IMPLEMENTASI ALGORITMA *SUPPORT VECTOR MACHINE* (*SVM*) UNTUK ANALISIS SENTIMEN TERHADAP KENAIKAN HARGA BBM PERTAMINA PADA MEDIA SOSIAL *TWITTER*

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ABSTRAK

Pada 3 September 2022, pemerintah resmi mengumumkan kenaikan harga BBM berjenis Solar, Pertalite, dan Pertamax. Berbagai tanggapan dan keluhan masyarakat ditumpahkan, salah satunya lewat media sosial *Twitter*. Pengguna selaku masyarakat banyak sekali melakukan *tweet* di *Twitter* dengan kata kunci atau tagar (#) bbm naik, tentu banyak sekali data tersebut yang harus ditampung, maka dari itu diperlukan analisis sentimen untuk mengetahui sentimen pengguna *twitter* terhadap kenaikan harga BBM Pertamina di *Twitter* serta mengetahui perbandingan performa algoritma *Support Vector Machine* (*SVM*) menggunakan data dari pelabelan otomatis dan pelabelan manual. Data yang diambil yaitu data *tweet* dengan menggunakan *library python twint* yang dibantu dengan aplikasi *Docker Desktop* dan *VSCode*. Kemudian dilakukan praproses dengan tahapan pembersihan data, *case folding*, *normalization*, *tokenization*, *stopword removal*, dan *stemming*. Setelah itu, data tersebut diberi label positif dan negatif secara otomatis menggunakan *Lexicon Based* diperoleh 2963 positif dan 1114 negatif, dan secara manual oleh 2 anotator dengan perhitungan *kappa statistic* diperoleh 2838 positif dan 1239 negatif, kemudian pembobotan kata menggunakan *Term Frequency – Inverse Document Frequency* (*TF-IDF*). Lalu data dibagi menjadi 80% data latih dan 20% data uji secara acak. Hasil klasifikasi dari data pelabelan otomatis dan manual menggunakan algoritma *Support Vector Machine* (*SVM*) masing-masing memiliki nilai akurasi sebesar 83% dan 81%, presisi sebesar 86% dan 84%, *recall* sebesar 92% dan 91%, *specificity* sebesar 58% dan 56%, dan *F1-score* sebesar 89% dan 88%.

Kata kunci: Kenaikan Harga BBM, *Twitter*, Analisis Sentimen, Klasifikasi, *Support Vector Machine* (*SVM*)

IMPLEMENTATION OF SUPPORT VECTOR MACHINE (SVM) ALGORITHM FOR SENTIMENT ANALYSIS OF INCREASING PERTAMINA FUEL PRICE ON TWITTER SOCIAL MEDIA

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ABSTRACT

On September 3, 2022, the government officially announced an increase in the price of diesel, Pertalite, and Pertamax fuels. Various responses and complaints from the community were shed, one of them via social media Twitter. Users as a community, there are lots of tweets on Twitter with the keyword or hashtag (#) bbm goes up, of course, there is a lot of data that must be accommodated, then from that required sentiment analysis to find out the sentiments of Twitter users towards Pertamina's fuel price increase on Twitter and find out the performance comparison of the Support Vector Machine (SVM) algorithm using data from automatic labeling and manual labeling. The data taken is tweet data using the twint python library assisted by the Docker application Desktop and VSCode. Then do preprocessing with stages of data cleaning, case folding, normalization, tokenization, stopword removal, and stemming. After that, the data is labeled positive and negative automatically using the Lexicon Based obtained by 2963 positive and 1114 negative, and manually by 2 the annotator by calculating the kappa statistic obtained 2838 positive and 1239 negative, then weighting words using Term Frequency – Inverse Document Frequency (TF-IDF). Then the data is divided into 80% training data and 20% random test data. The classification results of automatic and manual labeling data using the Support Vector Machine (SVM) algorithm each have accuracy values of 83% and 81%, precision of 86% and 84%, recall of 92% and 91%, specificity of 58% and 56%, and F1-score of 89% and 88%.

Keywords: *Fuel Price Increase, Twitter, Sentiment Analysis, Classification, Support Vector Machine (SVM)*