Abstract

This study discusses the application of deep learning methods using Recurrent Neural Network (RNN) and Long Short-Term Memory (LSTM) models for sentiment analysis on social media posts related to earthquake disasters. The study aims to evaluate the performance of both models in classifying positive and negative sentiments using a dataset processed through advanced preprocessing techniques, including tokenization, stemming, and text normalization. The evaluation was conducted using metrics such as accuracy, precision, recall, and F1-score, and further analyzed using a Confusion Matrix. The results show that the RNN model achieved an accuracy of 89.34% on the test data, demonstrating superiority in detecting positive sentiments (high recall). In contrast, the LSTM model achieved an accuracy of 85.62% on the test data, with more stable performance and better generalization capability compared to RNN. This study highlights the significant role of deep learning approaches in detecting text-based sentiment in disaster scenarios, providing effective solutions to support rapid decision-making during emergencies. With its emphasis on stability and generalization, the LSTM model is recommended for sentiment analysis applications requiring consistent performance on new data.

Keywords: ***Sentiment Analysist, Deep Learning, Recurrent Neural Network, Long-Short Term Memory***