Albert Koy & Nadeem Malik

CMSC498O Final Project Proposal

Technical analysis is a commonly used method in computational finance that involves finding trends in the stock market based on the past performance of stocks. This is the method employed by many major financial technology companies, including Goldman Sachs and Bloomberg L.P.. We aim to create a solution to analyze trends and predict the directional movement of stock prices, meaning whether a stock will close higher than it did the previous day, using the data science and machine learning techniques that we've learned in class. We believe that this is a relatively achievable outcome compared to predicting the actual stock prices. Moreover, we believe that stock market data should be relatively easy to obtain (http://eoddata.com/).

Our primary challenges lie in finding the right volume of data to analyze as well as the right time period. Additionally, we need to work on choosing the right features to use for training (e.g. volume, price, moving averages, stochastics, MACD, and etc), coming up with the proper models to recognize patterns in the stock market, and determining how we can present our findings in some intuitive and accessible format.

There are many sources on the web that we can reference to help us create a good stock prediction model. For instance, this is a textbook on technical analysis with machine learning: http://www.diva-portal.org/smash/get/diva2:354463/FULLTEXT01.pdf. Additionally, there are many academic papers on the matter that one may find with a quick Google search.