Stonks: Stock Trading Learning App

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***Abstract*—This paper presents a mobile application designed to teach stock trading concepts through interactive tutorials and simulations. The application aims to provide a beginner-friendly approach to understanding the stock market, including key terminologies, trading strategies, and real-time market simulations. Users can engage with a stock tracking simulator and gamified challenges to reinforce their learning. Developed using Android Studio with Java, the application integrates a structured educational module with practical simulations, making financial education more accessible and interactive. The goal is to bridge the knowledge gap in financial literacy and encourage responsible investing habits.**

***Index Terms*—Stock Trading, Mobile Application, Android Studio, Java, Financial Literacy, Stock Simulator, Virtual Trading**

I. Introduction

Stock trading plays a crucial role in financial markets, allowing individuals and institutions to invest and grow their wealth. However, many individuals, especially beginners, lack the fundamental knowledge required to make informed investment decisions. The complexity of financial concepts, market fluctuations, and the risk of monetary loss often discourage people from engaging in stock trading.

Traditional learning methods, such as books and online articles, may not provide an interactive and engaging experience for learners. This project addresses this issue by developing a mobile application that offers structured educational content and hands-on trading experience through a simulated stock market environment.

The application provides users with a step-by-step learning process covering essential stock market terminologies, order types, investment strategies, and risk management techniques. Additionally, users can practice trading using a stock tracking simulator, reinforcing their knowledge through gamified quizzes and challenges. By allowing users to simulate trading scenarios without real financial risks, the app helps build confidence and practical understanding before they enter the real stock market.

II. Project Functionalities

The application is designed with the following core functionalities:

A. Educational Module

- Step-by-step tutorials on stock market fundamentals, including market trends, order types, and investment strategies.
- A glossary of stock trading terminologies for easy reference.
- Visual aids, such as graphs and charts, to help users understand market trends effectively.

B. Stock Tracking Simulator

- Users can practice simulated stock trading using virtual currency.
- Stock price trends can be tracked and analyzed to make informed trading decisions.
- A risk-free trading environment enables users to test strategies before real investment.
- Historical data visualization to help users understand past market trends.

C. Interactive Learning

- Gamified quizzes and challenges to assess users' understanding of stock trading concepts.
- Leaderboard and rewards system to encourage engagement.
- Scenario-based learning that simulates real-world stock market conditions.

D. User Dashboard

- Tracks learning progress and simulated portfolio performance.
- Displays personalized trading insights based on user activity.
- Provides recommended learning paths based on quiz performance and user interaction.

E. Market Updates & Notifications

- Optional integration with stock market APIs to provide real-time data.
- Push notifications to inform users of significant market movements.
- AI-driven stock suggestions based on simulated user trading behavior.

III. Technology Stack

The application is built using Android Studio and Java for front-end development. The back-end relies on Firebase or SQLite for data management, ensuring efficient storage and retrieval of user-related information. Additionally, API integrations may be used to fetch real-time stock market data for enhanced simulation accuracy.

IV. Back-End Design

The back-end architecture of the application follows a structured database system to manage user data, stock simulations, and learning progress.

A. Entity-Relationship (ER) Diagram

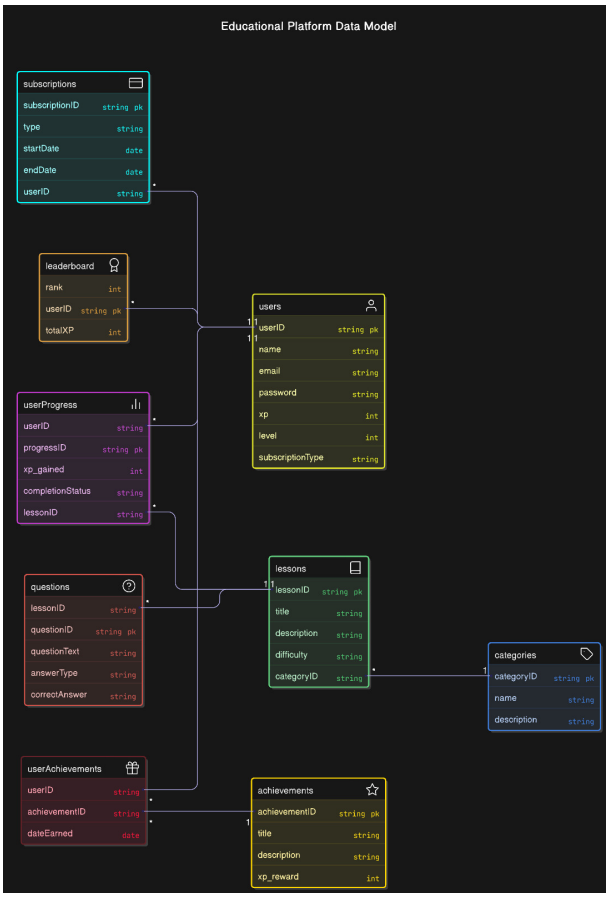

Fig. 1. Entity-Relationship Diagram for Stock Trading Learning App

Entities and Attributes:

- **Users** (userID, name, email, password, xp, level, subscriptionType)
- **Subscriptions** (subscriptionID, type, startDate, endDate, userID)
- **Lessons** (lessonID, title, description, difficulty, categoryID)
- **Categories** (categoryID, name, description)
- **Questions** (questionID, lessonID, questionText, answerType, correctAnswer)
- **UserProgress** (progressID, userID, lessonID, xp_gained, completionStatus)
- **Leaderboard** (userID, rank, totalXP)
- **Achievements** (achievementID, title, description, xp_reward)
- **UserAchievements** (userID, achievementID, dateEarned)

V. Use Case Diagram

The Use Case Diagram represents the interaction between users and the application features.

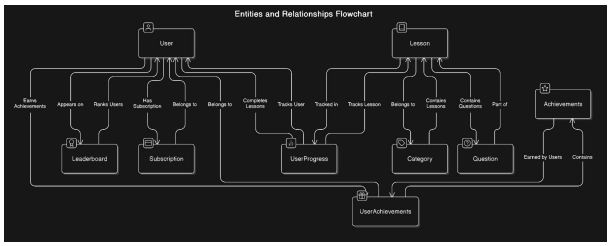

Fig. 2. Use Case Diagram for Stock Trading Learning App

Actors & Use Cases:

- **User**: Can register, log in, access lessons, complete quizzes, track progress, and earn achievements.
- **Subscription System**: Handles user subscriptions and access permissions.
- **Lesson Module**: Provides structured lessons categorized by topics.
- **User Progress Tracker**: Tracks lesson completion and user advancement.
- **Leaderboard**: Displays rankings based on user achievements and quiz scores.
- **Achievement System**: Grants users rewards based on their learning milestones.

VI. Conclusion

This project aims to enhance financial literacy by providing an engaging and practical learning platform for aspiring stock traders. By integrating educational content with a stock tracking simulator, users gain real-world experience without financial risk. Future improvements may include AI-driven trading recommendations, deeper market analysis tools, and real-time market data integration for a more immersive experience.

References

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