**StockStockr Web Application**

**Team StockStockr**

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**Problem Statement**

For most people, stock market trading is only available to those who are already wealthy, or those who devote many hours of time into the art of trading. We will provide a program that uses machine learning algorithms to analyze stock prices and other market data to give users an idea where markets are heading. This will allow more people to confidently begin investing in the stock market.

**Background Information**

Many people today find themselves intimidated by higher risk investment practices like stock trading. Some of these people do not have the time to devote to researching into companies, others simply do not trust stock brokers, but the bottom line is that for many people stock market trading seems out of their grasp. What applications that are available now mostly tailor to those who already know much about stock trading. A few of these applications could aid people new to stock trading, but there is plenty of room for improvement.

Some of these applications include:

Robinhood – An app that lets users make real world trades for free, instead of many other trading apps that charge a flat rate.

eToro – An app that does real world trading like many others but also has a nice extra feature. eToro attempts to train people in the stock market by giving them a fake currency to use in the app for trading. Users buy virtual shares of real world stocks and try to make a profit without risking any real money.

StockTwits – An application that compiles tweets from stock market analysts giving users an idea where most experts think the stock market is heading.

What all the above applications lack is a way to show users where markets are heading and how they can tell where they are heading. Our application will help educate people instead of just being a middleman. We will do this by using extensive analysis of many points of data using proven machine learning algorithms. By training data sets, we hope to achieve prediction to a certain degree that can help people better understand what drives stock prices. We also plan on adding tools that have been implemented in other applications. eToro uses a fake currency training system to lessen the risk for prospect investors. We think this is a great idea, and hope to implement our own similar system along with our predictions. By combining these tools with a helpful compilation of stock knowledge, definitions, and expert opinion, we will create an investment application perfectly tailored for anyone who wants to get into buying and selling stocks.

**Requirements**

Functional:

As a user, I would like to …

1. Create an account.

2. Customize my account.

3. Login to my account.

4. View my predicted stocks visually with a graph.

5. View my predicted stocks numerically with data.

6. Browse other stocks and add them to my stocks.

7. Access information describing data metrics and insight into the intricate nature of stock trading.

8. Request that new datasets be trained.

9. Contact the developers by email.

10. Adjust scope of predictions, whether it should look at short term or long term growth.

11. Practice trading stocks with virtual currency.

12. Be able to access application on iOS device.

13. Be able to access application on Android device.

14. See how much my virtual currency will grow with given stock predictions.

15. Receive notifications by email.

16. Receive notifications by sms or mobile notifications.

17. Add my stocks to a watch list for easy display.

18. Communicate with other users via a forum or comments section (time permitting).

19. Purchase stock shares with real money (time permitting).

As a developer I would like to …

20. Train data sets manually.

21. Automate training data sets every day/hour/week.

22. Communicate with users via created accounts or email.

23. Easy access to database where trained data is stored.

24. Predict the general outcome, increasing or decreasing, of a trained stock.

25. Experiment with predicting the exact amount a stock will change.

26. Edit and compose information to be displayed on the site.

27. Train data sets for short term trading, long term trading, or in between.

28. Allow for predictions to accommodate non numeric variables, to allow human insight where an algorithm may fall short.

29. Manage the applications virtual currency for users.

30. Manage forum or comment posts made by users (time permitting).

Non-Functional:

As developers, we would like to create …

31. A front end that is responsive and elegant for all users.

32. A database for stock data that is synchronized to the front end and updates seamlessly.

A database for user information and virtual currency that is secure as possible.

33. A stand-alone application for iOS (time permitting).

34. A stand-alone application for Android (time permitting).

35. Interfaces and menus for mobile users that make the application easy to use.

As developers, we would also like to …

36. Interview a financial expert to gain insight on how to predict a stock.

37. Use machine learning algorithms efficiently.

38. Make predictions to a certain degree of accuracy.

39. Keep user data secure and private

40. Provide the best quality information regarding knowledge of stock trading.