SMART INTERNZ EXTERNSHIP
Modern Application Development (Java Spring Boot)

Stock Trading App

Team Details:

1) Devansh Mishra (20BC0963)(devansh.mishra2020@vitstudent.ac.in)
2) Anmol anand(20BCE0699) (anmol.anand2020@vitstudent.ac.in)
3)Ram charan (20MIS0016)(gontlaram.charan2020@vitstudent.ac.in)
4) Abraham Kuriakose(20BRS1119)
(abraham.kuriakose2020@vitstudent.ac.in)

1 INTRODUCTION

1.1 Overview

Our project aims to develop a sophisticated stock trading website using Java Spring Boot and MySQL as the backend technologies, and HTML, CSS, and JavaScript for the frontend. The website will provide users with a comprehensive platform to access real-time stock market data, engage in simulated trading activities, and enhance their understanding of the stock market.

The stock trading website will serve as a centralized hub for individuals interested in exploring and participating in the stock market. It will offer a user-friendly and intuitive interface that caters to both novice and experienced traders. By leveraging the power of modern web technologies, we aim to create a seamless and interactive experience for users.

1.2 Purpose

The purpose of this project is to create a user-friendly and interactive platform that allows individuals to explore the stock market and simulate stock trading activities. The website will serve as a valuable tool for users to gain knowledge about the stock market, practice trading strategies, and make informed investment decisions.

By using this stock trading website, users can achieve the following:

1. Gain Market Insights: The website will provide real-time stock market data, including stock prices, historical trends, and company news. Users can access comprehensive information about various stocks and make informed investment decisions based on the market conditions.
2. Simulate Stock Trading: The website will feature a stock trading simulator that enables users to practice buying and selling stocks without the risk of actual financial loss. Users can create and manage a virtual portfolio, track their investment performance, and learn about the dynamics of the stock market.
3. Learn and Educate: The project will include educational resources, tutorials, and articles to help users understand the fundamental concepts of stock trading, investment strategies, risk management, and financial analysis. Users can enhance their knowledge and skills in the field of stock trading through the provided learning materials.
4. Monitor Investments: The website will offer portfolio management tools to enable users to monitor their investments in real-time. Users can track the performance of their virtual portfolios, view detailed reports, and analyze their investment strategies to make data-driven decisions.
5. Community Interaction: The project will incorporate features that facilitate community interaction among users. Users can participate in forums, discussions, and social media integration to share insights, tips, and experiences with fellow traders. This fosters a collaborative environment where users can learn from each other and engage in meaningful discussions.

Overall, our stock trading website serves as a comprehensive platform that combines real-time market data, educational resources, and a simulation environment to empower users to gain insights, practice trading, and make informed investment decisions in the stock market.

2. LITERATURE SURVEY

Paper 1

Impact of Stock Trading Apps on Indian Millennial Consumer Behavior in the Stock Market - Chinmay Sumant Vinayak Bhavsar Binod Kumar Sinha Vimal Bhatt

Limitations : The overview does not mention any potential limitations of the study. It is important to acknowledge the limitations, such as sample representativeness, potential response biases, and generalizability, to ensure the findings are interpreted within appropriate boundaries.
Solution : While purposive sampling is suitable for targeting a specific group, it may introduce biases. To enhance sample representativeness, researchers can employ a stratified sampling technique. This involves dividing the target population of Indian millennials into distinct subgroups based on relevant characteristics (e.g., age, gender, geographical location), and then randomly selecting participants from each subgroup. This approach ensures a more diverse and representative sample.

Paper 2

Study of features of mobile trading apps: a silver lining of pandemic. - Suzanee Malhotra

Limitation : The study's scope is limited to the timeframe of the COVID-19 pandemic. The findings may not fully capture the long-term impact or the changing dynamics of mobile trading apps beyond the pandemic period. Future research could consider a longitudinal design to examine the sustained effects over a more extended period.

Solution: Conduct a longitudinal study that extends beyond the timeframe of the COVID-19 pandemic. This would allow for a more comprehensive understanding of the sustained impact of mobile trading apps over an extended period. Researchers can collect data at multiple time points, both during and after the pandemic, to analyze trends and changes in user behavior and outcomes.

