

ALGORITHMIC TRADING USING DATA MINING & DATA ANALYTICS

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ABSTRACT

Algorithm trading is an emerging way to trade in the markets in India and acts as a non-discretionary trading which uses computer generated algorithms to create and executes the orders on the marketplace and also monitors the market 24/7 and doesn't require discretionary way of trading. Algorithm trading has seen an increasing popularity and acceptance in most of the major markets around the globe. The scope for algorithmic trading is huge in India, because of its feasibility, speed and its ability to mitigate human error in execution. Our Country is adapting this type of automated trading strategy that actually help traders and investors to make more than a reasonable profit on their investments. The system mainly aims to avoid investor's loss during the trade by using the concept of data mining and analytics are used for avoiding spoofing during the trade process.

Keyword: Mining, spoofing, analytics, automated, live data, trading strategy.

1. INTRODUCTION

The concept of Algorithmic trading or automated trading uses a set of instructions made by humans in a form of computer program to place a order when trading. The defined sets of instructions are usually based on timing, the price and quantity. Usually during the trade process, can generate profit at a speed and frequency that is impossible for a non discretionary (human Trader) to predict. Algorithmic trading renders trading in a systematic way by ruling out the impact of human emotions on trading activities. Most of the algorithmic trading today is high frequency trading which try's to capitalize when placing few or large number of orders at great speeds across various markets and multiple decision parameters based on preprogrammed set of instructions.

The main aim of algorithmic trading in this project is

1. To avoid illegitimate advantage of a user by intruders.
2. To avoid investors loss during the trade
3. To know the current market price with live data
4. To design our own trading strategy to give the best possibilities of obtaining profit in the market during trade.

1.1 OBJECTIVE

In this project the strategy uses Node JS(JavaScript Runtime) to obtain live data's from the market like AAPL, Sony, NSE and also obtain the data's of forex trading. The live data's are mined from Alphavantage (free APIs in JSON and CSV formats for real-time and historical stock and forex data) and are represented in the form of graph by using jqWidgets (a software framework with widgets, built in WAI-ARAI accessibility).

1.2 SCOPE

The scope of this project is to avoid illegitimate advantage of a user by hackers or intruders by using Web Analytics(Google Analytics) to track and report about the web traffic in our web application. It also avoid investors loss during the process of trading. To design our own trading strategy to give the best possibilities of obtaining profit in the market during trade.

2. EXISTING SYSTEM

In the existing system uses Trend follow Strategies, Arbitrage opportunities, Index Fund Rebalancing, and percentage of volume. They also use some new strategies like Volume Weighted Average price (VWAP) strategies and time weighted Average price (TWAP) strategies. Discretionary trading were used to predict the outcome in India before the implementation of algorithm trading.

3. PROPOSED SYSTEM

This project takes the real time stock value mined from alphavantage Api. The latest feeds of the markets are obtained by json through alphavantage. We are taking intraday value and generate live charts by using jqWidgets. The algorithm used for the trading is our own trading strategy based on time, price, quantity, volume. For the user authentication we use a fake backend instruction that uses web browser as local storage. Using analytics we make sure that there is no spoofing of fake users.

4. DOMAIN DETAILS

4.1 DATA MINING

Learning patterns in large data sets involving some methods for practice of examining large already existing databases in order to generate a unique information. The data's are mined from alphavantage api where the data's are mined in the form of json and by the use of jqWidgets the mined data is displayed in the form of graph. By our own trading strategy we can generate the possible data to reduce loss percentage during the trade and increase the chance of profit percentage.

4.2 DATA ANALYTICS

Data analytics is used in our project to avoid illegitimate advantage of a user by intruders during trading. So we use web analytics(Google Analytics) to check our web application traffic and analyse the type of users registered for trading and also notes any unauthorized entry without the knowledge of the administrator. It also shows a detailed report of the users to avoid spoofing.

4. MODULES

4.1 USER INTERFACE

The User interface is designed with a temporary login system because we don't use database. We use a fake backend for local storage in browser and the UI is designed to track illegitimate users entering the web without the knowledge by the use of Google Analytics which analyses the web traffic and avoids spoofing during the process of trading.

