Airline Sentiment Analysis

Business Overview

The airline industry is highly competitive, and customer satisfaction plays a crucial role in determining the success and reputation of airlines.

In today's digital age, social media platforms have become a significant avenue for customers to express their opinions and experiences with airlines.

Problem Statement

The airline industry is currently facing a notable decrease in customer satisfaction, leading to unfavorable brand perception and diminished customer loyalty.

Addressing these customer concerns and enhancing the overall brand perception has become a crucial focus for airlines.

Objectives

1. Classifying tweets as positive, negative,or neutral to understand the general sentiment of customers towards different airlines.

2. Implement a real-time monitoringsystem to continuously capture and process tweets related to airlines from Twitter.

3. Generate actionable insights andrecommendations based on sentiment analysis.

4. Establish an effective response andengagement strategy to manage negative sentiment, address customer complaints.

Data Understanding

Our data contains about 14000 tweet from reviews for airline companies. synthetic data from gpt used to train our churn model

The data was sourced data,world and

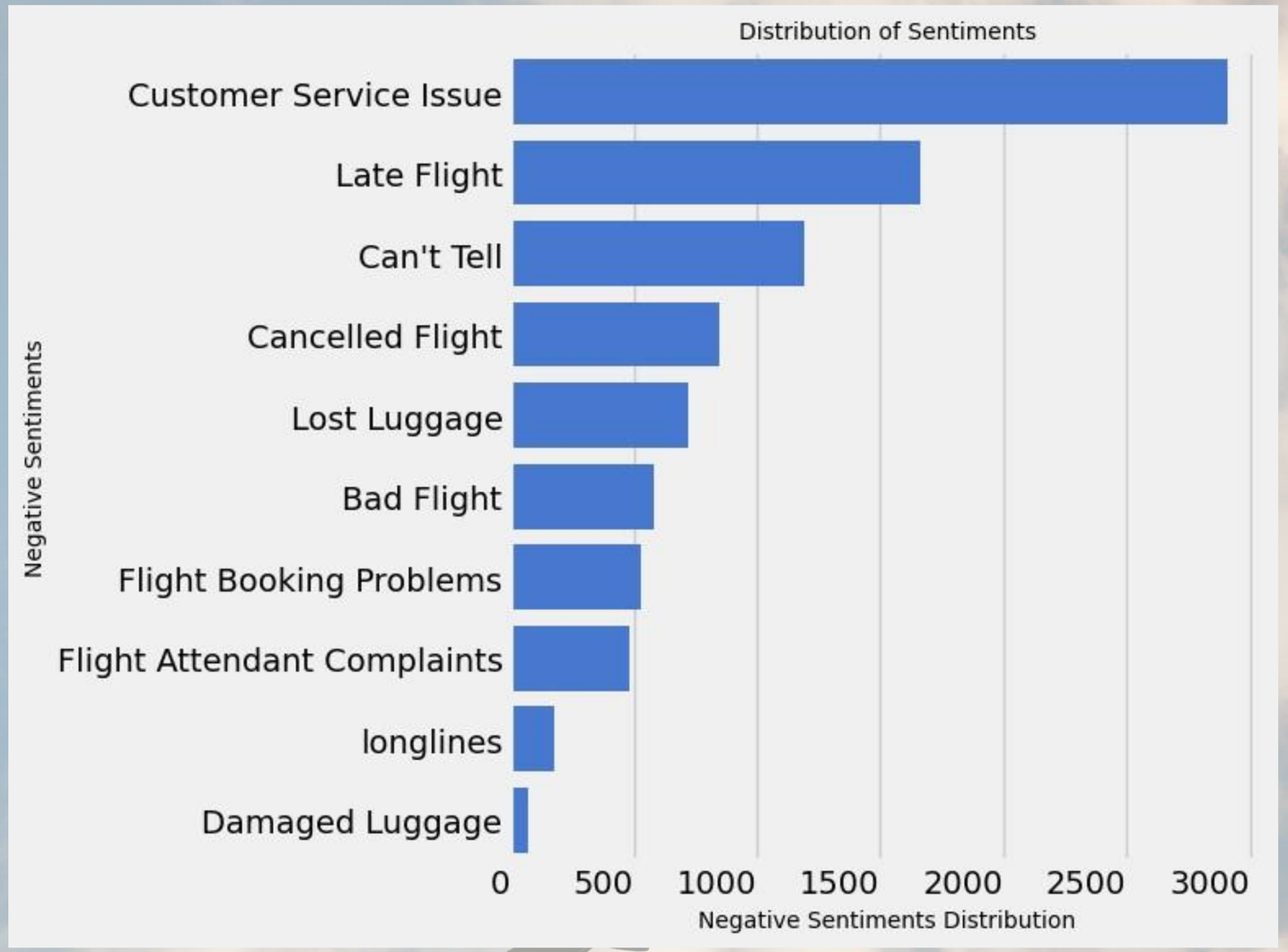
formed a series of preprocessing steps to parse the dataset to obtain insights

Visualization

From the reasons given in the data, there are 10 reasons for complaints.