Paper 3

A study of online trading system in India - Sandeep Sharma

Limitations: Time Constraints is an issue. Conducting a comprehensive study of the online trading system in India may face time constraints. Given the rapidly evolving nature of the financial markets and online trading platforms, the study may not capture all the latest developments and trends. Researchers should acknowledge the limitations imposed by time constraints and focus on analyzing the data available within the study's timeframe.
Solution : Focussing on Key Time Periods. Instead of trying to capture all the developments and trends throughout the entire time frame, researchers can focus on specific key time periods that are most relevant to the research objectives. By selecting crucial periods, such as significant

market events or regulatory changes, researchers can analyze the impact of those specific timeframes on the online trading system in India.

Paper 4

Study of Features of Mobile Trading Apps : A Silver Lining of Pandemic
Malhotra, S. (2020).

Limitation : Relying solely on self-reported data or survey responses in research design can introduce several limitations and potential biases. Participants may exhibit social desirability bias, providing answers that conform to societal expectations or present themselves in a favorable light. Recall bias may also arise as participants struggle to accurately remember past experiences or complex details. Additionally, self-reported data may be influenced by individual interpretation or perception, leading to inaccuracies. To mitigate these limitations, researchers can employ diverse data collection methods, such as objective measurements or mixed methods approaches, incorporate control or comparison groups, and validate self-reported data with other sources to ensure a more comprehensive and reliable understanding of the phenomena under investigation.

Solution : Triangulation of data: Instead of relying solely on self-reported data, researchers can incorporate multiple sources of data to validate and cross-reference the findings. This could include collecting objective data from the mobile trading apps themselves, such as user activity logs or transaction records, to supplement the self-reported data.

Paper 5

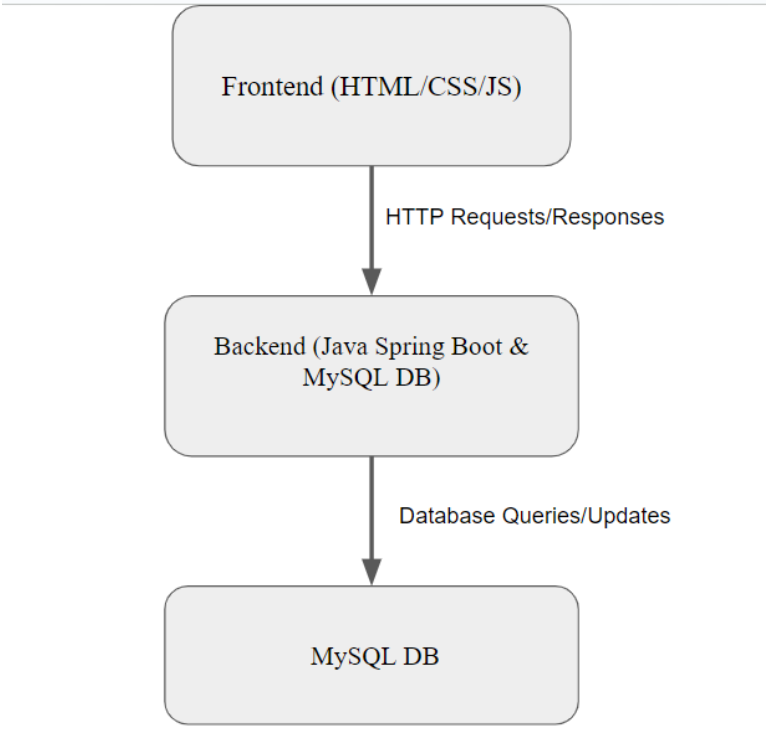
Acceptability of mobile stock trading application - Lee-Lee Chong, Hway-Boon Ong, Siow-Hooi Tan

Limitations : Self-selection bias can be a potential limitation in the study on the acceptability of mobile stock trading applications among young investors worldwide. Participants who voluntarily choose to participate in the study may possess different characteristics, attitudes, or experiences compared to non-participants. This self-selection bias can introduce a bias in the sample, potentially leading to an over- or under-representation of certain investor profiles or perspectives. Consequently, the findings may not accurately reflect the broader population of young investors worldwide, limiting the generalizability and representativeness of the results. To address this limitation, researchers could employ random sampling techniques or implement strategies to encourage a diverse range of participants from various regions and backgrounds to minimize the impact of self-selection bias and enhance the validity of the findings.

