
Donald Trump Twitter Sentiment Analysis

DS 340 Fall 2024

The Team



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Problem Statement

What

- We aimed to analyze the sentiment from Donald Trump's tweets to understand how his sentiment shifts over time and how it affects engagement from Twitter users.
- Our objective was to compare the performance of two models, BERT and LSTM, to see which is more effective at capturing emotional responses from tweets.

Why

- Understanding sentiment helps uncover rhetoric techniques during and around key political moments and shows how sentiment drives engagement on Twitter.
- Comparing BERT and LSTM highlights which model better handles emotional responses in real-world data.
- This essentially demonstrates the value of social media sentiment in the discourse of a high-profile public opinion.

Challenges

Initially we wanted to see how the sentiment of tweets about Kamala Harris changed throughout 2024, but due to financial limitations we decided to focus on data that already abundantly and publicly existed (aka Donald Trump tweets from the years 2009 - 2024).

Challenge:

Handling the **complexity** and **variability** of tweet data, including issues like noisy text, inconsistent formats, and irrelevant content.



Solution:

We implemented extensive **data preprocessing**, including:

- Removing noise such as **URLs**, **hashtags**, and **special characters**.
- **Tokenizing** text and normalizing formats (text to lowercase).
- Using sentiment specific datasets to filter irrelevant data and ensure the models were trained on meaningful inputs.

Results & Conclusion

BERT

Accuracy: 93.8%

LSTM

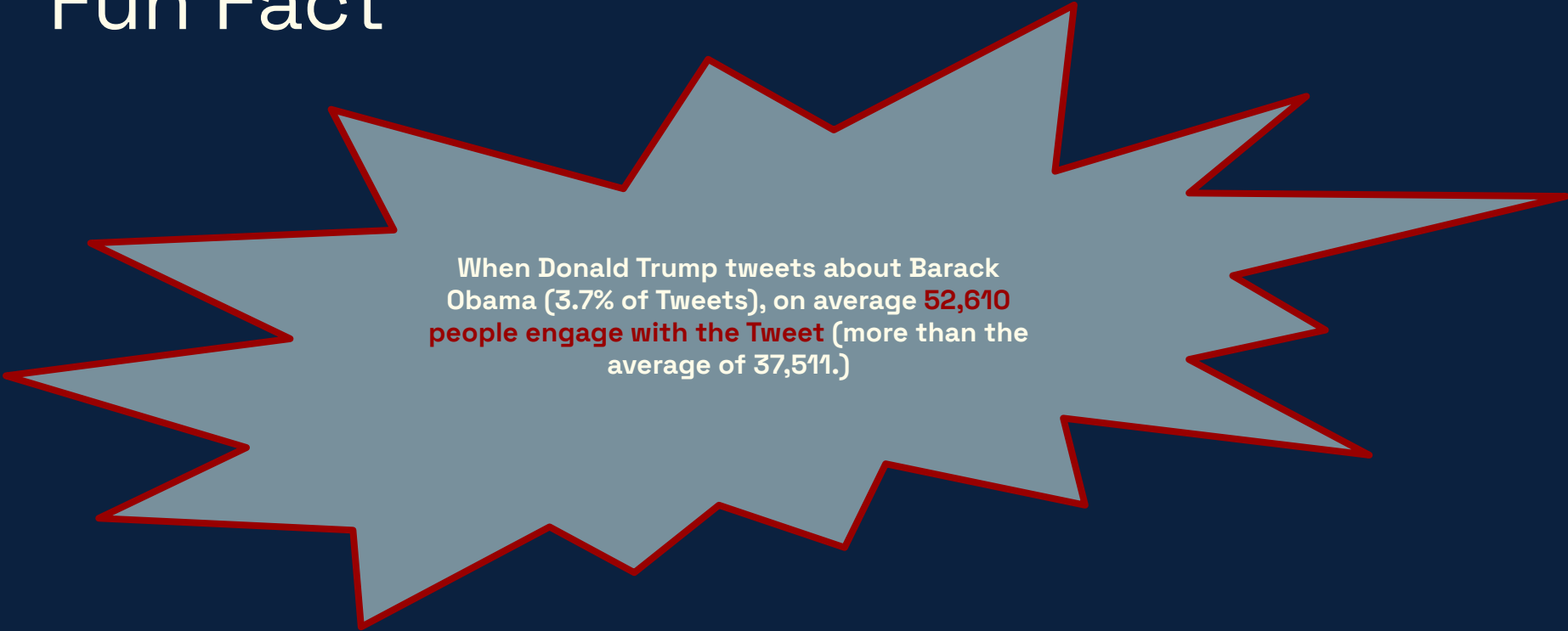
Accuracy: 82.4%

Conclusion

The pre-trained BERT model performed much better on our test set than the LSTM model we built from scratch.

Average Engagement:	37,511
Average Engagement (Positive):	26,459
Average Engagement (Neutral):	20,330
Average Engagement (Negative):	56,896

Fun Fact



When Donald Trump tweets about Barack Obama (3.7% of Tweets), on average **52,610** people engage with the Tweet (more than the average of 37,511.)