**Project Three Proposal**

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For project three we decided to delve into predicting the Stock Market trends over a specific year. The Stock Market peaked our interest in regard to predicting trends and outcomes through Machine Learning due to the vast amount of results that can occur over a timespan for a specific stock. Many stocks can be very volatile and have an inverse relationship with the overall trend of the Dow Jones. As this is time series data, our test set will be the most recent data. We will use appropriate data to guarantee a good train-set/test-set size ratio. So, for example for a 3-month projection, we would use at least one year’s worth of total data, so that there is at least a 3/1 size ratio. We decided on a 6-month projection from which we will compare to actual values to calculate prediction accuracy.

There are multiple specific stock indicators that we can predict (open price/close price/volume/etc.). We will be predicting daily close prices of each stock individually. It is important to note that these prices will only be predicted on a specifically chosen efficient model is chosen to decrease computation time.

Step by Step Process

* Filtering out the CSVs (for last year)
* Create the testing model(s)
* Run the same X model(s) for a few stocks
* Analyze results
* Find the best model(s)
* Apply the model(s) to all stocks
* Visualize stock predictions closest to our model(s)

We will use Python in Jupyter notebooks for coding. We will use the Keras interface to use Tensorflow for different neural network models (RNN/LSTM and different numbers of layers for etc.). We will use Pandas to handle data reading and cleaning and use Matplotlib to create visualizations.

Our presentation will be a display of the theory behind our approach, the process we undertake, and the results of our analysis.

As a reference, we will be using the Kaggle Dataset for the DOW Jones Industrial average stocks accessible at:

<https://www.kaggle.com/timoboz/stock-data-dow-jones>