



# **QUANT PROJECT**

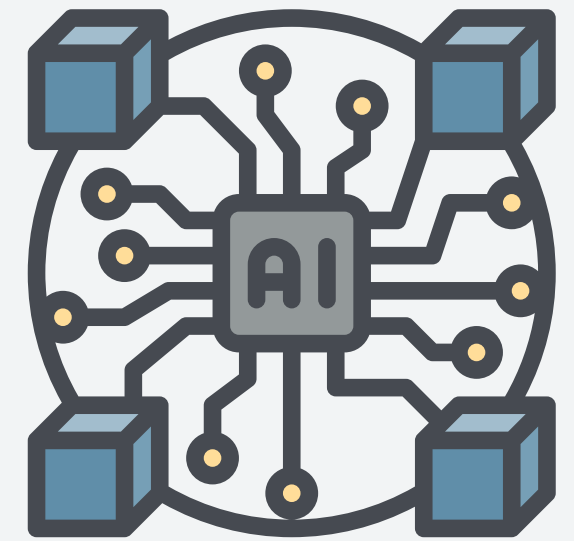


**Barak Hostel**

# CONTENT

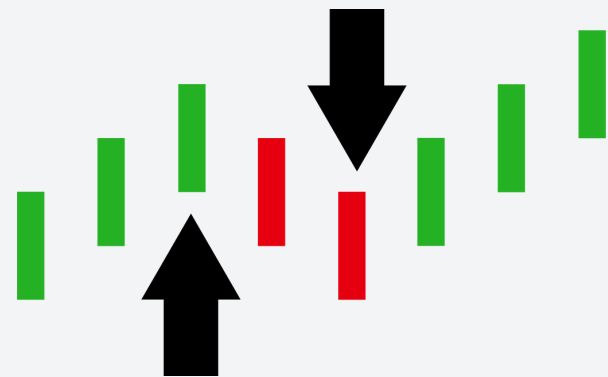
- 00** Introduction
- 01** Analysis Of Data
- 02** Strategy Explanation
- 03** Risk management measure
- 04** Execution and Backtesting
- 05** Performance Metrics

# INTRODUCTION



Algorithmic trading, often referred to as algo trading, is a method of executing trades using automated pre-programmed trading instructions accounting for variables such as time, price, and volume.

## KEY CONCEPTS



### Automated Trading Strategies:

Algo-trading involves using algorithms to make trade decisions.

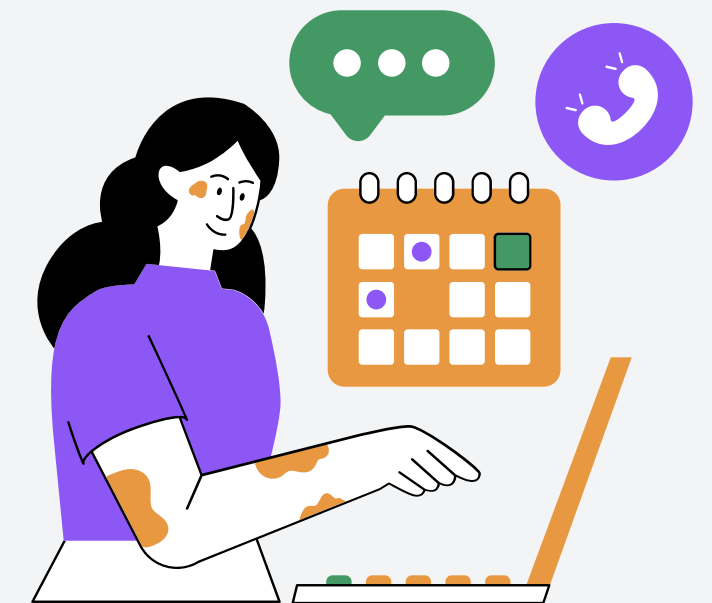


**High-Frequency Trading (HFT):** A specialized form of algo-trading that involves executing a large number of orders at extremely high speeds.



### Backtesting:

Before deploying an algorithm in live markets, it is tested on historical data to ensure its effectiveness.



### Execution Strategies:

These are strategies to minimize the cost of buying or selling large quantities of assets.

