Application of Transfer Learning Method on IndoBERT for Sentiment Analysis of Ngoko Lugu Javanese Text

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ABSTRACT

The significant increase in the use of social media and online platforms in Indonesia has had a significant impact on the production and distribution of texts in various regional languages, including Javanese. Indonesians are increasingly actively participating in discussions, providing comments, and sharing experiences, especially through Javanese. In this context, there is an urgent need to develop a text sentiment analysis system that is able to understand the nuances of Javanese in the realm of user opinions and expressions. This study aims to apply the transfer learning method to the IndoBERT model with a focus on evaluating the performance of text sentiment analysis in Ngoko Lugu Javanese. The model evaluation process includes the use of metrics such as accuracy, precision, recall, and F1-score to assess the model's ability to identify positive and negative sentiments in Ngoko Lugu Javanese texts. The text data in this study were obtained through a crawling process from Twitter social media and analyzed using the Google Colab platform. The results of sentiment analysis by applying the transfer learning method to the IndoBERT model showed accuracy, precision, recall, and F1-score on the training data of 100%. On the validation data, the model achieved an accuracy, precision, recall, and F1-score of 93%, and an accuracy, precision, recall, and F1-score of 88% on the testing data. This study shows that the pre-trained IndoBERT model can be used to predict sentiment with two classes, namely "positive" and "negative" in the Ngoko Lugu Javanese text through the application of the transfer learning method and the model fine-tuning process. These results indicate that the IndoBERT model has quite good performance in processing Ngoko Lugu Javanese text for the case of sentiment analysis with two classes (binary class).

Keywords*: Sentiment Analysis, Javanese, Ngoko Lugu, IndoBERT, Transfer Learning*