

STUDENT PERFORMANCE AND MANAGEMENT SYSTEM

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Abstract

The Student Performance and Management System is a web-based application designed to manage student academic information and analyze performance in a centralized platform. Educational institutions handle large amounts of student data, including personal details, attendance, marks, subjects, assignments, examinations, and academic progress. Managing this information manually can be time-consuming and may make it difficult for teachers and administrators to obtain a complete view of student performance. The proposed system provides an organized solution for storing and analyzing student-related academic information.

The system maintains important academic information such as student details, subjects, marks, attendance, examination results, assignment performance, grades, and overall academic progress. The collected information is stored in a structured database and can be accessed by authorized users. Performance metrics can be calculated automatically based on examination marks, attendance, assignments, and other institution-defined criteria.

The system provides dashboards and reports that allow teachers and administrators to understand student performance through charts, tables, graphs, and summary indicators. Users can view subject-wise marks, attendance percentages, grade distributions, and overall performance trends. Students can also access their academic information through an appropriate user interface, subject to the institution's access policies.

The proposed system helps teachers identify students who may need additional academic support and allows them to monitor progress over different assessment periods. Administrators can use aggregated academic information to understand class or department-level performance. The system is intended to support academic monitoring and management rather than automatically making decisions about students.

Overall, the Student Performance and Management System provides a centralized and efficient approach to managing academic information and monitoring student progress. It reduces dependence on manual record keeping and improves access to organized academic data. The system can be further enhanced with notifications, performance forecasting, learning analytics, online examination integration, and personalized academic-support features.

I. Introduction

Student performance monitoring is an important activity in educational institutions because academic progress needs to be tracked throughout the academic year. Schools,

colleges, and universities maintain information related to students, subjects, examinations, attendance, assignments, and grades. When these records are managed efficiently, teachers and administrators can obtain a clearer understanding of academic progress and provide appropriate support.

Traditional student management processes often rely on paper records, spreadsheets, separate databases, and manually prepared reports. Teachers may maintain marks and attendance separately, while administrators maintain student registration and academic records. Managing information across multiple sources can make it difficult to obtain a complete picture of a student's academic performance.

A centralized Student Performance and Management System can address these challenges by integrating relevant academic information into one platform. Student records, subject information, examination marks, attendance, assignment scores, and grades can be stored in a structured database. The system can automatically calculate percentages, grades, attendance rates, and other institution-defined performance indicators.

Data visualization can make academic information easier to understand. Charts can display subject-wise performance, while graphs can show changes in marks across different examinations. Attendance charts can help identify attendance patterns, and class-level reports can provide an overview of academic performance. Authorized users can apply filters based on students, subjects, classes, semesters, or academic years.

The main objective of the proposed system is to provide an efficient platform for student information management and academic performance analysis. It can help teachers monitor progress, administrators manage academic records, and students access their own information. By reducing manual record management and providing organized analytical information, the system can support better academic planning and informed educational decisions.

II. Literature Survey

Student information management systems have been widely adopted in educational institutions to organize academic and administrative information. Traditional student management approaches often involve separate records for registration, attendance, examination results, and academic activities. Modern information systems integrate these records into centralized databases, allowing authorized users to access and manage information more efficiently.

Academic performance analysis is an important area of educational data analytics. Student performance can be evaluated using examination marks, assignment scores, attendance, grades, and other academic indicators. Combining multiple indicators can provide a broader understanding of academic progress than relying on examination marks alone. Performance analysis can also help educators identify areas where students may require additional academic support.

Attendance is another commonly used indicator in student management and academic monitoring. Attendance records can be analyzed to identify patterns and calculate

attendance percentages over a semester or academic year. Comparing attendance with academic performance may provide useful information for educational analysis, although attendance alone should not be treated as a definitive measure of academic ability.

Data visualization has become increasingly useful in educational analytics. Dashboards can represent marks, grades, attendance, subject performance, and class-level statistics using charts, graphs, and tables. Visual representations allow teachers and administrators to understand large amounts of academic information more quickly than manually reviewing individual records.

Learning analytics and educational data mining have also been explored for understanding student behavior and academic outcomes. These approaches use historical academic data to identify patterns and provide insights that may support educational planning. However, such systems should use appropriate data governance and privacy practices, particularly when handling student information.

