

## ABSTRACT

Review data on the PLN Mobile application can be used as a reference for evaluating the performance of the PT PLN (Persero) company. However, the large amount of review data on the PLN Mobile application on the Play Store platform makes manual data processing inaccurate and takes a relatively long time. Given this problem, a tool is needed to make it easier for PT PLN (Persero) to process large amounts of review data effectively and in a shorter time. This final project aims to make it easier for companies to process big data on PLN Mobile application reviews on the Play Store, get business insights for PT PLN (Persero), and get the best algorithm for conducting sentiment analysis on PLN Mobile application reviews.

The Machine Learning methods used to analyze Big Data are the Indo-BERT Transformers algorithm, Naïve Bayes, and LSTM (Long Short-Term Memory). To get the best algorithm for sentiment analysis, the results are compared with the accuracy values of the three algorithms. This research also develops a topic modeling system to find out and classify the topics in a sentence, so that it can make it easier for companies to understand user opinions. This research uses the LDA (Latent Dirichlet Allocation) model to predict topics in PLN Mobile application reviews.

In the Indo-BERT Transformers algorithm, Naïve Bayes, and LSTM (Long Short-Term Memory) the highest accuracy value was obtained, namely 96% in the Indo-Bert Transformers algorithm with a precision value of 87%, recall 85%, F1-score 86%, so the algorithm Transformers Indo-BERT is the recommended algorithm for PT PLN (Persero) to carry out sentiment analysis on PLN Mobile application reviews. Then topic modeling succeeded in predicting 3 topics in each review, namely the topics "TRANSACTIONS", "APPLICATIONS", "SERVICE". From these three topics, there are keywords for each topic, sentiment labels, and review dates, so that they can be further processed into monthly trend sentiment comparisons which can be used as business insights.

**Keywords:** *Big Data, LSTM, LDA, Naïve Bayes, Sentiment analyst, Transformers, Topic Modeling.*