

Dynamic Trading Strategy Builder

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Abstract

The "Dynamic Trading Strategy Builder" is an innovative and multifaceted platform tailored for traders and investors seeking mastery in the stock market. Comprising three integral modules, this platform offers a comprehensive toolkit aimed at cultivating successful trading practices. Module 1 serves as an educational cornerstone, delivering essential content in PDF format and curated YouTube links. This module ensures users establish a robust foundation in stock market fundamentals, empowering informed decision-making. Module 2 introduces advanced candlestick charting capabilities akin to industry-standard platforms like TradingView. Through this feature, users gain the ability to visualize price movements and identify patterns critical for strategic decision-making. In Module 3, the platform leverages the power of machine learning models. This module enables users to test and fine-tune trading strategies, including advanced techniques like the straddle. By simulating various market conditions, users can evaluate strategy effectiveness and adapt their approaches dynamically. The Dynamic Trading Strategy Builder is meticulously designed to elevate users' trading skills, foster informed decision-making, and adeptly respond to the dynamic landscape of the stock market. Through its holistic approach, this platform equips traders and investors with the tools necessary to thrive in an ever-evolving market environment.

Keywords: Stock Market Mastery Trading Toolkit Educational Content Candlestick Charting Decision-making Machine Learning Strategy Testing Market Dynamics Trading Skills Enhancement Adaptability

INTRODUCTION

Introducing the "Dynamic Trading Strategy Builder": a cutting-edge platform meticulously crafted to empower traders and investors in navigating the complexities of the stock market. In an era where informed decision-making reigns supreme, this innovative tool emerges as a beacon, offering a multifaceted approach to mastering the intricacies of trading. Comprising three fundamental modules, this platform serves as a comprehensive toolkit, designed to not just educate but transform users' understanding and application of stock market dynamics.

At its core, Module 1 stands as the bedrock of knowledge, delivering curated educational content through PDF documents and thoughtfully selected YouTube resources. This foundational module ensures users establish a firm grasp of stock market fundamentals, fostering a solid framework upon which to build sophisticated trading strategies. Module 2 elevates the platform's capabilities, introducing advanced candlestick charting functionalities reminiscent of industry-standard tools. By enabling users to visualize price movements and discern intricate patterns, this module sharpens their analytical prowess, enabling more informed and strategic decision-making in the tumultuous landscape of trading.

1. PURPOSE

• Identify need of Project

In the dynamic realm of the stock market, the need for a robust system like the "Dynamic Trading Strategy Builder" becomes paramount. Traders and investors grapple with an ever-evolving landscape characterized by volatility, rapid shifts, and complex market behaviors. Amidst this turbulence, the necessity arises for a comprehensive toolkit that not only imparts knowledge but also equips individuals with the means to adapt and thrive. The system's first module addresses a critical need for foundational understanding. In an arena where decisions are often driven by intricate market dynamics, having a solid grasp of the fundamentals becomes the bedrock for strategic maneuvering. This educational component not only bridges knowledge gaps but also instills confidence, empowering users to make more informed decisions amid uncertainty.

Furthermore, the second and third modules respond to the demands of a data-driven, tech-savvy trading environment. Advanced charting capabilities enable users to decode complex price movements and identify patterns crucial for effective decision-making. Leveraging machine learning models in the third module propels the platform beyond mere analysis. It caters to the necessity for adaptive strategies by allowing users to test and refine their approaches in simulated market conditions. This capability becomes imperative in a landscape where flexibility and the ability to pivot strategies swiftly in response to market shifts can make the difference between success and setbacks. Hence, the system fulfills the need for a comprehensive, adaptable toolkit tailored to meet the demands of modern-day trading challenges.

