Final Project Proposals – mananm2, somani4, gowtham4

Proposal – 1: Inter-Industry Stock Analysis and Prediction

Personal finance is an important aspect in every individual’s career. ‘Beating the market’, as is often discussed, is not as imperative for personal finance as ‘following the market’ to make smart investment decisions. A lot of work as gone into predicting future stock performance based on its past indicators. However, our goal is to explore how seemingly uncorrelated industries affect each other’s stock prices. We intend to take an S&P 500 dataset and cluster like stocks together using clustering algorithms learned in class. Further, we perform exploratory data analysis using the formed clusters to identify correlations. For example, does an innovation in the agricultural market affect Tesla stock prices? If so, to what extent? As an extension to this, how do multiple industries affect the performance of a stock/industry at hand? Finally, we want to identify predictive modeling approaches which can be applied to this clustered data using intra-industry indicators (like moving averages, momentum, price-volume trend, etc.).

Some links for possible datasets:

<https://www.kaggle.com/borismarjanovic/price-volume-data-for-all-us-stocks-etfs>

<https://www.kaggle.com/rleplae/derivatives-trading#pred2017l.csv>

<https://www.kaggle.com/camnugent/sandp500>

Proposal – 2: Chest CT Scan Analysis

In this proposal our goal is to design a robust predictive modeling approach to identify abnormalities in 3D chest CT Scans. This would be similar to automating how a radiologist checks a patient’s 3D scans and marks abnormalities. However, the dataset we have is set of tiff files which is quite small. The model, thus, may not be robust. We plan to model the problem either as a segmentation or bounding box or pixel classification or other ways (as we move along). The data we have, though, is not robust enough to build a predictive model with sufficient accuracy. We, thus, prefer to go with the first proposal.