

GROUP 2 PROJECT WRITE UP

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PROJECT TITLE:

SENTIMENT ANALYSIS FOR KENYA AIRWAYS

1.0 BUSINESS UNDERSTANDING

1.1 Project Overview:

This project is focused on analyzing customer reviews of Kenya Airways to extract meaningful insights regarding customer satisfaction and service quality. By utilizing sentiment analysis techniques, the project will classify these reviews into positive, negative, or neutral sentiments. The goal is to help Kenya Airways identify areas of excellence as well as aspects of their service that may require improvement. This analysis will serve as a foundation for enhancing customer experience and driving operational improvements.

1.2 Challenges , Proposed solutions and Metrics of success

1. Challenge: Frequent Flight Cancellations and Delays

Proposed Solution : Use sentiment analysis to identify patterns in customer complaints related to flight cancellations and delays. By understanding the sentiment trends, the airline can predict when and where delays might generate the most negative feedback and proactively manage those flights.

Metrics of Success : Reduction in the volume of negative sentiment associated with flight delays and cancellations (target 25% reduction in negative mentions).

2. Challenge: Poor Customer Service Experience

Proposed Solution : Utilize sentiment analysis to identify the specific aspects of customer service that generate the most negative feedback (e.g., long response times, unhelpfulness). Focus training efforts on these areas to address the root causes of dissatisfaction.

Metrics of Success : Increase in positive sentiment related to customer service interactions (target 20% increase in positive mentions).

3. Challenge: Inconsistency in In-Flight Services

Proposed Solution : Use sentiment analysis to track feedback on in-flight services, identifying specific areas (e.g., meals, cleanliness) where negative sentiment is highest. Tailor improvements to these areas based on detailed customer feedback.

Metrics of Success : Improvement in overall sentiment toward the in-flight experience (target 20% increase in positive mentions).

4. Challenge: Negative Public Perception Due to Safety Concerns

Proposed Solution : Analyze public sentiment regarding safety to identify common concerns. Use this insight to tailor safety campaigns that directly address these concerns, reassuring passengers and improving the airline's safety image.

Metrics of Success : Reduction in negative sentiment related to safety concerns (target 20% decrease in safety-related complaints).

Increase in positive sentiment following safety campaigns (target 15% increase in positive mentions about safety).

5. Challenge: High Competition and Customer Retention

Proposed Solution : Analyze sentiment to understand what customers value most in loyalty programs. Tailor rewards and benefits to these preferences to enhance customer retention.

Metrics of Success: Increase in positive sentiment related to the loyalty program (target 15% increase in positive mentions).

1.3 Problem Statement:

Kenya Airways is challenged by the vast amount of unstructured customer feedback available through online reviews. Without an efficient method to analyze this feedback, the airline may overlook critical insights that could lead to service improvements. This project aims to address this challenge by systematically analyzing the sentiment of customer reviews, providing Kenya Airways with a clear understanding of customer perceptions and identifying key areas that require attention.

1.4 Objectives

Primary objective

To develop a robust sentiment analysis model that accurately classifies customer reviews of Kenya Airways into positive, negative, or neutral sentiments.

Specific objectives

1. To explore the sentiment distribution across different customer demographics, travel classes, and time periods.
2. To identify recurring themes and specific aspects of service (e.g., customer service, punctuality, in-flight experience) that are frequently mentioned in the reviews.
3. To assess the performance of various sentiment analysis models and determine the most effective model for this dataset.
4. To generate actionable insights from the sentiment analysis that can be used by Kenya Airways to improve customer service and address common issues

2.0 DATA UNDERSTANDING :

2.1 Datasets :

1. Kenya_airways_flights.csv
2. Kenya_airways_reviews.csv
3. KQ_reviews.csv

2.2 Data source :

We did Web Scraping from the 3 websites below and merged our datasets.

<https://uk.trustpilot.com/review/www.kenya-airways.com>

<https://www.airlinequality.com/airline-reviews/kenya-airways/>

<https://www.airlineratings.com/airlines/kenya-airways>

2.3 Data Relevance :

The dataset has 3065 rows and 5 columns with the following description ;

Departures: This column indicates the departure region or type of flight, such as "Africa" or "International."

Class: This column specifies the class of travel, such as "Economy" or "Business Class."

Review: This column contains customer reviews of their experiences with Kenya Airways. The text data may include opinions, complaints, and compliments about the airline.

Rating: This column contains the numeric rating provided by the customer, typically ranging from 1.0 to 5.0, where 1.0 represents "Poor" and 5.0 represents "Excellent."

Rating_description: This column provides a textual description corresponding to the numeric rating, such as "Poor," "Good," or "Excellent."

3.0 MODEL DEPLOYMENT

3.1 Pickling the Model :

We saved our model through pickling.

3.2 User-Interface Design :

The model will be integrated with a user-friendly web interface, designed to simplify the user experience.

3.3 Model and UI Integration :

The selected model will be integrated with the user interface, enabling users to give their sentiment and receive customized feedback. The model will accept user input data and analyze to predict a review sentiment.

3.4 Deployment Options :

Our deployment plan involved streamlit to ensure that users can easily access the system. By implementing these steps, users will receive tailored responses to their reviews , ultimately improving customer feedback.