Educational Ranking System

Deliverables

1. Running java code showing the implementation of a complete system at the department and college levels. The base java
2. Presentation outlining your solution and implementation.
3. Sequence diagrams showing how to navigate the university object model to deliver performance metrics needed for performance and feedback.
4. An object model showing the changes to the university model to support the new capabilities.
5. This must include the additional methods and attributes required to deliver the results.
6. Investigate how we create digital education systems assuming a university is an intermediary (broker) between students and employers. Their brand is about credibility. How the implementation code will change based on this assumption?
7. Your application must enable the creation and update functions for any of the attributes of concern.

Problem Statement:

- To improve the quality of educational institutes by providing their students with optimum facilities and make them industry ready.

- To create a performance measurement solution to enable universities to measure the quality of the education they deliver to their students.

Following performance metrics decide the quality of an educational institution:

A] Academics:

Graduation Rate - This Key performance Indicator determines the number of students who completed their degree within the normal time frame. Here we have a policy for tracking transfers in and out of your grades.

Grade Point Average – The Semester wise and cumulative grade points average is a deciding factor for which all employers can a student apply to. (eg. Company X allows students with average GPA > 3.5)

Student Attendance Rate – This rate decides how many lectures does the student attend and what are its consequences. A student is more likely to score a better grade point average if he/she attends more lectures.

B] Faculty:

Faculty: Students Ratio - A faculty student ratio tells how many students are taught by one faculty member. Higher is the faculty : students ratio, better is the educational institute as lesser the number of students per faculty, more time can be devoted per student individually by that particular faculty member.

Faculty Specialization – Faculty specialization is a metric which decides if the faculty is specialized in the same subject as the one he is teaching. (eg: If a faculty has pursued his PhD in Artificial Intelligence and he is teaching the students same subject as that of his specialization, then it results out in giving high performance)

Faculty Training – This metric helps in deciding how trained a particular faculty member is. This function keeps a record of how many training sessions a faculty has completed in past 6 months.

C] Industry Focused –

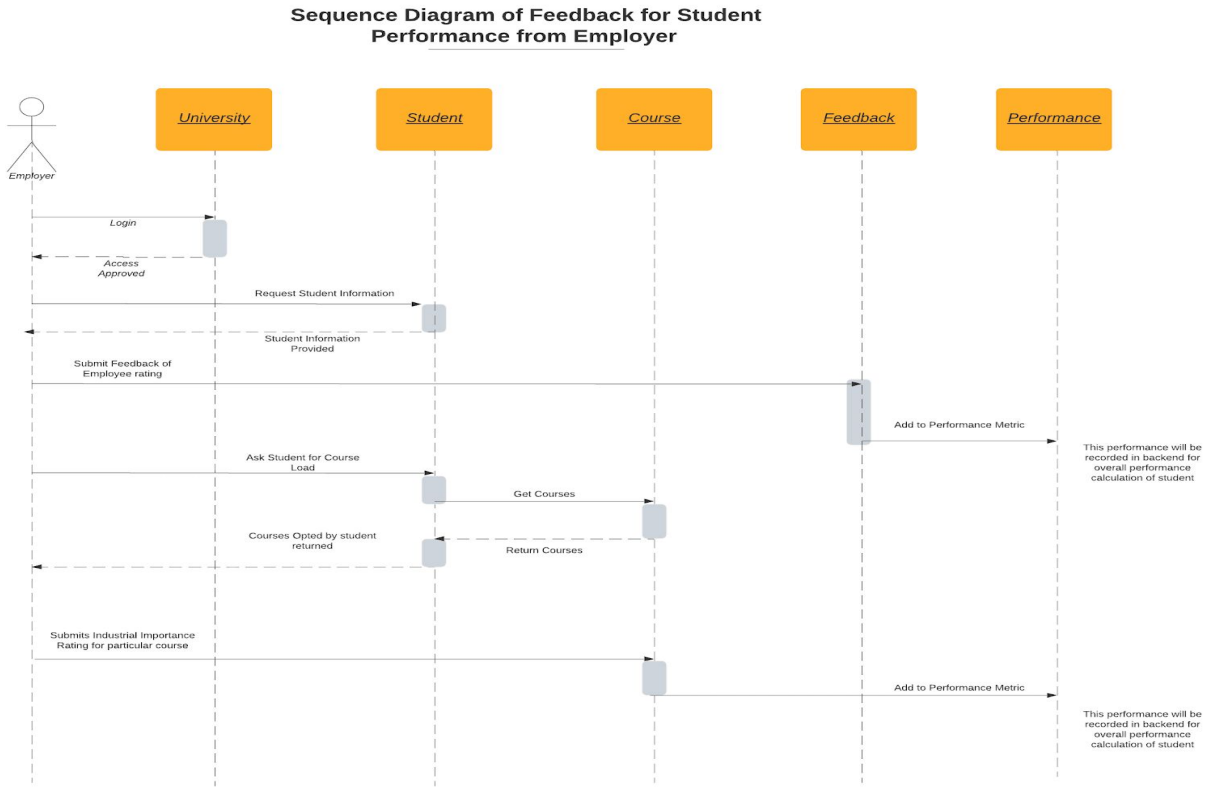
Courses with Industrial Importance – This is one of the most vital factors which decides the performance of a student while getting a coop position or full time offer. Courses which are closely aligned with the industry requirements, should be included in curriculum so that students can keep themselves updated with the industry insights and choose subjects accordingly.

