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Tool for Analysis of Student Performance

Nikhil K Bhat[1], A Amardeep M Kini[2], Fizan Mohammed Shareef [3],

Divyashree S[4], Sangeetha Harikantra[5]

Student, Information Science & Engineering, MITE, Moodabidri, India[1-3]

Assistant Professor, Information Science & Engineering, MITE, Moodabidri, India[4-5]

Abstract: To manage and analyze student ranks and outcomes, a web-based project called Student Performance Analysis was developed. It also features extra modules to figure out the students' SGPA and CGPA. Reduce manual errors and transform the output system into a computerized system are its two main goals. A time and effort-saving performance report generator is part of the project and generates reports by year, branch, section, and subject. Students can view their academic success as the technology aids teachers in analyzing findings and generating reports with a single click. It centralizes data administration and is a user-friendly web application that is available from anywhere. The approach benefits students, teachers, and college management since it raises production while enhancing educational quality and student achievement.

Keywords: JavaScript, SQL (Structured Query Language), PHP (Hypertext Preprocessor), XAMPP (Cross-Platform, Apache MYSQL, PHP and Perl).

I. INTRODUCTION

A multifunctional computer program called a database management system, or DBMS, makes it simpler to establish, create, manipulate, and exchange databases among diverse users and applications. As a collection of linked data, a database. Data is a proven fact that can be documented and has great-er meaning. The Student Result Analysis method is well-structured and effective. The administration, which goes to considerable lengths to disseminate student outcomes under normal conditions, benefits from this as well.

A web application called Student Result Analysis was created using PHP and the MySQL database. This is used to create performance reports for students, subjects, or branches and analyses student performances based on user requirements. It also allows students to see their individual performance throughout the semester. This will assist the college administration in taking appropriate actions to improve educational quality and student performance. Because all data is centralized and any changes to data are immediately available to all users of this program, it also addresses the issue of data management.

II. LITERATURE SURVEY

In their paper [1], Patade, Abhilash, Prakash Parmar, and Sarvesh Nikam aimed to develop software for the department of computer science and engineering, with the intention of keeping the "PROGRESS REPORT, RESULT Time table generation and analysis. In the modern world, technology has advanced to the point that it can be utilized to quickly and simply complete a variety of daily chores. Due to the importance of time, work at universities, colleges, and schools must be finished before the due date. Manually analyzing student results takes a lot of time. Also, it is challenging to maintain track of each student's performance. A web-based and Android-based solution that can analyze student results has therefore been devised to streamline this work. The system accepts files of student test results acquired by institutions in the form of excel sheets or PDFs. The system offers many sorts of analytical results, including reports broken down by course, faculty, division, and gender.

In their paper [2], Ashwin Mehta, Jugal Patel, and Aditya Mewada aimed to develop an online system for analyzing student results. The system can process an excel sheet file containing student data obtained from universities and analyze it based on factors such as marks, grades, and rank. The results for various departments can be computed efficiently without much manual involvement. It offers an all- inclusive resolution for the requirements of computing exam results, managing student information, and academic records. Moreover, the system is designed to be easily updated to accommodate different formats in the future.

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In their paper [3], Dhawal P. Atkare, Swapnil M. Waghade, Sameer A. Javed, and Anand developed results of the students that participated in this study were collected manually. Our technique produced an easy-to-understand, optimized outcome. A crucial tool for the teaching staff to assess students' performance across all courses must be expressed. Additionally, it is simple to compare the performance of teachers of other disciplines, which is highly helpful for the department head and the staff. A new system was therefore developed, created, and put into place.The analysis of the results is presented in a single portable document file. (pdf). This new framework is flexible and may be modified to accommodate any type of understudies' information handling and record keeping needs at universities.

In their paper [4], Prof. Sanjay Kadam, Bhavana Jadhav, Saylee Molawade, Saloni Patil aimed to develop a model that can determine the academic success of students. To build a model for academic performance, data analysis, graphical representations, and report generation were utilized. This can aid in identifying students who are struggling and provide them with assistance to improve their grades, thus enhancing academic results. With the identification and evaluation of variables linked to higher education and an increase in sample size, future studies may lead to the development of a model that could serve as a benchmark.

In their paper [5], Selina Khoirom, Laimujam Raj Singh, Sougaijam Nealson Singh, Laishram Rabi Singh, Keisham Linthoingambi aimed to automate the management of student records. The primary purpose is to administer and maintain student information in schools, colleges, and coaching centers through user-friendly, fast, and cost- effective software. In the past, this process was done manually. The primary function of the system is to register and store student data, retrieve it when necessary, and manipulate it in a meaningful way. This project is called "FrontOffice Management" and it is designed to streamline the process of managing student records.

In their paper [6], Nakul Sharma, Sonali Dake, Riddhi Panchale, K. S. Charumathi aimed to provide numerous benefits, including the proper routing and tracking of results, increased processing efficiency, and improved productivity for both staff and students. This system is web-based, accessible through a web browser from anywhere. Faculty members can view individual student results separately. The system calculates results quickly, thereby optimizing manpower and saving time and manual effort. Additionally, this system assists college management in taking appropriate actions to enhance the quality of education and improve student performance.