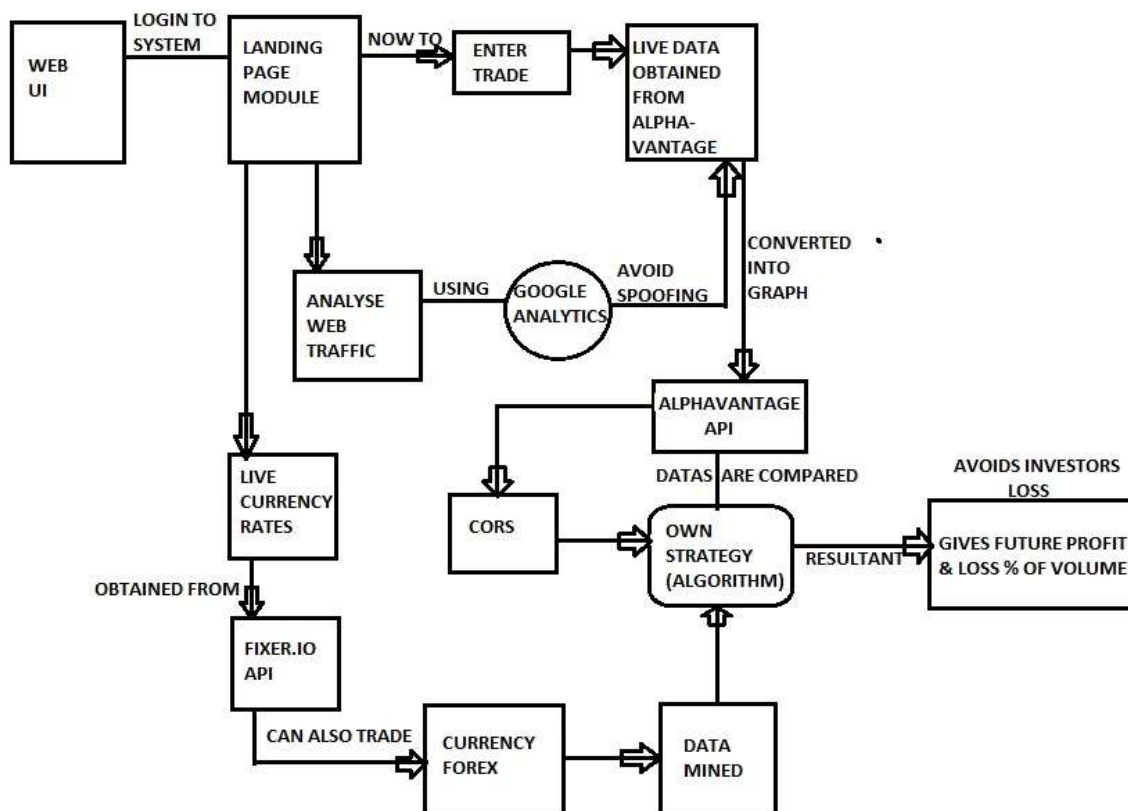
4.2 MARKET DATA

Market data's such as AAPL, NSE, SONY are obtained from Alpha vantage(Real-time & historical stock data's) which is available and the live data's are gathered in the output form of json and the output data's are extracted and execute the live data by jqWidgets in the form of graph.

4.3 LIVE CURRENCY RATES

Live market price of various countries with eventual changes in price can be easily viewed from our web application with real-time forex values obtained from fixer.io api. We also have sample forex markets in which we can do our trading with forex currency.

4.4 OUTPUT



5. FUTURE ENHANCEMENTS

Further modifications are yet to be made for making our own analytics to avoid spoofing. In future there wont be a fake backend for future enhancement as we use mysql database to take care of the login and store the user datas, and also planning to make our own platform for trading using web application as well as mobile application

6. CONCLUSIONS

Algorithm trading is now the most competitive field in which the technology is one of the main factor. with the help of the algorithmic trading, the trade activity becomes more faster but it is totally depending on the technology. There are many examples of crashing in the market due to the algorithmic trading.

7. REFERENCES

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