Based on these approaches, the proposed Student Performance and Management System combines student record management with academic performance analysis and visualization. It provides a centralized platform for managing student information, marks, attendance, grades, and academic progress. The system can help educational institutions reduce manual work and provide authorized users with organized information for academic monitoring and management.

III. System Analysis

The system analysis identifies the requirements and operations of the Student Performance and Management System. The system stores student details, subject information, attendance, examination marks, assignments, grades, and academic records. Authorized users can add, update, view, and manage student-related information according to their roles. The collected data is validated to reduce incomplete or inconsistent records. Academic information is stored in a centralized database for efficient retrieval and management. The system calculates percentages, grades, attendance rates, and other predefined performance indicators automatically. Student performance can be analyzed subject-wise, semester-wise, class-wise, or academic-year-wise. The system generates charts, tables, and reports to visualize academic progress. Teachers can monitor performance and identify students who may require additional support. Students can access their own academic information based on institutional permissions. Administrators can generate overall class, department, or institution-level reports. The system improves academic record management and supports data-driven educational planning.

Existing System

In many educational institutions, student information is maintained using paper records, spreadsheets, separate databases, and manually prepared academic reports. Student details, attendance, marks, assignments, and examination results may be maintained separately by different departments or teachers. Teachers often calculate percentages, grades, and performance summaries manually. Preparing student performance reports can therefore require considerable time and effort. Manual record

management can also result in data-entry mistakes, duplicate records, or inconsistent information. Comparing student performance across subjects or semesters may require additional manual processing. Historical performance trends may be difficult to identify from static records. Administrators may also face difficulties when generating class or department-level reports. As the number of students increases, maintaining academic records manually becomes increasingly complex. Accessing updated information may also be difficult when records are stored in multiple locations. Therefore, a centralized system is required to efficiently manage student information and analyze academic performance.

Disadvantages of Existing System

- Student records may be maintained in multiple locations.
- Manual data entry requires considerable time.
- Higher possibility of data-entry and calculation errors.
- Difficult to maintain large numbers of student records.
- Manual calculation of grades and percentages.
- Difficult to compare performance across subjects.
- Limited visualization of academic trends.
- Historical performance analysis can be time-consuming.
- Report generation requires additional manual effort.
- Attendance and marks may be maintained separately.
- Difficult to obtain a centralized academic overview.
- Data updates may not be immediately available to all authorized users.

Proposed System

The proposed Student Performance and Management System provides a centralized platform for managing student information and monitoring academic performance. The system stores student profiles, subjects, attendance, examination marks, assignment scores, grades, and other relevant academic records. Authorized users can securely add, update, and retrieve information according to their assigned roles. The system validates the collected information before storing it in a centralized database. Percentages, grades, attendance rates, and other predefined performance metrics can be calculated automatically. Student performance can be analyzed by subject, semester, class, department, or academic year. The dashboard presents academic information using charts, graphs, tables, and summary cards. Teachers can monitor student progress and identify areas where additional academic support may be appropriate. Students can view their own academic records through a suitable interface. Administrators can generate class-level and department-level reports for academic management. Role-based access controls can help protect student information. Overall, the proposed system reduces manual record management and provides an organized platform for academic monitoring and decision-making.

Advantages of Proposed System

- Centralized student information management.
- Automated calculation of academic metrics.
- Easy management of marks and attendance.
- Subject-wise performance analysis.

- Semester-wise and academic-year-wise comparison.
- Clear visualization through charts and graphs.
- Faster academic report generation.
- Reduces manual record-keeping effort.
- Helps teachers monitor student progress.
- Supports identification of students needing academic support.
- Provides students with convenient access to their records.
- Supports class and department-level analysis.
- Role-based access improves information security.
- Can be extended with notifications and learning analytics.

