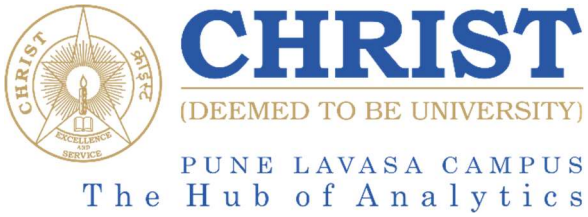
TEXT AND SOCIAL MEDIA ANALYTICS

CIA-3

SENTIMENT ANALYSIS AND TOPIC MODELING ON SPOTIFY REVIEWS

By

BALASUBRAMANIAN V (23121106)



MBA PROGRAMME

SCHOOL OF BUSINESS AND MANAGEMENT

CHRIST (DEEMED TO BE UNIVERSITY), PUNE LAVASA

JANUARY 2025

1. Introduction

Spotify, as one of the leading music streaming platforms, continuously gathers feedback from its vast user base through reviews. Analyzing these reviews can provide valuable insights into user satisfaction and areas needing improvement. This report explores the use of sentiment analysis and topic modeling to derive meaningful insights from Spotify user reviews.

2. Analysis of Various Sentiment Analysis Techniques

Sentiment analysis helps in understanding the emotional tone conveyed in text. For this study, the VADER (Valence Aware Dictionary and sEntiment Reasoner) sentiment analysis tool is employed, which is particularly suited for social media and review texts due to its ability to handle context and intensity.

2.1 VADER Sentiment Analysis

VADER is a lexicon-based sentiment analysis tool that classifies text into positive, negative, or neutral sentiments. It provides a compound score that indicates the overall sentiment.

3. Methodology

3.1 Data Collection and Preprocessing

The dataset consists of Spotify reviews scraped from the Google Play Store. The preprocessing steps include:

- Dropping irrelevant columns.
- Removing duplicate entries and handling missing data.
- Converting text to lowercase and removing non-alphanumeric characters.
- Removing stopwords to focus on meaningful content.

3.2 Sentiment Analysis

Using the VADER sentiment analyzer, the reviews are categorized into positive, negative, and neutral sentiments. The compound score from VADER determines the sentiment classification.

3.3 Topic Modeling

BERTopic, a transformer-based topic modeling tool, is used to uncover hidden topics within the reviews. It utilizes sentence embeddings and clustering techniques to identify and represent topics.

4. Results and Discussions

4.1 Sentiment Analysis Results

The sentiment distribution from the analysis is as follows:

- **Positive Sentiment:** A majority of reviews express satisfaction, highlighting positive aspects such as music quality and user experience.
- **Negative Sentiment:** Negative feedback points to issues like app crashes, bugs, and the intrusive nature of advertisements.
- **Neutral Sentiment:** Neutral reviews are often descriptive, providing information without strong emotional undertones.

4.2 Topic Modeling Results

The BERTopic model identified several key topics from the reviews:

4.2.1 App Performance

- **Issues Identified:** Frequent crashes, bugs, and instability.
- **Representative Reviews:**
  - "Great when it works, but crashes 30% of the time I try to use it."
  - "App crashes every time. And ad plays, it crashes."

4.2.2 Music Quality and Variety

- **Positive Feedback:** High-quality audio and a diverse music selection.
- **Representative Reviews:**
  - "Great music service, the audio is high quality."
  - "I love the variety of music available."

