1 Summary

For our project, we would like to apply Machine Learning techniques to predict stock prices. We would like to try to scrape financial articles from new outlets online and perform analysis on the sentiments expressed in those articles to predict how stock prices would be affected in the near future. We could also consider specific industries such as oil or tech and seeing how they might influence each other.

2 Network architecture

We will give an input tensor of time-series data scraped from financial websites. These will then pass into an LSTM neural network (implemented in `tensorflow`), then pass through a small softmax layer, which will output one of three decisions: buy, sell, or do nothing.

3 Cost function

We will establish a simple cost function by looking at the network's total gains / losses, measured with respect to the starting balance some period of time earlier.

4 Datasets

We will be trying to scrape data from one of the following APIs:

- `alphavantage`

- `quandl`

- `morningstar`