

ABSTARK

PENGEMBANGAN SISTEM PENCATATAN PELANGGARAN SISWA BERBASIS *DECISION TREE* DAN *ROLE-BASED ACCESS CONTROL* DENGAN METODE *RAPID APPLICATION DEVELOPMENT* DI SMK NEGERI MUARA BELITI

(2026 : xiii + 91 halaman + 43 gambar + 20 tabel + 9 lampiran)

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**PROGRAM STUDI SARJANA TERAPAN TEKNIK TELEKOMUNIKASI
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Penelitian ini bertujuan untuk mengembangkan aplikasi pencatatan pelanggaran siswa berbasis web yang dapat meningkatkan efektivitas pengelolaan data pelanggaran. Pengembangan sistem menggunakan metode *Rapid Application Development* (RAD) yang meliputi tahapan *Requirement Planning*, *Design Workshop*, dan *Implementation*. Sistem menerapkan *Decision Tree* berbasis aturan (*Rule-Based Decision Tree*) untuk mengklasifikasikan tingkat pelanggaran berdasarkan akumulasi poin sesuai ketentuan sekolah serta menerapkan *Role-Based Access Control* (RBAC) untuk mengatur hak akses pengguna berdasarkan peran admin, guru, dan siswa. Aplikasi dikembangkan menggunakan bahasa pemrograman Python dengan *framework Flask*, *SQLite* sebagai basis data, serta dilengkapi fitur notifikasi melalui WhatsApp dan aplikasi Android berbasis *WebView*. Pengujian sistem dilakukan menggunakan metode *Black Box Testing*, yang menunjukkan bahwa seluruh fungsi aplikasi berjalan sesuai dengan kebutuhan pengguna. Hasil penelitian menunjukkan bahwa aplikasi mampu mempermudah proses pencatatan, penyimpanan, pencarian, dan pelaporan data pelanggaran siswa secara terkomputerisasi, meningkatkan keamanan data melalui pembatasan hak akses, serta membantu pihak sekolah dalam menentukan kategori pelanggaran secara konsisten berdasarkan aturan yang telah ditetapkan.

Kata kunci : *Decision Tree*, *Rapid Application Development* (RAD), *Role-Based Access Control* (RBAC), Sistem Informasi, Pelanggaran Siswa, Klasifikasi Data, Database, Aplikasi Sekolah

ABSTRACT

DEVELOPMENT OF A STUDENT VIOLATION RECORDING SYSTEM BASED ON DECISION TREES AND ROLE-BASED ACCESS CONTROL USING THE RAPID APPLICATION DEVELOPMENT METHOD AT SMK NEGERI MUARA BELITI

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This study aims to develop a web-based student violation recording application that can improve the effectiveness of violation data management. The system development uses the Rapid Application Development (RAD) method which includes the stages of Requirement Planning, Design Workshop, and Implementation. The system applies a rule-based Decision Tree to classify the level of violations based on accumulated points according to school regulations and implements Role-Based Access Control (RBAC) to regulate user access rights based on admin, teacher, and student roles. The application was developed using the Python programming language with the Flask framework, SQLite as the database, and is equipped with notification features via WhatsApp and a WebView-based Android application. System testing was conducted using the Black Box Testing method, which showed that all application functions run according to user requirements. The results of the study indicate that the application is able to simplify the process of recording, storing, searching, and reporting student violation data in a computerized manner, increase data security by limiting access rights, and assist schools in determining violation categories consistently based on established rules.

Keywords: *Decision Tree, Rapid Application Development (RAD), Role-Based Access Control (RBAC), Information System, Student Infractions, Data Classification, Database, School Application*