

## INTISARI

Penelitian ini berjudul "Implementasi Modular Monolith Architecture dan Event-Driven Architecture dalam Pengembangan Backend Aplikasi Pembelajaran Bahasa Inggris (Studi Kasus: SMP Negeri 1 Karangreja)". Tujuan penelitian ini adalah mengimplementasikan kombinasi arsitektur modular monolith dan event-driven architecture serta menganalisis efektivitasnya dalam mengurangi kompleksitas dan meningkatkan performa sistem. Pengembangan aplikasi menggunakan metode Feature Driven Development dengan fokus pada implementasi backend yang terdiri dari modul Learning, Progress, Auth, AI, dan Gamification. Hasil pengembangan menunjukkan bahwa implementasi modular monolith berhasil memisahkan komponen aplikasi menjadi modul-modul yang independen namun tetap terintegrasi dalam satu aplikasi. Penerapan event-driven architecture memungkinkan komunikasi antarmodul melalui mekanisme event subscription, sehingga mengurangi tight coupling secara signifikan. Pengujian performa sistem menunjukkan kemampuan menangani 500 concurrent users dengan throughput sebesar 79,19 permintaan per detik dan tingkat keberhasilan (success rate) 100%. Dapat disimpulkan bahwa kombinasi modular monolith dan event-driven architecture terbukti efektif dalam pengembangan backend aplikasi pembelajaran bahasa Inggris, karena tidak hanya memudahkan pengelolaan dan pengembangan fitur secara terstruktur, tetapi juga memberikan performa sistem yang optimal melalui mekanisme komunikasi berbasis event yang mengurangi ketergantungan antarmodul.

Kata kunci: modular monolith, event-driven architecture, feature driven development, aplikasi pembelajaran, backend development

## **ABSTRACT**

*This research, titled "Implementation of Modular Monolith Architecture and Event-Driven Architecture in English Learning Application Backend Development (Case Study: SMP Negeri 1 Karangreja)", aims to implement a combination of modular monolith and event-driven architecture and analyze its effectiveness in reducing complexity and improving system performance. The application development employs Feature Driven Development method, focusing on backend implementation comprising Learning, Progress, Auth, AI, and Gamification modules. The development results demonstrate that the modular monolith implementation successfully separates application Components into independent modules while maintaining integration within a single application. The implementation of event-driven architecture enables inter-module communication through event subscription mechanisms, significantly reducing tight coupling. System performance testing shows the capability to handle 500 concurrent users with a throughput of 79.19 requests per second and a 100% success rate. It can be concluded that the combination of modular monolith and event-driven architecture proves effective in developing the English Learning application backend, as it not only facilitates structured feature management and development but also delivers optimal system performance through event-based communication mechanisms that reduce inter-module dependencies.*

*Keywords: modular monolith, event-driven architecture, feature driven development, Learning application, backend development*