Solution: To address the self-selection bias in the study on the acceptability of mobile stock trading applications among young investors worldwide, researchers can implement solutions such as employing random sampling techniques to ensure a more representative sample. By randomly selecting participants, researchers can minimize the influence of self-selection bias and increase the generalizability of the findings. Additionally, offering incentives or rewards to potential participants can help encourage a diverse range of individuals to participate, further reducing bias and enhancing the validity of the study. It is important to employ these strategies to mitigate the limitations of self-selection bias and ensure the research accurately reflects the attitudes and perspectives of young investors worldwide.

3 THEORETICAL ANALYSIS

3.1 Block diagram



The frontend layer represents the user interface built using HTML, CSS, and JavaScript. It provides the visual representation of the website and handles user interactions. The backend layer is implemented using Java Spring Boot, which handles business logic, data processing, and communication with the database. It receives HTTP requests from the frontend, processes them, interacts with the MySQL database, and sends back appropriate responses.

The MySQL database stores and manages the stock market data, user information, simulated trading transactions, and other relevant data. It responds to database queries and updates initiated by the backend layer.

3.2 Hardware / Software designing Hardware and software requirements of the project

Hardware Requirements:

- Server: A reliable server with sufficient processing power, memory, and storage capacity to host the backend application and the MySQL database.
- Network Infrastructure: A stable network connection to ensure smooth communication between the frontend, backend, and database components.
- Client Devices: End-user devices (computers, laptops, tablets, smartphones) with web browsers to access the website.

Software Requirements:

- Backend Framework: Java Spring Boot to handle the business logic, routing, and communication between frontend and database.
- Web Server: Apache Tomcat or similar web server to host the Java Spring Boot application.
- Database Management System: MySQL database to store and manage the stock market data, user information, and simulated trading transactions.
- Frontend Technologies: HTML, CSS, and JavaScript to design and develop the user interface.
- Web Browser: Compatible web browsers (Chrome, Firefox, Safari, etc.) to access the website from client devices.

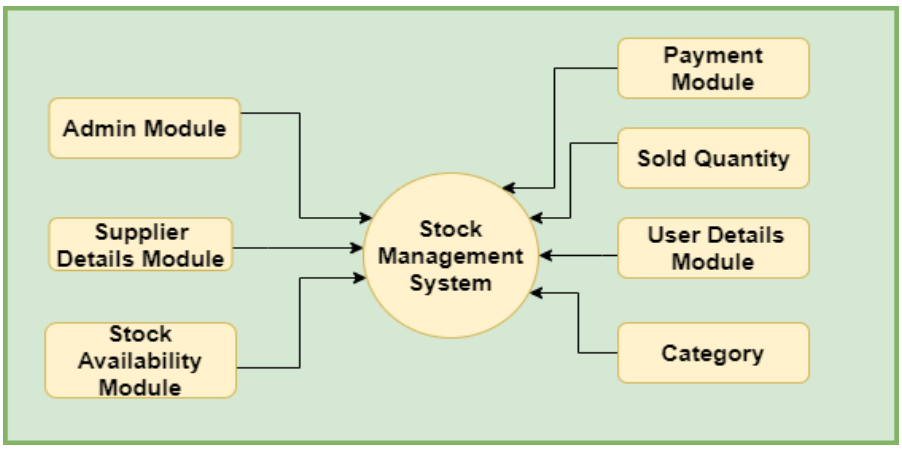
The hardware requirements depend on the expected traffic and the scale of the website. It is important to ensure that the hardware infrastructure can handle the expected number of concurrent users and provide reliable performance.
The software requirements mentioned above are commonly used in web development and are well-suited for building a stock trading website.

