

IMPLEMENTASI SISTEM PELAPORAN KEJAHATAN BERBASIS CHATBOT TELEGRAM DENGAN KLASIFIKASI TEKS MENGGUNAKAN METODE MULTINOMIAL NAÏVE BAYES

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ABSTRAK

Peningkatan jumlah tindak kejahatan di Kabupaten Jember menuntut adanya sistem pelaporan yang efisien dan responsif. Media pelaporan konvensional seperti *call center* 110 memiliki keterbatasan, seperti kurangnya bukti pendukung dan kesulitan penentuan lokasi kejadian. Penelitian ini bertujuan mengembangkan sistem pelaporan kejahatan berbasis *chatbot* Telegram yang terintegrasi dengan metode klasifikasi teks *Multinomial Naïve Bayes* untuk mengelompokkan jenis kejahatan secara otomatis. *Dataset* diperoleh melalui *web scraping* dari situs Sistem Informasi Penelusuran Perkara (SIPP) Pengadilan Negeri Jember tahun 2024 sebanyak 398 data. Proses pengolahan data melibatkan tahap *pre-processing* teks (*cleansing*, *case folding*, *tokenizing*, *stopword removal*, dan *stemming*), pembentukan fitur menggunakan kombinasi *unigram* dan *bigram*, serta pembobotan *Term Frequency–Inverse Document Frequency* (TF-IDF). Penyeimbangan data dilakukan dengan metode *Random Oversampling*. Model kemudian dievaluasi menggunakan metrik akurasi, presisi, recall, dan F1-Score. Hasil evaluasi menunjukkan bahwa model memperoleh akurasi sebesar 98,75%, yang menunjukkan bahwa pendekatan ini dapat diterapkan untuk klasifikasi laporan kejahatan berbasis teks. Sistem pelaporan kejahatan ini juga dilengkapi dengan *dashboard* untuk menampilkan laporan secara *real-time*, sehingga mempermudah masyarakat dalam melaporkan kejadian serta mendukung penanganan kasus yang cepat dan tepat oleh kepolisian.

Kata kunci: Pelaporan kejahatan, *Chatbot* Telegram, *Multinomial Naïve Bayes*, TF-IDF, Klasifikasi Teks, NLP, CRISP-DM.

IMPLEMENTATION OF A CRIME REPORTING SYSTEM BASED ON TELEGRAM CHATBOT WITH TEXT CLASSIFICATION USING THE MULTINOMIAL NAÏVE BAYES METHOD

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ABSTRACT

The increasing number of criminal acts in Jember Regency highlights the need for a more efficient and responsive crime reporting system. Conventional reporting methods such as the 110 call center, have several limitations, including the lack of supporting evidence and difficulties in accurately determining incident locations. This study aims to develop a crime reporting system using a Telegram chatbot integrated with a text classification model based on the Multinomial Naïve Bayes algorithm to automatically categorize types of crimes. The dataset, comprising 398 records, was collected in 2024 through web scraping from the official website of the Case Tracking Information System (SIPP) of the Jember District Court. The data underwent several preprocessing stages—cleansing, case folding, tokenization, stopword removal, and stemming. Feature extraction used a combination of unigram and bigram, with Term Frequency–Inverse Document Frequency (TF-IDF) for weighting. Data imbalance was handled using the Random Oversampling method. The model’s performance was evaluated using accuracy, precision, recall, and F1-score, resulting in an accuracy of 98.75%. Indicating that the proposed approach is effective for classifying crime reports based on textual data. The crime reporting system is also equipped with a web-based dashboard that displays reports in real time, thereby facilitating the public in submitting crime reports and supporting the police in handling cases promptly and accurately.

Keywords: *Crime Reporting, Chatbot Telegram, Multinomial Naïve Bayes, TF-IDF, Text Classification, NLP, CRISP-DM.*