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The dataset that we intend to use are from some API on <https://newsapi.org/>,  
<https://www.bloomberg.com/professional/support/api-library/>,  
<https://developer.nytimes.com/>,  
<https://stocknewsapi.com/>,  
<https://english.api.rakuten.net/mikilior1/api/FinancialTimes>.

These are just some of the News Article API's that we have found on the financial side. We intend to use these articles to collect data on whether there is a correlation with the news and what drives people to make decisions on the stock market. Which would drive the stock's price up or down depending on how many people were influenced to make a decision.

Some of the methods that we are anticipating utilizing are Auto ARIMA, Prophet, Long Short-Term Memory (LSTM).

Auto ARIMA: ARIMA stands for auto-regressive integrated moving average and is specified by these three order parameters:  $(p, d, q)$ . **auto regressive (AR(p))** component is referring to the use of past values in the regression equation for the series  $Y$ . *The  $d$  represents the degree of differencing in the **integrated (I(d))** component. A **moving average (MA(q))** component represents the error of the model as a combination of previous error terms  $e_t$ .*

Prophet: Completely automated forecast procedure. This would be utilized to automate the forecasting process on whether the price of the stock would be going up or down depending on the news.

Long Short-Term Memory: These are a special type of Recurrent Neural Networks that are capable of learning long term dependencies. Using a Recurrent Neural Network we would be able to remove the factor of having to re-train the entire Neural Network in the case of adding new data.

We believe that decisions made about money are correlated to human emotions. When it comes to the stock market a person who owns a company's stock is typically invested in the company. When there is news that comes out, they believe that it can affect the stock price either in a positive or negative way. We believe this to be true when someone understands the news and something positive or negative comes up on a company, they own a part of, they make a sentiment decision on whether they keep, sell, or buy more stocks. We believe that this has a correlation to the stock price depending on how many people that actively read the news and invest.

3 Dates from 4/13-4/17 10:00-18:00  
April 15 any time, 16 any time, 17- 10:00-11:00.