Plutos Equities

Project Specification Document

Your Gateway to NASDAQ: Intelligent Capital Forecasting

T2402

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1. Introduction

Plutos Equities is a financial and capital forecasting platform designed to predict the quarterly financial performance of the top 100 NASDAQ-listed companies. The primary objective of this project is to support financial stakeholders, including investors, auditors, and analysts, with reliable predictions of key financial metrics such as revenue, net income, and operating expenses. By delivering forecasts before quarterly reports are officially released, Plutos Equities provides users with a tool to make data-driven decisions, assess risks, and identify opportunities.

1.1. Description

Plutos Equities focuses on providing a comprehensive financial forecasting solution by predicting the quarterly reports of the top 100 NASDAQ-listed companies. The project aims to offer accurate, data-driven forecasts of critical financial metrics for the next quarter. These forecasts include revenue, expenses, operating income, and other key metrics that are important for understanding a company's financial position.

The platform combines structured data, such as historical financial statements and market indices, with unstructured data from news articles, earnings call transcripts, and social media sentiment. Machine learning models are used to process these data sources, uncovering patterns and trends that traditional methods often miss. The result is a set of predictions that are not only accurate but also insightful for stakeholders looking to make informed decisions.

To give an example, the platform can forecast Apple Inc.'s Q1 2025 performance by analyzing its financial data from previous quarters, combined with real-time updates during the three months leading up to the new quarter. These updates might include news of a new product launch, changes in production costs, or shifts in global economic factors that impact the tech industry. By using both historical and recent data, the platform provides a clear prediction of Apple's revenue, expenses, and profitability, helping stakeholders anticipate the company's performance ahead of official earnings reports and quarter filings.

Unlike traditional stock price forecasting tools, which often fail to provide a nuanced understanding of a company's underlying financial health, Plutos Equities focuses on the core metrics that define corporate performance. The platform achieves this by combining data collection methods, feature engineering, and machine learning models. The integration of real-time data sources, such as financial news and earnings call transcripts, further enhances the predictions and allows for a dynamic and adaptive forecasting system.

In addition to its forecasting capabilities, Plutos Equities features a user-friendly interface that allows users to explore predictions through customizable dashboards and visualizations. This ensures that both institutional investors and individual users can easily access and interpret the data, regardless of their level of financial expertise.