# ANALYSIS OF DATA

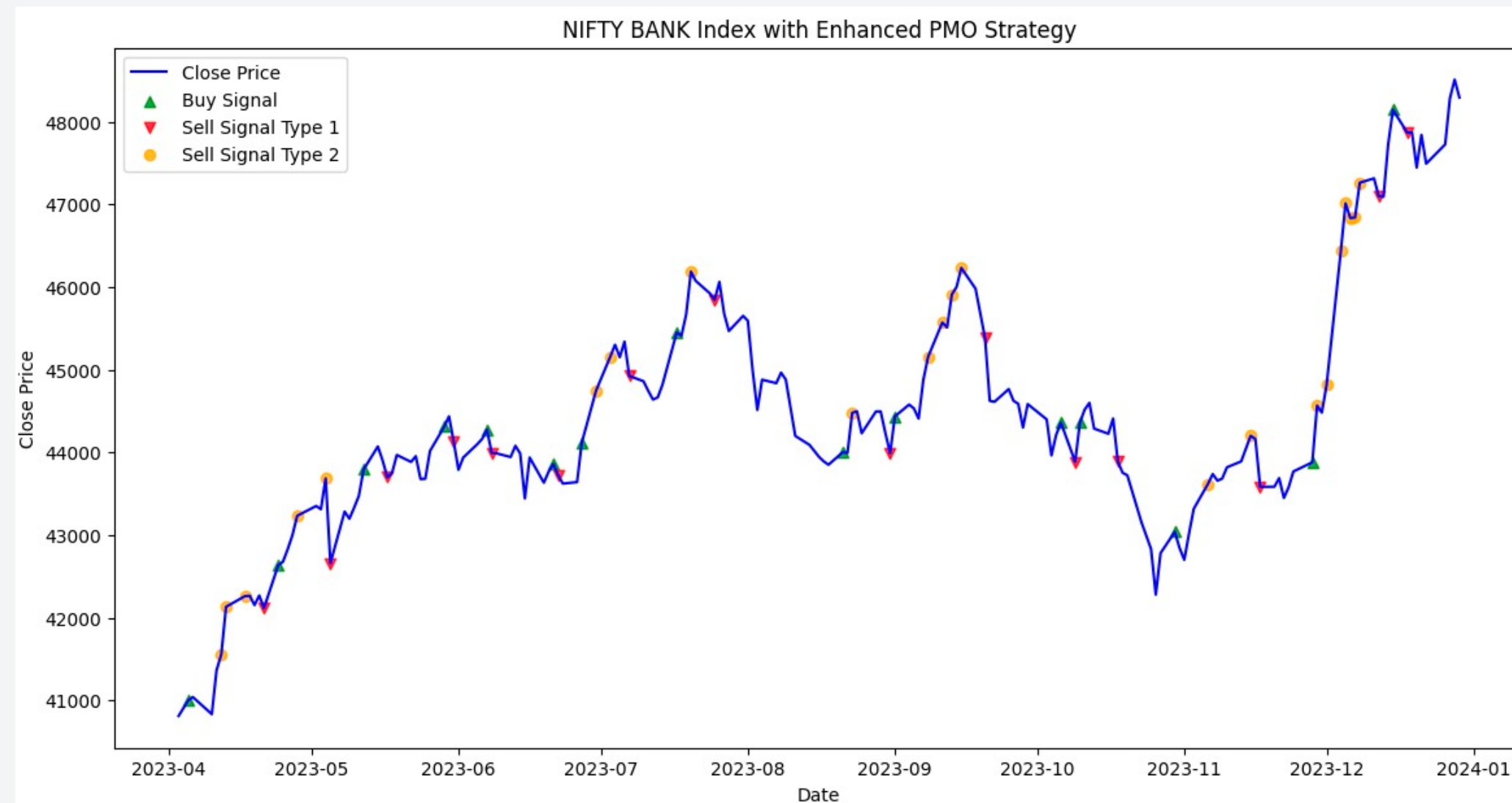
- We have loaded each file, inspected its structure, and detected any issues like missing values, wrong data types, or outliers, ensuring data integrity.
- Performed data cleaning on each dataset based on the identified issues. This could include handling missing data, correcting data types, removing duplicates, and possibly normalizing or standardizing some columns.





# ANALYSIS OF DATA

- Refine the data by possibly merging related datasets if applicable, creating a more comprehensive dataset ready for analysis or further processing.
- In the final analysis, our strategy will culminate in synergizing the current dataset with the **PMO (Percentage Price Oscillator)** oscillator to optimize returns and maximize profitability.
- This collaborative approach will undoubtedly enhance our ability to generate superior results and achieve significant gains.



