Customer Payment Delay Prediction System for RT/RW Net Using Decision Tree C4.5 with Automated Isolation and WhatsApp Notifications

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ABSTRACT

Customer payment management in RT/RW Net services is commonly performed manually, which may lead to delayed recording, missed payment reminders, and slow handling of customers with overdue payments. This study aims to develop a customer payment delay prediction system for RT/RW Net using the Decision Tree C4.5 algorithm, integrated with WhatsApp notification and MikroTik-based automatic isolation. The data used in this study consisted of 656 historical customer payment records from Etis Digital from July to December 2025. The dataset was processed through preprocessing and feature engineering using area, service package, billing date, and late payment frequency as input attributes, while payment status was used as the classification label. The model was evaluated using several train-test split ratios, namely 60:40, 70:30, 80:20, and 90:10, with the best result obtained using the 80:20 ratio consisting of 524 training data and 132 testing data. The evaluation results showed that the model achieved an accuracy of 79%, precision of 81%, recall of 79%, and F1-score of 79%. The developed system was also able to send payment notifications through WhatsApp, isolate internet access for customers with overdue payments using the MikroTik API, and reactivate the service after payment was recorded. Therefore, the system can assist RT/RW Net administrators in predicting payment delays and automating payment reminders and customer handling processes in a more structured and efficient manner.

Keywords: *RT/RW Net, Decision Tree C4.5, Payment Delay, WhatsApp, MikroTik.*