

# Abstract

Hotel organizations are gaining a lot of valuable information and insights about their products and services by applying the right tools to their data, such as hotel reviews. These reviews generate a huge volume of information known as big data. Sentiment analysis for hotel reviews is a form of natural language processing (NLP) used to determine the overall sentiment of a review. It analyzes the language used in a review for words or expressions that convey a certain sentiment, such as "excellent" or "bad", and assigns it a score. The score is then used to gauge how positive or negative the overall sentiment of the review is.

This paper investigates the sentiment analysis of hotel reviews. Sentiment analysis is a process of extracting sentiment or opinion from text. It is a valuable tool for businesses to gain insight into consumer sentiment. Hotel reviews provide a rich source of data for sentiment analysis as they provide customers with the opportunity to express their opinion and experiences. This paper aims to use sentiment analysis tools to analyze hotel reviews and identify the sentiment expressed by customers. The results of the sentiment analysis will then be used to generate insights into customer sentiment towards hotels. The findings of the sentiment analysis can then be used by hotels to improve customer satisfaction and the quality of their services. Furthermore, the results can be used to identify trends in customer sentiment and to identify areas for improvement.

Machine learning and deep learning are used for sentiment analysis because they are powerful tools to process natural language data. This study explores various methods for performing sentiment analysis on hotel reviews, including Vader, support vector machines (SVMs), long short-term memory (LSTM) networks, random forests, and naive Bayes. The results suggest that SVMs and LSTMs are effective in predicting sentiment, while the random forest model may be over fitting and the naive Bayes model may be underperforming due to the assumption of independence between features. The combination of these methods is recommended for providing a comprehensive understanding of the sentiment in a review. The study also plans to test the model on new data and develop an application for users to input their own data and receive predictions, along with visualizations to help interpret the results. The goal is to improve decision-making within the company based on customer satisfaction.