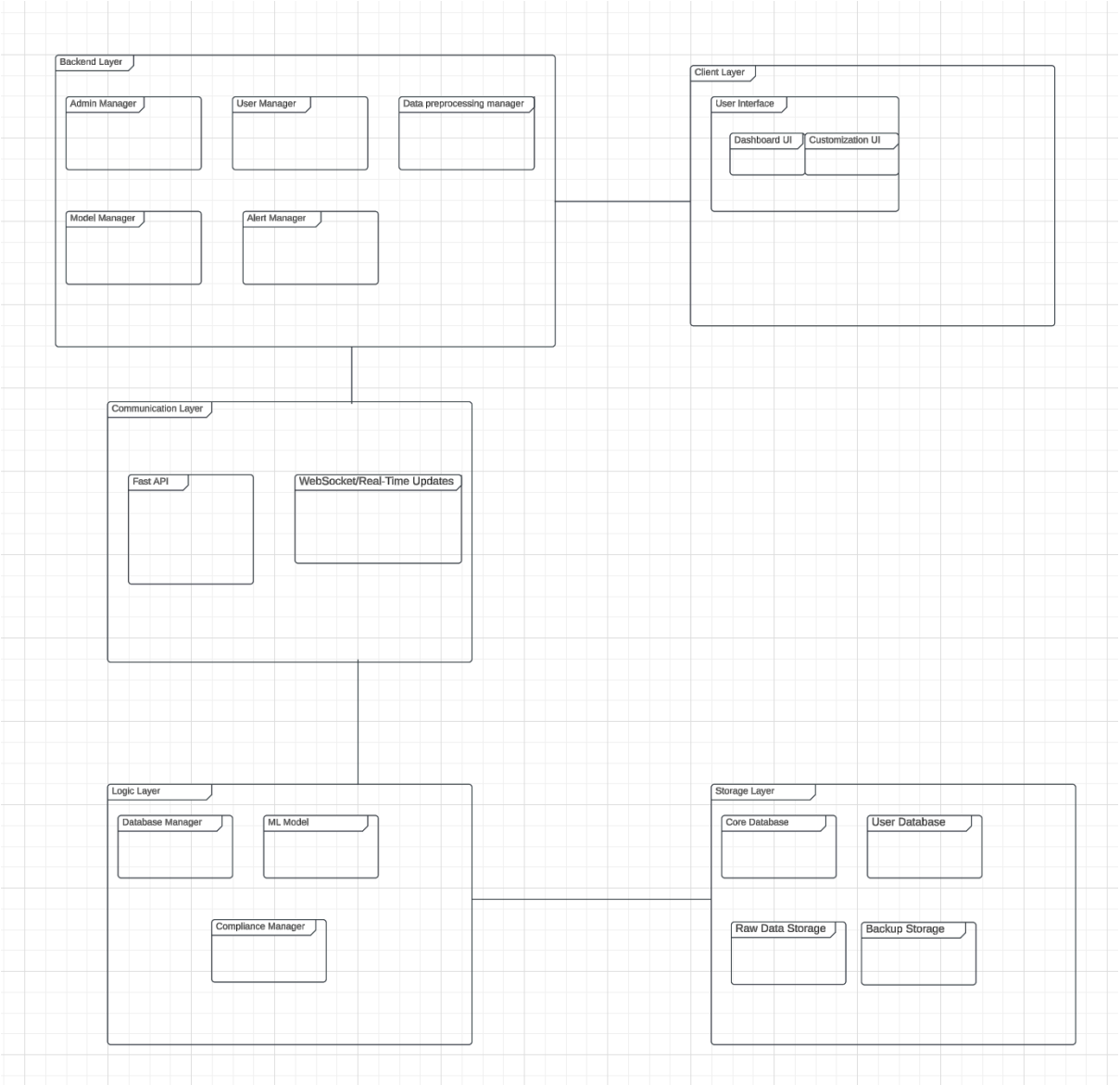
By focusing on financial metrics rather than stock prices, Plutos Equities provides a more detailed view of company performance and health, making it a valuable resource for anyone involved in the financial analysis of NASDAQ companies.

Our project is going to be within the scope of the product system, which is under the experience section. The innovation we are bringing to the market is focused on transparency and accessibility in financial forecasting. Unlike existing tools that offer broad financial data aggregation or limited stock price predictions, Plutos Equities is uniquely positioned as the first platform to provide transparent quarterly financial forecasting for NASDAQ companies, openly sharing its data sources. By detailing the sources of our predictions—such as financial statements, market indices, real-time news, and social sentiment—our project builds trust and credibility, offering investors, auditors, and other stakeholders a reliable and explainable solution.

This approach addresses a gap in the market, as most existing tools operate as "black boxes," providing users with a limited understanding of how their forecasts are generated. By delivering a platform that clearly communicates its data sources, Plutos Equities provides a straightforward and reliable financial forecasting solution. This transparency allows users to better understand the predictions and use them effectively in their decision-making processes. The platform aims to change how financial forecasting is approached, making it practical and accessible to a broad range of users, including investors, auditors, and corporate decision-makers.

Despite its innovative approach, a key challenge lies in integrating and updating diverse data sources in real-time. As financial data is inherently dynamic, incorporating unstructured inputs like earnings call transcripts or social sentiment into our predictive models without compromising accuracy is a complex task.

1.2. High-Level System Architecture & Components of Proposed Solution



1.2.1. Backend Layer

This layer is responsible for handling requests from within the client with the help of the communication layer. Also processes user requests and manages business logic for predictions, preprocessing, and alert generation.

- **Admin Manager:** Manages system configurations, user roles, and admin-level settings. Also helps us developers to modify the project, such as accessing the database to modify it more.

- **User Manager:** Handles user authentication, profile settings, and preferences.
- **Preprocessing Manager**: Cleans, normalizes, and structures raw data from the Storage Layer or external APIs.Integrates and combines data streams (e.g., historical financial data, social sentiment).
- **Model Manager**: Invokes machine learning models from the Logic Layer for predictions and analysis.
- **Alert Manager**: Monitors predictions and data streams to trigger alerts for significant anomalies or trends.

