

A Technology-Driven Approach to Stock Selection and Investment

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ABSTRACT

Stock market investment demands timely access to accurate data and sophisticated tools that facilitate strategic decision-making. This study investigates a technology-based method of stock selection and investment, based on real-time processing of data, automation, and AI-based insights. Front-end technologies including HTML, CSS, Laravel, and Bootstrap were used in the development of the online trading platform RockfieldTrade, which offers a responsive and user-friendly interface. For ultra-low-latency trade execution, the platform leverages enterprise-level hardware in data centers NY4 and LD5, with specialized fiber-optic cross-connects. By combining technical and fundamental research with predictive modeling, the approach enhances investors' ability to assess stock performance, manage their portfolios more effectively, and steer clear of hazards. The study also covers how low-latency trading infrastructure, liquidity aggregation, and easy data access result in more effective and knowledgeable investment methods. In order to demonstrate how technology-based solutions are transforming traditional stock market participation, the study aims to make investing more approachable, data-driven, and efficient.

KEYWORDS: Stock, Investment, AI driven, data analytics, python

I. INTRODUCTION

Stock market investment used to need a great grasp of market movements, a great deal of research, and financial expertise. But stock choices and investing methods have changed dramatically as a result of technological breakthroughs. Faster and more accurate insights are being provided by artificial intelligence (AI) and data analytics tools, which are revolutionizing the way investors make decisions [1]. More effectively than with conventional techniques, these technologies allow traders to examine enormous volumes of financial data, spot trends, and improve their investment plans.[2]. This research examines a technology-driven model of investing and stock picking, focusing on how innovative platforms like RockfieldTrade utilize machine learning, advanced algorithms, and real-time analytics to enhance investment decision-making. Both new and seasoned traders can now invest in the stock market more easily thanks to these developments, which decrease uncertainty and increase accuracy[3].

This research study's title, "A Technology-Driven Approach to Stock Selection and Investment," attempts to investigate how contemporary technology is changing stock market investments. The study will evaluate the advantages and possible drawbacks of these developments, compare

traditional and technology-driven investment strategies, and examine how AI and data analytics increase the accuracy of stock selection. Additionally, the paper will discuss the impact of platforms such as RockfieldTrade on the future of investing, emphasizing how automation and intelligent algorithms are enhancing efficiency and accessibility in the stock market [4].

The emergence of multi-trading platforms that combine different asset classes into a single interface has significantly changed the financial trading sector [1]. These platforms facilitate traders' access to up-to-date market data, portfolio diversification, and effective transaction execution [2]. RockfieldTrade is one such platform that has gained recognition for providing seamless trading in equities, commodities, foreign exchange (FX), and crypto currencies [3].

II. RELATED WORK

Extensive research and development has been conducted on the use of technology for stock market investments. Technical and fundamental analysis, the foundation of traditional investment strategies, required extensive market knowledge and expertise. But the way that people choose stocks and make investments has completely changed as a result of advancements in big data analytics, machine learning, and artificial intelligence.

Conventional Investment Methods:

Investments in the stock market were traditionally made using technical and fundamental analysis. A judgment would be reached by investors after examining financial statements, market patterns, and macroeconomic factors. These procedures, however, required a great deal of time and skill.

Algorithmic and AI-Driven Trading:

With the progress in AI, machine learning, and big data analytics, contemporary investment platforms utilize predictive modeling and automated trading approaches. AI-based models examine past stock performance, market sentiment, and economic factors to enhance investment precision.

III. DATA AND SOURCE OF DATA

RockfieldTrade uses a variety of datasets from various sources to guarantee precise stock selection and investing choices. To improve AI-driven forecasts and investment strategies, these databases include economic indicators, financial market data, and analytics of user behavior.

1. Financial Market Data

Stock Prices and Trading Volumes: Historical and current stock market information obtained from financial databases
Market Indices and Exchange Rates: Information from international stock exchanges, including the London Stock Exchange, NYSE, and NASDAQ.
Balance sheets, annual and

quarterly profits reports, and other fundamental information are examples of company financial reports.

2. Economic Indicators

Macroeconomic Statistics: Inflation rates, interest rates, GDP growth, and unemployment data from central banks and government agencies.

Economic Calendar Events: Important financial events like Federal Reserve statements and corporate earnings announcements incorporated within RockfieldTrade's platform.

