

Project - In the News

ACT-Right

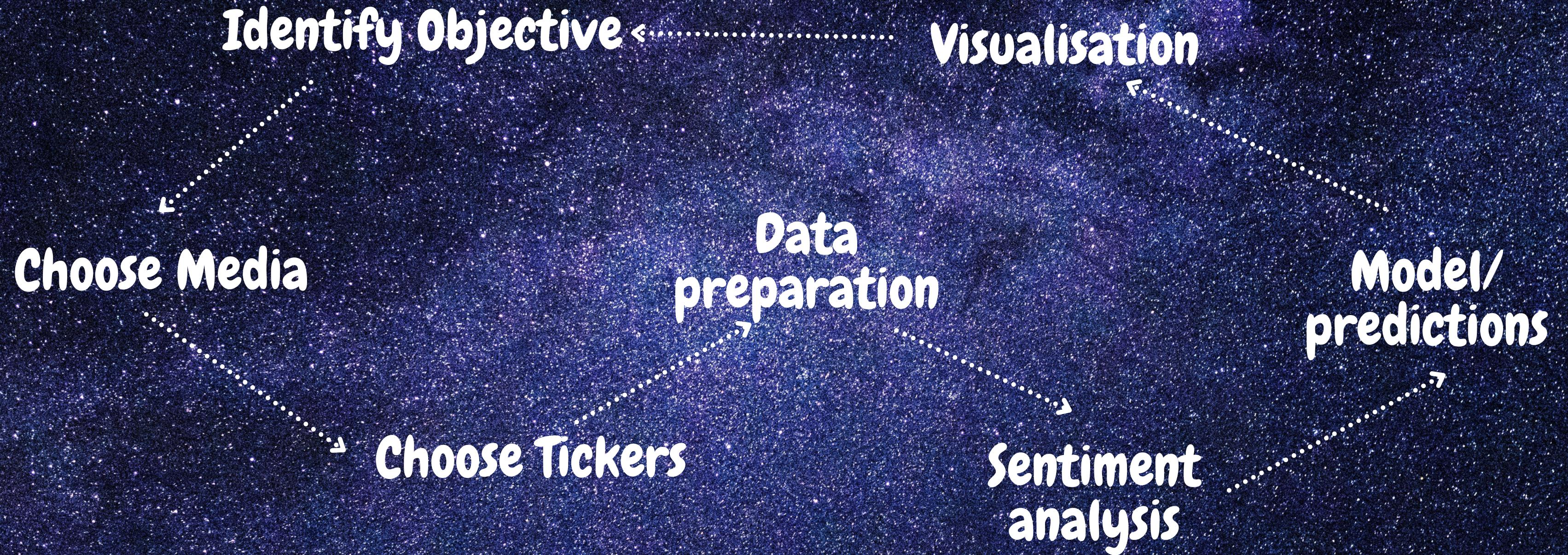
Aelrid, Chapman, Thien and Renu

Objective

Understand the impact on the stock price for a stock "in the news"

- Can "sentiment" of a stock be determined based on it being in the news?
- Is there any relationship between the stock price and its sentiment?
- Can the sentiment be used to predict price of a stock?
- Should ACT- Right use the developed model?

Methodology



Data Pre-processing

- Identify data sources, APIs and keys
- Fetch data for time period based on maximum permitted
- Cleanse and load data into a dataframe
- Calculate the sentiment scores per media
- Calculate percent change for ticker

