

ABSTRAK

KASIH LESTARI SIMANJUNTAK. *Rancang Bangun Sistem Informasi Pengaduan Masyarakat Berbasis Web pada Desa Simaninggir*. Dibimbing oleh INDAH CLARA SARI dan RIZKY RAMADHANSYAH.

Pengelolaan pengaduan masyarakat di Desa Simaninggir masih dilakukan secara konvensional sehingga proses penyampaian, pencatatan, dan pemantauan pengaduan belum terstruktur dengan baik. Penelitian ini bertujuan untuk merancang dan membangun sistem informasi pengaduan masyarakat berbasis web yang dapat mendukung pengelolaan pengaduan secara lebih terstruktur. Sistem dikembangkan menggunakan metode *Prototype* dan dilengkapi dengan klasifikasi tingkat prioritas pengaduan menggunakan gabungan *Random Forest* dan *Complement Naive Bayes*. Data pengaduan melalui tahap *preprocessing* dan ekstraksi fitur menggunakan Bag of Words (BoW) dan indikator teks, sebelum dilakukan klasifikasi ke dalam tiga tingkat prioritas, yaitu *Normal*, *Medium*, dan *Urgent*. Pengujian menggunakan 496 data pengaduan dengan metode *Repeated Stratified 5-fold Cross-Validation* dengan 3 kali pengulangan dan 4 *seed* menghasilkan *accuracy* rata-rata 80,6%, Macro-F1 75,3%, dan *Recall Urgent* 66,6%. Sistem juga dilengkapi *safety net*, koreksi manual, dan *fallback* untuk mendukung keandalan proses klasifikasi. Hasil *Black Box Testing* menunjukkan bahwa seluruh fitur sistem dapat berjalan sesuai dengan fungsi yang dirancang. Berdasarkan hasil tersebut, sistem dapat digunakan untuk mendukung pengelolaan pengaduan masyarakat dan penyampaian informasi Desa Simaninggir secara lebih terstruktur.

Kata Kunci: Sistem Informasi, Pengaduan Masyarakat, *Machine Learning*, Random Forest, Complement Naive Bayes, Bag of Words, Prototype.

ABSTRACT

KASIH LESTARI SIMANJUNTAK. Design and Development of a Web-Based Public Complaint Information System for Simaninggir Village. Supervised by INDAH CLARA SARI and RIZKY RAMADHANSYAH.

The management of public complaints in Simaninggir Village is still carried out using conventional methods, so the processes of submitting, recording, and monitoring complaints are not yet well-structured. This study aims to design and develop a web-based public complaint information system that can support more structured complaint management. The system was developed using the Prototype method and is equipped with a complaint priority classification system that combines Random Forest and Complement Naive Bayes. Complaint data undergoes preprocessing and feature extraction using Bag of Words (BoW) and text indicators before being classified into three priority levels: Normal, Medium, and Urgent. Testing using 496 data complaint with metode Repeated Stratified 5-fold Cross-Validation with 3 repetitions and 4 seeds yielded an average accuracy of 80.6%, a Macro-F1 score of 75.3%, and an Urgent Recall of 66.6%. The system also includes a safety net, manual correction, and a fallback mechanism to ensure the reliability of the classification process. The results of Black Box Testing show that all system features function as designed. Based on these results, the system can be used to support the management of public complaints and the dissemination of information from Simaninggir Village in a more structured manner.

Keywords: Information System, Public Complaints, Machine Learning, Random Forest, Complement Naive Bayes, Bag of Words, Prototype