Script

Slide 1

- My name is Moshe Burnstein and the name of my project is Cocacola Stock Forecasting. Wherein I explore different Machine Learning algorithms to predict stock prices.
- Slide 2
- I will address the business problem, the background of KO stock, the models I built, analysis of those models, recommendations based on the models, and ethical issues to consider.
- Slide 3
- Many Americans are offered cash from their credit cards. One popular offer includes a deposit of cash into one's bank account with a 5% fee and no interest for a

term of many months. So, for instance, a $10,000 loan would see a deposit of $9,500 in one's account. He would have 6, 12, or 18 months to remit payment to avoid interest charges. My project explores the wisdom of taking out such a loan and investing it in KO stock. Are we confident that he will make a profit?

- Slide 4
- CocaCola has been a powerhouse beverage company since 1886. Take a look at its robust growth in stock price since 1990. There are some ups and downs, but the overall trend is way up.
- Slide 5
- KO has always been an attractive choice for investment. It produces 3% of all worldwide daily consumed beverages. Its iconic brands include Coke,Diet Coke, Sprite, Fanta, and

Minute Maid. It is a dividend machine, offering consistent dividends since 1963.

- Slide 6
- I used data from Yahoo Financial, and I cross-checked it with other historical data sources,including KO company itself and Nasdaq. Note the different fields including date, open, high, low, close, adjusted close, and volume. I used date and close, but I would recommend further exploration of adjusted close to assess whether it models better.
- Slide 7
- I built two different types of models: an FBProphet model and an LSTM Network model.
- FBProphet is a model created by Facebook to better capture time-series data and to automate it seamlessly. It uses an additive

time-series model which combines a variety of algorithms and optimization techniques.

- Long Short-Term Memory Networks are a type of recurrent neural networks. It specializes in capturing long-term dependencies, thereby improving on traditional rnns. It leverages the input gate, the forget gate, and the output gate to determine what data to use in the cell state.
- Slide 8
- Whereas the black dots denote actual prices in this visual, the blue line displays the Prophet predictions. The light-blue shading encompasses the 95% confidence interval. Note not only the strong upward trend, but also how well this model captures the granular volatility.
- Slide 9
- The LSTM model predicts a solid downturn. Just note the drop of the red line. The LSTM

models strongly advise against investing in CocaCola in the shorter term.

- Slide 10
- Across the board, The Prophet Models produce predicted values exceeding $10,000 and growing over each time period. All LSTM models predict losses.
- Slide 11
- For an example, I took the first half of the data and I ran the LSTM Model. Note how it predicted little volatility, as opposed to the left visual which highlights the volatility over the same time period.
- Slide 12
- Note Prophet predictions. It is also a generally flat trend, but it captures and better models the volatility.
- Slide 13
- I recommend relying on the Prophet Model with Grid-Search. It produced better

numbers on the loss functions than the baseline Prophet Model. I tend to favor the Prophet Models because this model captures overall trends and volatility better than the LSTM models in stock forecasting, which tends to be volatile and unpredictable.

- Borrow the 10K and invest it in KO as long as you can. You must of course have the stomach to weather the volatility of any stock. Decide first if, and at what price would you sell. Both on the up and on the down. The stock value may go up so much that it demands to be sold and to realize the profits. If the bottom falls out for some unforeseen reason, it may be advisable to sell to curb potential losses.
- Consider using such modeling as part of your financial planning. It will better

quantify your risk management and make you a more sure investor.

- Slide 14
- Expect to see **these** gains over the 6, 12, and 18 month terms...the longer you hold, the greater anticipated profit.
- Slide 15
- Last but not least are the ethical issues we must consider. The data science team must be transparent about the risks of investment. The greatest model cannot guarantee that the market and specific security will not experience a dip. One must consider different strategies to mitigate risk, such as hedging and diversifying.
- We must warn of the ominous signs of recession. We wait with bated breath to see how it turns out.

- We must maintain a good handle on all stock holdings of team members to ensure credibility.
- Thank you for your attention and I look forward to answering any of your questions.