INTISARI

IMPLEMENTASI CHATBOT BERBASIS NATURAL LANGUAGE PROCESSING UNTUK MEMBANTU PELAYANAN ADMINISTRASI DIGITAL MBKM DI INSTITUT INFORMATIKA DAN BISNIS DARMAJAYA

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Program Merdeka Belajar Kampus Merdeka (MBKM) merupakan kebijakan Kemendikbudristek yang memberikan kebebasan kepada mahasiswa untuk belajar di luar program studi guna mengembangkan potensi secara optimal. Peningkatan partisipasi mahasiswa menimbulkan kebutuhan akan sistem informasi administrasi yang cepat dan efisien. Penelitian ini bertujuan membangun chatbot berbasis web sebagai layanan informasi otomatis untuk mendukung administrasi MBKM. Sistem dikembangkan menggunakan algoritma Multinomial Naïve Bayes (MNB) dengan dukungan Natural Language Processing (NLP) untuk mengklasifikasikan maksud (intent) pertanyaan pengguna. Data teks melalui tahapan pembersihan dan tokenisasi, kemudian dievaluasi menggunakan Confusion Matrix. Model mencapai akurasi pelatihan sebesar 93,62% dan akurasi pengujian sebesar 60,56%, menunjukkan adanya overfitting, namun tetap mampu mengenali pola pertanyaan dengan baik. Sistem diintegrasikan dengan Flask API dan diimplementasikan pada antarmuka web yang memuat informasi MBKM serta fitur chatbot interaktif. Hasil pengujian menunjukkan chatbot berfungsi efektif dalam memberikan layanan informasi secara cepat dan akurat, serta berpotensi meningkatkan efisiensi administrasi digital di lingkungan perguruan tinggi.

Kata Kunci: Machine Learning, Chatbot, Natural Lan-guage Processing, Multinomial Naive Bayes, Confusion Matrix, Administrasi Digital

ABSTRACT

IMPLEMENTASI CHATBOT BERBASIS NATURAL LANGUAGE PROCESSING UNTUK MEMBANTU PELAYANAN ADMINISTRASI DIGITAL MBKM DI INSTITUT INFORMATIKA DAN BISNIS DARMAJAYA

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The *Merdeka Belajar Kampus Merdeka (MBKM)* program is an initiative by the Ministry of Education, Culture, Research, and Technology (*Kemendikbudristek*) that allows students to pursue learning experiences outside their study program to maximize their potential. The increasing number of student participants has created a demand for a fast and efficient administrative information system. This study aims to develop a web-based chatbot as an automated information service to support MBKM administrative processes. The system was developed using the Multinomial Naïve Bayes (MNB) algorithm supported by Natural Language Processing (NLP) to classify user question intents. Text data underwent preprocessing stages, including cleaning and tokenization, and the model's performance was evaluated using a Confusion Matrix. The model achieved a training accuracy of 93.62% and a testing accuracy of 60.56%, indicating overfitting but still demonstrating good recognition of question patterns. The chatbot system was integrated with a Flask API and implemented within a web Interface that provides *MBKM*-related information and an interactive chatbot feature. The testing results showed that the chatbot effectively provided information services quickly and accurately, indicating its potential to improve the efficiency of digital administrative processes in higher education institutions.

Keywords: Machine Learning, Chatbot, Natural Language Processing, Multinomial Naïve Bayes, Confusion Matrix, Digital Administration