4.2.3 Advertisements

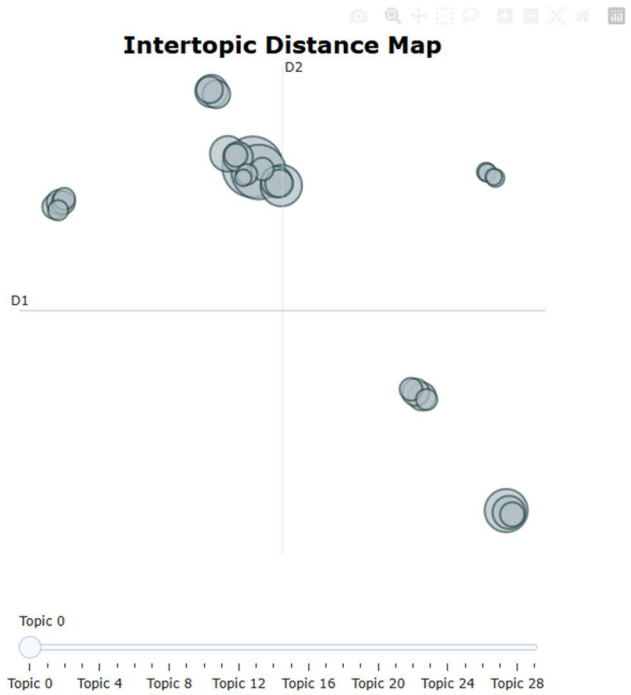
- **Concerns:** Excessive and intrusive ads affecting user experience.
- **Representative Reviews:**
  - "Too many ads. Plays 1 or 2 songs and then an ad."
  - "The ads are very annoying and frequent."

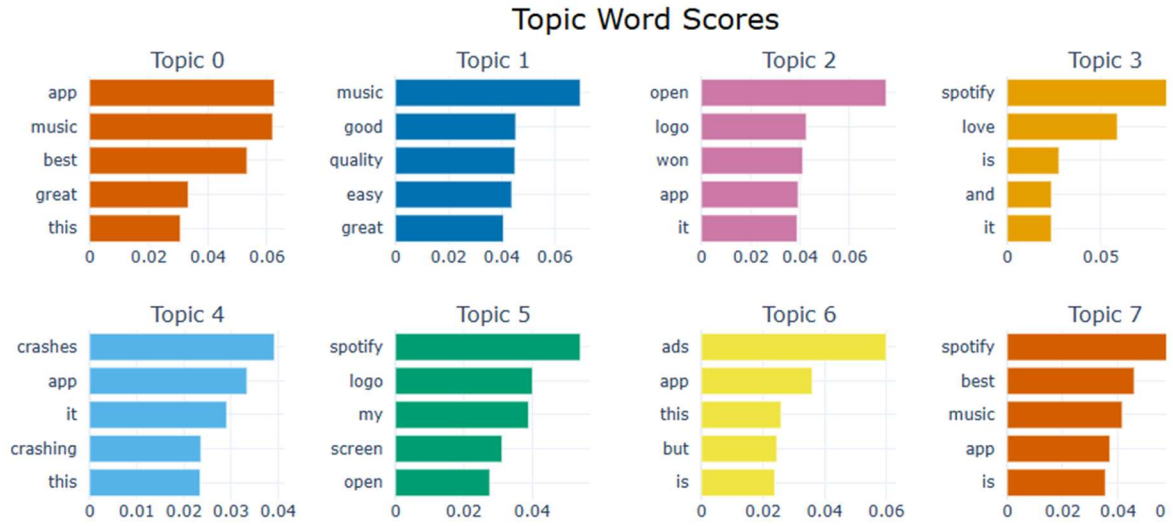
4.2.4 User Interface and Experience

- **Mixed Feedback:** Positive mentions of ease of use and negative feedback on occasional glitches.
- **Representative Reviews:**
  - "The app is easy to use and navigate."
  - "The UI is good but sometimes gets glitchy."

4.3 Visualizations

The BERTopic model's visualization provides a clear view of topic distribution and relevance. Each topic's size represents its prevalence in the dataset, while connections between topics show thematic overlaps.





5. Conclusion

The combined use of sentiment analysis and topic modeling offers a comprehensive understanding of user feedback on Spotify. Sentiment analysis reveals overall user satisfaction levels, while topic modeling uncovers specific areas of interest and concern. These insights are invaluable for Spotify in enhancing user experience by addressing frequent issues and reinforcing positive features.

Recommendations

1. **App Performance Improvement:** Prioritize fixing bugs and crashes to enhance stability.
2. **Advertisement Management:** Consider reducing the frequency of ads or offering more personalized, less intrusive ad experiences.
3. **User Experience Enhancements:** Continuously improve the user interface and address glitches to maintain a seamless user experience.

.