OBJECTIVE OF SYSTEM

- **Educational Foundation:** Provide comprehensive educational resources to equip users with a solid understanding of stock market fundamentals.
- **Analytical Empowerment:** Enable users to visualize price movements and recognize patterns through advanced candlestick charting capabilities.
- **Decision-Making Support:** Foster informed decision-making by empowering users to apply their knowledge effectively in the dynamic stock market landscape.
- **Strategy Testing and Refinement:** Utilize machine learning models to facilitate the testing and refinement of trading strategies, including advanced techniques like straddle, under various market conditions.
Skill
- **Enhancement:** Elevate users' trading skills by offering practical tools and simulations that promote adaptive strategies and nuanced approaches to trading..

LITERATURE SURVEY:

AUDELIANO WOLIAN LI, " Stock Market Forecasting Using Deep Learning and Technical Analysis: A Systematic Review,"[1] 2020 - This paper Stock market forecasting is one of the biggest challenges in the financial market since its time series has a complex, noisy, chaotic, dynamic, volatile, and non-parametric nature. However, due to computing development, an intelligent model can help investors and professional analysts reduce the risk of their investments. As Deep Learning models have been extensively studied in recent years, several studies have explored these techniques to predict stock prices using historical data and technical indicators. However, as the objective is to generate forecasts for the financial market, it is essential to validate the model through profitability metrics and model performance. Therefore, this systematic review focuses on Deep Learning models implemented for stock market forecasting using technical analysis.

Discussions were made based on four main points of view: predictor techniques, trading strategies, profitability metrics, and risk management. This study showed that the LSTM technique is widely applied in this scenario (73.5%). This work significant contribution is to highlight some limitations found in the literature, such as only 35.3% of the studies analysed profitability, and only two articles implemented risk management. Therefore, despite the widely explored theme, there are still interesting open areas for research and development.

Byungun Yoon, " Detecting a Risk Signal in Stock Investment Through Opinion Mining and Graph-Based Semi-Supervised Learning,"[2] 2020 – The objective of this study is to develop an algorithm to support a decision-making process in stock investment through opinion mining and graph-based semi-supervised learning. For this purpose, this research addresses the following core processes: (1) filtering fake information, (2) assessing credit risk and detecting risk signals, and (3) predicting future occurrences of credit events through sentiment analysis, word2vec, and graph-based semi-supervised learning. First, financial data, including news, texts in social network services, and financial statements, were collected. Among these data, fake information such as rumors and fake news was filtered by author analysis and a rule-based approach. Second, credit risk was assessed by opinion mining and sentiment analysis for both social data and news in the form of a sentiment score and the trend of documents for each stock. A signal for a credit event was then detected by the degree of assessed risk. Consequently, the possibility of credit events such as delisting and bankruptcy in the near future was forecast based on the risk signal using logistic regression. This research illustrated the real case of a company to validate the applicability of the proposed approach. The results of this study can help investors monitor a large amount of historically accumulated data and detect hidden signals of risk events ahead of time..

Saud S. Alotaibi, " Ensemble Technique With Optimal Feature Selection for Saudi Stock Market Prediction: A Novel Hybrid Red Deer-Grey Algorithm,"[3] 2021 - The forecast of the stock price attempts to assess the potential movement of the financial exchange's stock value. The exact estimation of the movement of share price would contribute more to investors' profit. This paper introduces a new stock market prediction model that includes three major phases: feature extraction, optimal feature selection, and prediction. Initially, statistical features like mean, standard deviation, variance, skewness, and kurtosis is extracted from the collected stock market data. Further, the indexed data collected are also computed concerning standard indicators like Average True Range (ATR), Exponential Moving Average (EMA), Relative Strength Index (RSI), and Rate of Change (ROC). To acquire best-predicted results, it is more crucial to select the most relevant features. Such that, the optimal features are selected from the extracted features (technical indicators based features, statistical features) by a new hybrid model referred to Red Deer Adopted Wolf Algorithm (RDAWA). Further, the selected features are subjected to the ensemble technique for predicting the stock movement. The ensemble technique involves the classifiers like Support Vector Machine (SVM), Random Forest1 (RF1), Random Forest2 (RF2), and optimized Neural Network (NN), respectively. The final predicted results are acquired from the Optimized Neural Network (NN). To make the precise prediction, the training of NN is carried out by the proposed RDAWA via fine-tuning the optimal weight. Finally, the performance of the proposed work is compared over other conventional models with respect to certain measures.