III. ANALYSIS & REQUIRED SPECIFICATION

A. *Purpose:* This is the web-based project and we can manage the results online. This web application uses a centralized relational database, which allows us to access the data from the database from a remote location through the web application. The main purpose is to reduce the manual error and convert the system into fully computerized system.

B. *Scope:* The system can be used in any schools, college or in any educational institute to get information about any student and then store the data for future purpose. The intension of the system is to reduce the time and increases the productivity as the lectures or college staff need not to waste their time in analysis and generating the results manually.

IV. FUNCTIONAL REQUIREMENTS

Three modules are used in this project namely admin, student and calculator.

- Admin: He has the authority to insert, delete or modify the student's data and results.
- Student: He has right to view the results and able to download the result in pdf format.
- Calculator: This is an additional feature where we can manually calculate the cgpa/sgpa and get in percentage format even.

V. NON-FUNCTIONAL REQUIREMENTS

A. Hardware Secification:

Processor : 11th Gen Intel(R) Core(TM) i5-1135G7 @ 2.40GHz 1.38 GHz Monitor : 1024 * 768 Resolution ColorKeyboard : QWERTYRAM : 1 GBInput Output Console for interaction.

B. Software Secification:

MySQL Server 8.0, XAMPP control panel v3.3.0, Operating system: Windows10.

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VI. METHODOLOGY

The Student Result Analysis is an online platform developed using PHP and MySQL, designed to evaluate student performance based on specific user preferences and generate progress reports for subjects, branches, and individual students. This application comprises two primary modules: the Admin Module and the Student Module.

The Admin Module provides a variety of features such as adding, deleting, and modifying student and class details.

The Student Module, on the other hand, offers features like displaying student marksheets, presenting class rankings, calculating student SGPA and CGPA, and downloading student marksheets.

VII. DIAGRAM OF ENTITY RELATIONSHIP

A database's entities and their relationships are shown visually in an ER diagram. It is a visual tool used in databases to show the relationships between various entities, their characteristics, and how they work together. Entities, attributes, and relationships are the three main parts of an ER diagram.

A rectangular shape is used to represent entities, ovals are used to represent attributes, and lines connecting the entities are used to show relationships.

