Application Engineering and Development
Info 5100
The University Model

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Purpose:
The University Model helps the university to meet the graduates industry ready and to satisfy the employers with worth students. Overall, the model projects an idea on how to equip the courses with the standard of employers' requirement from the students and pass it on to the students through faculties via transcripts, trainings, and feedbacks.

Class Diagram:
The model's class diagram shows the roles of the university, college, department, faculties, students, and courses and employers' impact.
Newly added changes:

⇒ Ranking System

- University collects feedback from graduated students asking if the students would suggest the courses, they did during their masters for their job role and the same with the faculty. In addition to that feedback also collects the list of new technologies that are being used in their current job.
- Based on the feedback collected from the students a Rank based system is developed which includes ratings for courses and Faculty based on the job roles for example: Software Developer Role, the list of courses that are helpful and faculty to choose.

⇒ How to Calculate

- From Student Directory, take the list of feedback from the students who are working in the same role and find the sum of votes that each course got and faculty suggestion.
- The course with more votes is ranked first and ranking is done accordingly.
  The Faculty with more votes is suggested for the course.

Dashboard:
The dashboard helps to calculate a performance measurement solution to enable universities to measure the quality of the education they deliver to their students. It also enables college and university administrators to compare the performance of their academic units. For acquiring the proposed performance measurement solution, we introduce below metrics:

1. Student Performance Metric
2. Professor Performance Metric
3. Courses Performance Metric
4. Professional Growth Performance Metric
5. Overall Success Metric

The model's sequence diagram illustrates the dashboard interaction of college and university administrators using the above metrics. We propose the above metrics' calculations as below, with duration over a 5-year period of each student's record.

1. Student Performance Metric

This measures the student's performance at the University and is based on the student's grades (includes assignments and projects, research papers published) and grabbing the training opportunities (internship/co-op).
Formula:

$$SPM = (GPA * 2) + TO$$

Notations:

- SPM - Student Performance Metric
- TO – Training opportunity. 2 – if a student availed Internship or co-op during degree. 0 – else
- GPA - is calculated by below table.

Grades	**GPA**
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0

Example:
For a student with A- overall grade and grabbed an internship during the course, his/her/theirs SPM is 9.4

GPA	Grade	TO	**SPM**
A-	3.7	2	9.4

2. Professor Performance Metric

This measures the professor's performance in 2 ways. One from the students' ratings from the classes and the other through professor's experience (research papers and work experience) in the field of study.

3. Courses Performance Metric

This measures the effectiveness of the courses from 2 perspectives. One from the employers' input. The courses and its content will be updated often as per the majority of industry demands. The other through students' ratings on their ease of course completion and satisfaction.

4. Professional Growth Performance Metric

This measures the students' career growth at their workplace. Through the alumni portal, faculties will analyze the students' career growth and rate them based of factors: salary, employer, promotions, years of experience, and work field relevance to study field.

5. Overall Success Metric

This measures the overall success of the university in achieving their graduates the apt education the university promised for. All the other 4 metrics are taken into consideration to obtain the final success metric.

Formula:

$$Overall\ Success$$

$$= \frac{Student\ Performance + Prof.Perf. + Course\ Perf. + Professional\ Growth}{4}$$

$$= \frac{9.4 + 9.5 + 9.5\ + 8}{4}$$

$$= 9.1$$

Conclusion:

All the 5 metrics stated can be calculated from the dashboard by the college and university administrators. The proposed model, with all metrics covered, will help the university in providing successful quality education which aligns to the current industry trends and relevant Job opportunities**.**