CS 242 Final Project Proposal

Financial Data Retrieval, Cleansing and Analyzing App
Xiaoxiao Wu (xwu74) - Moderator: Kunal Shah

1. Abstract

1.1. Project Purpose
This app provides a tool for people to view latest stock prices, macros and news related to stock issuers. The data can be viewed in text and graph and there will be data visualization. Moreover, users can upload/view the financial reports and see the sentiment analysis result achieved by complex algorithms.

1.2. Background/Motivation
Why are you interested in doing this project? Have you worked on something similar before? I'm interested in topics related to quantitative finance since finance problems are faced by the majority of people. This app will be a combination of the techniques I learned including machine learning, advanced data science, app developing and data mining.

2. Technical Specifications

2.1. **Platform:** Website/ iOS App

2.2. **Programming Languages:** Swift, Python, C#

2.3. **Stylistic Conventions:** commenting, camelcase naming conventions

2.4. **SDK:** iOS

2.5. **IDE:** xCode

2.6. **Tools/Interfaces:** iPhone

2.7. **Target Audience:** iPhone Users, investment bankers, investors, people interested in finance and financial reports.

3. Functional Specifications

3.1. Features
- Users can view the stock prices for a period of time
- Users can view the company news for each stock
- Users can add/remove certain stock to/from watchlist
- Data Visualization including plots, heatmaps
- Sentiment Analysis for financial reports

3.2. Scope of project
- No User ID & password authentication
- Local data storage

4. Timeline:

4.1. Week 1
- Build up basic app structure
- Add labels, images and buttons

4.2. Week 2
- Data retrieval from Web API (Bloomberg or Yahoo Finance)
- Data cleansing
- Dynamic data

4.3. Week 3
- Data Visualization, add plots and graphs
- Add functionality to allow user to set certain parameters to view personalized graphs, for example for user-specified time period, or compare between specified stocks.

4.4. Week 4
- Add functionality to allow download financial reports PDF, store PDF in database or upload by user
- Sentiment Analysis Algorithm (complex)
- User Interface to display analysis result

5. Future Enhancements
Add User authentication, allow user to log in from username and password. Login with Robinhood credentials and view user real balance and portfolio.