

Design and Implementation of a Secure Student Result Management System Using React, FastAPI, and Data Analytics

Prof. Ashwini Wakodkar¹, Kajal Kachhwaha², Vaishnavi Shobhane³

Professor¹, Department of Computer Application

^{2,3}PG Scholar, Department of Computer Application

K. D. K. College of Engineering, Nagpur, Maharashtra, India

ashwini.wakodkar@kdkce.edu.in , kachhwahakdamodhar.mca24f@kdkce.edu.in,

shobhanevrajesh.mca24f@kdkce.edu.in

Abstract: *For the management of student academic records, educational institutions need scalable, secure, and effective solutions. Manual data handling, delayed result dissemination, restricted analytics, and security flaws are common features of traditional result administration procedures. Many of the current digital systems are built on antiquated technology, don't have role-based access control, and don't offer any information on patterns in academic achievement.*

The design and implementation of a Student Result Management System (SRMS) with secure OTP-based authentication and role-based access for administrators, professors, and students is shown in this article. The system was created using React for the frontend and FastAPI for the backend. Bulk mark uploads using Excel, automatic result computation, PDF-based report production, and performance analytics dashboards are all supported by the system. The architecture minimizes administrative workload while guaranteeing data integrity, scalability, and usability. When compared to traditional result management techniques, experimental evaluation shows increased accessibility, accuracy, and efficiency..

Keywords: Student Result Management System, FastAPI, React, OTP Authentication, Academic Analytics, PDF Report Generation, Role-Based Access Control, Educational Technology

