Project Summary

As computer engineers and developers we look at the stock market as a fountain of infinite data to be analyzed and predicted. Through our discipline we know that using data and artificial intelligence surely we can find some patters to gain an edge. However a common saying among investors is “you can not predict the stock market.” Well if the stock market is truly a market it must also succumb to the powers of supply and demand. And the force that manipulated this supply and demand are people, and surely with the use of social media one could analyze sentiment over the internet and use this to gain an edge. In our project we are trying to do just that, capture sentiment over Twitter and buy and sell stocks accordingly.

In our project we utilized both Jupyter Notebook and Google Colab to work on our project.

To first train our model we utilized Google Colab because this program allows us to train our model with the GPUs from Google. This saved us time as it only took about 25 min to train the model for 10 epochs on 5790 training tweets. After we trained the model we downloaded the model locally and ran it on Jupyter Notebook. This Jupyter Notebook was ran on a virtual linux machine to isolate it from my local python environment.

Application Programming Interface (API) is a magical tool to use as a software developer. They allow us to connect to endpoints from certain websites in this experiment, Twitter and Alpaca. Through the Twitter Tweepy API we will request a live stream of a fixed number of tweets that contain the ticker symbols of the stocks that we want to analyze. We are also attempting to buy and sell stocks using live market data. This live market data will be requested from our Alpaca paper trading account. We will also use the Alpaca paper trading account to buy and sell certain stocks based on the bearish or bullish sentiment gathered from our training model.

Finally we ran the code from 6:30AM to 8:00AM and bought 11 stocks with a total of $197,151.71. As of November 23, we have lost 0.65% of our initial portfolio. In the future we hope that we can trade on more days and gather more data for our model to trained and tested on.