1.2.2. Client Layer

- **Dashboard UI:** Displays financial metrics, trends, and visualized predictions (e.g., interactive graphs via Chart.js or D3.js).
- **Customization UI:** Users can filter by sectors, metrics, or time horizons and set up alerts for significant changes.
- **User Interface:** The main user-facing application, providing access to the core functionality.

1.2.3. Communication Layer

- **REST API:** Provides a programmatic interface for external systems to interact with the application.
- **WebSocket/Real-Time Updates:** Enables the client to receive real-time updates and notifications from the backend.

1.2.4. Logic Layer

Implements machine learning models, feature engineering, and data analysis logic.

- **Database Manager:** Manages the primary database, including CRUD operations and transactions.
- **ML Model:** Encapsulates the machine learning models used for advanced analytics or predictive capabilities.
- **Compliance Manager:** Ensures the application adheres to relevant regulatory and industry standards.

1.2.5. Storage Layer

Stores data securely and provides access to different layers for processing and predictions.

- **Core Database:** The main database storing the application's core data.
- **User Database:** A separate database for storing user-specific information and preferences.
- **Raw Data Storage:** A storage system for ingesting and temporarily holding raw, unprocessed data.
- **Backup Storage:** Provides redundancy and disaster recovery capabilities for the application's data.

1.3. Constraints

1.3.1. Implementation Constraints

- **Diverse Data Sources:** The platform relies on integrating both structured data and unstructured data. Processing both structured and unstructured data is a challenging task.
- **Real-time Updates:** Implementing real-time data processing systems requires advanced technologies and architectures, such as streaming data pipelines, which can be complex to develop and maintain.
- **Unstructured Data Processing:** Extracting meaningful insights from unstructured data necessitates natural language processing techniques to obtain information and handle potential misinformation.
- **Data Accuracy and Reliability:** Ensuring the data collected is accurate and reliable is crucial for developing a good model.
- **Infrastructure Requirements:** Setting up and maintaining the necessary infrastructure (servers, databases, cloud services) adds layers of complexity to the implementation.
- **Model Maintenance:** Building a robust machine learning model is only the first step. Continuous monitoring, retraining, and fine-tuning are required to maintain accuracy and adapt to evolving data patterns.
- **Robust Testing Methods:** Developing and implementing robust validation techniques, such as cross-validation, backtesting, and stress testing, is necessary to assess the model's performance under various scenarios.
- **Accuracy vs. Interpretability:** Balancing the need for high accuracy with model interpretability during the validation process is a significant constraint.
- **Data Leakage:** While developing models for financial data, it is important to prevent data leakage. It is especially hard to develop a time series model.
- **Time Constraints:** For evaluation of the model, it is important that the model development is completed before at least one quarterly report is made to measure the performance of the model in real life.

1.3.2. Economic Constraints

- **API Costs:** The platform uses APIs to access real-time financial data, historical stock prices, news sentiment, and market trends. Licensing and subscription costs for APIs, such as Alpha Vantage, Yahoo Finance, and similar services, are a significant expense. These costs increase with higher data usage as the project scales.
- **AWS Hosting Costs**: Hosting the platform on AWS involves expenses for essential services such as servers, storage, and data transfer. As the platform handles large volumes of data and runs ML models, the demand for computational power and storage capacity is expected to grow. This leads to higher expenses for essential cloud services, including those required for computation, data storage, and managing serverless operations.
- **Scalability Costs**: As the user base grows, the system must scale to handle more requests and higher data volumes. This includes upgrading server capacity storage limits and implementing load balancing, all of which increase AWS costs.

- **Data Storage Costs**: Maintaining historical financial data, market indices, and news articles requires significant storage resources. These storage requirements will grow over time, particularly as unstructured data like social media sentiment and earnings call transcripts are added to the dataset.

1.3.3. Ethical Constraints

- **Transparency of Predictions**: Ensuring the platform communicates how predictions are generated is a main ethical consideration. Users must have told the data sources and limitations involved in the forecasting process to avoid misinterpretation or over-reliance on the predictions.
- **Data Privacy and Security**: The platform handles potentially sensitive financial data, requiring strict data privacy measures. No user data or proprietary information obtained through API integrations or data partnerships will be shared with third parties without explicit consent.
- **Advisory Nature of Predictions**: Predictions generated by the platform are inherently probabilistic and subject to change based on changing market conditions. To prevent over-reliance, the platform will clearly communicate the limitations of the forecasts, ensuring users understand the data is advisory rather than definitive.
- **Prevention of Misuse**: Measures will be taken to ensure the predictions are used responsibly and within legal boundaries. Clear user agreements will outline acceptable use policies, discouraging any activities that could lead to unfair advantages or violate ethical standards in financial decision-making.

