Sentiment Analysis of Cafe Reviews in Yogyakarta Using Machine Learning Models with Streamlit Deployment

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ABSTRACT

Tourism is a key sector driving regional economic development. Yogyakarta, known not only as a student city but also as a major tourist destination for both domestic and international visitors, has witnessed rapid growth in the culinary industry, especially cafés, which have become a favourite among younger demographics. The increasing number of cafés has led to heightened business competition. This study aims to conduct sentiment analysis on customer reviews of cafés in Yogyakarta to better understand public perception and customer experiences. A supervised learning approach was applied using three main algorithms: Naïve Bayes, Logistic Regression, and Support Vector Machine (SVM). Results indicate that more complex models tend to achieve higher performance but are also prone to overfitting. This was observed in the SVM with a polynomial kernel, which achieved 99% accuracy on the training data but dropped to 90% on the test set. The best-performing model was LinearSVC, achieving 92% accuracy with a training time of just 0.12 seconds. Naïve Bayes recorded 90% accuracy (0.05 seconds), while Logistic Regression reached 92% accuracy (0.32 seconds). To enhance accessibility and usability, the sentiment analysis system was deployed as an interactive web application using Streamlit, allowing stakeholders to view insights intuitively and make data-driven business decisions.

Keywords: Sentiment Analysis, Supervised Learning, Cafe, Streamlit