ABSTRACT

This study aims to compare the performance of two text classification algorithms, Naïve Bayes and Support Vector Machine (SVM), in sentiment analysis of electronic product purchase reviews on e-commerce platforms. Data were collected from social media platform X (formerly Twitter) using a crawling technique, focusing on reviews related to electronic product purchases on Shopee, Tokopedia, and Lazada during the period of January to December 2023. The analysis involved preprocessing steps such as translation, labeling, text cleaning, normalization, tokenization, and feature extraction using the TF-IDF method. Sentiment was classified into three categories: positive, negative, and neutral. Evaluation results show that Naïve Bayes achieved an accuracy of 84%, performing best in the neutral class (precision 0.91), while SVM achieved higher accuracy at 88%, with perfect precision (1.00) in the negative class and high recall (0.98) in the neutral class. SVM's superior performance is due to its ability to construct an optimal hyperplane and handle high-dimensional data. In contrast, the independence assumption between features in Naïve Bayes limits its ability to manage word correlations in review texts. These findings indicate that algorithm selection should align with the data's characteristics. SVM is more suitable for complex and unstructured review data, while Naïve Bayes remains relevant for lightweight analysis with limited computational resources. The developed model is expected to be applicable in real-world systems such as customer opinion monitoring and automated sentiment analysis based on social data.

Keywords: *Sentiment Analysis, E-Commerce, Electronic Products, Naïve Bayes, Support Vector Machine (SVM)*