

ABSTRACT

M ELZO ALKHATAMI, APPLICATION OF MAMDANI FUZZY METHOD FOR EVALUATING USED CAR FEASIBILITY BASED ON VEHICLE CRITERIA AT SHOWATRUST MOBILINDO

The advancement of information technology has significantly contributed to improving efficiency across various sectors, including the automotive industry. ShowaTrust Mobilindo, a used car showroom in Padang City, faces challenges in objectively determining the eligibility of vehicle units, as the assessment process is still conducted manually and tends to be subjective. To address this issue, the Mamdani Fuzzy Logic method was applied to evaluate the eligibility of used cars. This method was chosen for its ability to handle uncertainty and linguistic data using an approach that resembles human reasoning. The evaluation was based on three main criteria: Car Age, Car Condition, and Price. The application was developed as a web-based system with a user-friendly interface. Implementation results showed that the Mamdani method could provide objective and accurate eligibility assessments. For instance, a Brio MT unit received an eligibility score of 66.903, indicating that the vehicle is highly suitable for purchase by the showroom. Thus, the application of fuzzy logic in assessing the eligibility of used cars can enhance efficiency, ensure consistency, and reduce potential errors in decision-making processes within the showroom.

Keywords: Fuzzy Inference System, Fuzzy Logic, Mamdani Fuzzy, Rule-Based System, Eligibility, Used Cars, Eligibility Prediction.

ABSTRAK

M ELZO ALKHATAMI, PENERAPAN FUZZY MAMDANI UNTUK PENILAIAN KELAYAKAN MOBIL BEKAS BERDASARKAN KRITERIA MOBIL PADA SHOWATRUST MOBILINDO

Kemajuan teknologi informasi telah memberikan kontribusi besar dalam meningkatkan efisiensi di berbagai bidang, termasuk sektor otomotif. ShowaTrust Mobilindo sebagai salah satu showroom mobil bekas di Kota Padang menghadapi tantangan dalam menentukan kelayakan unit kendaraan secara objektif, karena proses penilaian masih dilakukan secara manual dan bersifat subjektif. Untuk mengatasi permasalahan tersebut, diterapkan metode Fuzzy Logic Mamdani dalam proses penilaian kelayakan mobil bekas. Metode ini dipilih karena mampu menangani ketidakpastian dan data linguistik dengan pendekatan yang menyerupai cara berpikir manusia. Penilaian dilakukan berdasarkan tiga kriteria utama, yaitu Usia Mobil, Kondisi Mobil, dan Harga. Aplikasi ini dibangun dalam bentuk sistem berbasis web menggunakan bahasa pemrograman PHP dan database MySQL, serta dilengkapi antarmuka yang ramah pengguna. Hasil implementasi menunjukkan bahwa metode Fuzzy Mamdani mampu memberikan penilaian kelayakan secara objektif dan akurat, misalnya unit mobil Brio MT memperoleh skor kelayakan sebesar 66,903 yang menunjukkan bahwa mobil tersebut sangat layak untuk dibeli oleh pihak showroom. Dengan demikian, penerapan logika fuzzy pada penilaian kelayakan mobil bekas dapat meningkatkan efisiensi, konsistensi, dan mengurangi potensi kesalahan dalam pengambilan keputusan di showroom.

Kata Kunci: Sistem Inferensi Fuzzy, Logika Fuzzy, *Fuzzy Mamdani*, Sistem Berbasis Aturan, Kelayakan, Mobil Bekas, Prediksi Kelayakan.