

Tesla Stock & Elon's Tweet

Group 6

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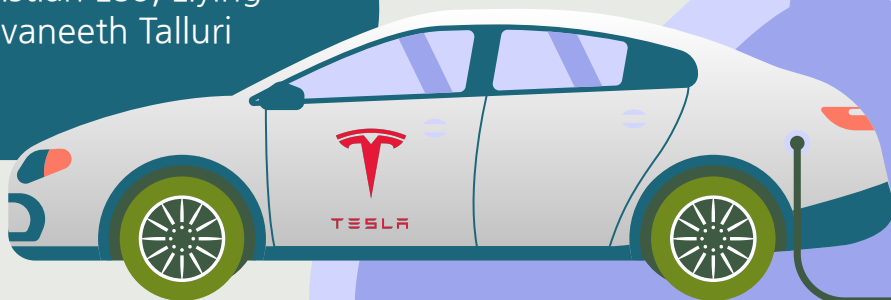


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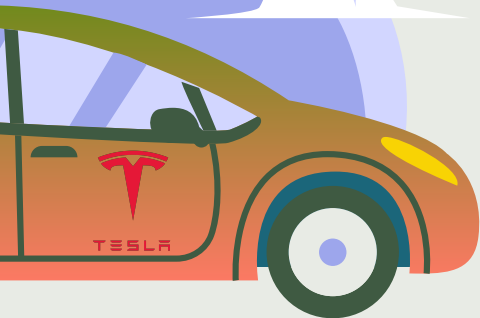
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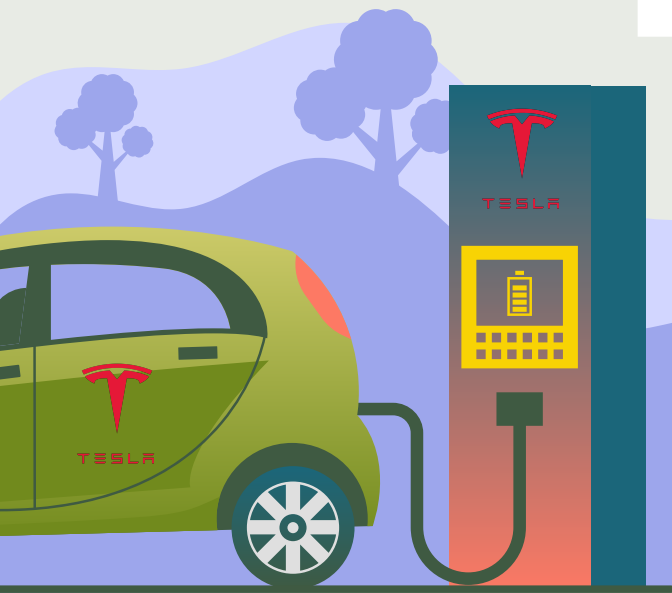
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01

Question

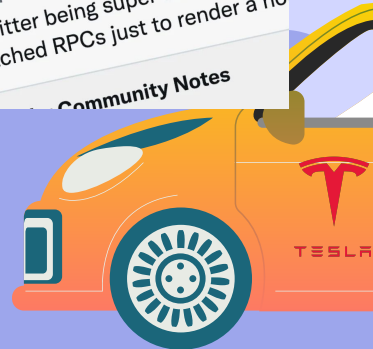
See if Elon's tweet has an effect on Twitter price



