Political Security Threat Prediction Framework Using Hybrid Lexicon-Based Approach and Machine Learning Technique

ABSTRACT:

- The internet offers a powerful medium for expressing opinions, emotions and ideas, using online platforms supported by smartphone usage and high internet penetration. Most internet posts are textual based and can include people's emotional feelings for a particular moment or sentiment. Monitoring online sentiments or opinions is important for detecting any excessive emotions triggered by citizens which can lead to unintended consequences and threats to national security. Riots and civil war, for instance, must be addressed due to the risk of jeopardizing social stability and political security, which are crucial elements of national security. Mining opinions according to the national security domain is a relevant research topic that must be enhanced. Mechanisms and techniques that can mine opinions in the aspect of political security require significant improvements to obtain optimum results. Researchers have noted that there is a strong relationship between emotion, sentiment and political security threats. This study proposes a new theoretical framework for predicting political security threats using a hybrid technique: the combination of lexicon-based approach and machine learning in cyberspace. In the proposed framework, Decision Tree, Naive Bayes, and Support Vector Machine have been deployed as threat classifiers. To validate our proposed framework, an experimental analysis is accomplished. The performance of each technique used in the experiments is reported. In this study, our proposed framework reveals that the hybrid Lexiconbased approach with the Decision Tree classifier recorded the highest performance score for predicting political security threats. These findings offer valuable insight to ongoing research on opinion mining in predicting threats based on the political security domain. The sustainable goals satisfying this project are Target 16.1: Significantly reduce all forms of violence and related death rates everywhere and Target 16.3: Promote the rule of law at the national and international levels and ensure equal access to justice for all.