

## INTISARI

# IMPLEMENTASI *BACKEND* SISTEM PENDAFTARAN ASISTEN PRAKTIKUM BERBASIS REST API DENGAN FITUR VERIFIKASI DOKUMEN OTOMATIS

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Proses pendaftaran asisten praktikum di lingkungan akademik umumnya masih memerlukan pemeriksaan manual terhadap nilai akademik dari Kartu Hasil Studi (KHS) atau transkrip sementara. Proses ini rentan terhadap kesalahan dan memerlukan waktu serta tenaga tambahan. Penelitian ini bertujuan untuk mengembangkan sistem pendaftaran asisten praktikum berbasis REST API yang mampu melakukan verifikasi dokumen akademik secara otomatis menggunakan teknologi *Optical Character Recognition* (OCR). Dalam pengembangannya, dilakukan studi komparatif terhadap tiga *framework backend* populer berbasis Python, yaitu Flask, Django, dan FastAPI. Setiap *framework* diuji berdasarkan aspek performa seperti waktu respon, stabilitas, dan kemampuan menangani permintaan dalam satuan waktu tertentu. Hasil pengujian menunjukkan bahwa FastAPI memiliki performa paling optimal dengan rata-rata waktu respon tercepat sebesar 618,4 ms dan rata-rata permintaan per detik (RPS) tertinggi yaitu sebesar 1,79, meskipun Django mencatat tingkat kegagalan terendah sebesar 2%. Berdasarkan hasil tersebut, FastAPI dipilih sebagai *framework* utama untuk membangun sistem. Dengan pendekatan ini, sistem diharapkan dapat mempercepat dan meningkatkan akurasi proses verifikasi dalam pendaftaran asisten praktikum.

Kata kunci: Sistem Asistensi Praktikum, *Backend*, FastAPI, OCR, Kecerdasan Artifisial

## ***ABSTRACT***

### ***BACKEND IMPLEMENTATION OF ASSISTANT PRACTICUM REGISTRATION SYSTEM BASED ON REST API WITH AUTOMATIC DOCUMENT VERIFICATION FEATURE***

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*The process of registering practicum assistants in an academic environment generally still requires manual checking of academic grades from the Study Result Card (KHS) or temporary transcripts. This process is prone to errors and requires additional time and effort. This research aims to develop a REST API-based practicum assistant registration system that is able to verify academic documents automatically using Optical Character Recognition (OCR) technology. In its development, a comparative study was conducted on three popular Python-based backend frameworks, namely Flask, Django, and FastAPI. Each framework was tested based on performance aspects such as response time, stability, and ability to handle requests within a certain time unit. The test results showed that FastAPI has optimal performance with the fastest average response time of 618,4 ms and the highest average requests per second (RPS) of 1,79, even though Django recorded the lowest failure rate of 2%. Based on these results, FastAPI was chosen as the main framework for building the system. With this approach, the system is expected to speed up and improve the accuracy of the verification process in practicum assistant registration.*

*Keywords: Practicum Assistance System, Backend, FastAPI, OCR, Artificial Intelligence*