Elon's Tweet and Tesla Stock Price



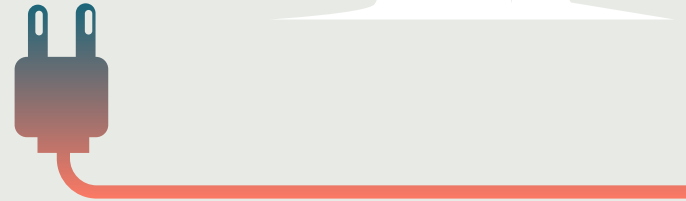
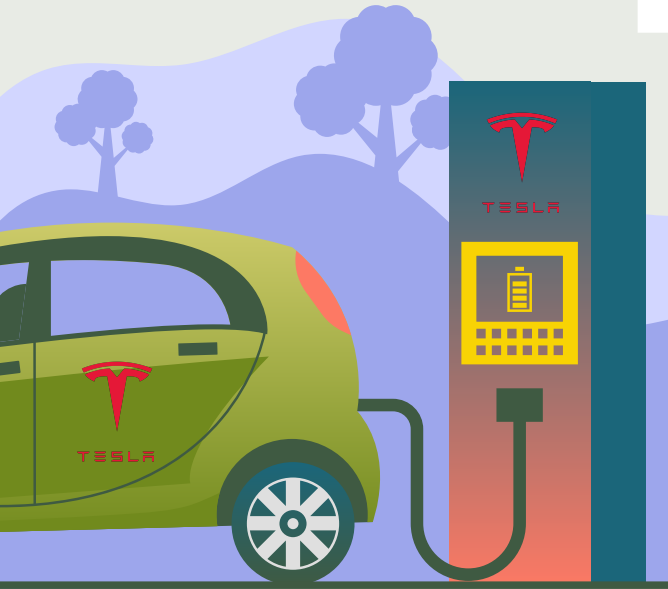
- In the financial world, sentimental analysis has been utilized to predict stock price
- Elon Musk tweets 23.9 times per day ([source](#)) (Avg. 2.6 tweets for regular users ([source](#)))
- Given this, we want to inspect if Elon's tweet has an effect on Tesla's stock price
- **Question:** Based on Elon's Twitter post relating to Tesla, does Elon's post have an effect on Tesla price and how well does it help with predicting the direction of the stock price?



02

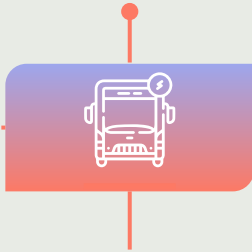
Data & Methods

Utilized Elon's Tweet and Neural Network for Analysis



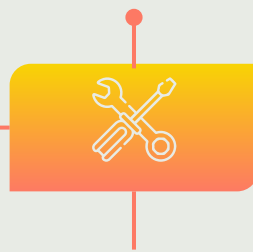
Data & Method

Data Selection



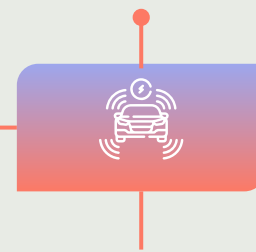
- Elon's Tweets dataset from Kaggle was used for the analysis
- Stock price data was gathered from Yahoo Finance

Data Preparation



- Data cleaning was necessary to ensure the can be used for the analysis
- Ngram were generated from cleaned data to be provide more insight to the analysis
- Independent variable (increase/decrease) was created to identify if the stock increase

Sentimental Analysis

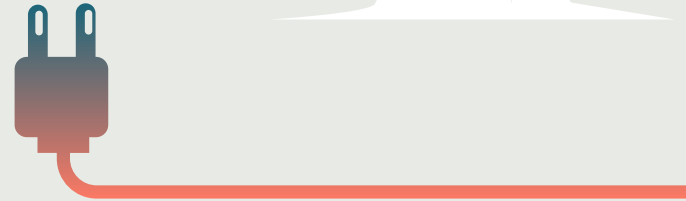
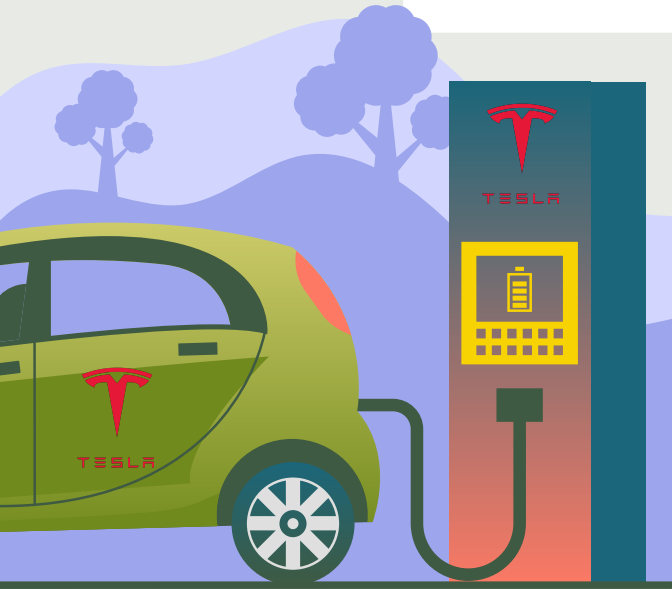