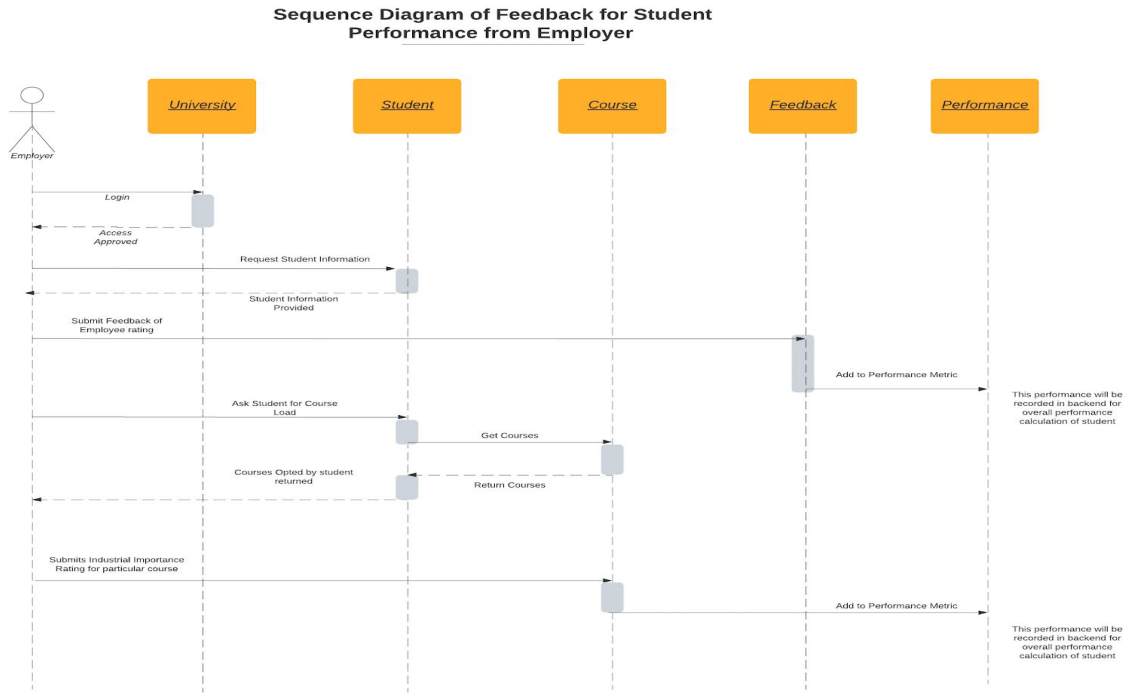
Employers : Employers which hire the students have some criteria to be satisfied. If a student happens to fulfil the employer requirements, only then he can appear for the interview of that particular company. Better the employer ranking (as per the Fortune500 ranking) better the salary he receives and the student securing best employer is most efficient amongst all the other students/ better is the institute he has pursued his graduation from.

Employee Rating : Employee Rating is the rating which is given to the employee at the end of financial year by monitoring his/her performance throughout the year. A bright student with decent score in academics, happens to get a decent employee rating. This is one of the trait observed.

