

Academic Performance Indicators for Students of Engineering College

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Abstract: Educational organizations are one of the important parts of our society and playing a vital role for growth and development of any nation. For that getting appropriate student performance analysis is of most important. We are proposing a system which involves student performance indicator. The Student Academic Performance Indicator is a comprehensive system designed to assess and evaluate the educational progress and achievements of students in an academic institution. This system utilizes a variety of data sources, including grades, attendance records, and standardized test scores, to provide insights into a student's academic performance. Through data analysis and visualization, the Student Academic Performance Indicator helps educators and administrators identify trends and patterns in student performance. It not only highlights areas where students excel but also identifies potential areas of improvement. This tool serves as a valuable resource for educators to make data-driven decisions, implement targeted interventions, and support student success. By leveraging technology and data analytics, the Student Academic Performance Indicator contributes to the enhancement of the overall educational experience, enabling institutions to tailor their educational strategies to meet the unique needs of each student. This abstract provides an overview of the importance and utility of this system in promoting academic excellence and fostering student growth.

Keywords: academic performance, academic performance indicators, Data Analysis, Student Monitoring, overall performance indicator, students details

I. INTRODUCTION

An Academic Performance Indicator (API) is a metric used in educational institutions to evaluate the performance and productivity of student and faculty members. It is commonly used in higher education, such as universities and colleges, to assess the student in areas like learning, research, and placements. API scores are typically used for various purposes, including annual performance evaluations, and merit-based grading. A Student Academic Performance Indicator is a tool or system designed to assess and measure the academic progress, achievements, and overall performance of students in educational settings. It typically involves evaluating various aspects of a student's academic journey, including grades, test scores, attendance, participation, and other relevant metrics. The primary purpose is to provide insights into a student's learning strengths, weaknesses, and areas needing improvement. By analysing multiple factors, educators and institutions can better understand a student's academic capabilities, track their progress over time, and offer targeted support or interventions when necessary. Key components of a Student Academic Performance Indicator may include:

- Grades and Assessments: Tracking and analysing students' grades, including their performance on exams, assignments, projects, and standardized tests.
- Attendance and Participation: Monitoring students' attendance records and participation in class discussions, activities, and extracurricular events, as these can impact academic success.

- Behavioural Metrics: Assessing students' behaviour, such as their engagement in class, interaction with peers, adherence to classroom rules, and overall attitude towards learning.
- Learning Outcomes: Evaluating whether students are meeting specific learning objectives, competencies, or benchmarks set by the curriculum or educational standards.
- Progress Tracking: Documenting students' academic growth and improvement over time to identify trends and patterns in their performance.

II. LITERATURE SURVEY

We've examined work on similar projects in the past and know how to do research. A literature survey for Student Academic Performance Indicators (SAPIs) involves reviewing existing research, scholarly articles, books, and studies related to assessing and measuring student academic performance in educational settings. Here is an outline of possible sections and key points that could be included in a literature survey on this topic: Examine the factors that affect student academic performance, such as socio-economic background, motivation, learning environment, teaching methodologies, etc. Discuss studies highlighting the impact of these factors on SAPIs and their implications for assessing student performance accurately.

Maria EZZIANI, Salima BENHAYOUN, Yousra CHTOUKI [1] Analysis of Student Academic Performance Using Social and Academic Indicators. The research on the students academic behavioural as well as the academic performance is being studied and found that the CGPA and other extra curricular activities are also that much of important for the overall devolvement of a student.

Norka Bedrega, Víctor Cornejo [2] researched on the a system for identifying active participation of student by using a parameter of gender in the engineering field. Researchers are being found that the numbers of students in an engineering colleges are 74% are male while 26% only are females. by which they concluded that the gender also affecting the overall performance of student.

YuanLin Wang, Yong OuYang [3] The model is able to predict the performance of students based on the similarity of the educational background of the students. as per different educational background the syllabus is changed which can also be the parameter for the evaluation of the students performance in academics.

Overall what we observe is the current education system is quit lagging behind the generation so we studied and researched on the solutions for the better academic as well as overall performance of the student and we found that there are factors which can be evaluated for the calculating the performance of student. On which we can able to suggest the necessary provision for each and every student.

III. PROBLEM STATEMENT

Many educational institutions face the challenge of efficiently tracking and evaluating students' academic performance. The existing methods often involve manual data entry and analysis, leading to inaccuracies and time-consuming processes. There is a need for a robust and automated system that can provide a comprehensive indicator of students' academic performance. This system should address the following key issues:

- Data Accuracy: Inaccurate data entry and calculation errors can lead to misleading performance indicators. A system is needed to ensure the accuracy and reliability of academic data.
- Timeliness: Traditional methods for generating performance indicators may take a significant amount of time. Educational institutions require a system that can provide realtime or near-real-time performance updates.
- Customization: Different institutions have varying grading systems and criteria for evaluating academic performance. The system should be flexible and customizable to accommodate these variations.
- Student Engagement: An ideal system should not only provide performance indicators but also offer insights into student engagement and participation, helping educators identify at risk students early.
- Security and Privacy: Handling sensitive academic data necessitates robust security measures to protect student information and ensure compliance with data privacy regulations. This System will help for student to choose bast college ad also reduce manual work and automate this with the help of the software. Framing the

software as to calculate the overall performance of student with respect to their college CGPA as well as the other activities like sports and other certifications.

