

ABSTRACT

The rapid growth of e-commerce in Indonesia has generated a massive volume of user reviews containing opinions on various service aspects. Traditional sentiment analysis, which predicts the overall polarity of a review, is insufficient since a single review often expresses different sentiments toward different aspects. This necessitates Aspect-Based Sentiment Analysis (ABSA), which classifies sentiment for each aspect separately. This study compares two text representation paradigms: Term Frequency–Inverse Document Frequency (TF-IDF), a sparse representation based on word frequency, and Sentence Bidirectional Encoder Representations from Transformers (SBERT), a dense representation based on semantic context. Both representations are paired with Logistic Regression classifiers for the ABSA subtask of Aspect Sentiment Classification (ASC) on Shopee application reviews. The research process began with data collection via web scraping, yielding 1,000 reviews, followed by aspect discovery using hierarchical clustering and manual review, which identified seven aspects: Application, Delivery, Product, Price, Payment, Customer Service and Seller. The targeted scraping was then conducted using aspect-specific keywords, with a threshold of 100 reviews per aspect. The collected reviews were manually annotated by three annotators, achieving high inter-annotator agreement (Fleiss' Kappa > 0,9). After data preprocessing, modeling was performed with hyperparameter optimization through grid search using stratified 5-fold cross-validation under two scenarios: aspect-specific parameters and universal parameters. Evaluation employed accuracy, precision, recall, F1-score, ROC-AUC, and PR-AUC metrics on a *test set*, along with statistical significance testing using McNemar's Test. Results demonstrate that SBERT consistently outperforms TF-IDF across all test set combinations, as confirmed by McNemar's Test (0,9444 vs. 0,9130). These findings indicate that Indonesian e-commerce reviews are predominantly context-driven, and contextual embeddings provide a more suitable representation for capturing review semantics.

Keywords : Aspect-Based Sentiment Analysis, TF-IDF, SBERT, Logistic Regression, E-commerce, Shopee Reviews, Text Representation