**Generative AI Stock Assistant Proposal**

# Issue

* **Customer Overload with Information of Diverse Data Sources**: Investors face an overwhelming amount of market data, news, and financial reports. Filtering relevant information in real-time to make informed decisions is a significant challenge. Combining data from various platforms is time-consuming and inefficient, leading to missed opportunities.
* **Lack of Expertise in Financial Concepts or Analytical Tools**: Many investors lack the expertise or tools to perform technical or fundamental analysis effectively, making it difficult to evaluate stock performance or trends. Many investors lack a solid understanding of financial terminologies, indicators, or reports, creating a steep learning curve for effective investment decision-making.
* **Inefficient Stock Filtering**: Without effective stock filtering mechanisms, investors struggle to identify stocks that meet specific criteria, particularly in dynamic or volatile market conditions.
* **Lack of Personalization**: Generic market reports fail to align with individual investment goals or portfolios, making it harder for investors to act on information.
* **Lack of Customer Support/Broker**: We do not have any broker to support customers with direct transactions or company policy like other securities companies in the market. Limited tools for interactive and personalized customer engagement reduce user satisfaction and loyalty.
* **Low Adoption of Advanced Analytics**: Not many securities companies effectively leverage AI and machine learning to provide innovative solutions or gain a competitive advantage in the market.

# Solution

* We are writing to propose a comprehensive project to address these issues. This project was carried out with the goal of creating a tool to assist customers in dealing with information and executing transactions, like a low-cost financial transaction assistant, contributing to increasing customer satisfaction and service time.
* We will prepare and build the infrastructure to operate the data storage and processing system and Chatbot System in GCP as a back-end service. Ensure data is classified according to intended use and the system can be scalable when necessary. The Chatbot main features include:
  + Smart Data Query Assistant.
  + Technical/Fundamental Stock Analysis Support.
  + Market News Summary & Analysis.
  + Stock Filtering.
  + Pinetree's Data Ecosystem Assistant.
* We will build the AI Assistant feature in the AlphaTrading app in the initial stages and track related events.
* We will launch a campaign to encourage users to experience this new feature.
* We will monitor user engagement metrics (e.g., time-usage rates, click rates...), track system performance and service billing cost.

# Business Objectives

* **Improved Customer Experience:**
  + Deliver intuitive, personalized investment guidance to support confident decision-making.
  + Simplify investment choices so that the user experience is seamless.
  + Boost platform engagement and interactivity through tailored features.
  + Timely and relevant investment information, in-line with the interests of users.
* **Higher Product Adoption:**
  + Increase awareness and usage of key products, PineBonds and PineFolio.
  + Promote portfolio diversification to support balanced investment strategies.
  + Cross-sell and upsell with targeted recommendations.
* **Data-Driven Personalization:**
  + Build advanced recommendation algorithms to provide precise investment suggestions.
  + Continuously adapt to individual investor behaviors, in near real-time personalization.
* **Business Growth:**
  + Increase average transaction values and grow market share with relevant recommendations.
  + Enhance customer retention through added-value services.
  + Generate new revenue streams with strategic, data-driven recommendations.
  + Differentiate the platform with features that are a competitive advantage.

# Proposed Feature

## **4.1. Cross-Selling Recommendations**

**Objective**: To encourage customers to explore additional services and investment products, such as bonds and curated portfolios, by providing relevant suggestions following key user action (placing order or withdraw fund).

### **Feature 4.1.1: Optimize Idle Cash with PineB Suggestion**

|  |  |
| --- | --- |
| **Description** | Suggesting customers instead of withdrawing idle money to invest in safe products such as bonds  Notes: Follow-up email sent at day-end if idle cash remains |
| **Location** | * Withdraw Money Screen |
| **Trigger Event** | Initiated when the customer attempts to withdraw funds or succeeds in withdrawing funds |
| **Display Type** | * Pop-up * Email * Call-to-action hint button * Notification |
| **Messaging** | "Instead of withdrawing, optimize your idle cash with our PineB product to earn up to \_\_% per annum. Click here to explore." |