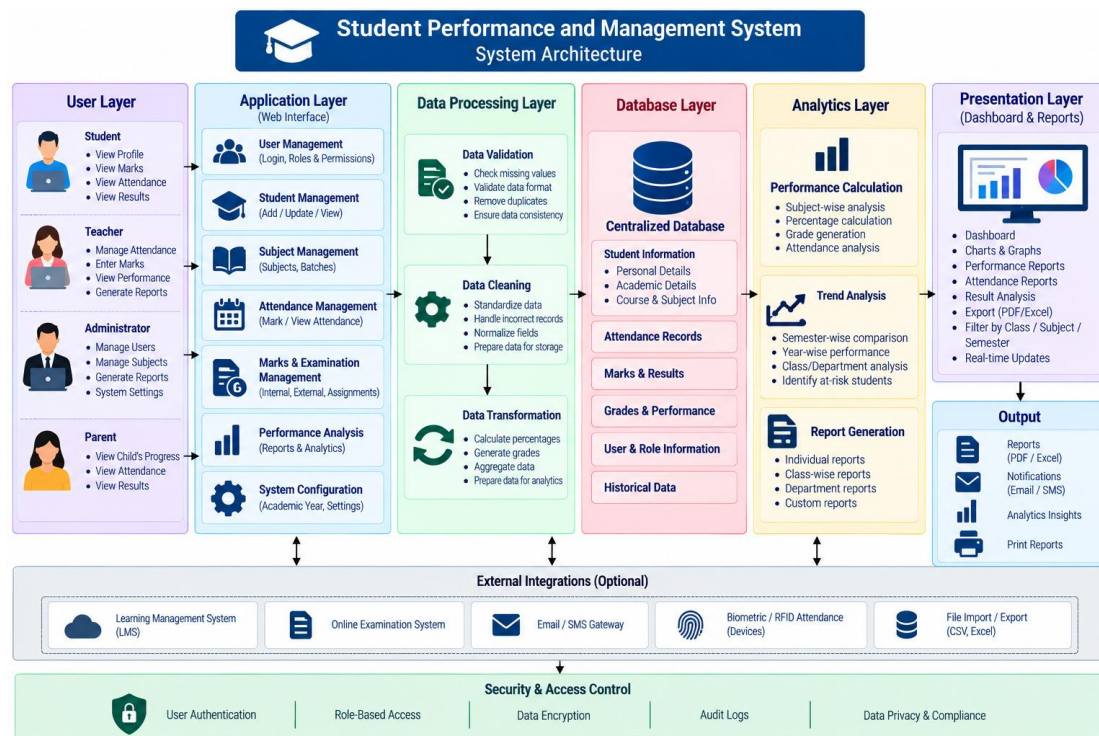
IV. Methodology

The methodology begins with collecting student and academic information from authorized institutional sources. The collected information includes student profiles, subjects, attendance, examination marks, assignment scores, grades, and academic records. The system validates the data to identify missing, duplicate, or inconsistent records. Data is then cleaned and standardized before being stored in a centralized database. Authorized users can enter or update academic information according to their assigned roles. The system automatically calculates percentages, grades, attendance rates, and other predefined academic indicators. Performance data is organized according to students, subjects, semesters, classes, and academic years. Analytical processes identify performance trends and summarize academic results. The dashboard presents the processed information through KPI cards, charts, graphs, tables, and reports. Teachers can use the results to monitor academic progress and identify areas requiring attention. Students can access their own academic information according to institutional policies. Administrators can generate aggregated reports for academic planning and management.

