ECS 171 Final Project Proposal

Sergio Santoyo Yuan Chang Cesar Guzman Avina
Will Colbert Nathaniel Faxon Kanchan Kaur
Parminder Singh

April 2022

1 Problem Statement

The goal of this project is to predict the next market crash using a S&P 500 data-set that has the details about the daily price from 1927-12-30 to 2021-09-19. This project would be beneficial to any heavy investors who are susceptible to major losses as it allows them to know ahead of time when the market crash would be, and also would provide major upside for an investor who is willing to invest heavily during the market crash prediction date of our project returns.

2 Data-set Description

The following are descriptions of the features for each observation in the data-set.

- Date - Trading date (YYYY-MM-DD)
- Open (#) - Market opening price
- High (#) - Highest price during the trading day.
- Low (#) - Lowest price during the
- Close (#) - Price when the market closed for the day.
- Adjusted Close (#) - Closing price after corporate actions are accounted for.
- Volume (#) - Number of shares traded during the trading day.
- % Gain/Loss (#) - Percentage Change between 2 consecutive closing prices. (Shows the gain/loss between 2 trading days)
- Price Variation (#) - Price fluctuation during the day. ((high-low)/Close)

3 Goals

Our goals are:

- Predict when the next stock market crash will occur.
- Provide investment recommendations based on current stats.
- Let users know whether a stock of their choice would be a great investment if they invested in that stock during the crash.

4 Roadmap

1. Preprocess data from the dataset.
    - Separate into independent and dependent variables and remove unnecessary columns.
2. Train the data.
    - Use polynomial regression with a very high degree.
3. Use trained data for prediction of crash.
    - Test the trained data with the current state of S&P 500 to see how accurate our prediction is. If it can accurately predict current values over about a two year gap, it should be able to predict patterns of potential drops and crashes.
4. Use predicted crash to get investment recommendations.
    - Based on stock price in comparison with other days/years.
5. HTML part should be started.