McDigest: Mining McDonald's Reviews for Business Insights

Problem Statement and Overview

In the fast-paced and competitive landscape of the fast-food industry, it is crucial for franchises like McDonald's to deeply understand customer experiences, preferences, and dissatisfaction points to ensure sustained customer loyalty and operational excellence. This project aims to leverage a dataset of over 33,000 anonymous reviews of McDonald's stores across the United States, mined from Google reviews, to comprehensively analyze customer feedback. By employing geographic and temporal trend analysis, theme extraction from textual reviews, and predictive modeling, the project seeks to uncover insights into customer sentiments, identify factors influencing customer satisfaction, and predict review ratings based on textual content. The goal is to pinpoint areas for operational improvement, enhance customer experience, and identify successful store attributes that can be replicated across the franchise.

Importance

Customer satisfaction is a key driver of repeat business and brand loyalty. The ability to analyze and understand customer feedback at scale provides invaluable insights for strategic decision-making. Text mining enables the identification of common themes in customer praises and complaints, offering direct feedback on what customers value or dislike. Geographic and temporal analysis sheds light on how customer experiences vary by location and over time, potentially influenced by regional preferences or seasonal factors. Predictive models that estimate review ratings from review texts can help in preemptively identifying areas of concern or success. Together, these analyses can guide McDonald's in optimizing store operations, improving customer service, tailoring marketing strategies, and ultimately, enhancing the overall customer experience. This strategic approach not only aids in staying competitive but also contributes to operational efficiency, inventory management, and targeted customer engagement, leading to improved profitability and market positioning.

Data Description

This dataset contains over 33,000 anonymized reviews of McDonald's stores in the United States, scraped from Google reviews. It provides valuable insights into customer experiences and opinions about various McDonald's locations nationwide. The dataset includes information such as store names, categories, addresses, geographic coordinates, review ratings, review texts, and timestamps. (The dataset can be accessed [here](.).)

reviewer_id: Unique identifier for each reviewer (anonymized)

store_name: Name of the McDonald's store

category: Category or type of the store

store_address: Address of the store

latitude: Latitude coordinate of the store's location

longitude: Longitude coordinate of the store's location

rating_count: Number of ratings/reviews for the store

review_time: Timestamp of the review

review: Textual content of the review

rating: Rating provided by the reviewer

Proposed Plan of Action

Data Cleaning and Preprocessing:

- Eliminate any irrelevant information, correct textual errors, and address missing values.
- Tokenize text, apply stemming and lemmatization, and modify the stop list appropriately to prepare the dataset for analysis.

Data Analysis:

- Conduct sentiment analysis to categorize reviews into positive, neutral, and negative sentiments.
- Implement topic modeling to discover prevalent themes across reviews.
- Analyze trends over time to understand changes in customer sentiment.

Text Mining Techniques & Model Development:

- Use the SAS Enterprise Miner software to parse, filter, and cluster the data for model building with multiple streams, each having different parameters (term weights).
- Analyze the nuances of the data and craft a series of predictive models to classify review ratings based on review text content, using model ensembles to enhance accuracy.
- Compare the various combinations of filters and models to optimize for accuracy.

Report and Recommendations

- Synthesize findings to provide McDonald's with clear, data-backed insights into customer preferences and expectations.
- Develop strategic recommendations to enhance menu offerings, service protocols, and marketing tactics based on identified customer sentiments and topics.