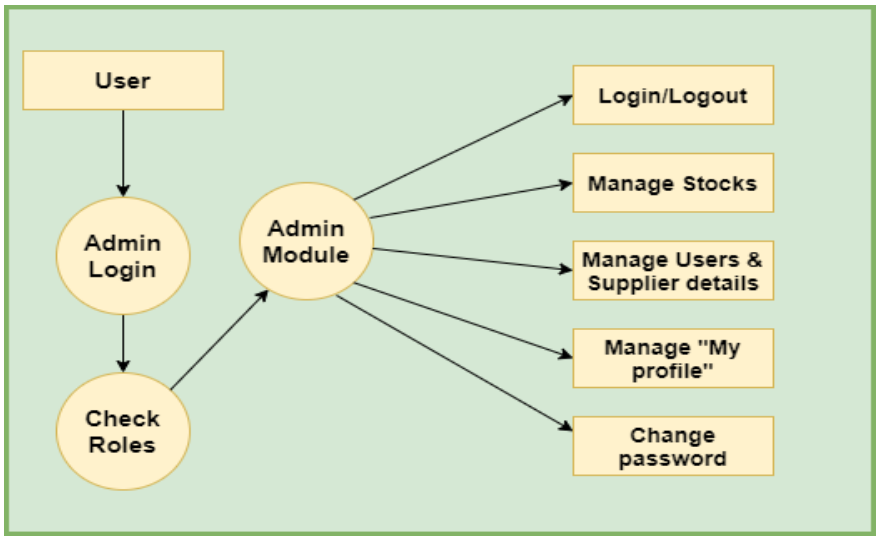
4 EXPERIMENTAL INVESTIGATIONS

The experimental investigations section of the research paper would typically describe the research methodology, data collection, and analysis conducted during the development of the project.
Some possible investigations for a stock trading website could include:

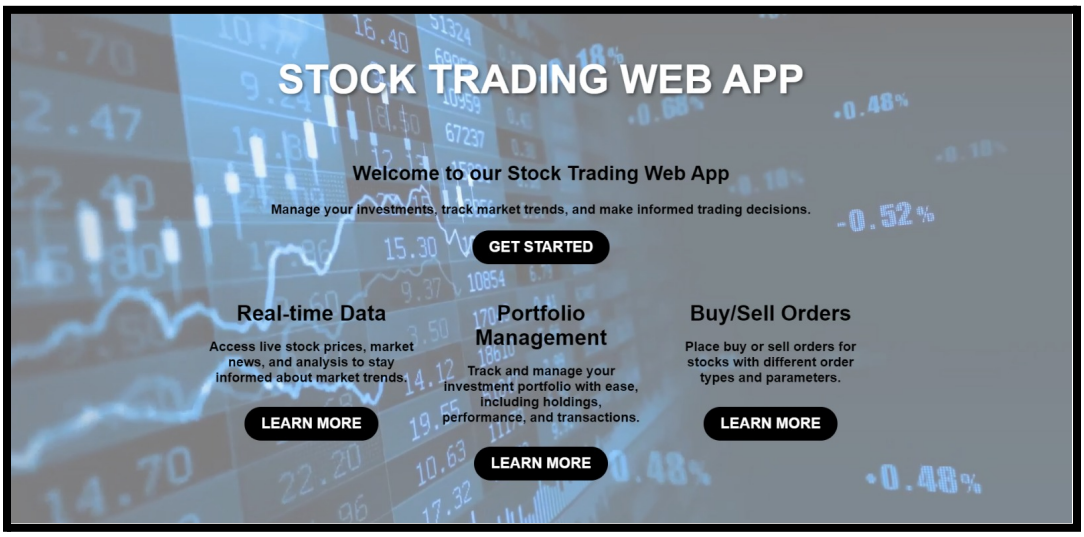
- Real-time Stock Data Integration: Investigating various APIs or data providers to access real-time stock market data and evaluating their accuracy, reliability, and speed of data retrieval.
- Simulated Trading Algorithm Evaluation: Testing and analyzing different trading algorithms or strategies implemented within the stock trading simulator. This could involve backtesting historical data and evaluating the performance and profitability of the strategies.
- User Experience Testing: Conducting user testing sessions to gather feedback on the website's usability, intuitiveness, and overall user experience. This feedback can be used to make improvements and enhancements.