### **Feature 4.1.2: Pinefolio Recommendation**

|  |  |
| --- | --- |
| **Description** | Suggesting customers to evaluate Pinefolio products to ensure performance and optimize diversification strategies  Notes: If stock is in multiple portfolios, recommend the higher performing one. Email sent after order completion. |
| **Location** | * Order Confirmation Screen |
| **Trigger Event** | After purchasing a stock in Pinefolio |
| **Display Type** | * Pop-up * Email * Call-to-action hint button * Notification |
| **Messaging** | "Our Pinefolio, which outperforms VN-Index by \_\_%, includes stock \_\_\_. Click here to learn more about Pinefolio and other portfolios." |

### **Feature 4.1.3: Margin Account Prompt**

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| --- | --- |
| **Description** | Suggesting customers register margin account |
| **Location** | * Order Confirmation Screen |
| **Trigger Event** | After purchasing a marginable stock without using margin account & Customer has not yet opened a margin account |
| **Display Type** | * Call-to-action hint button * Email |
| **Messaging** | "Join \_\_% of investors who use margin to maximize returns on stock \_\_\_. Learn more about our margin program here." |

### **Feature 4.1.4: Derivatives Account Prompt**

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| --- | --- |
| **Description** | Suggesting customers register derivative account |
| **Location** | * CW Order Screen * Margin Registration Screen |
| **Trigger Event** | After successful margin registration or CW purchase |
| **Display Type** | * Email |
| **Messaging** | "\_\_% of margin investors also trade derivatives for enhanced returns. Learn more about our derivatives program here." |

### **Feature 4.1.5: Stock-based Derivative Securities Recommendations**

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| --- | --- |
| **Description** | Suggesting other investment products related to the stock such as CW or bonds. |
| **Location** | * Stock Details Screen * Research screen |
| **Trigger Event** | When the client searches for a stock or view at Stock Details Screen. |
| **Display Type** | * Call-to-action hint button * Scrolling Text (fixed at top) |
| **Messaging** | * "Check out related CWs" * "Check out related Bonds" |

## **4.2. Upselling Recommendations**

**Objective**: To present alternative stocks for consideration based on investment patterns or based on user profile and recent interactions (e.g., portfolio, action viewing assets or placing orders). These recommendations will appear following a customer’s stock purchase or attempt to purchase, to prompt exploration of similar opportunities.

* Identify alternative stocks like those recently purchased.
* Use language like “Investors who bought this stock also bought…” to encourage further investments.
* Display suggestions on the order confirmation screen, recommendation pages and within the app’s main feed.

### **Feature 4.2.1: Investment Pattern Recommendations**

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| --- | --- |
| **Description** | Recommend similar stocks based on investment patterns or similar user profile |
| **Location** | * Recommendation page * Reseach screen |
| **Trigger Event** | When the client searches for a stock or in research screen. |
| **Display Type** | * Call-to-action hint button * Recommendation page |
| **Messaging** | "Check out the Investors like you..." |

### **Feature 4.2.2: Advanced Stock Recommendation**

|  |  |
| --- | --- |
| **Description** | Recommend stocks based on user profile and recent behaviors |
| **Location** | * Recommendation page * Reseach screen |
| **Trigger Event** | When the client searches for a stock or in research screen. |
| **Display Type** | * Call-to-action hint button * Recommendation page * Pop-up * Email * Notification |
| **Messaging** | "Check out list stocks that maybe you like..." |

## **4.3. Related Securities Suggestions**

**Objective**: To provide insight into related stocks or securities that may align with the customer's current investment focus when viewing stock details, encouraging further engagement with related options.

