

ABSTRACT

In the current digital era, the need for an efficient and effective education management system has become increasingly urgent, especially in managing various academic aspects and communication between schools, teachers, students, and parents. The complex management of academic data and the evolving communication needs require technological solutions that can address these challenges. A system that provides easy, transparent, and integrated access for all educational stakeholders can significantly enhance the performance and effectiveness of school administration. This study aims to design the back-end of an Education Management System (EMS) academic module using the Iterative Incremental method at SMPN 1 Magetan to improve academic efficiency and communication between schools, teachers, students, and parents. The research involved interviews with 5 teachers, 5 students, and 5 parents to identify user needs. The application's features include user authentication, subject management, teacher management, class management, student grades, assignments, quizzes, and parental access to view their children's grades. The back-end implementation uses Go and PostgreSQL, with a Domain-Driven Design architecture for flexibility and scalability. The results show that the EMS application meets user needs, improves academic data transparency, and facilitates administration and communication at SMPN 1 Magetan. The back-end development was carried out in two phases using the Iterative Incremental method. API testing showed an average response time of 416 milliseconds and an error rate of 0%, indicating that the API is optimally ready for use. This research is expected to provide a modern and efficient technological solution for secondary education in Indonesia.

Keywords: *Education Management System, Iterative Incremental, Go, PostgreSQL, Domain-Driven Design, Academic Module*