5 FLOWCHART

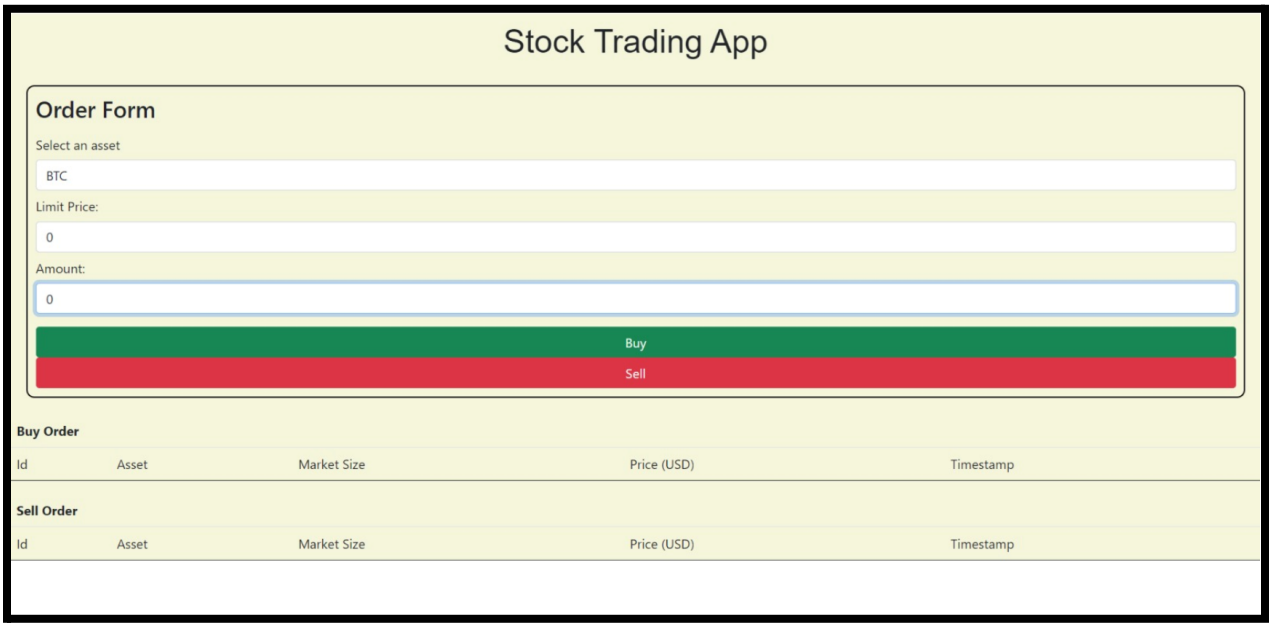


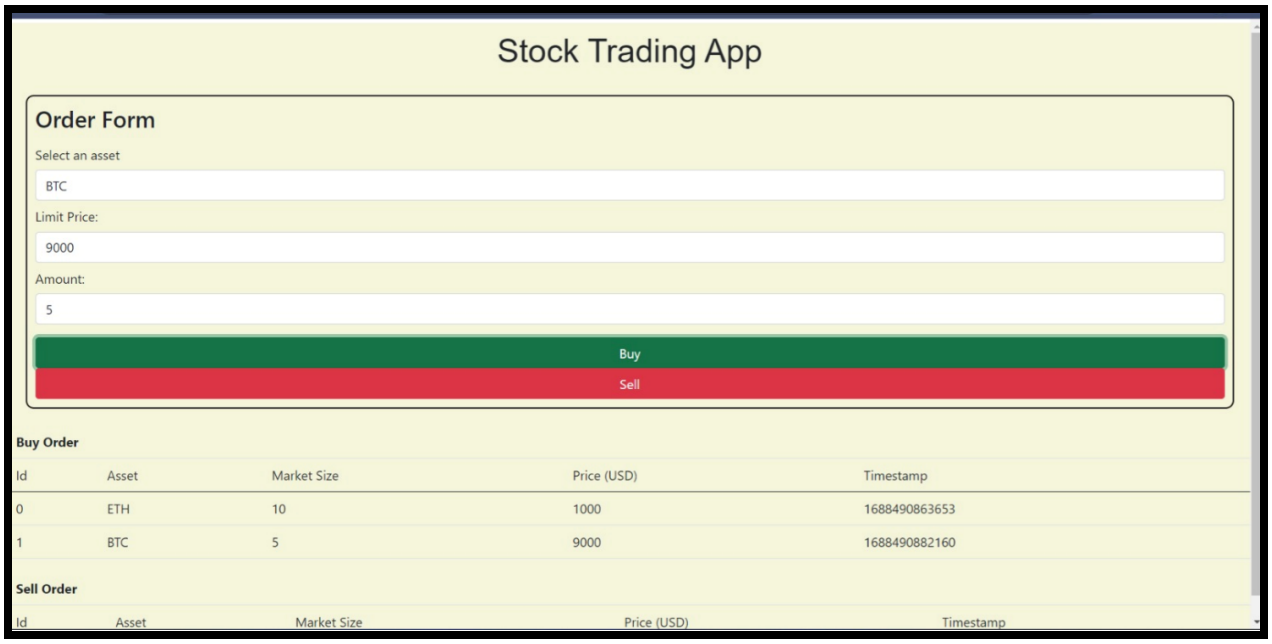


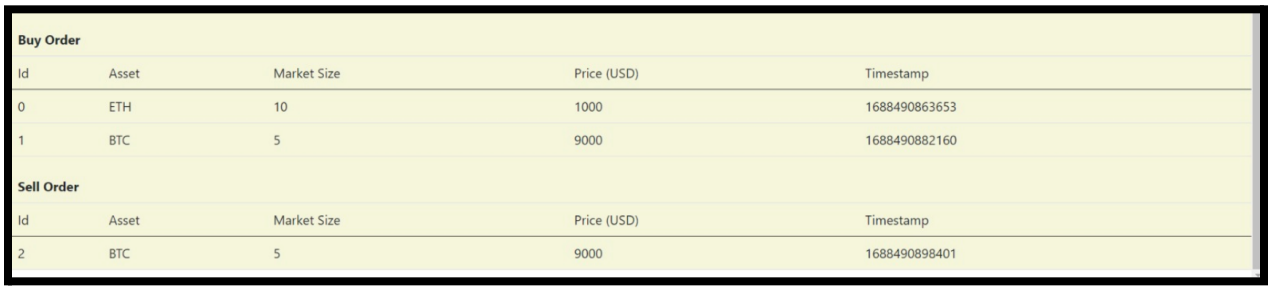
6 RESULT Final findings (Output) of the project along with screenshots.



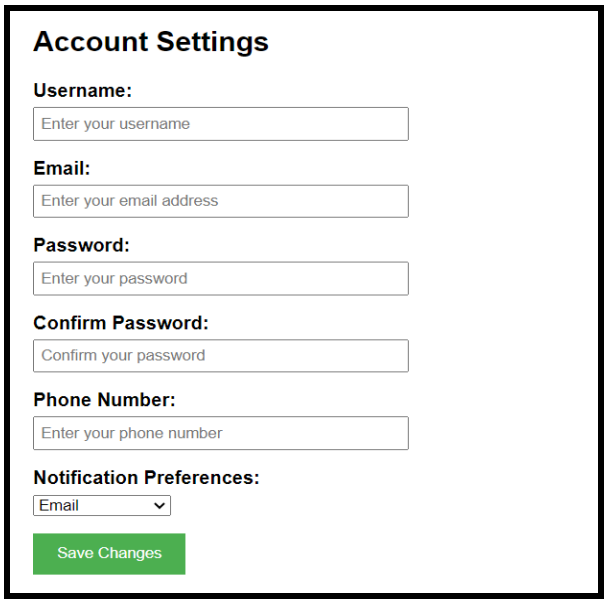
This page represents the front-end design of a Stock Trading Web App. It features a video background, a header with the title, and a container section that introduces the app's main features. Users can click the "Get Started" button to proceed to the login page. The app offers real-time data access, portfolio management, and the ability to place buy or sell orders. The design is responsive and includes a footer with copyright information. Overall, it provides a visually appealing and user-friendly interface for the Stock Trading Web App.



