Analyzing Sentiment of Yelp Food Reviews

A DS 4002 Case Study by Aniyah McWilliams December 2nd, 2024

Yelp is one the most popular review platforms, facilitating communication about customer experiences between restaurants, past customers, and potential future patrons. As of September 2024, the website attracts an average of 32 million unique devices per month, with over 287 million reviews accumulated to date [1].

With customer reviews playing a crucial role in shaping public perception, your overarching goal is to use Yelp text data to uncover insights that could be valuable for potential customers and restaurant owners. Due to inflation, we want to provide future patrons with accurate insight into what keywords to look for in reviews to ensure that they're satisfied with their decision. Secondly, restaurants often rely heavily on online reviews to attract and retain customers, and the review text often holds nuanced insights into customer satisfaction, atmosphere, and service quality that contributes to a restaurant's success. By analyzing the sentiment of comments in relation to star ratings, we can identify key factors that contribute to customer satisfaction.

As a data scientist, your task is to analyze the sentiment of Yelp reviews from 2023 for the top 240 restaurants in Los Angeles and explore its correlation with star ratings. Based on this analysis, you will then develop a predictive model to forecast customer sentiment and behavior. To analyze the sentiment in the written reviews, you will use text analysis techniques. These techniques will help determine if the sentiment within a Yelp review can be classified as positive, negative, or neutral. You will then build a Naive Bayes model to predict future customer sentiments, while looking for key factors that play a role into the predicted sentiment [2].

Github: https://github.com/aniyahlater/DS4002-CS2

References:

[1]Yelp, "Yelp - Company - Fast Facts," www.yelp-press.com. https://www.yelp-press.com/company/fast-facts/default.aspx
[2]H. Dhaduk, "Performing Sentiment Analysis With Naive Bayes Classifier!," Analytics Vidhya, Jul. 13, 2021. https://www.analyticsvidhya.com/blog/2021/07/performing-sentiment-analysis-with-naive-bayes-classifier/