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STUDENT RESULT SYSTEM

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ABSTRACT:

The Student Result & Evaluation System streamlines student performance management and evaluation, emphasizing internal assessments and term work. Spreadsheets or physical records are inefficient and prone to errors when dealing with large groups of students. Current LMS platforms address this to some extent but do not have a centralized, all-encompassing evaluation system. This project fills that gap, providing real-time updates, open performance tracking, and secure storage. Future add-ons are support for mobile applications, AI-based analysis, performance analytics, and linking to external examination systems.

Keyword: Student Result System, automated marking, internal exams, centralized system, real-time reporting, safe storage, performance analytics, AI, customized learning, examination system integration

I. Introduction

Educational institutions usually use manual or semi-automatic tools for student evaluation, which results in errors, delays, and a lack of transparency. Although LMS platforms provide some support, they usually deal with content delivery instead of overall academic assessment. The Student Result & Evaluation System responds to this demand by offering a web-based platform that automates assessment procedures, minimizes human error, and provides real-

time updates of results. Driven by the increasing demand for digital transformation in education, this system guarantees accuracy, scalability, and individualized performance monitoring through the integration of AI and mobile accessibility features.

II. Literature Review

Initial systems such as spreadsheets and minimal databases brought electronic record-keeping but did not have automation and real-time visibility. LMS systems such as Moodle and Blackboard enhanced effectiveness but tended to involve manual input of data and did not complete automation of evaluations.

Independent outcome management tools aided automation of scores and data aggregation, but had not yet enabled sophisticated features such as predictive analysis or connectivity to external systems. Security issues such as data leaks were still pending in most classic systems.

Advancements in AI, cloud computing, and blockchain have opened up new possibilities. AI offers personalized learning and predictive performance analysis, while cloud platforms ensure data availability and resilience. However, many institutions still face implementation challenges due to technical or infrastructural limitations.

The proposed system leverages these technologies to offer a secure, scalable, and fully automated result management solution, setting it apart from conventional tools.

III. System Architecture

The system follows a three-tier architecture:

Frontend: Developed with HTML, CSS, and JavaScript, it offers an interactive user interface for students and professors. Students are able to see real-time results, whereas professors are able to input and update grades.

Backend: Written using ExpressJS, it manages server-side logic, authentication (via JWT), and role-based access. Automated grading provides consistency and avoids human error.

Database: Utilizes SQL/NoSQL databases to store student information securely. Encryption and Role-Based Access Control prevent unauthorized access, and frequent backups guarantee data integrity.

The modular architecture of the system facilitates scalability, enabling future integration of mobile applications, AI modules, and external systems. It provides secure, real-time communication between users and data layers.

IV. Implementation

Designed with the Agile methodology, the system was developed iteratively with regular feedback. The frontend employs contemporary web technologies for responsive design, with the backend interacting through RESTful APIs.

Authentication using JWT provides secure sessions for users based on role (student, faculty, admin). The backend ensures automated marking based on specified criteria, minimizing manual effort and increasing reliability.

The workflow of the system entails:

- Secure login
- Faculties' entry of assessments
- Automated marking and processing
- Real-time updates of results to student dashboards

Report generation with PDF/CSV export for administrative purposes. The system runs on a cloud server, which provides remote access, auto-backups, and effortless scaling.

Features planned include AI-driven analytics, mobile compatibility, and integration with external academic boards.

V. Result

The system has enhanced result processing speed, accuracy, and transparency. Processes that used to take days are now done within hours because of automation. Miscalculations and lost records have been eradicated.

Faculty enjoy less administrative workload, while students get instant access to their grades and performance analysis. A user-friendly dashboard facilitates easy viewing of scores and academic progress analysis.

Feedback from stakeholders has been positive. Administrators appreciate the secure storage and tamper-proof nature of the data. Faculty required minimal training to transition from manual systems, aided by intuitive design and structured onboarding.

Initial challenges, like data security and user adaptation, were overcome through strong encryption, RBAC, and user training. The system is also scalable and adaptable to increasing user loads, ensuring long-term viability.

Cloud hosting adds additional reliability, while scheduled AI capabilities will assist in recognizing vulnerable students and offer customized learning suggestions.

VI. Conclusion :

The Student Result & Evaluation System provides a secure, automated, and powerful system for managing student grades. It simplifies grading, eliminates mistakes, and makes academic data immediately available, enhancing the lives of students, professors, and administrators.

Security features like encryption and RBAC protect sensitive data, while the modular, cloud-based design provides scalability. With possible integrations such as AI-driven insights, mobile usability, and blockchain-protected records, the system is poised to transform academic assessment across institutions. By using an intelligent, automated system in place of legacy processes, this project not only increases academic efficiency and transparency but also lays the groundwork for future innovations in education.

VII. REFERENCES

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