

# Data Analysis Report: Airline Sentiment Analysis

## Introduction

This report presents the findings from the sentiment analysis of airline-related tweets. The dataset contains 14,601 tweets categorized into three sentiment classes: negative, neutral, and positive. The analysis aims to provide actionable insights for airline companies to improve customer satisfaction and service quality.

## Key Findings

### 1. Overall Sentiment Distribution:

- **Negative Sentiment:** The majority of tweets (approximately 63%) express negative sentiments.
- **Neutral Sentiment:** Around 21% of the tweets are neutral.
- **Positive Sentiment:** Only about 16% of the tweets are positive.

### 2. Sentiment Distribution by Airline:

- **American Airlines** has the highest number of negative tweets, followed by **US Airways** and **United Airlines**.
- **Virgin America** has the highest percentage of positive tweets, indicating better customer satisfaction compared to other airlines.

### 3. Most Common Words in Negative Tweets:

- Words like "flight," "delay," "cancel," "service," and "baggage" are frequently mentioned in negative tweets. These keywords highlight common pain points for customers.

### 4. Most Common Words in Positive Tweets:

- Positive tweets often include words like "thanks," "great," "love," "awesome," and "good." These words reflect positive customer experiences, particularly with service and flight experiences.

### 5. Top Negative Reasons:

- The most common reasons for negative sentiments include:
  1. **Customer Service Issues**
  2. **Late Flights**
  3. **Cancelled Flights**
  4. **Lost Luggage**
  5. **Flight Attendant Complaints**

### 6. Airlines with Most Negative Tweets:

- **American Airlines** leads in the number of negative tweets, followed by **US Airways** and **United Airlines**. This suggests that these airlines may need to focus more on customer service and operational efficiency.

#### 7. Negative Sentiment Percentage by Airline:

- **American Airlines** has the highest percentage of negative tweets (over 70%), indicating significant customer dissatisfaction.
- **Virgin America** has the lowest percentage of negative tweets, suggesting better customer experiences.

#### 8. Positive Sentiment Percentage by Airline:

- **Virgin America** has the highest percentage of positive tweets (over 25%), reflecting higher customer satisfaction.
- **American Airlines** and **US Airways** have the lowest percentages of positive tweets, indicating areas for improvement.

#### 9. Neutral Sentiment Percentage by Airline:

- **Delta Airlines** has the highest percentage of neutral tweets, suggesting that customers are neither highly satisfied nor dissatisfied.
- **Virgin America** has the lowest percentage of neutral tweets, indicating that customers

### Conclusion

The sentiment analysis reveals critical areas where airlines can improve their services to enhance customer satisfaction. By addressing the common issues highlighted in this report, airlines can reduce negative feedback and build a more positive brand image. Continuous monitoring of customer sentiments and proactive engagement on social media will be essential for sustained improvement.