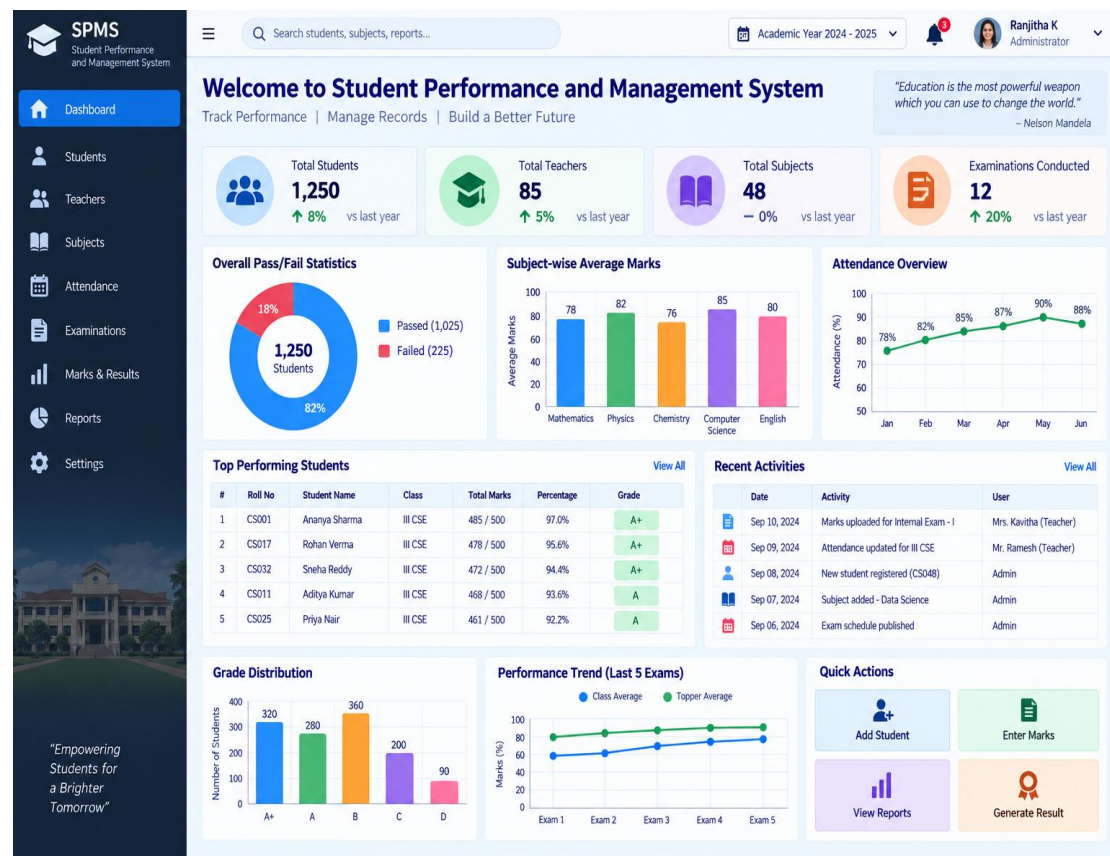
System Architecture

The system architecture consists of multiple layers responsible for collecting, processing, storing, analyzing, and presenting student academic information. The User Layer includes students, teachers, administrators, and other authorized institutional users. The Application Layer provides functions for student registration, subject management, attendance management, marks entry, grade management, and report generation. The Data Collection Layer receives academic information such as student details, attendance, examination marks, and assignment results through authorized interfaces. The Data Processing Layer validates, cleans, and standardizes the collected academic information. The processed records are stored in the Centralized Database Layer, which maintains student profiles and historical academic records. The Performance Analytics Layer calculates percentages, grades, attendance rates, subject-wise performance, and other predefined indicators. The Trend Analysis Module compares academic performance across subjects, semesters, classes, and academic years. The Dashboard Layer displays the results through KPI cards, charts, graphs, tables, and academic reports. Teachers can monitor student and class performance through authorized views. Students can access their own academic information according to institutional permissions. Administrators can manage users, academic records, and institution-level reports. The system can use role-based access control, authentication, and audit mechanisms to protect student information. The

architecture can be extended with online examinations, notifications, learning-management integration, and advanced educational analytics.



V. Result and Output



VI. Conclusion

The Student Performance and Management System provides a centralized and efficient solution for managing student academic information and monitoring performance. The system integrates important records such as student details, attendance, examination marks, assignments, grades, and academic progress into a structured platform.

The system helps teachers and administrators analyze student performance through dashboards, charts, graphs, tables, and reports. Subject-wise and semester-wise analysis makes it easier to identify academic trends and students who may require additional support. Students can also access their academic information through authorized user accounts.

The proposed system reduces manual record-keeping, minimizes calculation errors, and makes academic information easier to access and manage. It supports faster report generation and provides a better foundation for academic planning and decision-making.

Overall, the Student Performance and Management System improves the efficiency of academic record management and performance monitoring. Future enhancements can include online examinations, automated notifications, learning-management integration, performance forecasting, and advanced learning analytics to further support students, teachers, and administrators.

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