The top being customer service issues followed by late flight and cancelled flight.

From the plot, United, US

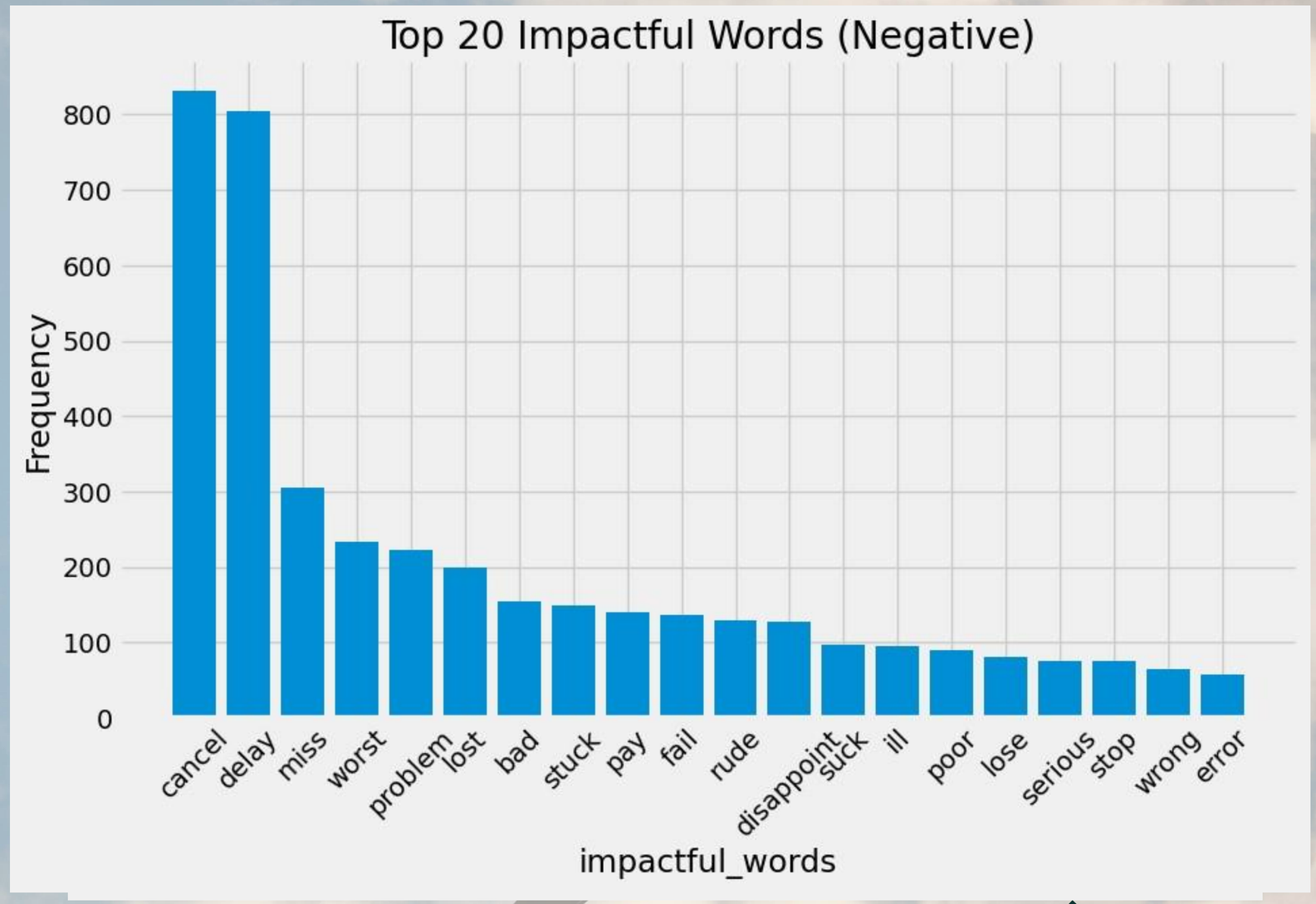


Visualization

Airways and American Airways have skyrocketing number of negative sentiments.

Virgin America has an almost even distribution of negative, positive and neutral sentiments.

