SENTIMENT ANALYSIS OF HOTEL REVIEWS

Enhancing Customer Satisfaction and Brand Loyalty

Team : Emotion Analysts

Overview

Problem Statement

Enhance guest experience by addressing negative feedback promptly.

Modeling

Sentiment analysis using Logistic Regression, SVM, Random Forest.

MARKET ANALYSIS

Aggregation from review platforms and social media.

Evaluation:

Metrics like precision, recall, ROC AUC.

Data Preparation

Cleaning, preprocessing, and vectorization.

Deployment:

Real-time integration and monitoring.

Business Problem Statement

1

Impact of Guest Reviews:

Negative feedback impacts bookings, revenue, and brand loyalty.

2

Feedback Challenges: Fragmented

Feedback sources delay issue recognition.

3

Importance of Timely Response:

Crucial to address negative sentiments promptly to mitigate dissatisfaction.

Proposed Business Solution Approach

01 Real-time Sentiment Analysis Platform: Aggregates feedback from various channels, detects negative sentiments using NLP.

02 Task Force for Rapid Response: Specialized team addressing feedback immediately, enhancing guest satisfaction.

03 Feedback Loop and Continuous Improvement: Analyzes response effectiveness, implements targeted improvements.

Proposed Data Science Solution Approach

Trained on hotel reviews to detect sentiments.

APIs and webhooks for real-time data acquisition.

Displays sentiment trends and critical issues, provides analytics to track intervention effectiveness.

Dataset Utilization

Dataset: Hotel Reviews Booking.com (Kaggle): Comprehensive dataset of hotel reviews.

Detailed textual feedback from guests.

Reviews from various hotels worldwide.

Includes reviewer nationality, stay duration, trip type.

THE MACHINE LEARNING CANVAS

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PREDICTION TASK

The task is sentiment analysis aimed at detecting negative feedback from hotel reviews in real-time. The outcome observed is whether a review has a negative sentiment, which needs to be addressed promptly to avoid impact on bookings and brand loyalty

DECISIONS

The predictions are used to identify negative sentiments, which trigger alerts for a rapid response team. This helps in taking immediate action to address guest dissatisfaction.

VALUE PROPOSITION

The end-users are hotel management teams who benefit from real-time insights into guest sentiments. The system helps in promptly addressing negative feedback, thereby enhancing guest satisfaction and maintaining brand loyalty.

DATA COLLECTION

Data collection involves real-time acquisition of detailed textual feedback from various hotels worldwide through APIs and webhooks.

DATA SOURCES

The data sources include a comprehensive dataset of hotel reviews from Booking.com available on Kaggle. This includes metadata like reviewer nationality, stay duration, and trip type.

IMPACT SIMULATION

The models can be deployed in a real-time environment, with performance assessed using test data. Evaluation metrics include precision, recall, and ROC-AUC to ensure the models are accurately identifying negative sentiments.

MAKING PREDICTIONS

Predictions are made in real-time as new reviews are posted. Time for feature extraction, post-processing, and computing the sentiment prediction is minimized to enable prompt responses.

BUILDING MODELS

The models used are Logistic Regression, SVM, and Random Forest. These are chosen for their capability to classify sentiments based on textual data.

FEATURES

Input features include text representations such as TF-IDF, Bag of Words, and nGrams. These features help in identifying important words and understanding the context within the feedback.

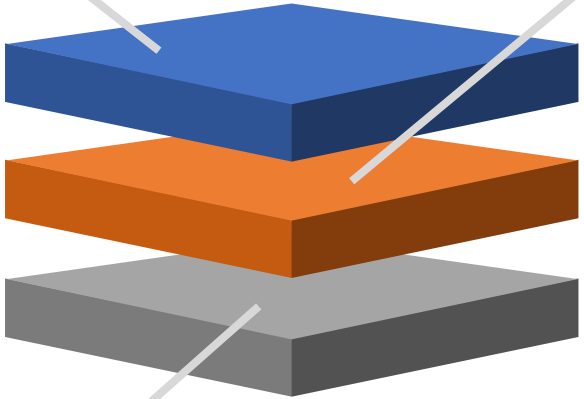
MONITORING

The system includes dashboard that displays sentiment trends and critical issues, providing analytics to track the effectiveness of interventions.

Text Representation Techniques

Bag of Words:

Simple model capturing word frequencies.



TFIDF

TFIDF (Term Frequency-Inverse Document Frequency): Highlights important words by reducing weight of common words.

nGrams:

Captures sequences of words to understand context.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