1.3.4. Social Constraint

In the development of Plutos Equities, we have not identified any specific social constraints apart from two considerations. The first is ensuring the protection of any proprietary data used within the platform. The second is implementing safeguards to communicate the expected uncertainty in predictions, emphasizing that forecasts may not always be accurate and should not be the only basis for critical financial decisions.

1.4. Professional and Ethical Issues

In the development of Plutos Equities, professional and ethical issues that may arise are considered. Financial forecasting involves handling sensitive data, and maintaining the highest ethical standards is important to ensure trust and reliability.

One of the primary concerns is data privacy. While Plutos Equities processes large amounts of financial data, including historical financial reports, market indices, and real-time news, no personal or proprietary user information will be collected or stored. The predictions generated by the platform will primarily rely on publicly available data, supplemented by proprietary data where necessary, ensuring compliance with data privacy regulations such as GDPR and maintaining transparency in data usage. Measures will also be taken to secure data pipelines and prevent unauthorized access to the platform's systems.

Since the forecasts provided by Plutos Equities may influence investment and financial decisions, ensuring accuracy and transparency is crucial. The methodologies used for prediction will be openly communicated to users through detailed documentation, allowing them to understand the underlying processes. Additionally, disclaimers will clarify that the predictions are probabilistic in nature and should not be interpreted as guarantees.

To address ethical concerns, safeguards will be implemented to prevent the misuse of predictions, such as for market manipulation or spreading misinformation. The platform will include user agreements specifying acceptable usage of the predictions and prohibiting unethical activities. Monitoring systems may be introduced to detect and flag any suspicious activities tied to the use of the forecasts.

1.5. Standards

- **Market Data Standards:** Usage of globally recognized data formats for market indices and stock prices, such as those provided by financial data providers like Bloomberg or Reuters.
- **General Data Protection Regulations**: Compliance is necessary for handling people. Ensuring data protection and privacy is important.
- **Cloud Infrastructure Standards:** AWS hosting should follow Well-Architected Framework principles, ensuring reliability, security, performance, and cost-efficiency.
- **Legal Standards**: Avoid using insider or illegal data, and follow basic financial data-sharing rules.
- **Focus on User Experience**: Design a simple, clear, and interactive interface (test it with actual users).
- **Clean Code Standards:** Writing clean code is crucial for scaling and reusing the code.
- **Testing Standards:** Developers and testers will write thoroughly unit and integration tests while continuing development. Tests are crucial.
- **Documentation Standards:** Documentation for the written development and user experience will be written for ease of use.

2. Design Requirements

2.1. Functional Requirements

2.1.1. Quarterly Financial Prediction Functionality

- Generate predictions for key financial metrics (revenue, EPS, EBITDA) for NASDAQ Top 100 companies.
- Review confidence intervals for each prediction.
- Forecast financial performance for the upcoming quarter.
- Potentially extend predictions up to 3 quarters in the future.

2.1.2. User Functionalities

- Support user account creation/authentication
  - Users can create an account.
    - Login/logout functionalities.
    - Change membership plan.
    - Change the payment preferences.
- Follow companies you are interested in.
- Unfollow companies.
- Allow personalization of the dashboard and metrics.

    - Customize/edit financial charts according to ease of use.
- Provide insights on prediction interpretation.
- Implement feedback mechanisms for continuous improvement.
- Visualization of simple parameters about companies and their stocks.
- Visualization of the predicted quarter report about companies.
- Allow users to export overall forecast results in different formats (.csv, .xls, etc.)

2.1.3. Admin Functionalities

- Provide a centralized admin dashboard for system monitoring, configuration, and management.
- Comprehensive documentation, including system architecture, user manuals, and troubleshooting guides.

