

Abstract

This research examines sentiment analysis on user reviews of the Raya Digital Bank application, employing Term Frequency-Inverse Document Frequency (TF-IDF) and Support Vector Machine (SVM) techniques. As digital banking continues to rise in Indonesia, understanding customer feedback is critical for enhancing user experience. The dataset, comprising user reviews scraped from Google Play Store, underwent preprocessing steps including cleansing, case folding, stopwords removal, stemming, and tokenization. The TF-IDF method was applied to quantify word importance, converting text data into feature vectors, which were then classified using SVM. Four experimental scenarios were tested to optimize the model's performance: varying data splits (50:50 and 80:20), evaluating the impact of stemming, comparing Unigram and Bigram configurations, and testing different SVM kernels (Linear, Polynomial, RBF, and Sigmoid). Results indicate that the best accuracy was achieved using a Linear SVM kernel, with an 80:20 data split, Unigram configuration, and without stemming, yielding a precision of 86.31%, recall of 85.37%, and F1-score of 85.67%. These findings suggest that Unigram-based TF-IDF combined with a Linear SVM model is highly effective in classifying sentiment in application reviews. The study recommends further tuning of kernel parameters and testing trigrams to potentially improve accuracy, especially for compound word usage common in app reviews. This approach provides a robust model for analyzing user sentiment, aiding digital banks in refining customer-oriented services.

Keywords: sentiment analysis, TF-IDF, support vector machine, digital banking, user reviews.