ANALYSIS OF
BLACK-BOX TRADING STRATEGIC ALGORITHMS

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PROJECT OBJECTIVES:

SELECTING SOME EXISTING TRADING ALGORITHMS AND ANALYSE THEM.

IMPLEMENTING THE ALGORITHMS AND COMPARE THE EFFICIENCY ON THE BASIS OF PROFITABILITY

#SUGGESTING SOME NEW ALGORITHMS OR CHANGES IN EXISTING ALGORITHMS FOR MORE EFFICIENCY

INTRODUCTION:

Algorithmic trading (also called automated trading, black-box trading, or algo-trading) uses a computer program that follows a defined set of instructions (an algorithm) to place a trade. The trade, in theory, can generate profits at a speed and frequency that is impossible for a human trader.

The defined sets of instructions are based on timing, price, quantity, or any mathematical model. Apart from profit opportunities for the trader, algo-trading renders markets more liquid and trading more systematic by ruling out the impact of human emotions on trading activities.

Most algo-trading today is high-frequency trading (HFT), which attempts to capitalize on placing a large number of orders at rapid speeds across multiple markets and multiple decision parameters based on pre-programmed instructions.

Technical Requirements for Algorithmic Trading

Implementing the algorithm using a computer program is the final component of algorithmic trading, accompanied by backtesting (trying out the algorithm on historical periods of past stock-market performance to see if using it would have been profitable). The challenge is to transform the identified strategy into an integrated computerized process that has access to a trading account for placing orders. The following are the requirements for algorithmic trading:

- Computer-programming knowledge to program the required trading strategy, hired programmers, or pre-made trading software.
- Network connectivity and access to trading platforms to place orders.
- Access to market data feeds that will be monitored by the algorithm for opportunities to place orders.
- The ability and infrastructure to backtest the system once it is built before it goes live on real markets.
- Available historical data for backtesting depending on the complexity of rules implemented in the algorithm.

DESCRIPTION:

There are various trading opportunities in the market and several strategies for each of them,but we have selected few of them from intraday equity domain as follows:

1. mean reversion

   Mean reversion strategy is based on the concept that the high and low prices of an asset are a temporary phenomenon that revert to their mean value (average value) periodically. Identifying and defining a price range and implementing an algorithm based on it allows trades to be placed automatically when the price of an asset breaks in and out of its defined range

2. Volume weighted average price

Volume-weighted average price strategy breaks up a large order and releases dynamically determined smaller chunks of the order to the market using stock-specific historical volume profiles. The aim is to execute the order close to the volume-weighted average price (VWAP)

3. Bid-ask spread

The bid-ask spread is the difference between the bid price for a security and its ask (or offer) price. It represents the difference between the highest price a buyer is willing to pay (bid) for a security and the lowest price a seller is willing to accept. A transaction occurs when a buyer either accepts the ask price or a seller takes the bid price. In simple terms, a security's price will trend upward when there are more buyers than sellers, as the buyers bid the stock higher. Conversely, a security's price will trend lower when sellers outnumber buyers, as the supply-demand imbalance will force the sellers to lower their offer price.

REFERENCES:

https://www.investopedia.com/technical-analysis-4689657