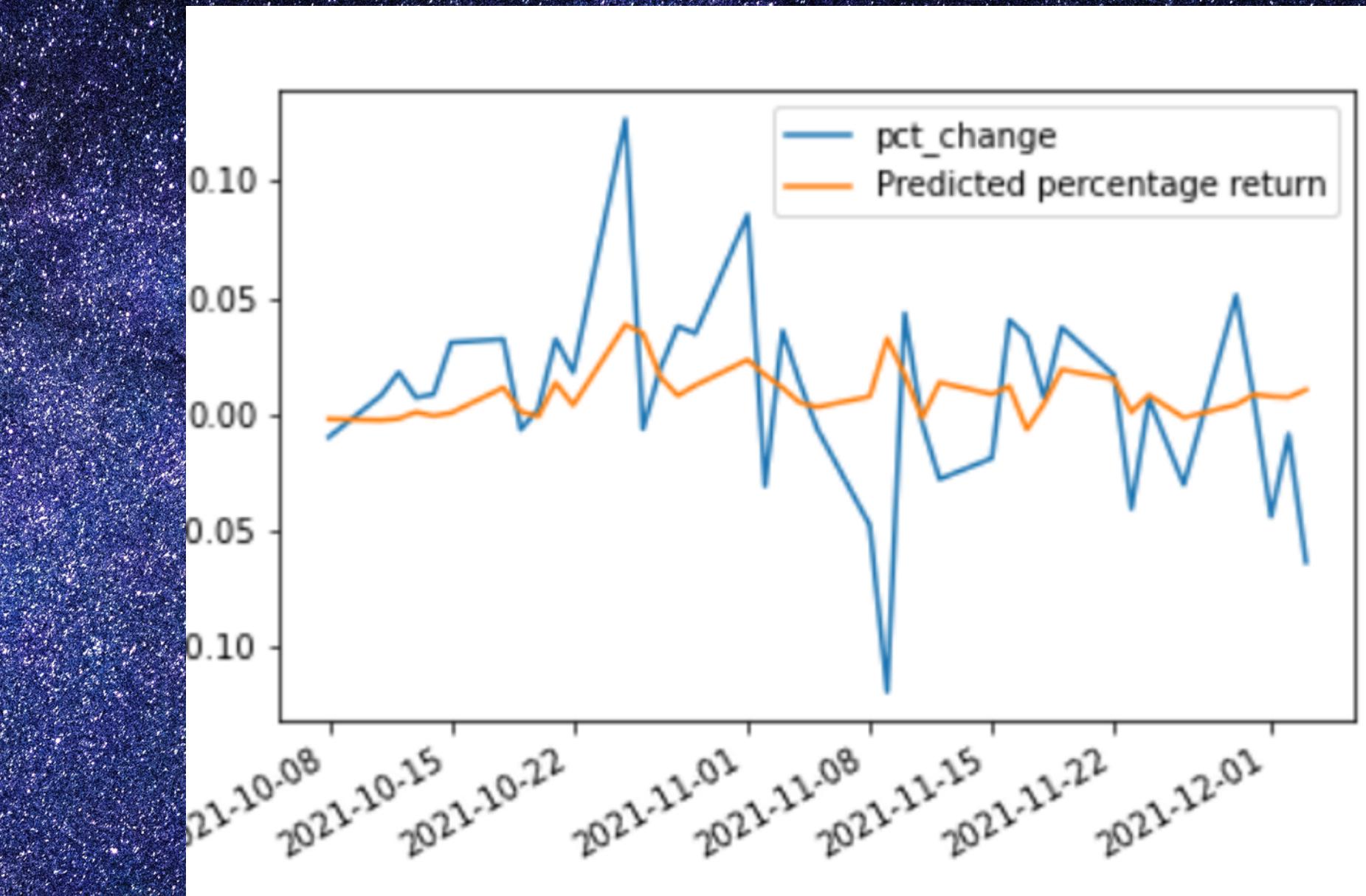
Model Training

- Identify Model to train/test data
- Identify the target (percent change closing price)
- Identify the features (Sentiment scores for each media)
- Determine split of data – train and test
- Predict the percent change
- Run iterations to determine best parameters

Model Evaluation/ Visualisation

R2 score: 0.007535087031250942
Out-of-Sample Root Mean Squared Error (RMSE): 0.04059966370697933

	pct_change	Predicted percentage return
2021-10-08	-0.010112	-0.002312
2021-10-11	0.007835	-0.002839
2021-10-12	0.017760	-0.002124
2021-10-13	0.006876	0.000627
2021-10-14	0.008308	-0.001006
2021-10-15	0.030635	0.000270
2021-10-18	0.032073	0.011215
2021-10-19	-0.006838	0.000953
2021-10-20	0.001886	-0.001291
2021-10-21	0.032121	0.013336



Model Evaluation/ Visualisation

- Can "sentiment" of a stock be determined based on it being in the news?

Our analysis suggests that Sentiment score can be assigned to a stock based on news.

- Is there any relationship between the stock price and its sentiment?

Based on the model and the limited data available, it is difficult to provide conclusive evidence of correlation between sentiment and stock price.

- Can the sentiment be used to predict price of a stock? Should ACT- Right use the developed model?

Considering the data limitations that have been encountered, it is suggested that a more extensive data set be used to confirm the model predictions.

Project Challenges

- Budget constraints
- Used only text files
- Social media messages restricted to per day
- Time constraint- APIs, Sagemaker

Model Demo

Sentiment versus percent change



$$Y_i = \beta_0 + \beta_1 X_i$$

Diagram illustrating the components of a simple linear regression model:

- Dependent Variable:** Y_i (pointed to by a double-headed vertical arrow)
- Constant/Intercept:** β_0 (pointed to by a single-headed vertical arrow)
- Slope/Coefficient:** β_1 (pointed to by a single-headed vertical arrow)
- Independent Variable:** X_i (pointed to by a single-headed vertical arrow)

News API



The End
Q & A