# Strategy Explanation

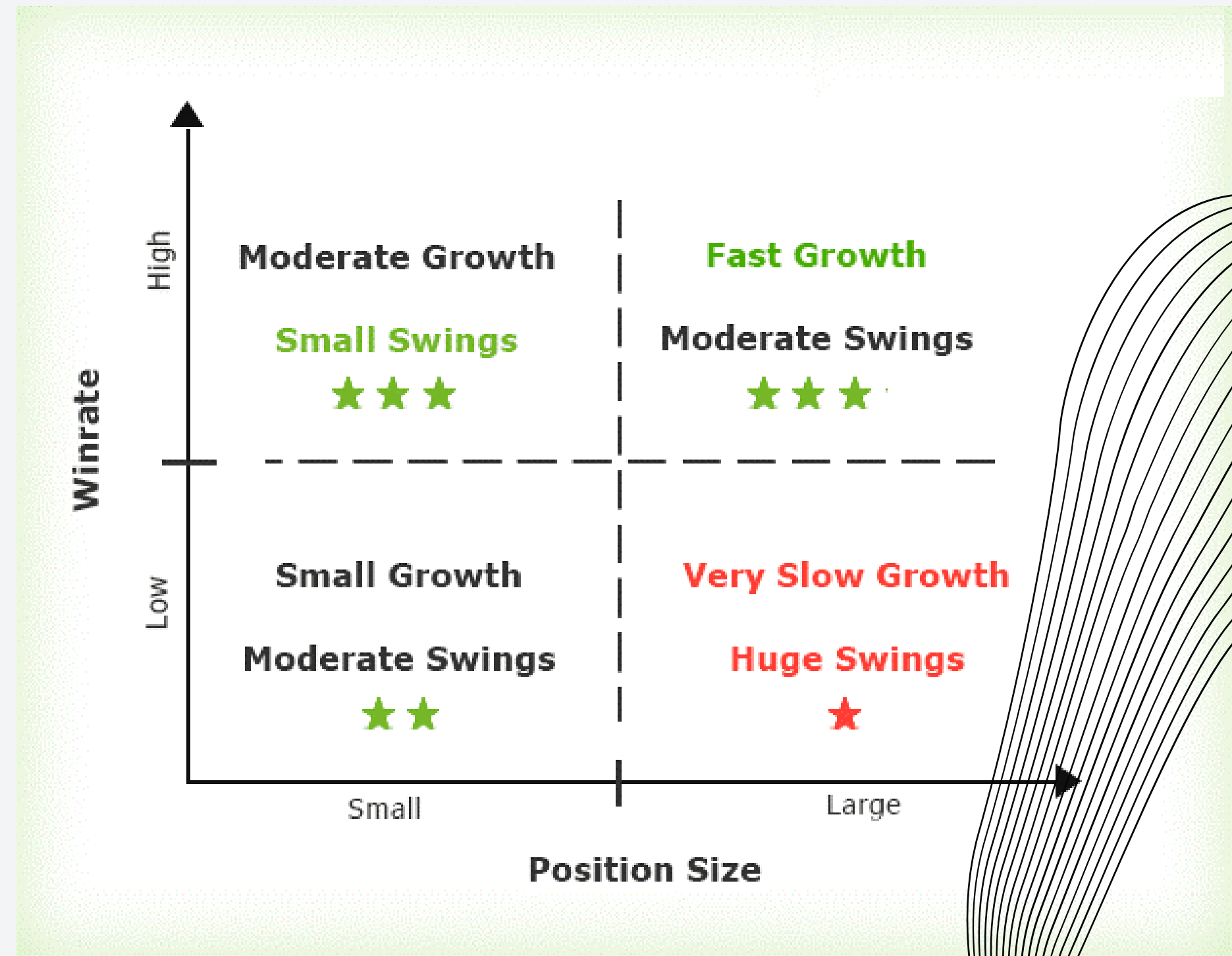
- The strategy is based on the Price Momentum Oscillator (PMO) indicator. When the PMO value crosses above the signal line, a buy signal is generated.
- A sell signal is triggered either when the PMO crosses below the signal line (Type 1) or when the price exceeds predefined gain thresholds from the buy price (Type 2).
- The gain thresholds serve as profit-taking targets, while the Type 1 sell signal acts as a stop-loss.
- The strategy aims to capitalize on momentum shifts in the market, buying during uptrends and selling during downtrends or when profit targets are met.



# RISK MANAGEMENT

By default, our stoploss is the next red dot if it is within -1.25%; else, our stoploss is 1.25 percent.

Our risk-to-reward ratio is 1:2, with a target of achieving a 2.5 percent return. Once we hit this target and if the BankNifty continues to rise, our trailing stop loss will adjust to 1.5 percent, effectively limiting our potential loss to 1 percent. Subsequently, when our target extends to 3.5 percent, our trailing stop loss will then be set at 2.5 percent.



# EXECUTION AND BACKTESTING

The strategy's performance is evaluated by simulating its execution over the given historical data. This involves tracking the portfolio's value over time, considering the positions opened and closed based on the signals, and applying stop-loss in order to generate maximum profit.

[link](#)

Link for the code for backtesting



Thank  
You