UNIVERSITI TEKNOLOGI MARA

SENTIMENT ANALYSIS ON MALAYSIANS' PERCEPTION ABOUT CLIMATE CHANGE ISSUES BASED ON TWITTER USING SUPPORT VECTOR MACHINE

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ABSTRACT

Climate change presents a global challenge necessitating effective mitigation and adaptation strategies. Public sentiment, a potent driver of climate policies, can be comprehended through Natural Language Processing (NLP) techniques such as sentiment analysis. However, extracting and analyzing data from diverse platforms like Twitter poses challenges due to its richness in opinions. This research crafts a web-based system that employs sentiment analysis using Support Vector Machine (SVM) to visualize Malaysian perceptions of climate change. The study adopts a modified waterfall methodology, progressing through phases including requirements gathering, system design, implementation, testing, and documentation. The system acquires and preprocesses Twitter data, employing SVM for sentiment analysis. Attaining an 84.5% classification accuracy, the model effectively gauges public sentiment, with 42.1% negative, 37.4% positive, and the rest neutral sentiments. The prevalence of negative sentiments serves as a strong indication for decision-makers to reassess and improve their approach in addressing climate change, emphasizing the urgency for effective and sustainable mitigation strategies. However, limitations are encountered, including the reliance on data scraping with language parameter adjustments, potentially impacting sentiment analysis accuracy due to linguistic disparities. Moreover, recent Twitter updates imposing reading limits and scraping prevention measures disrupt data acquisition, introducing gaps that may impact sentiment analysis representativeness. Future work recommendations encompass exploring multiple data scraping libraries for language-specific data collection and amalgamating data from diverse social media networks to yield a comprehensive understanding of public sentiment on climate change, thereby enhancing the study's findings and providing broader insights for policy formulation.

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