CAPSTONE PROJECT

AIRLINE SENTIMENT ANALYSIS USING RNN

Final Project

Presented By

TRESSA BERNICE A

711721244061
III BTech CSBS
KGISL Institute of Technology

PROJECT TITLE

Airline Sentiment Analysis With RNN: Improving the Client Experience.

AGENDA

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PROBLEM STATEMENT

- The key component of the issue is that tweets about airlines need to have their sentiments analyzed.

- Airlines are faced with the difficulty of effectively comprehending customer comments and sentiments in order to improve their services and reputation, given the growing popularity of social media platforms.

- To determine consumer satisfaction levels and pinpoint areas for improvement, the sentiment analysis task entails classifying tweets as good, negative, or neutral.

PROJECT OVERVIEW

- The objective of this project is to use recurrent neural networks (RNNs) to create a sentiment analysis model for tweets about airlines.
- The model can analyze natural language expressions like tweets because it can capture the sequential character of text data by utilizing the power of RNNs.
- With the help of this initiative, we assume to give airlines an invaluable tool for interpreting customer opinions posted on social media, which will ultimately increase customer satisfaction and service caliber.

WHO ARE THE END USERS?

- End users of the project include customer support teams, marketing departments, social media managers, and airline corporations.

- Sentiment analysis can be applied by airline companies to monitor and analyze customer attitudes on platforms like Twitter.

- Social media managers can enhance client engagement by tailoring communication methods based on insights from the sentiment analysis model.

- Customer support teams can use the methodology to prioritize and address customer complaints promptly.

YOUR SOLUTION AND ITS VALUE PROPOSITION

- Recurrent neural networks (RNNs) are used in our solution to create a sentiment analysis model that will evaluate tweets regarding airlines and categorize them as either positive or negative.

- Our solution's value proposition is rooted in its capacity to offer significant insights into passengers' attitudes and perceptions of airline services.

- Airlines may better understand consumer experiences, pinpoint areas for development, and take proactive steps to increase customer satisfaction by precisely categorizing tweets as good or negative.

THE WOW IN YOUR SOLUTION

- The remarkable aspect of our approach is its utilization of sophisticated natural language processing methods, specifically RNNs, for sentiment analysis of social media data.
- Through the use of RNNs, we are able to precisely categorize feelings and extract subtle patterns from unstructured material such as tweets. This gives airlines up-to-date information to improve patron happiness and loyalty.
- In addition to being state-of-the-art, our method is scalable, effective, and enables airlines to proactively enhance services and react quickly to customer input.

MODELLING

- We used a Recurrent Neural Network (RNN) architecture—more precisely, Long Short-Term Memory (LSTM)—for modeling since it is well-known for its capacity to identify sequential dependencies in data.

- Our technology is able to comprehend the context and sentiment conveyed in airline tweets thanks to this architecture. To avoid overfitting and improve generalization, we also used strategies like dropout and spatial dropout.

- Our model achieves strong performance and high accuracy in sentiment classification by utilizing LSTM and regularization techniques.

RESULTS

- The model's ability to accurately classify sentiment in airline tweets was demonstrated by its high accuracy of almost 90% on the test dataset.
- This suggests that our approach may accurately discern between favorable and unfavorable consumer attitudes, offering airlines insightful information to enhance their offerings and boost customer happiness.

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