

Quickbuks: Stock Investment Advisor

Members : manasiv2, ou14, yutong31

Pitch

Quickbuks simplifies investment decisions for people who are not familiar to the world of investing. Quickbuks provides users with real-time stock growth tracking, risk categorization, performance simulation, and personalized portfolio recommendations based on desired investment amounts and risk tolerance. By leveraging data from public sources, it aims to increase financial literacy within the younger generation.

Functionality

- Stock Growth Tracking: Users can monitor the growth of various stocks in real-time.
- Risk Categorization: Stocks are automatically classified into safe, moderate, or risky categories. They will then be labeled accordingly.
- Diverse Portfolio Creation: Users receive guidance on constructing diversified investment portfolios.
- Historical Data Analysis: Access to a 5-year performance history of stocks for informed decision-making. Set up a SQL database to store data.
- User Portfolio Management: Users can create and manage their investment portfolios directly within the app/website.
- Investment Risk Assessment: Tools to assess and understand the risk level of individual investment choices. We give real-time calculations on these metrics and projections.
- Market Trends Insights: Analysis of market trends/metric predictions to inform users about potential investment opportunities.
- Real-Time Alerts: Notifications about significant changes in the stock market or in specific stocks of interest above user-defined metrics.
- Daily digests and spreadsheet: We will make daily or weekly emails or web-launch spreadsheet for previous performance in concise manner.

Components

- Functionality: fetching and processing real-time data from daily close and historical stock data, user-friendly interface for tracking stocks, viewing portfolio recommendations, and managing user portfolios.
- Programming Language(s) Used: Python, for its robust libraries in data processing (Pandas) and web scraping (yfinance/wrd) JavaScript, HTML, CSS, SQL
- Major Libraries and Tools: Pandas for data manipulation, requests for HTTP requests. React.js for building the user interface, Chart.js for data visualization, SciPy and Numpy and StatsModel for statistical analysis, Selenium for UI, statsmodel, AutoTS, and other time series analysis tools such as sktime, prophet, and financial libraries like ta-lab, quandle, and quantlib
- Testing Methodology: Unit tests with pytest to ensure data integrity and accuracy.

Schedule

Week 1-2: Setup development environment, begin data ingestion component.

Week 3-4: Develop risk categorization engine, start user interface design.

Week 5-6: Implement portfolio recommendation engine, integrate with user interface.

Week 7-8: Finalize all components, conduct integration testing.

Week 9: User testing and feedback collection.

Week 10: Final adjustments based on feedback, prepare for project submission.

Risks

- Data Source Reliability: A lot of those sources have weekly updates or even daily changes.

Mitigation: Explore alternative data sources as backups.

- Accuracy of Risk Categorization: May not reflect real-time market changes. Mitigation: Regularly update categorization algorithms, consult financial experts.

- Technical Challenges with Integration: Potential difficulties in integrating components.

Mitigation: Allocate extra time for integration testing, use mock data for early testing stages.

Teamwork

- Work Division: Divide work based on components, with each team member responsible for specific components but supporting others as needed.

- Regular team meetings: Help review progress and redistribute tasks if necessary