Public opinion on political changes during Covid-19: A comparison of machine learning algorithms using Twitter messages

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Covid-19 has caused havoc in people's lives in all nations and communities and had a detrimental effect on the expansion of the world economy. Due to the pandemic, political factors are also changed and it was urgent to examine public opinion on political changes during Covid-19. Those opinions will help to stabilize the countries in the future during these kind of pandemic situations. The posts and comments on Twitter related to political opinions had posted frequently. The study used Twitter to examine user opinions regarding the political changes that occurred during the pandemic period. A sample of 10658 English tweets from the whole world was used during the period of Covid-19 from 2020 to 2022 and these tweets were gathered using the Twitter API. After the tweets had been pre-processed, the feature vectors were produced using the Term Frequency-Inverse Document Frequency (TF-IDF). To build a forecast paradigm for sentiment analysis, the dataset was then put into machine learning and deep learning algorithms such as Support Vector Machine (SVM), Multilayer Perceptron (MLP), and Long Short-Term Memory (LSTM). The results indicate, MLP performed better than SVM and LSTM and had greater accuracy with 95.32% and also better recall, precision, f-measure values, and lower error values. A training dataset of 77% was used for the experiments. These algorithms classify tweets into four categories such as positive, negative, neutral, and suggestions to the government. Based on the results, we can estimate human opinions about political changes and can address pertinent concerns as soon as possible.

Keywords: Covid-19, Machine learning, Political changes, Sentiment analysis, Twitter

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