**Stock Market App iOS Documentation**

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**Table of contents :**

1. Introduction
2. Functional Overview
3. Technical Overview
4. Features and Screenshots
5. Future Enhancements
6. Conclusion

**Introduction :**

The Stock Market App is a sophisticated mobile application that caters to the needs of investors by providing real-time access to stock market data, analysis tools, and portfolio management features. This report offers a comprehensive overview of the app's functionality, technical architecture, and planned enhancements

**Functional Overview :**

1. **User Authentication** - The app ensures a secure and seamless user experience through Firebase Authentication. Users can register with their email and password, providing a personalized environment for utilizing advanced features. Firebase Authentication guarantees the confidentiality of user credentials
2. **Stock Search and Statistics** - o fetch real-time stock data, the app integrates with the Finnhub.io API. This ensures that users have access to the latest stock prices, historical data, and a comprehensive set of statistics. The search functionality enables users to explore and analyze a wide range of stocks with ease
3. **Watchlist Management** - Watchlist management is a key feature of the app. Users can add and remove stocks from their watchlist, providing a quick and centralized view of their preferred stocks. Firestore, a NoSQL database from Firebase, is employed to store and synchronize watchlists across devices, ensuring a consistent experience for authenticated users
4. **Portfolio Management** - The app allows users to buy and sell stocks, which are then added to their portfolio. The portfolio management feature provides a detailed overview of the user's investments, including the total invested amount, current value, profit/loss, and percentage change

**Technical Overview :**

1. **Technologies Used** –

* **SwiftUI** - SwiftUI, Apple's modern UI framework, is employed for building the app's user interface. Its declarative syntax enhances code readability and maintainability
* **Firebase for Authentication and Data Storage** - Firebase serves as the backbone for user authentication and data storage. Firebase Authentication ensures secure user access, while Firestore, a NoSQL database, efficiently manages user-specific data
* **Finnhub.io API for Real-time Stock Data** - The integration with the Finnhub.io API guarantees real-time access to accurate stock market data, enhancing the app's reliability and usefulness.

1. **Architecture** - The app follows a client-server architecture. The client, developed in Swift using SwiftUI, communicates with the server components managed by Firebase services. This architecture ensures scalability, real-time updates, and a responsive user interface

**System Design / UML diagram:**

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**Features and Screenshots :**

1. **User authentication –** Users can securely register and log in using Firebase Authentication.

**A screenshot of a login form

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1. **Stock Search and Statistics** - The app provides a comprehensive stock search functionality with detailed real-time statistics

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1. **Watchlist Management** - Users can efficiently manage their watchlist, ensuring quick access to preferred stock

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1. **Portfolio Management -** The portfolio section offers insights into the user's stock investments, facilitating effective management and decision-making

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**Future Enhancements :**

1. **Graphical Representations** - Future releases will incorporate graphical representations of stock trends and portfolio performance. Visualizing data trends will enhance the user experience and aid in making informed investment decisions
2. **Real-time News Updates** – Future app releases will include top new on a particular stock to be fetched when clicked on a particular stock
3. **Social Features** - Planned social features will enable users to share insights, tips, and recommendations within the app, fostering a collaborative community of investors

**Conclusion :**

The Stock Market App is designed to empower users with advanced tools and insights for navigating the dynamic world of stock trading. The app's robust technical foundation, coupled with planned enhancements, positions it as a leading player in the financial technology landscape. The commitment to continuous improvement ensures that the app remains at the forefront of innovation, meeting the evolving needs of investors and providing a reliable platform for financial decision-making