3. Alternative Data Sources

News Sentiment and Social Media Analysis: AI-based sentiment analysis of financial news, press releases, and social media conversations that influence stock market trends.

Market Stories and Expert Insights: Insights from financial analysts, institutional reports, and industry research papers.

IV. RESEARCH METHODOLOGY

"A Technology-Driven Approach to Stock Selection and Investment"

1. Research Design

This research uses a quantitative methodology, drawing on historical financial statistics, stock performance metrics, and algorithmic models to analyze technology-driven stock selection. A comparative study is also performed to compare the efficacy of AI-driven stock suggestions with conventional investment strategies.

To complement the quantitative analysis, qualitative information from expert views, investor attitudes, and market trends are integrated through interviews and surveys. The mixed-method approach guarantees that the technology role in contemporary investment decision-making is understood thoroughly.

2. Data Collection Methods

To conduct a thorough analysis, this research utilizes both **primary** and **secondary** data sources:

A. Primary Data

- Surveys and Interviews:** Collecting insights from traders, financial analysts, and RockfieldTrade users regarding their experiences with AI-driven stock selection.
- User Behavior Analysis:** Evaluating how investors interact with RockfieldTrade's stock selection tools to assess usability and decision-making patterns.

B. Secondary Data

- Stock Market Data:** Historical stock prices, volumes of trading, and market tendencies obtained from Yahoo Finance, Bloomberg, and financial databases.
- Economic Indicators:** Government and financial institution data on GDP, inflation levels, interest rates, and employment numbers to analyze macroeconomic effects on stock prices.
- Financial Reports:** Examining company earnings, balance sheets, and SEC reports to confirm stock selection procedures.

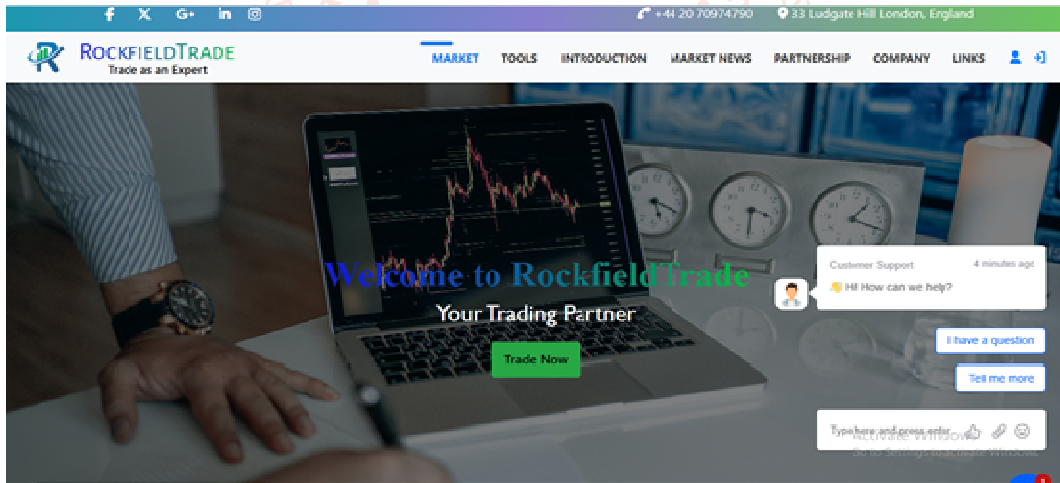


Fig 1. User experiences

Name	Value	Change	Chgt%	Open	High	Low	Prev
INDICES							
1BP 500 Index	5,669.8	6.7	0.12%	5,563.2	5,672.5	5,600.3	5,463.2
IS 100 Cash CFD	19,767.4	80.4	0.41%	19,587.0	19,774.1	19,403.5	19,487.0
Dow Jones Industrial Average Index	42,002.9	27.9	0.07%	41,975.0	42,015.4	41,430.8	41,575.0
Nikkei 225	37,617.09 ¹	-74.82	-0.20%	37,619.37	37,968.02	37,619.37	37,751.88
IBX Index	22,811.68 ¹	-107.47	-0.47%	22,966.42	22,996.98	22,723.19	22,999.15
FTSE 100 Index	8,646.8	-52.5	-0.60%	8,599.3	8,710.3	8,613.3	8,499.3
FUTURES							
1BP 500	5,718.25 ¹	5.50	0.10%	5,715.25	5,723.75	5,651.25	5,727.75
Euro	1,087.5 ¹	-0.00385	-0.36%	1,090.60	1,091.25	1,084.70	1,090.00
Gold	3,028.2 ¹	+24.6	+0.81%	3,052.6	3,058.0	3,004.1	3,052.8
WTI Crude Oil	88.29 ¹	-0.08	-0.12%	88.35	88.45	87.45	88.37
Gas	3.964 ¹	0.004	0.10%	3.961	4.045	3.880	3.964