### **Feature 4.3.1: Performance-Based Recommendations**

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| --- | --- |
| **Description** | List stocks that meet several criteria for technical and fundamental analysis, could increase in price, high volume, high performance or have the same sector. |
| **Location** | * Research Screen |
| **Trigger Event** | Always |
| **Display Type** | * Screen tab |
| **Messaging** | * "Check the list of stock recommendations that are likely to perform well or be popular" * "Check the list of stock that are the same \_\_\_ sector" |

### **Feature 4.3.2: Relative-Based Recommendations**

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| --- | --- |
| **Description** | List of stocks with the highest relevance to a specific stock, influenced by factors such as stock profile, recent price fluctuations, and correlation that appear together in investors' portfolios  *Note: This recommendation answers the question "Which stocks that investor often bought together with?"* |
| **Location** | * Order screen * Stock Details Screen * Research screen |
| **Trigger Event** | When the client searches for a stock or view at Stock Details Screen. |
| **Display Type** | * Call-to-action hint button * Scrolling Text (fixed at top) |
| **Messaging** | * "Investors often bought together with... " |

## **4.4. Personalized News Recommendations**

**Objective**: To deliver timely, relevant news articles tailored to customers' investment interests, based on their transaction history, watchlist, and portfolio or recent read articles category.

### **Feature 4.4.1: Interest-Based News Suggestions**

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| --- | --- |
| **Description** | Suggest news that users may like based on their stock portfolio, watchlist, or recently read news |
| **Location** | * Price Board * News Section – “Recommendation for you” tab * Stock Details Screen * Research screen |
| **Trigger Event** | Upon login to Price Board |
| **Display Type** | * Scrolling Text * Notifications * “Recommendation for you” tab |
| **Messaging** | [news content summary] |

### **Feature 4.4.2: Feedback for News Relevance**

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| --- | --- |
| **Description** | Allow customers to provide feedback (e.g., like, dislike) to improve future news recommendations.  *Notes: Feedback option appears upon response submission.* |
| **Location** | * Price Board |
| **Trigger Event** | Upon login to Price Board |
| **Display Type** | * Like/Dislike Button |
| **Messaging** | "Thank you for your feedback! Your input helps us refine future recommendations." |

# Anticipated Resources & Action Steps

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Task** | **PIC** | **Estimated Completion** |
| 1 | Develop recommendation algorithm | DA | 15/11/2024 |
| 2 | Design recommendation UI/UX | DX | 10/12/2024 |
| 3 | Develop backend recommendation engine | DP | 20/12/2024 |
| 4 | Integrate with existing platforms (WTS, AlphaTrading, PineX) | DP, Core | 30/12/2024 |
| 5 | Testing and tracking event | DP, DA | 15/01/2025 |
| 6 | Launch recommendation system | DP, MKT | 05/02/2025 |

# Expected Outcomes

The new product recommendation system will be applied to make improved customer engagement for better cross-selling and upselling opportunities, thus improving customer experiences. What is expected from this implementation includes the following:

* **5% Increase in Cross-Product Sales**: Focused cross-sell and upsell activities to achieve a 5% incremental increase in the trading value of other product categories, which include bonds, derivatives, and curated investment portfolios.
* **10% Improvement in Customer Engagement**: The display of relevant and personalized recommendations on key screens is expected to improve engagement metrics—time spent on screens and click-throughs—by at least 10%.
* **Increased Customer Satisfaction Scores**: With the addition of intuitive investment suggestions and tailor-made news content, we expect customer satisfaction scores to improve even further.
* **Increased Efficiency in Investment Decision-Making**: By curating recommendations and insights, customers can make the most informed decision concerning their investments much faster and more in line with individual goals.

# Future Iterations

To further advance the recommendation system and adapt to evolving customer needs, we shall concentrate on the following focus areas for future development:

* **Model Refinement**: More data about customer preferences and interactions will continue to refine the recommendation system's underlying machine-learning algorithms, rendering predictions with ever-increasing accuracy and leading to ever-better recommendations.
* **Expanded Recommendation Criteria**: In the future, more criteria will be added, including real-time market conditions, global economic indicators, and news sentiment analysis, to further expand the range of factors that influence recommendations and make them even more holistic.
* **Enhanced Personalization Capabilities**: The DA team will continue to enhance personalization using customer feedback and engagement data, making the system more dynamic to individual preferences and providing a more intuitive and responsive user experience.