2.2. Non-Functional Requirements

2.2.1. Performance

The platform will process a wide range of financial data, including historical financial statements, market volatility indicators, economic trends, industry-specific data, regulatory factors, and news sentiment. Therefore, the system must implement efficient database indexing and query optimization to maintain response times. Maximum system load capacity should handle at least 200 simultaneous user sessions and reduce load times for frequently accessed data.

Furthermore, to comply with the business performance standard, the platform will achieve a Mean Absolute Percentage Error (MAPE) of less than 15% for forecasts in its first-to-next financial report. It will also ensure accurate predictions based on its own threshold (examined under Success Metrics in the report) for at least 80% of the NASDAQ Top 100 companies.

2.2.2. Reliability

Plutos Equities uses consistent analytics algorithms across 100 companies and relies on similar methods to obtain up-to-date data, enabling the error handling system to be automated and effectively manage and recover from unforeseen failures without the need for manual intervention. Additionally, the system will maintain at least %99 uptime to ensure availability during critical financial periods, such as quarterly report releases. Servers also save processed data, predictions, and user configurations in a secure AWS-hosted database.

2.2.3. Usability

One of the highlights of Plutos Equities' current financial applications is that it offers an open and accessible service that anyone can use, regardless of their level of knowledge. Accordingly, the system will have an easy-to-use interface that requires new users to receive training for no more than 20 minutes. It will support responsive design to ensure optimal viewing and interaction experience across desktop, tablet, and mobile devices. Interactive charts and graphs (using D3.js or Chart.js) will help users visualize trends, predictions, and anomalies in real time. It will have customizable views based on user preferences and sector focus. Any page the user requests will be available within 2 seconds.

2.2.4. Scalability

Plutos Equities designed the system architecture to scale horizontally by adding more servers or cloud instances without significant reconfiguration. The system will be tested for scenarios that increase traffic by up to 10 times. With AWS, it supports automatic load balancing to distribute user requests efficiently across available resources. Its design is cloud-native, and it has a containerized architecture to facilitate easy scaling and deployment.

2.2.5. Maintainability

Plutos's system is built with maintainability in mind, making it simple to upgrade, change, or expand with little risk or work. To make debugging and future development easier, code follows established naming standards, modular design principles, and thorough documentation methods. To reduce technological debt, dependencies, and configurations must be properly described and maintained. The system's integrated logging, monitoring, and error-handling features will enable effective problem diagnosis and resolution. To minimize downtime and manual intervention, maintenance procedures, including upgrades, scaling, and deployment, must be automated whenever feasible. In order to guarantee smooth updates, the system must also be backward-compatible with earlier iterations and contain test suites to ensure that modifications do not interfere with already-existing functionality.

2.2.6. Security

Plutos Equities uses AWS servers to enforce secure authentication using AWS Identity and Access Management (IAM). Servers adhere to data privacy regulations (e.g., GDPR, CCPA) with encrypted data storage and secure API endpoints.

2.2.7. Sustainability

Plutos Equities recognizes the importance of environmental sustainability and aims to reduce its ecological footprint by at least %10 compared to the average website. It utilizes cloud providers with strong commitments to renewable energy (AWS). Optimize our algorithms for energy efficiency. Additionally, it delivers all reports and analyses digitally. Encourage users to adopt paperless practices.

3. Feasibility Discussions

3.1. Market & Competitive Analysis

Plutos Equities occupies a distinctive and advantageous position in the market, as no direct competitors currently offer a comparable product. This absence of competition is particularly notable in the niche of capital forecasting, especially for quarterly financial reporting of top NASDAQ companies. The broader financial technology landscape has grown significantly, with many solutions targeting portfolio management, stock trading insights, or high-level financial analytics [1]. However, none provide the specific, integrated focus on quarterly forecasting that Plutos Equities brings.

Existing products primarily cater to general investment management or rely on basic predictive tools that do not leverage advanced AI-driven models or user-centric designs. These tools often lack the granularity and precision to accurately forecast critical financial metrics like revenue, profit, and earnings per share (EPS). For example, applications in the market that incorporate basic revenue prediction or sentiment analysis tend to address specific forecasting components without offering a comprehensive, actionable solution [2].