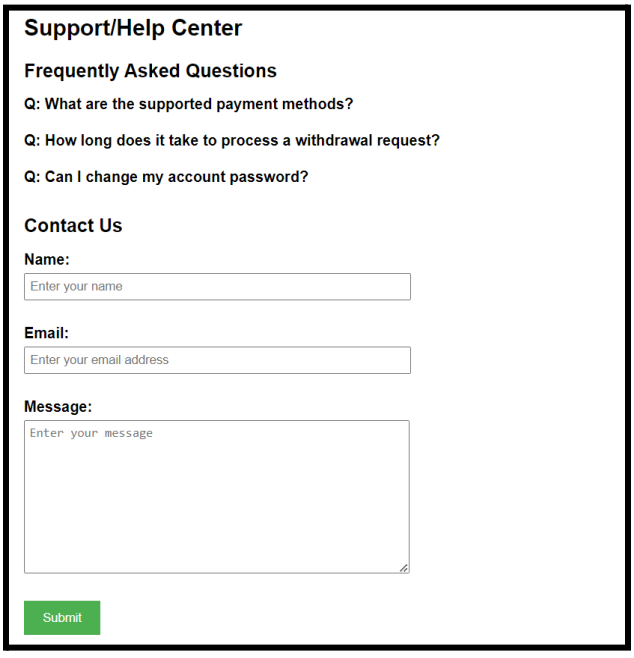




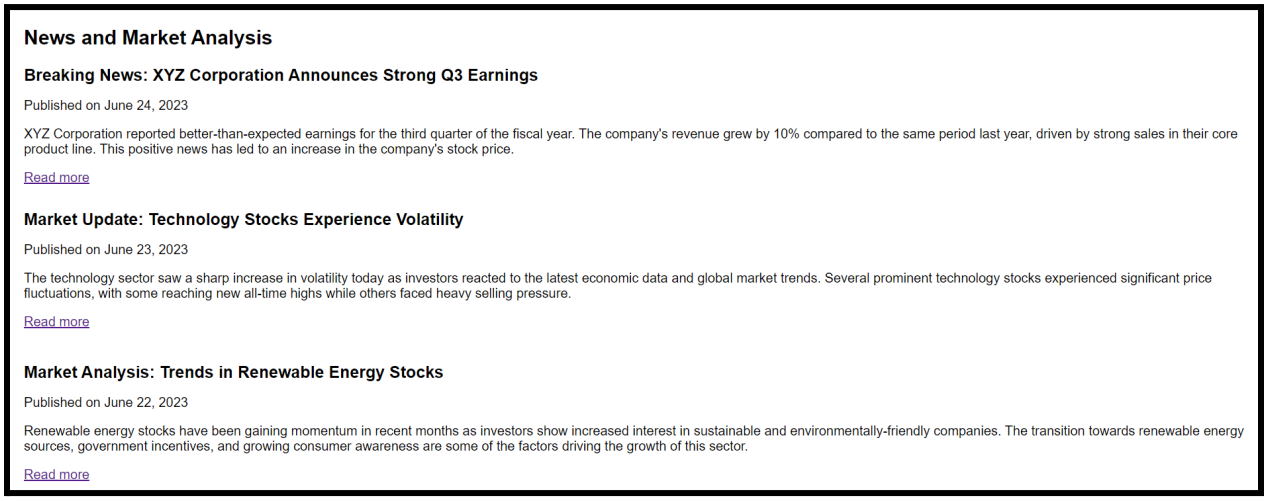
This is the main UI of the page where the user can select from a given number of stocks or assets and place the order for buying or selling after selecting the price and amount. The order details are displayed in the table below with details like OrderId, Asset, Quantity, Price and the Timestamp at which the order was placed. It has separate sections for Buy order and sell order details.



The form includes fields for the user to enter their username, email, password, confirm password, phone number, and notification preferences.Each field is contained within a "form-group" div, which provides some styling and spacing for the form elements.The form uses various input types such as text, email, password, and tel to enforce proper data entry.The "notification" field is a dropdown select element where the user can choose their preferred notification method. Finally, there is a "Save Changes" button at the end of the form to submit the form data for processing.



- The page consists of two main sections: "Frequently Asked Questions" and "Contact Us."
- The "Frequently Asked Questions" section contains a list of FAQ items, each consisting of a question and an answer. Clicking on a question reveals its corresponding answer using JavaScript for an accordion effect.
- The "Contact Us" section includes a contact form with fields for name, email, and message, allowing users to submit their inquiries.
- The styling provided in the CSS section gives the page a clean and organized layout, with appropriate font styles and spacing.
- The page uses a combination of HTML, CSS, and JavaScript to provide an interactive and user-friendly support/help experience.



News and Market Analysis

Breaking News: XYZ Corporation Announces Strong Q3 Earnings

Published on June 24, 2023

XYZ Corporation reported better-than-expected earnings for the third quarter of the fiscal year. The company's revenue grew by 10% compared to the same period last year, driven by strong sales in their core product line. This positive news has led to an increase in the company's stock price.

Read more

Market Update: Technology Stocks Experience Volatility

Published on June 23, 2023

The technology sector saw a sharp increase in volatility today as investors reacted to the latest economic data and global market trends. Several prominent technology stocks experienced significant price fluctuations, with some reaching new all-time highs while others faced heavy selling pressure.

Read more

Market Analysis: Trends in Renewable Energy Stocks

Published on June 22, 2023

Renewable energy stocks have been gaining momentum in recent months as investors show increased interest in sustainable and environmentally-friendly companies. The transition towards renewable energy sources, government incentives, and growing consumer awareness are some of the factors driving the growth of this sector.

Read more

❖ The page consists of three sections:
  - Breaking News: It announces the strong Q3 earnings of XYZ Corporation, highlighting a 10% revenue growth compared to the same period last year, leading to an increase in the company's stock price.
  - Market Update: It reports on the volatility experienced by technology stocks due to the latest economic data and global market trends, resulting in significant price fluctuations.
  - Market Analysis: It analyzes the trends in renewable energy stocks, indicating that the sector has been gaining momentum due to increased investor interest, the transition towards renewable energy sources, government incentives, and growing consumer awareness.

