

ABSTRACT

Text Data sourced from product and user reviews on various platforms such as e-commerce and social media is valuable and useful data for companies to be able to understand public opinion and consumer needs through sentiment analysis. Sequential models such as Recurrent Neural networks, Long Short-Term Memory, and gated recurrent units have been widely used to perform sentiment analysis tasks. However, such models still have limitations in understanding the context and capturing important parts of the text. To that end, developed a model of Bidirectional Long Short-Term Memory and Bidirectional gated Recurrent Unit that can improve the understanding of the model by capturing the context of the text from two directions. In addition, attention mechanisms were also developed that are useful for improving accuracy by helping the model to focus on important parts of the text. This study aims to analyze how much influence the addition of attention on sequential models in the case of sentiment analysis. The models will be tested and compared using the IMBD Review and Amazon Cell Phone Review datasets, then their performance will be measured using several evaluation metrics such as accuracy, precision, recall, and F1-Score. The results of this study found that attention improves the performance of the model, but some models have decreased performance as in IMDB there are models of GRU and BiGRU, then Amazon there are models of LSTM, GRU, BiGRU. Of the 3 types of attention, Bahdanau Attention has a fairly high performance among other types of attention and the RNN model is the model with the most significant increase in all types of attention used.

Keywords: sentiment analysis, attention, RNN, LSTM, GRU, BiLSTM, BiGRU