Emerging technologies suggest growing interest in this domain, particularly in leveraging artificial intelligence for predictive analytics, but most of these developments are still in the early phases. Platforms under development often focus on isolated tasks, such as trend analysis through natural language processing (NLP) or exploratory models predicting market sentiment based on news data. While promising, these tools are confined to experimental use cases and have not matured into fully operational products [3].

The lack of a market-ready solution tailored to the forecasting needs of businesses and investors presents a significant opportunity for Plutos Equities to establish itself as a market leader. By bridging the gap between high-level financial tools and granular forecasting, Plutos Equities is well-positioned to capture unmet demand and create a new standard in capital forecasting.

3.2. Academic Analysis

The academic landscape surrounding financial forecasting and decision-making tools reveals a growing emphasis on integrating artificial intelligence and machine learning into predictive methodologies. Recent studies have highlighted the transformative potential of machine learning algorithms, such as neural networks, support vector machines, and ensemble learning methods, in improving the accuracy of forecasting financial metrics like revenue, profit margins, and EPS [3]. These advancements indicate a solid academic foundation supporting the innovation driving Plutos Equities.

One area of significant academic interest is time-series forecasting, which has evolved rapidly with the introduction of sophisticated algorithms such as Long Short-Term Memory (LSTM) networks and Facebook Prophet. These models identify complex patterns in sequential data, making them invaluable for predicting quarterly financial outcomes. Researchers have also focused on optimizing these models for scalability and real-time data processing, though many studies note challenges in applying them to diverse financial contexts [4].

In addition to quantitative models, unstructured data has become a significant focus. Natural language processing (NLP) tools have been extensively studied for their ability to analyze sentiment from news articles, earnings calls, and social media posts. These tools have demonstrated significant potential in enriching traditional financial models with qualitative insights, which can improve accuracy in predicting market behavior [5]. For instance, a 2023 study published in the *Journal of Financial Analytics* demonstrated how sentiment analysis can enhance stock price prediction when combined with time-series data [6].

Despite these advancements, many academic studies remain theoretical, with limited application to real-world scenarios. Researchers frequently identify gaps in bridging advanced modeling techniques with practical, user-friendly solutions for businesses and investors.

Conferences like the *International Conference on Computational Finance* have underscored the need for integrated platforms to synthesize structured and unstructured data into actionable forecasts [7].

Plutos Equities aligns closely with these academic advancements by operationalizing state-of-the-art methodologies into a cohesive, accessible platform. The product addresses limitations in scalability, ease of use, and integration with real-world financial data, making it a practical implementation of cutting-edge academic research. By leveraging these academic insights, Plutos Equities is positioned as a market-ready solution and a benchmark for future innovations in financial forecasting.

4. Expected Outcomes & Impacts

The expected results of the Plutos Equities project include:

- **Accurate Financial Predictions**: Reliable forecasting of financial metrics like revenue, profit, and expenses for the next six quarters.
- **Accessible Service:** Democratizing access to sophisticated financial analysis tools.
- **User-Friendly Platform**: A web-based platform where investors and financial analysts can easily access predictive financial reports.
- **Comparative Model Analysis:** Insights into the performance of machine learning models versus traditional financial forecasting methods.
- **Regular Reports:** Continuous feedback on the accuracy and performance of the forecasting models.

4.1. Success Metrics

For the CS491 course and CS fair, where the last test will be on Q4 2023 data (published in March 2024).

The metrics rating is as follows:

- **Prediction Accuracy**: Measured by Mean Absolute Percentage Error (MAPE)
  - Excellent (absolute accurate): MAPE < 10%
  - Good (accurate): MAPE between 10-15%
  - Fair: MAPE between 15-20%
  - Needs Improvement: MAPE > 20%
- **Coverage of NASDAQ Top 100**: The success of the application across the platform
  - Excellent: Accurate predictions for 90%+ of companies
  - Good: 80-89% coverage
  - Fair: 70-79% coverage
  - Needs Improvement: < 70% coverage
- **User Engagement:** Number of active users
  - Excellent: 500+ active users within the first 6 months
  - Good: 200-500 active users
  - Fair: 50-200 active users
  - Needs Improvement: < 50 active users
- **Client Satisfaction:** Regular surveys and feedback collection
  - Excellent: 4.5+ star rating (out of 5) from users
  - Good: 4.0-4.4 star rating

