FINCLUB

Open Project on Technical Analysis

Technical analysis is used to assess investments and pinpoint potential trading chances through the examination of statistical patterns derived from market activities, including price fluctuations and trading volumes. In contrast to fundamental analysis, which aims to gauge a security's worth by assessing business performance metrics like sales and profits, technical analysis concentrates on scrutinizing price and volume dynamics.

Aim- Write an equity trading strategy using python which gives buy and sell signals and calculate the returns, drawdowns, Sharpe ratio, etc. You can use price, volume or some other dataset for this. Make a strategy based on combination of different technical indicators to get the best returns and Sharpe ratio.

Tasks-

Develop a trading strategy utilizing two or more technical indicators, each based on distinct datasets, and implement this strategy in Python. Ensure that your code incorporates the following components:

- Begin by importing the necessary Python packages: yfinance, numpy, pandas, and matplotlib.
- Download historical data from Yahoo Finance with a tick interval of 1 day.
- Create a visual representation of the closing price versus date by generating a chart for the acquired data.
- Devise a trading strategy that doesn't rely directly on technical indicators related to price. For instance, consider a strategy where increasing trading volume indicates momentum, or frequent gap-ups serve as signals for bullish or bearish trends.
- Implement your trading strategy in Python.
- Identify buy and sell points using your strategy.
- Utilize a variable named 'position' to keep track of your current position (open or close).
- Plot the buy and sell points on a chart for visualization.

- Calculate your final portfolio value and return.
- Compute a comprehensive summary, including strategy return, annualized return, benchmark return, the number of executed trades, maximum drawdown, win ratio, loss-making trades, largest loss-making trade, largest profit-making trade, and daily returns.
- Create separate files for your Python code, a 'summary.csv' file, and a 'summary.doc' file to document your strategy and its performance.

Example of a naive strategy- Decide the nature of market for which you are making your strategy - Momentum or reversion An example of momentum trading strategy :- SMA(Simple Moving Average) Crossover Strategy, Lets consider two SMA's for a stock SMA_50 and SMA_200

What happens when stock is generating upside momentum?

Answer-The faster moving average crosses the slower one upside and vice versa i.e when stock is falling the faster one crosses the slower one in downside Because the faster one is more prone to changes in stock price.

Other examples can include Gap-Trading strategy, Open interest strategy, Mean-reversion etc.

You can think of your own strategy here. You can google or search for strategies from research papers, or come up with your own hypotheses or strategy.

Deliverables- Write a python code that clearly includes your strategy and also calculate, Sharpe ratio, annualized return, benchmark return, the number of executed trades, maximum drawdown, win ratio, loss-making trades, largest loss-making trade, largest profit-making trade, and daily returns.

Make a csv file containing the buy and sell points, position is open or not, value of your portfolio

Make a pdf containing your idea in brief, your hypothesis, graphs for stock returns, portfolio returns, how can you further develop the strategy and what insights have you gained, summary.

Resources- https://www.investopedia.com/terms/t/technical-analysis-of-stocks-and-trends.asp, Technical Analysis For Beginners (The Ultimate Guide), https://www.investopedia.com/articles/technical/112601.asp, https://www.investopedia.com/articles/active-trading/102914/technical-analysis-strategies-beginners.asp, https://zerodha.com/varsity/module/technical-analysis, https://youtu.be/BhOdgrxWi5c?si=CFfVeuO_jtbgFmEr, **Useful Yt channels-** https://youtube.com/@Algovibes?si=yl0KWOOgR_1aokoa**(AlgoVibes),** https://youtube.com/@tradingwithrayner?si=JbPNu9ccdWd_p-O7**(Rayner Teo)**