

ABSTRAK

Perkembangan teknologi informasi mendorong meningkatnya penggunaan layanan kesehatan digital seperti aplikasi Halodoc yang menyediakan layanan kesehatan secara daring. Banyaknya pengguna menghasilkan ulasan dalam jumlah besar pada *Google Playstore* yang dapat digunakan untuk mengevaluasi kualitas layanan, namun data yang tidak terstruktur membuat analisis manual menjadi tidak efektif. Penelitian ini bertujuan untuk menganalisis sentimen ulasan pengguna aplikasi Halodoc menggunakan metode *Bidirectional Long Short-Term Memory (BiLSTM)* dengan ekstraksi fitur *Word2Vec* serta membandingkan performa model dengan dan tanpa penerapan *Synthetic Minority Over-sampling Technique (SMOTE)*. Data penelitian berupa ulasan periode 2025–2026 yang dikumpulkan melalui web *crawling* dan dilabeli menjadi tiga kelas sentimen, yaitu positif, netral, dan negatif. Tahap preprocessing meliputi *cleaning*, *case folding*, *tokenization*, *normalisasi*, *stopword removal*, dan *stemming*. Teks kemudian direpresentasikan menggunakan *Word2Vec* dengan pendekatan *CBOW* dan *Skip-gram* sebelum diklasifikasikan menggunakan *BiLSTM*. Hasil penelitian menunjukkan bahwa model dengan *SMOTE* dan *CBOW* memberikan kinerja terbaik dalam menyeimbangkan klasifikasi seluruh kelas sentimen. Meskipun akurasi sedikit menurun menjadi 90% dibandingkan 95% pada model tanpa *SMOTE*, *Macro Recall* meningkat menjadi 70% dan *Macro F1-Score* menjadi 63%. Hal ini menunjukkan peningkatan kemampuan model dalam mengenali kelas minoritas seperti sentimen netral dan negatif. Evaluasi dilakukan menggunakan confusion matrix dengan metrik akurasi, presisi, recall, dan F1-score. Secara keseluruhan, kombinasi *Word2Vec* dan *BiLSTM* dengan *SMOTE* efektif untuk analisis sentimen ulasan aplikasi Halodoc.

Kata Kunci: Analisis Sentimen, Halodoc, BiLSTM, Word2Vec, Google Play Store

ABSTRACT

The advancement of information technology has led to the increasing use of digital healthcare services, such as the Halodoc application, which provides online healthcare services. The large number of users generates a substantial volume of reviews on Google Play Store that can be utilized to evaluate service quality. However, the unstructured nature of these reviews makes manual analysis inefficient. This study aims to analyze the sentiment of Halodoc user reviews using the Bidirectional Long Short-Term Memory (BiLSTM) method with Word2Vec feature extraction and to compare the performance of models with and without the implementation of the Synthetic Minority Over-sampling Technique (SMOTE). The dataset consists of user reviews collected through web crawling from the period of 2025–2026 and labeled into three sentiment classes: positive, neutral, and negative. The preprocessing stage includes cleaning, case folding, tokenization, normalization, stopword removal, and stemming. The text data are then represented using Word2Vec with both Continuous Bag-of-Words (CBOW) and Skip-gram approaches before being classified using the BiLSTM model. The results indicate that the model employing SMOTE and the CBOW approach achieved the best performance in balancing the classification of all sentiment classes. Although the accuracy slightly decreased to 90% compared to 95% in the model without SMOTE, the Macro Recall increased to 70% and the Macro F1-Score reached 63%. These findings demonstrate an improvement in the model's ability to recognize minority classes, particularly neutral and negative sentiments. Model evaluation was conducted using a confusion matrix with accuracy, precision, recall, and F1-score as performance metrics. Overall, the combination of Word2Vec and BiLSTM with SMOTE proved effective for sentiment analysis of Halodoc application reviews.

Keywords: Sentiment Analysis, Halodoc, BiLSTM, Word2Vec, Google Play Store.