Fig 2. Home Page

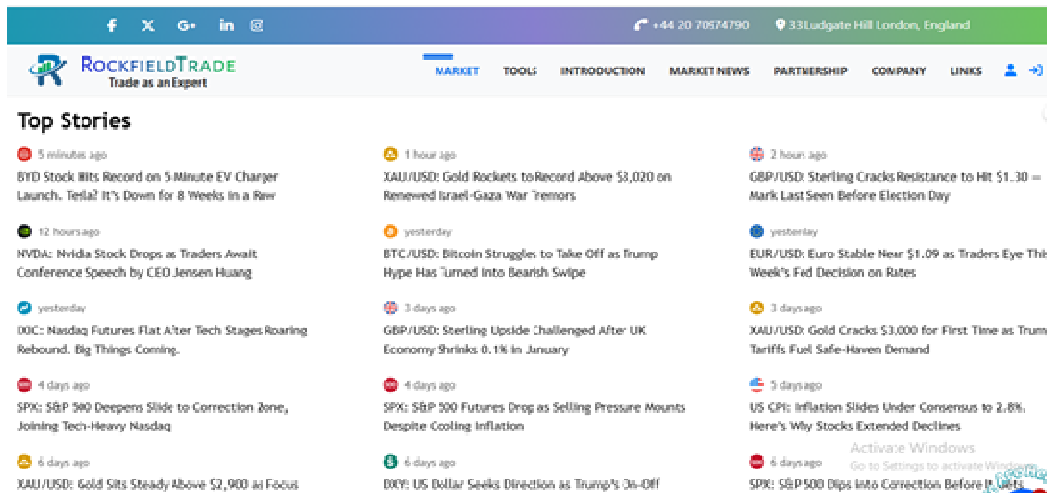


Fig 3. Data collection



3. System Development

The site is developed with front-end tools like Laravel, Bootstrap, HTML, and CSS. The back-end utilizes Laravel, Python, and Java for effective processing of data. MySQL/PostgreSQL is used to store data, and APIs help in accessing real-time stock data.

- Requirement Analysis – Determining the needs of users, market trends, and system capabilities to provide an efficient and user-friendly platform.
- System Architecture Design – Creating a scalable and secure architecture, incorporating MVC patterns and API integrations.
- Feature Implementation – Building core features like the Economic Calendar for market information and the Partnership module for AI-powered stock recommendations.

V. RESULTS AND DISCUSSION

RockfieldTrade's creation showcases the power of using a technology-focused method in choosing stocks and making investments. User experience testing emphasized the efficiency of the system, with real-time data retrieval, easy navigation, and smooth backend integration. The front-end, developed with Laravel, Bootstrap, HTML, and CSS, provides responsiveness and accessibility, while the back-end, developed with Laravel, Python, and Java, offers a strong architecture for secure data processing. MySQL/PostgreSQL usage allows for efficient data management, providing smooth retrieval and analysis of stock- data.



Performance measurement indicates that the platform efficiently processes financial information with low latency, providing users with real-time market information. More improvements, for example, in predictive analytics and the sources of financial information, could further improve stock selection accuracy. These results support the capabilities of AI-powered financial platforms to streamline and enhance investment strategies.

VI. Conclusion

The application of technology in investment and stock selection has dramatically improved decision-making, risk management, and trading efficiency. RockfieldTrade is illustrative of this revolution by offering a smooth, multi-asset experience in trading through an evolved, technology-oriented platform. The research points out how such innovations lead to better portfolio diversification, lower trading risks, and increased accessibility for investors. As financial markets develop further, the use of state-of-the-art technological solutions will continue to play a pivotal role in determining the future of investment strategies and market involvement.

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