Analysis of Twitter User Sentiment Toward Indomie using Long Short-Term Memory (LSTM)

Ivana Stephanie Glory Oktavia Sitanggang*[1], Yuyun Hidayat[2]

[1, 2] Department of Statistics, Faculty of Mathematics and Natural Sciences
Universitas Padjadjaran, Bandung, West Java, Indonesia.
(E-mail: ivana20003@mail.unpad.ac.id, yuyun.hidayat@unpad.ac.id)

ABSTRACT

Sentiment analysis involves analyzing digital text to determine whether the sentiment of a message is positive, negative, or neutral. Internet users express their opinions and judgments on social media through sentiment analysis. PT X, a company in Indonesia, conducts various analyses, including sentiment analysis. However, their sentiment analysis, performed using Lexicon-Based methods, lacks accuracy in predicting sentiment outcomes. This research aims to develop a sentiment classification model for Twitter reviews of Indomie that provides accurate predictions. To achieve this, one of PT X's projects involving Twitter reviews of Indomie is classified using the Long Short-Term Memory (LSTM) method. The dataset comprises 24,729 rows of Twitter reviews spanning from July 1, 2023, to August 1, 2023. Employing Text Mining techniques for sentiment classification, the reviews are categorized as positive, neutral, or negative. This study utilizes LSTM with Word Embeddings to determine sentiment classes within tweets about the Indomie product. Prior to LSTM analysis, the accuracy of PT X's Lexicon-Based approach is assessed using a Confusion Matrix, revealing an accuracy rate of 80.6%. The results of this research demonstrate that the LSTM method can classify sentiment into three categories with an accuracy rate of 87.75% and a loss value of 34.26%. This shows that the accuracy value of LSTM is higher than Lexicon Based which was analyzed by PT X. These findings provide PT X with a more reliable and accurate tool for future sentiment analysis, surpassing the limitations of the Lexicon-Based method.

Keywords: Sentiment analysis, Twitter, Indomie, LSTM, Lexicon-Based.