IDEATION AND STAKEHOLDER NEED ANALYSIS - INTERMEDIATE REVIEW

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Stakeholder Identification and Needs Analysis

In our project, the primary stakeholders are students, parents, faculty, and Heads of Departments (HODs). Each group has specific needs related to tracking and analyzing student performance in academics and other activities.

1. Students : Students often find it hard to understand their strengths and weaknesses because there is no single place to check both academic and other performance. They do not have clear and real-time information about how they are doing compared to classmates and what areas need improvement.

2. Parents : Parents want to keep track of their child's overall performance but usually have limited access to detailed and organized reports. Without clear information about grades, co-curricular achievements, and extracurricular activities, it is hard for them to guide and support their child.

3. Faculty : Faculty members face problems with manually entering and calculating grades, which takes a lot of time and can have mistakes. They do not have an easy way to check student progress or see performance patterns for the whole class.

4. Head of Department (HOD) : HODs need a complete view of student performance to make good academic and management decisions. Without a single system, it is hard to check trends across batches or semesters, review course performance, and decide how to give marks for different assessments.

Problem Statement

In many engineering colleges, tracking a student's performance is time-consuming. Academic scores, including exams, internal assessments, and term work, are often recorded manually or in separate systems. Co-curricular and extra-curricular activities, such as competitions, internships, and workshops, are usually not tracked in the same system. This makes it difficult for students to understand their overall performance, compare themselves with classmates, or identify areas for improvement.

Parents also face challenges because they lack clear visibility into their child's progress beyond basic academic grades. They cannot easily monitor participation in other activities or assess strengths and weaknesses, which limits their ability to provide meaningful guidance.

Faculty members spend considerable time on manual calculations, grade entries, and report preparation. This repetitive work is prone to errors and reduces the time they can dedicate to teaching and mentoring. Heads of Departments (HODs) face similar challenges, as they need consolidated and reliable data to monitor trends, assign weightages for assessments, and make informed academic and administrative decisions.

Ideation of Solutions

Based on the stakeholder needs and problem statement, we have identified three main solutions to address the issues effectively.

The first solution is a **Centralized Performance Dashboard**. This will be a web and mobile platform where academic, co-curricular, and extra-curricular performance data is stored and displayed in one place. Students, parents, faculty, and Heads of Departments (HODs) can log in to view dashboards, track progress, and generate reports. This will help students understand their strengths and weaknesses, allow parents to monitor their child's activities, make it easier for faculty to enter grades, and give HODs a clear view of performance.

The second solution is **Automated Score Calculation and Analytics**. This system will automatically calculate grades, averages, and performance trends by combining academic marks, activity points, and assessment weightages. It will generate simple visual graphs and insights. This will save faculty time, reduce calculation errors, and help students and parents quickly understand performance trends.

The third solution is **Course Outcomes (CO) and Bloom's Taxonomy Mapping**. This will connect each student's performance to specific course outcomes and skill levels. Subjects and activities will be mapped to outcomes so that strengths and areas for improvement are clearly shown. This will guide students to focus on weak areas, support Outcome-Based Education (OBE), and help faculty and HODs with academic planning.

Relevance to ICT Domain

1. This project is closely related to the ICT field, mainly under software development and data analytics. It provides a digital platform that makes student performance tracking and course outcome evaluation faster, more reliable, and easier to access.

2. In the ICT domain, education technology is an important trend, and institutes are moving toward automated systems for reporting and accreditation. By using analytics and centralized records, the project supports the demand for data-driven decision making.
3. At the same time, the project deals with issues such as handling large amounts of student data, keeping records secure, and designing effective solutions, ensuring better accuracy and efficiency.

Impact on Stakeholders and ICT Field:

Students will get clear information about their strengths and areas where they need to improve, helping them focus better.

Parents will be able to track their child's progress easily and support their learning in a better way.

Faculty will save time by avoiding manual calculations and organizing data. They will be able to track class performance and identify trends more easily.

HODs will get a complete view of performance across batches and semesters. This will help them make better academic and management decisions based on data.