Nagaraj Naik, " Novel Stock Crisis Prediction Technique—A Study on Indian Stock Market,"[4] 2021 - A stock market crash is a drop in stock prices more than 10% across the major indices. Stock crisis prediction is a difficult task due to more volatility in the stock market. Stock price sell-offs are due to various reasons such as company earnings, geopolitical tension, financial crisis, and pandemic situations. Crisis prediction is a challenging task for researchers and investors. We proposed a stock crisis prediction model based on the Hybrid Feature Selection (HFS) technique. First, we proposed the HFS algorithm to removes the irrelevant financial parameters features of stock. The second is the Naive Bayes method is considered to classify the strong fundamental stock. The third is we have used the Relative Strength Index (RSI) method to find a bubble

in stock price. The fourth is we have used moving average statistics to identify the crisis point in stock prices. The fifth is stock crisis prediction based on Extreme Gradient Boosting (XGBoost) and Deep Neural Network (DNN) regression method. The performance of the model is evaluated based on Mean Squared Error (MSE), Mean Absolute Error (MAE), and Root Mean Square Error (RMSE). HFS based XGBoost method was performed better than HFS based DNN method for predicting the stock crisis. The experiments considered the Indian datasets to carry out the task. In the future, the researchers can explore other technical indicators to predict the crisis point. There is more scope to improve and fine-tune the XGBoost method with a different optimizer.

SYSTEM REQUIREMENTS

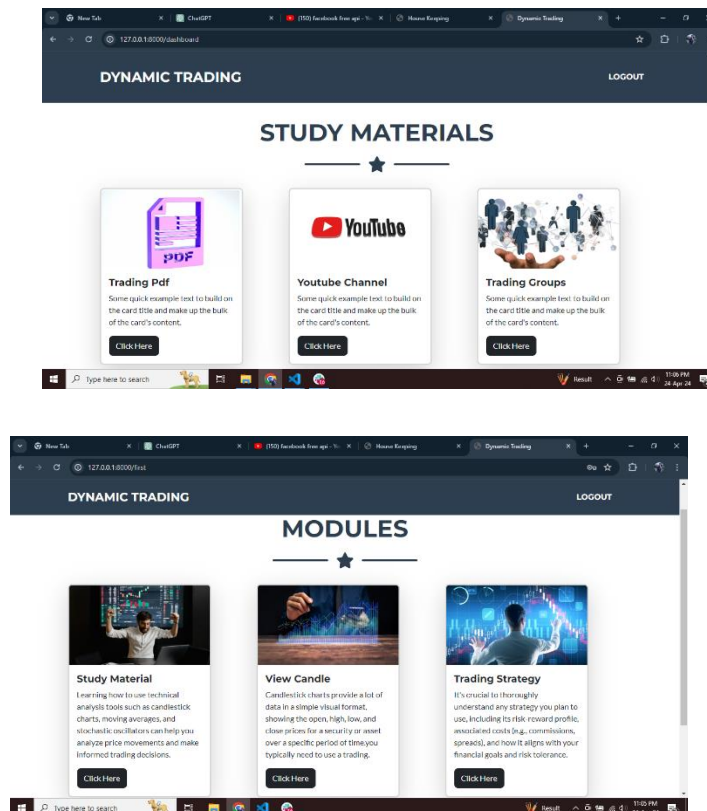
• Software Used:

