Sentiment Analysis of Cyberbullying in Social Media Comments Using TF-IDF and Logistic Regression

Supervised by Dr. Denny Trias Utomo S.Si, M.T

Ihya Ulumuddin
Informatics Engineering Study Program
Department of Information Technology

ABSTRAK

This study aims to analyze the sentiment of TikTok comments related to cyberbullying using Term Frequency-Inverse Document Frequency (TF-IDF) and Logistic Regression. The classification is divided into two categories, positive and negative, where negative sentiment is not directly interpreted as cyberbullying. The dataset consists of 1,376 Indonesian-language comments collected through scraping, manually labeled, and validated by a psychology expert. The data processing stages include preprocessing, word weighting using TF-IDF, and sentiment classification using Logistic Regression. The dataset was divided into 1,100 training data and 276 testing data. Internal evaluation achieved an accuracy of 80.80%, with 223 correct predictions and 53 incorrect predictions. Additional testing on 150 comments achieved an accuracy of 70.67% and a macro-average F1-score of 51.71%, indicating that the model's performance in classifying both sentiment categories was unbalanced. The model was implemented as a website prototype using Flask and HTML, providing comment analysis through TikTok video links or direct text input. The results indicate that TF-IDF and Logistic Regression can be used for sentiment classification; however, the classification results are insufficient to directly determine the presence of cyberbullying.

Keyword: Cyberbullying, Sentiment Analysis, TikTok, TF-IDF, Logistic Regression.