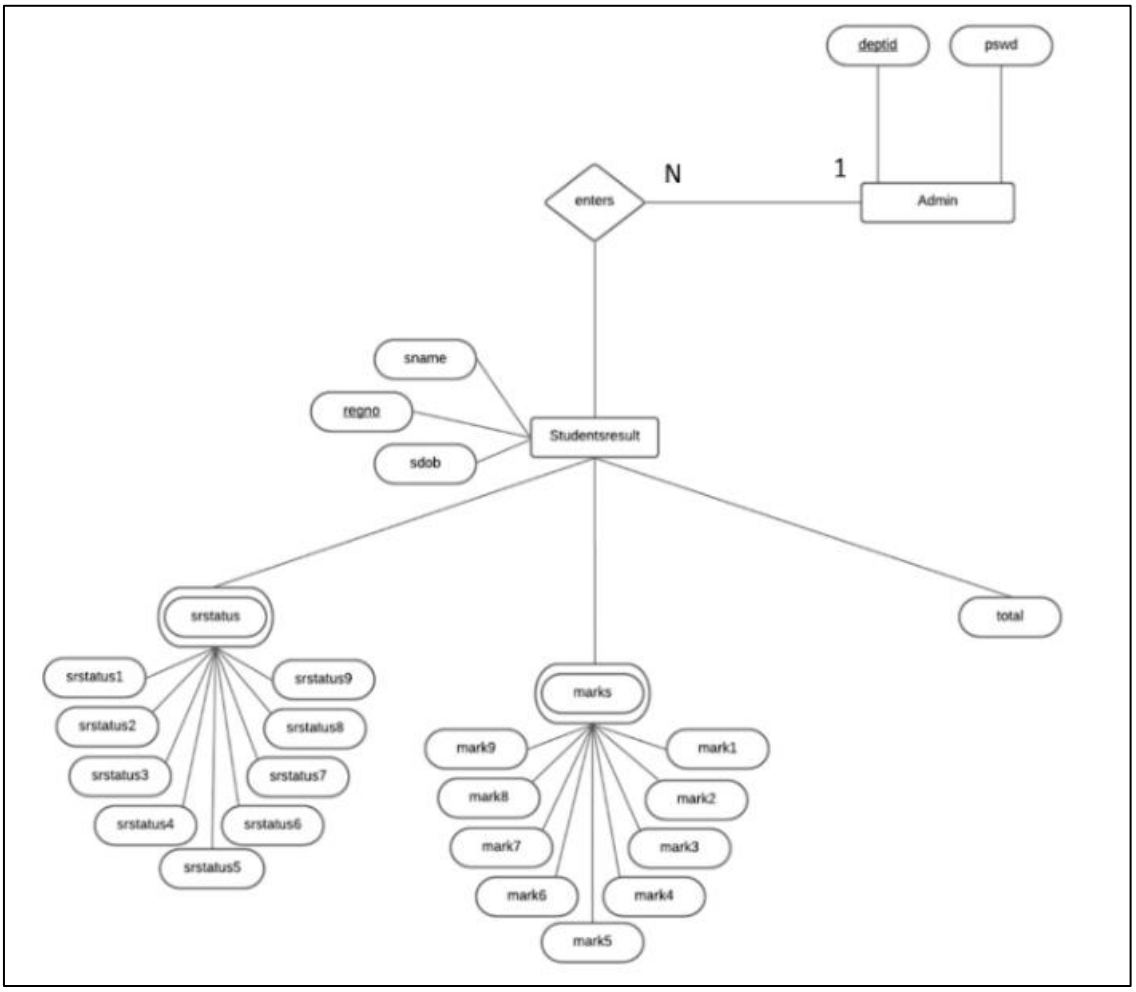

Fig. 1 ER Diagram

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VIII. RESULT AND DESCRIPTION

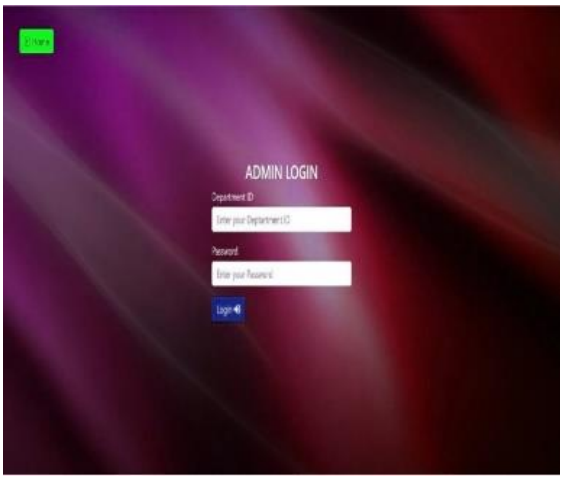

Fig. 2 Admin Login Page

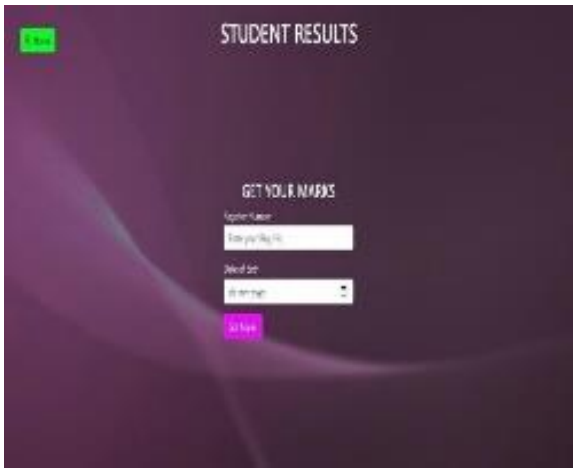

Fig. 3 Student Login Page

Fig. 4 Admin Page

Fig. 5 Admin Student Update Page

Fig. 6 Student Result Analysis

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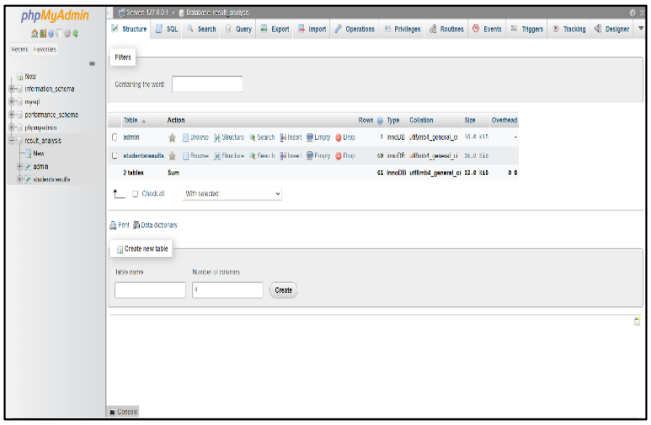

Fig. 7 Design page of CGPA/SGPA Calculator Page

Fig. 8 Structure of the Database

IX. CONCLUSION & FUTURE ENHANCEMENT

It is an easy-to-use web tool that is used to maintain and analyses student results. This project is web-based, which eliminates paperwork and allows for remote monitoring. Students will receive their results promptly. The database's data can be accessed at any time. The main objectives of this project are to reduce human error and convert the result system into a computerized system. This project avoids unauthorized access from others since it is secured. Both the student and the administrator can access the results by logging in using their unique credentials. Overall, the work process has been streamlined and productivity has increased.

We have implemented the result system for one semester. We will try to implement for the entire college so that whole students can check their results. To this higher security features can be implemented trough blockchain.

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