- Vader library was used on the tokenized word to conduct sentimental analysis
- Pos, word_score, compound, neg, neu columns were generated from this analysis

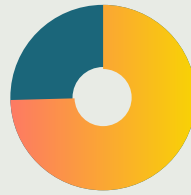
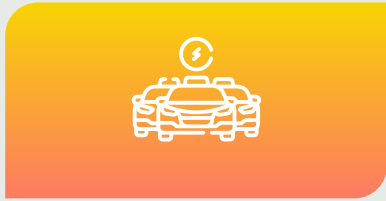
03

Model & Results

Model result in 76% accuracy in prediction through using
Elon's tweet



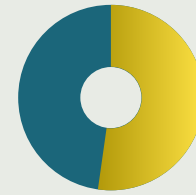
Model & Results



75%

Model 1: Test Accuracy

- Utilize time series and NLP data through Keras model
- Architecture includes two LSTM layers and a dense layer
- Trained using binary cross-entropy loss and the Adam optimizer.



54%

Model 2: Test Accuracy

- A more advanced version
- Take into account of time series data instead of splitting by train and test
- Illustrate that time does not have much influence on stock price

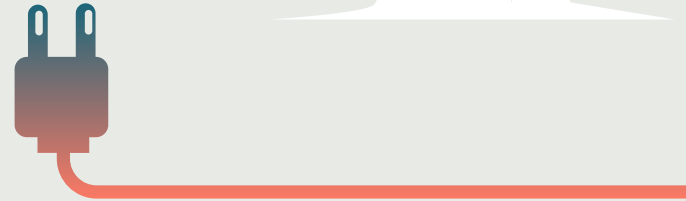
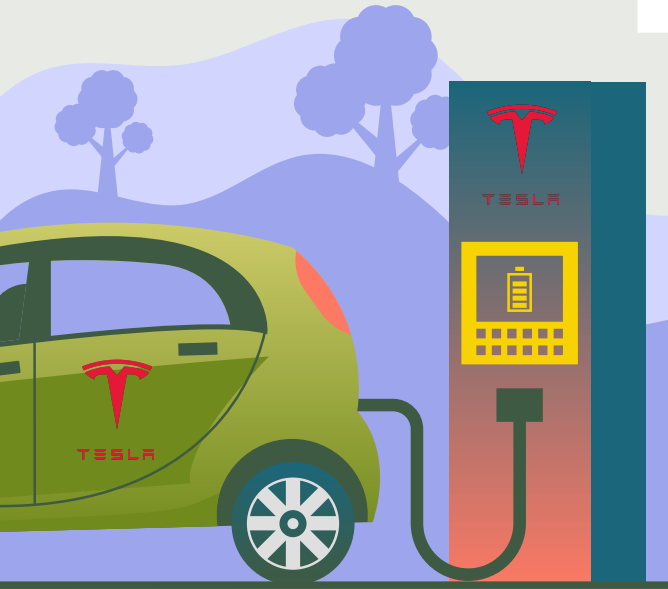
LSTM Neural Network Modelling

- LSTM is a suitable choice for time series data as it is one of the best models for capturing temporal patterns and dependencies
- Normal neural network is appropriate for NLP data

04

Conclusions

Elon's twitter has an impact on Tesla's stock



Conclusions and Key Takeaway



Conclusions



- The analysis provided evidence that Elon's tweets may have an impact on Tesla's stock regardless of the content (positive or negative)



Key Takeaway + Limitation



- The data was limited (only included Elon's Tweets)
- Sentimental analysis should not be solely rely
- More factors should be utilized to help better predict Tesla's stock price direction

THANKS!