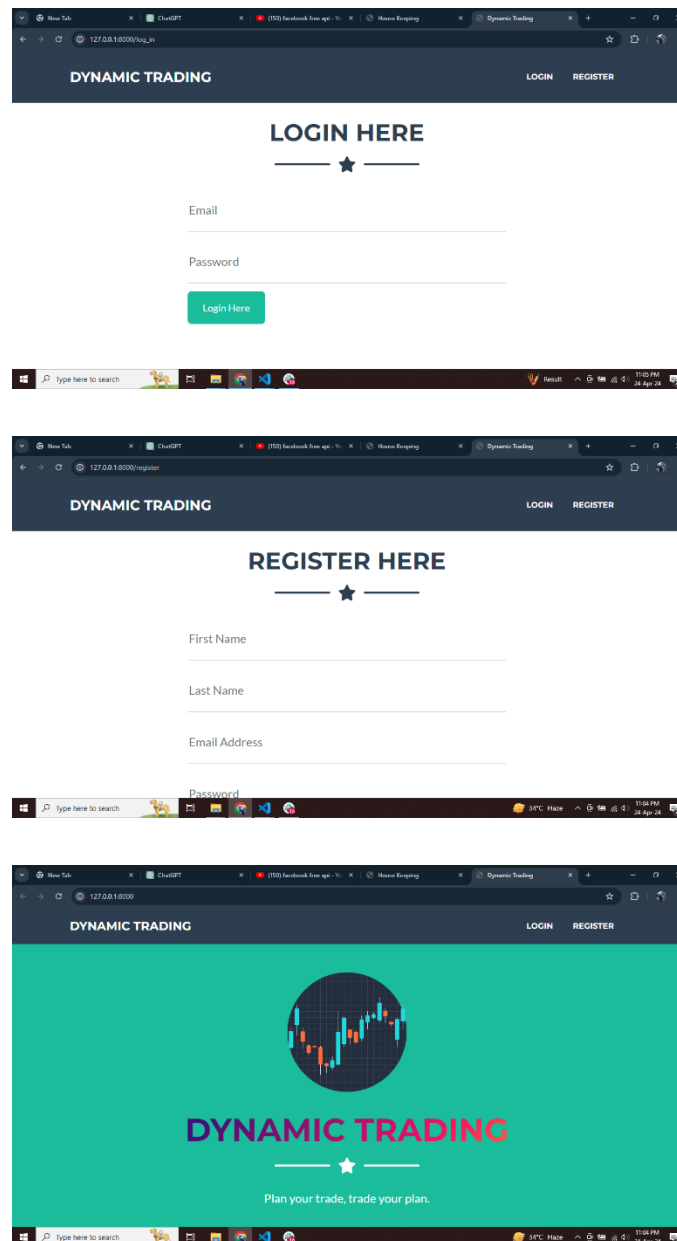
1. Programming Language – Python
2. Libraries – numpy, skitlearn
3. Database – SQLite
4. Tools – VS code
5. Algorithm – Hashing, SVM

• Hardware Used:

1. Processor – i3 or above
2. Hard Disk – 150 GB
3. Memory – 4GB RAM

RESULT





CONCLUSION

In conclusion, the "Dynamic Trading Strategy Builder" stands as a pioneering solution in the realm of stock market mastery. Its multifaceted approach, encompassing educational foundations, advanced analytical tools, and adaptive strategy testing, culminates in a platform that addresses the diverse needs of traders and investors. By bridging the gap between knowledge acquisition and practical application, this platform empowers users to navigate the intricate landscape of the stock market with confidence and proficiency. The project's emphasis on informed decision-making, skill enhancement, and adaptability underscores its significance in an environment where agility and data-driven insights are paramount. As users delve into this comprehensive toolkit, they gain not just theoretical understanding but the practical prowess to strategize, optimize, and navigate the dynamic tides of trading. Ultimately, the "Dynamic Trading Strategy Builder" stands as a testament to innovation, equipping individuals with the tools and knowledge necessary to thrive in the ever-evolving stock market ecosystem..

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