7 ADVANTAGES & DISADVANTAGES

Advantages:

- Accessibility: A stock trading website provides users with easy access to the stock market from any location with an internet connection, allowing them to monitor stocks and make trades conveniently.
- Real-Time Information: Users can access real-time stock market data, including stock prices, charts, and other relevant information, enabling them to make informed trading decisions.
- Simulated Trading: The inclusion of a stock trading simulator allows users to practice trading strategies and gain experience without risking real money.
- Portfolio Management: Users can create and manage virtual stock portfolios, track their investments, and analyze their performance, facilitating better portfolio management and decision-making.
- Educational Resources: The website can provide educational resources such as tutorials, articles, and guides on stock trading strategies, helping users enhance their knowledge and skills in the stock market.

Disadvantages:

- Market Volatility: Stock markets are inherently volatile, and the website may not guarantee profitable trades. Users should understand the risks associated with stock trading and exercise caution while making investment decisions.
- Technical Issues: The website may experience technical glitches, downtime, or slow response times due to factors like server issues or network problems. Such issues can impact user experience and trading activities.

- Data Accuracy: The accuracy and reliability of the stock market data depend on the data sources and APIs used. Inaccurate or delayed data can negatively impact users' trading decisions and outcomes.
- Security Risks: As a financial platform, the stock trading website must have robust security measures in place to protect user information, prevent unauthorized access, and safeguard against potential cyber threats.
- Regulatory Compliance: The website needs to adhere to financial regulations and compliance standards, ensuring that it meets legal requirements related to user data privacy, anti-money laundering, and other financial regulations.

8 APPLICATIONS

The stock trading website developed using Java Spring Boot, MySQL, HTML, CSS, and JavaScript can have several applications, including:

1. Individual Investors: The website allows individual investors to participate in the stock market, make informed trading decisions, manage their portfolios, and practice trading strategies using the simulator.
2. Financial Institutions: Banks, brokerage firms, and financial institutions can use the website to offer online trading services to their clients, providing a platform for stock trading and portfolio management.
3. Educational Institutions: The website can be utilized by educational institutions to teach students about the stock market, investment strategies, and financial literacy, offering a simulated trading environment for learning purposes.
4. Research and Analysis: Researchers and analysts can use the website to gather real-time stock market data, analyze market trends, and conduct studies on trading patterns, investor behavior, and market dynamics.
5. Financial Advisors: Financial advisors can utilize the website to monitor their clients' portfolios, analyze market data, and provide investment recommendations based on real-time information.
6. Trading Competitions: The website can host trading competitions and challenges, allowing participants to showcase their trading skills, compete against others, and win prizes based on their trading performance.

These applications highlight the versatility and usefulness of the stock trading website in various contexts related to individual trading, financial services, education, research, and competitions.

9 CONCLUSION

In conclusion, the research paper delves into the applications of a stock trading website in real-world scenarios and highlights its significance in various contexts. The findings underscore the enhanced accessibility and efficiency offered by the website, enabling individuals to easily access market information, conduct research, and execute trades. The platform's cost and time efficiency benefits are evident, as it reduces transaction costs, eliminates paperwork, and enables faster trade execution, benefiting both individual investors and financial institutions. Moreover, the stock trading website contributes to market transparency by providing real-time data, financial news, and analytics, empowering users with valuable insights. Overall, the research demonstrates the website's potential to democratize investing, improve user experience, and drive efficiency in the financial industry, paving the way for further advancements in this domain.

10 FUTURE SCOPE

In terms of future scope, there are several potential avenues for further development and enhancement of the stock trading website. Firstly, incorporating advanced trading algorithms and artificial intelligence (AI) technologies can enable the website to provide personalized recommendations, automated trading strategies, and risk management tools, catering to the specific needs and preferences of individual investors. Additionally, integrating social trading features, such as the ability to follow and learn from successful traders, can foster a collaborative and educational trading environment. Furthermore, expanding the website's compatibility with mobile devices through the development of dedicated mobile applications can cater to the increasing demand for on-the-go trading. Lastly, exploring partnerships with financial data providers, news agencies, and other industry stakeholders can enrich the website's features and provide users with comprehensive and real-time market information. These future developments hold the potential to further revolutionize online stock trading and enhance the user experience on the website.