Comparison of TF-IDF and GloVe Word Embedding for Sentiment Analysis of 2024 Presidential Candidates

Tiara Firdausa Abdillah[*], Hasmawati, Bunyamin

Informatics, Faculty of Informatics, Telkom University, Bandung, Indonesia
Email: [1,*]tiarafa@student.telkomuniversity.ac.id, [2]hasmawati@telkomuniversity.ac.id, [3]bunbunyamin@telkomuniversity.ac.id
Correspondence Author Email: tiarafa@student.telkomuniversity.ac.id

Abstract−In the ongoing digital era, social media, particularly the social media X, formerly known as Twitter, has become one of the main platforms for sharing public opinions. On the social media, users have the opportunity to express their sentiments or views, including those regarding the presidential election in Indonesia. The main problem in this study is the extent to which public opinion on presidential candidates is reflected in conversations on the social media X. This study involves the combination of Support Vector Machine (SVM) and GloVe Word Embedding algorithms to improve the accuracy of sentiment analysis towards presidential candidates. The performance of the method will be evaluated using a confusion matrix. The results of the study show that while GloVe has the ability to capture global semantic relationships, TF-IDF is more effective in identifying variations and nuances in diverse sentiment data. Therefore, TF-IDF can be a more effective choice for political sentiment analysis in Indonesia, providing more consistent and accurate results. It is seen on the Anies dataset, TF-IDF achieved an accuracy of 0.84 compared to GloVe's 0.82. For the Ganjar dataset, TF-IDF performed better in terms of F1-Score and precision. For the Prabowo dataset, TF-IDF slightly outperformed GloVe in recall, although both techniques had nearly equal high accuracy around 0.93.

Keywords: Presidential Candidates; 2024 Elections; SVM; GloVe; Social media X