly returns consecutively. It then plots the cumulative returns over time.

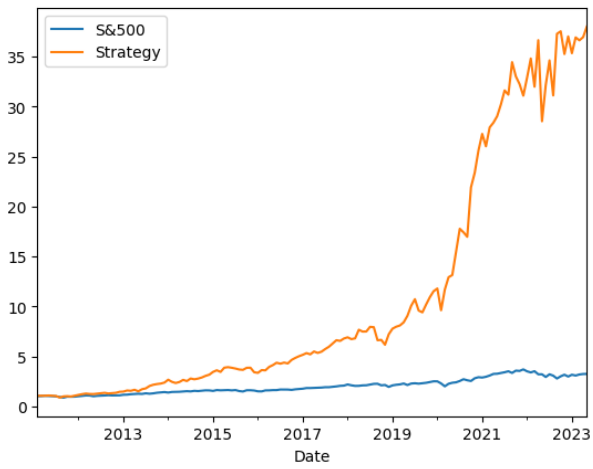
Optimization



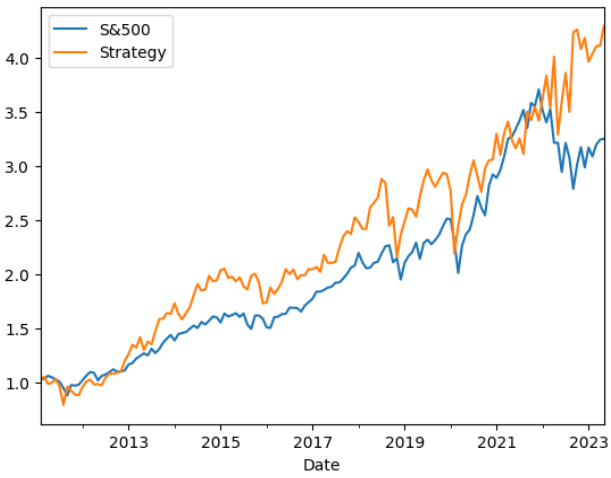


Data after Data Preprocessing

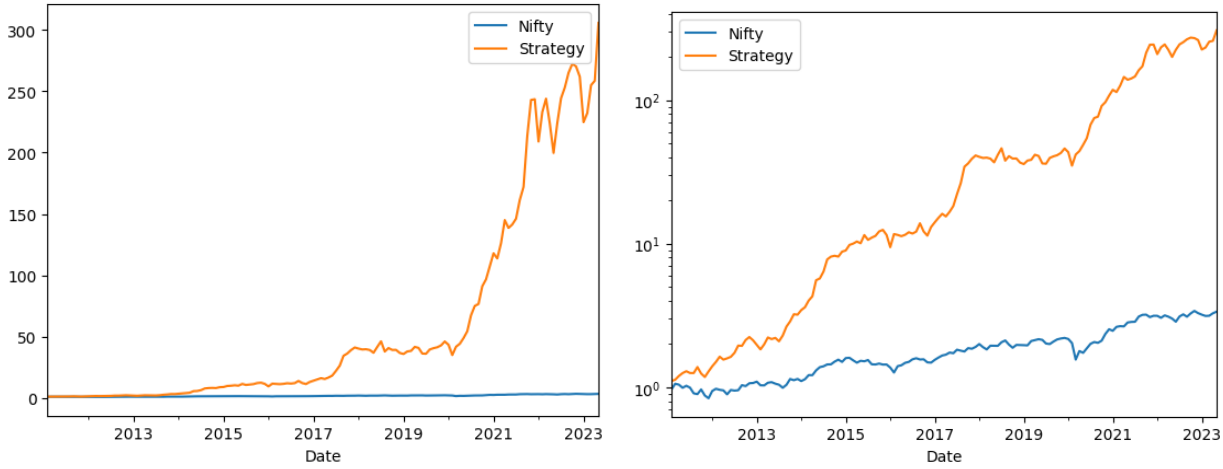
With Survivorship Bias



Without Survivorship Bias



Nifty 500(10 stock)



Nifty 50(10 stocks)