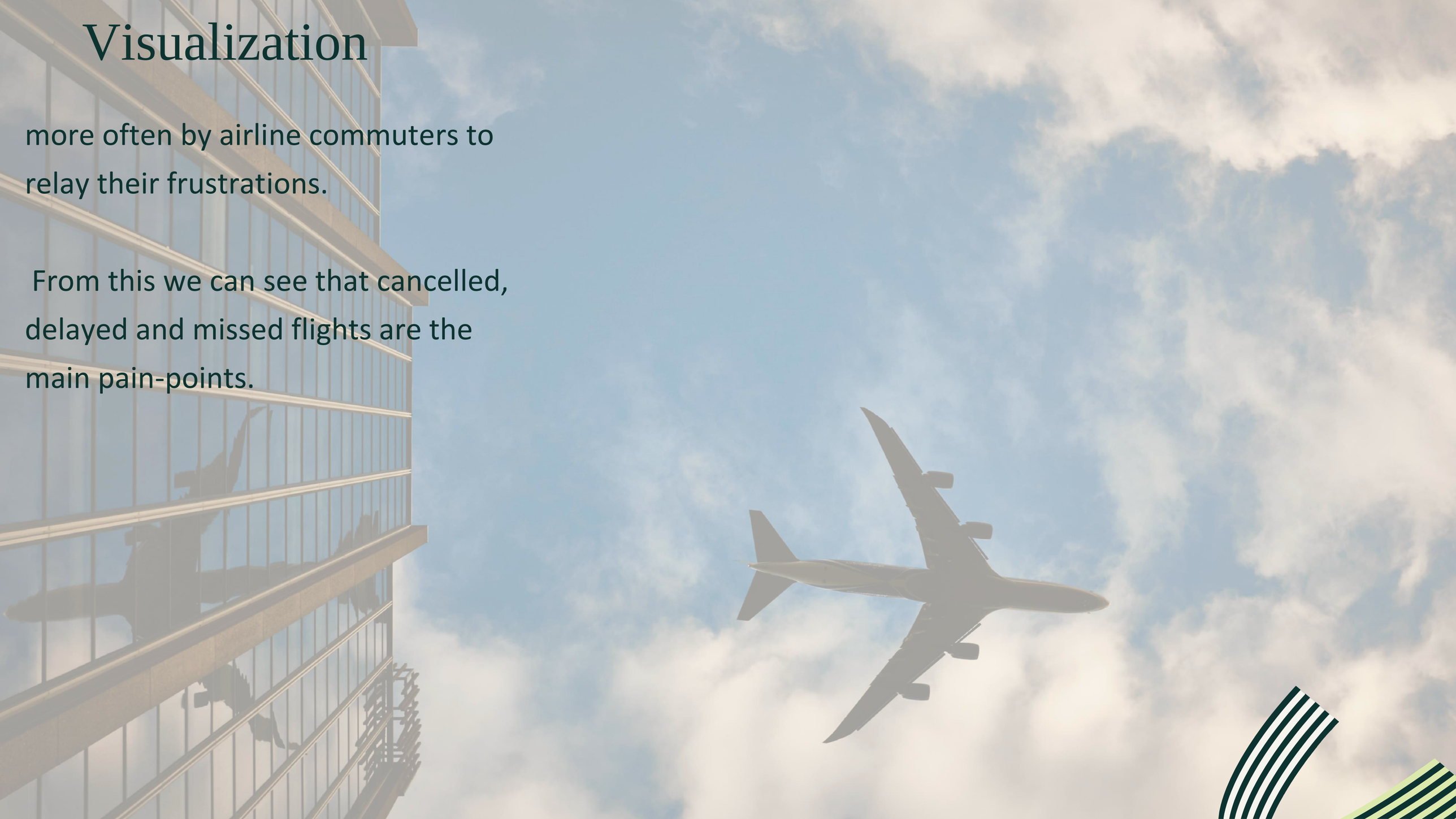
The plot of the most negative impactful words shows words used



Visualization

more often by airline commuters to relay their frustrations.

From this we can see that cancelled, delayed and missed flights are the main pain-points.



Modelling

Modelling

Tried out four different models but settled on one final model that proved to be best in sentiment classification.

Trained a model that was able to predict churn through the tweets.

Evaluation

Evaluated the performance of the best model and achieved an accuracy score of 87% and a precision score of 86%

The churn predictor scored a 95% percent on accuracy and precision

Conclusions

Sentiments expressed by customers play a significant role in their decision to continue or discontinue their relationship with an airline.

[redacted]

points are about canceled, delayed and missed flight

We are able to predict that 7% of the customers are likely to churn.

[redacted] which is the Random Forest Model which had the hig[redacted]
[redacted]score as compared to other models.

The model has proven to have an accuracy of 86% in classifying whether a tweet is postive, negative or neutral.

Recommendations

Proactive Engagement	Airlines with a higher count of negative sentiments should pay attention to the feedback provided by customers.
Customer Service Training	Airlines should ensure customers are proper handled to curb on the churning rates.
Operational Efficiency	The airlines should provide effective schedules and efficiency in operations on their flight departures and incase of any challenges proper communication should be made
Personalized Marketing	Personalized marketing and offers could help mitigate negative reviews.
Influencer Engagement	Identifying influential individuals or social media accounts that could amplify positive sentiments through collaborative promotional campaigns.

Thank you