- Fair: 3.5-3.9 star rating
- Needs Improvement: < 3.5-star rating

- **Comparative Performance**: Demonstrate how our model outperforms similar tools.
  - Excellent: Outperforms 90%+ of existing financial forecasting tools
  - Good: Outperforms 75-89% of tools
  - Fair: Outperforms 60-74% of tools
  - Needs Improvement: Outperforms < 60% of tools
- **Revenue Generation:** Subscription growth and retention rates

Our goals are as follows:

1. **Prediction Accuracy**: Aim for a MAPE < 15% for Q4 2023 predictions.
2. **Coverage of NASDAQ Top 100:** Try to accurately predict for at least 80% of the NASDAQ Top 100 companies.
3. **User Engagement:** 500+ active users within the first 6 months
4. **Client Satisfaction:** 5 out of 5 stars. Positive feedback.
5. **Comparative Performance**: Demonstrate how your model outperforms at least 75% of existing tools for Q4 2023 predictions.
6. **Revenue Generation:** Finding our first investor within the first 6 months.

5. Glossary

1. AI-Driven Analytics: The use of artificial intelligence to analyze data, detect patterns, and make predictions or decisions, particularly in forecasting financial metrics.
2. Capital Expenditures (CapEx): Funds used by a company to acquire, upgrade, and maintain physical assets such as property, industrial buildings, or equipment. Relevant to understanding a company's financial health in forecasting models.
3. Capital Forecasting: The process of estimating a company's future financial performance, including metrics such as revenue, operating costs, and earnings per share (EPS).
4. Cash Flow Analysis: The examination of the inflows and outflows of cash in a business is critical for understanding liquidity and operational efficiency.
5. Compound Annual Growth Rate (CAGR): A measure used to express the mean annual growth rate of an investment over a specified period of time.
6. Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA): A measure of a company's overall financial performance, used as an alternative to net income in some cases.
7. Earnings Per Share (EPS): A key financial metric calculated as a company's profit divided by the number of outstanding shares, indicating the profitability of a company on a per-share basis.
8. Ensemble Methods: Machine learning techniques that combine multiple models to improve predictive performance. These methods are applied to financial forecasting to achieve more accurate results.
9. Equity Analysis: The process of evaluating a company's stock performance, financial health, and future prospects, often forming the basis of investment decisions.
10. Feature Engineering: The process of selecting and transforming raw data into useful features that enhance the performance of machine learning models used in financial analysis.
11. Financial Ratios: Metrics derived from financial statements that are used to evaluate a company's performance, such as debt-to-equity ratio and return on equity (ROE).

12. LSTM (Long Short-Term Memory): A type of recurrent neural network (RNN) architecture designed to process and predict data sequences over time, particularly useful for time-series forecasting in finance.
13. Market Capitalization (Market Cap): The total value of a company's outstanding shares, calculated by multiplying the share price by the number of shares. It serves as a measure of company size and value.
14. Market Sentiment: The overall attitude of investors and market participants toward a particular security or financial market, often gauged using sentiment analysis.
15. Natural Language Processing (NLP): A branch of AI that focuses on enabling computers to understand and process human language. In this project, it is used to analyze text data from financial news and reports.
16. Operating Expenses (OpEx): The costs of running a business's core operations, excluding direct costs of goods sold (COGS).
17. Price-to-Earnings Ratio (P/E Ratio): A valuation metric that compares a company's share price to its earnings per share, often used to assess whether a stock is over- or under-valued.
18. Prophet Model: An open-source time-series forecasting tool developed by Facebook, often used for trend analysis and seasonal data, and applied in capital forecasting in this project.
19. Quarterly Reports: Financial documents companies release every three months detailing their performance. Forecasting these reports is a primary goal of the project.
20. Return on Investment (ROI): A measure of the profitability of an investment, calculated as the net profit divided by the initial investment cost.
21. Sentiment Analysis: Using NLP to determine the emotional tone of textual data. In this project, it is used to gauge market sentiment from news and social media.
22. Stock Market Forecasting: The process of predicting the future performance of stocks or indices, often using machine learning and statistical models.
23. Time-Series Forecasting: A method of predicting future values based on historical data points. Models like LSTM and Prophet are used for this project.
24. Volatility: A statistical measure of the dispersion of returns for a given security or market index, often used to assess investment risk.

6. References

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