IV. PROPOSED SYSTEM

To overcome the limitations of existing systems, we have proposed proposed system is based on online web-application which include systems in order to monitor the performance of a student in Engineering colleges. The development of proposed system to available data at one click as per requirement and need of user. This system is also to make it easier for users of the system to be able to view the performance of students in accordance with the data that is needed in the process of monitoring. With the help of indicators, user or management will be easily understand by the graphical representation. This system will allow the students to add new skill and certifications on their profile. o The Proposed System will be automated which requires less Time. o All the Data of Students required for monitoring student performance will be available at Single Click by using student ID. o This System will provide the Transparency to everyone including students, Teacher and Management. o Proposed system will use Data Driven Decision Making which helps to make correct decisions.

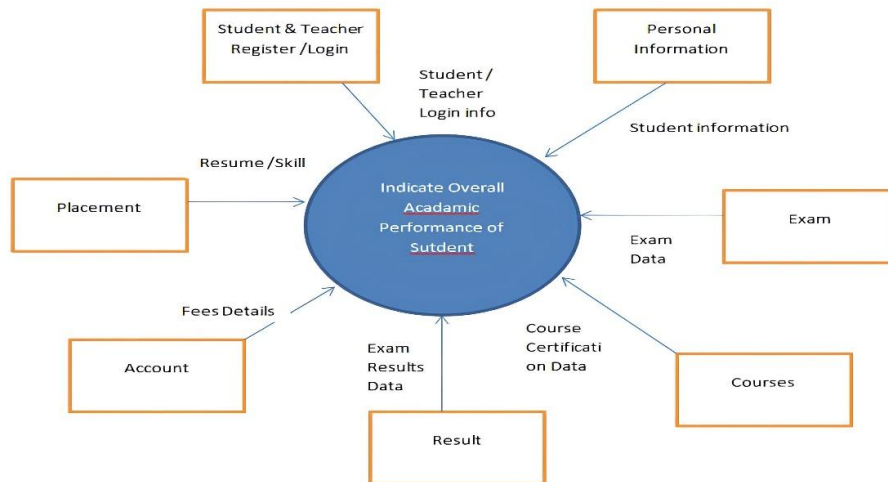
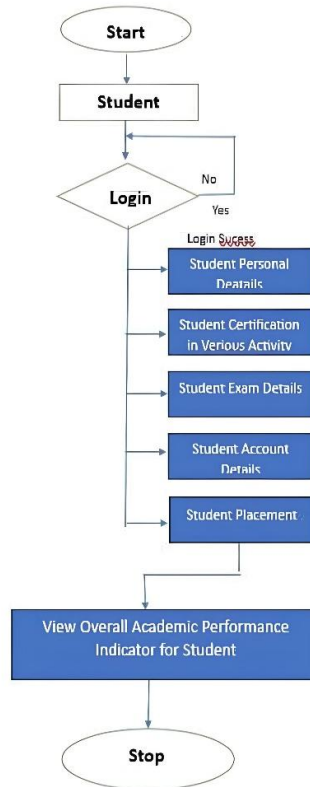


Fig. Block Diagram of Proposed System

V. WORKING OF SYSTEM

The working of the proposed system is based on the various steps including student registration, student data storage, data processing, data analysis, real time monitoring, final results all these steps are involved in the working of the system. The system follows the following steps to come across the desired and helpful output for the student performance indicators systems.

- 1) Data Collection and Input
- 2) Storage and Management
- 3) Data Analysis and Processing
- 4) Generating Performance Reports
- 5) Feedback and Interventions
- 6) Integration with Educational Framework



VI. ADVANTAGES

There are many advantages of the proposed system that helps to build a helpful system for the academic performance of student and also such key points of following include :

- **Time Saving:** The Proposed System will be automated which requires less Time.
- **One Click Availability:** All the Data of Students required for monitoring student performance will be available at Single Click by using student ID.
- **Transparency:** This System will provide the Transparency to everyone including students, Teacher and Management.
- **Data Driven Decision:** Proposed system will use Data Driven Decision Making which helps to make correct decisions.
- **Accountability:** This System will provide Accountability for student like Learning, Research and Certification.

VII. CONCLUSION

We are design Student Performance Indicator Systems to support a success of study by analysing, designing and implementing information Systems for improving Education processes. This system is expected to help the process of monitoring more effectively without need to wait for data prepared by the others and it also to decrease low student performance due to have the number of attendance which exceeds the maximum specified, grade point average (GPA) which is at the minimum, and it can ensure that students can be scheduled for thesis examination on time with the number of points. In addition, there are many features in it that are designed based on the analysis of the needs of the Information Systems department, which are: Create Student List, Grade Check, Attendance Check, certification, and Generate Reports.

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