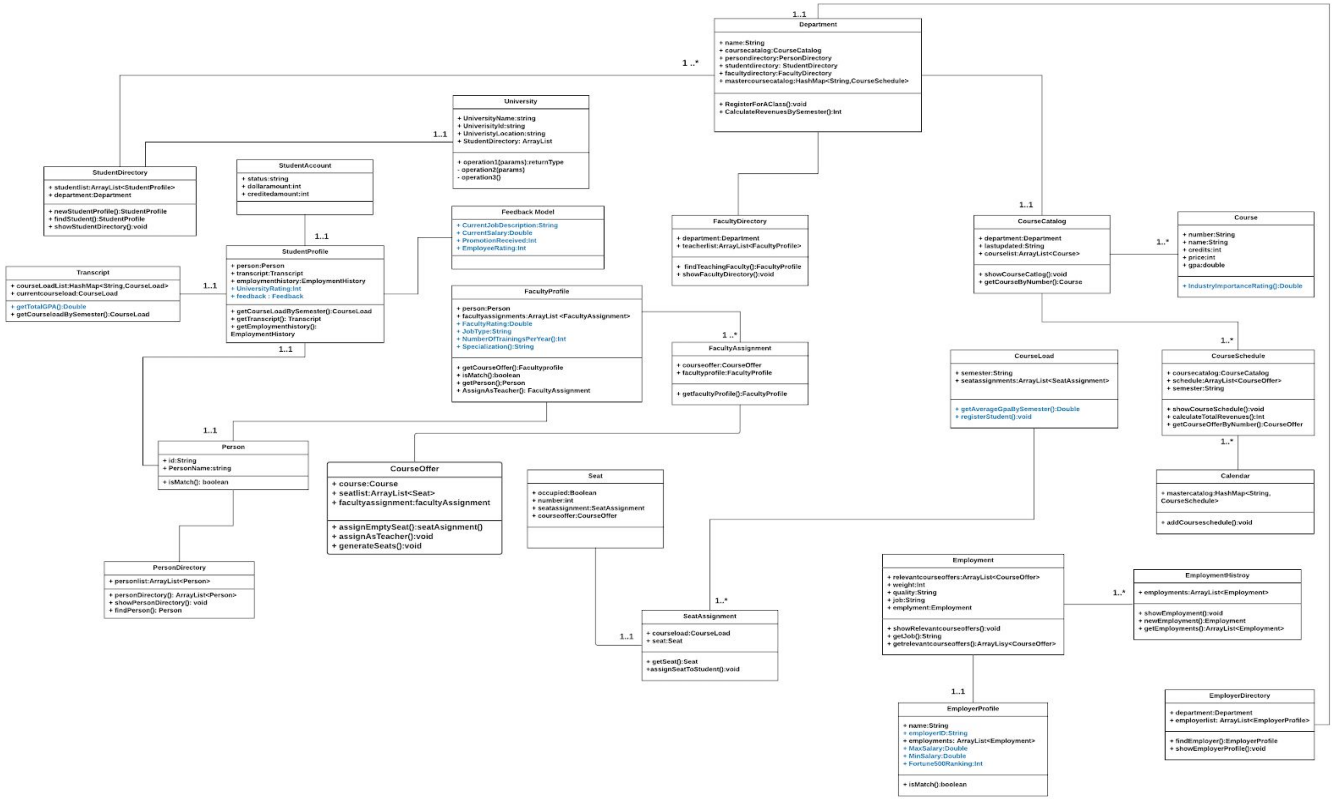
Promotion : The promotion of an employee at his work place is closely associated with his performance at work. A diligent student with a decent start salary package happens to get promoted earlier comparatively.

Sequence Diagram:

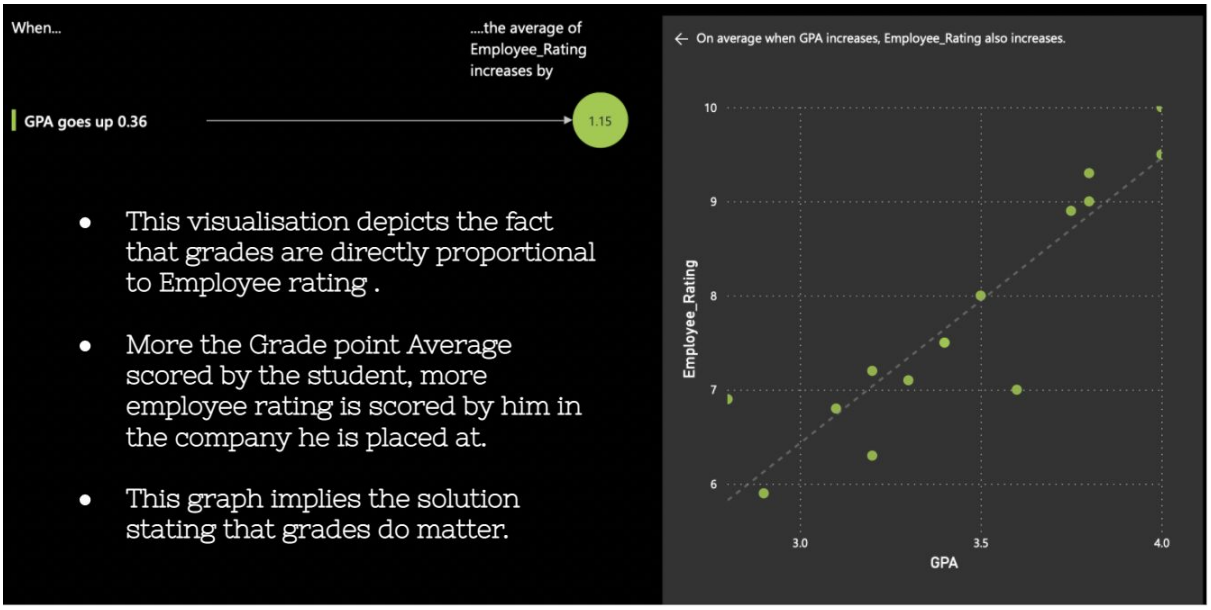


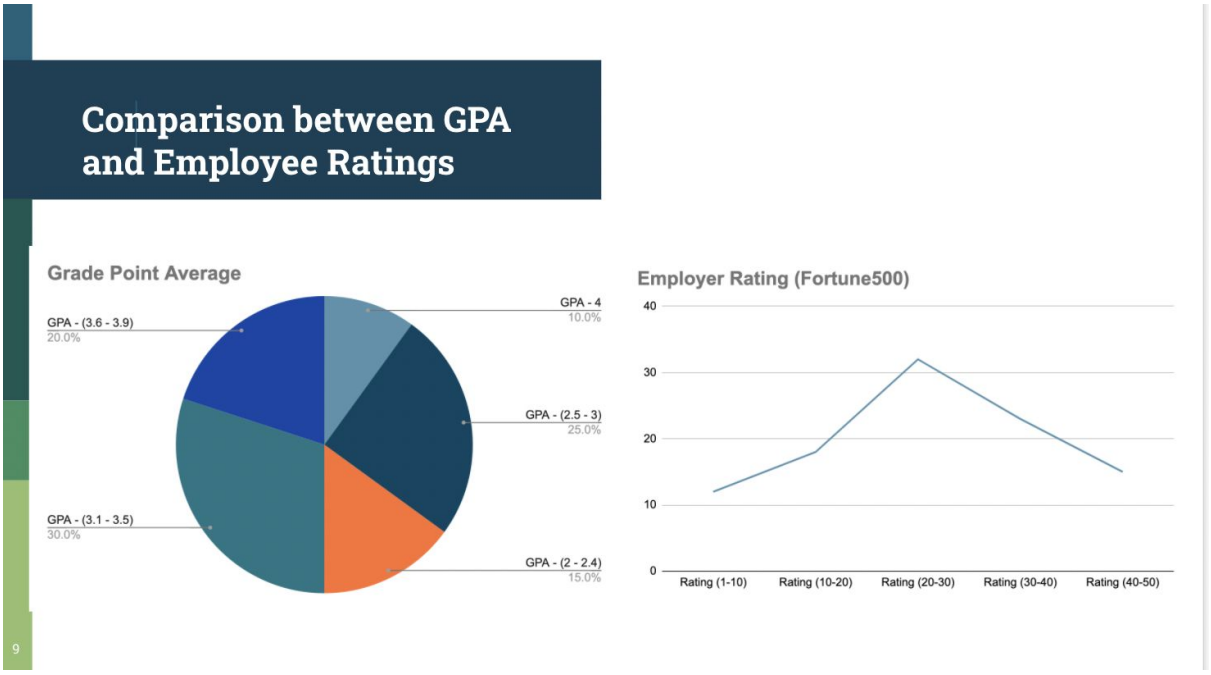


Object Model Diagram:

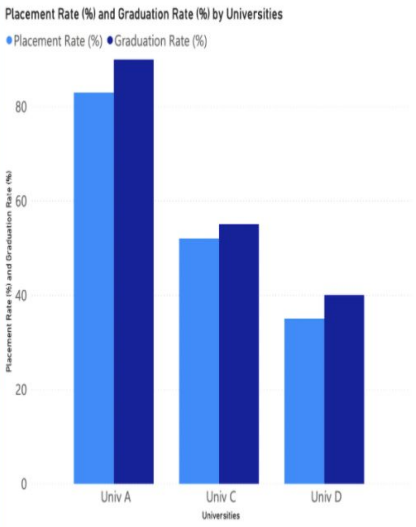


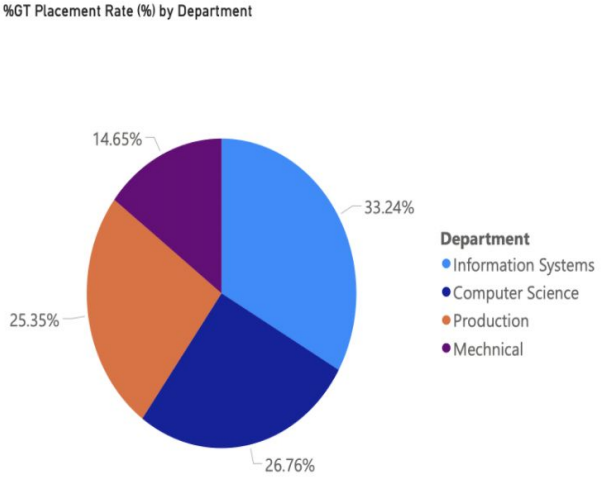
Do Grades Matter?



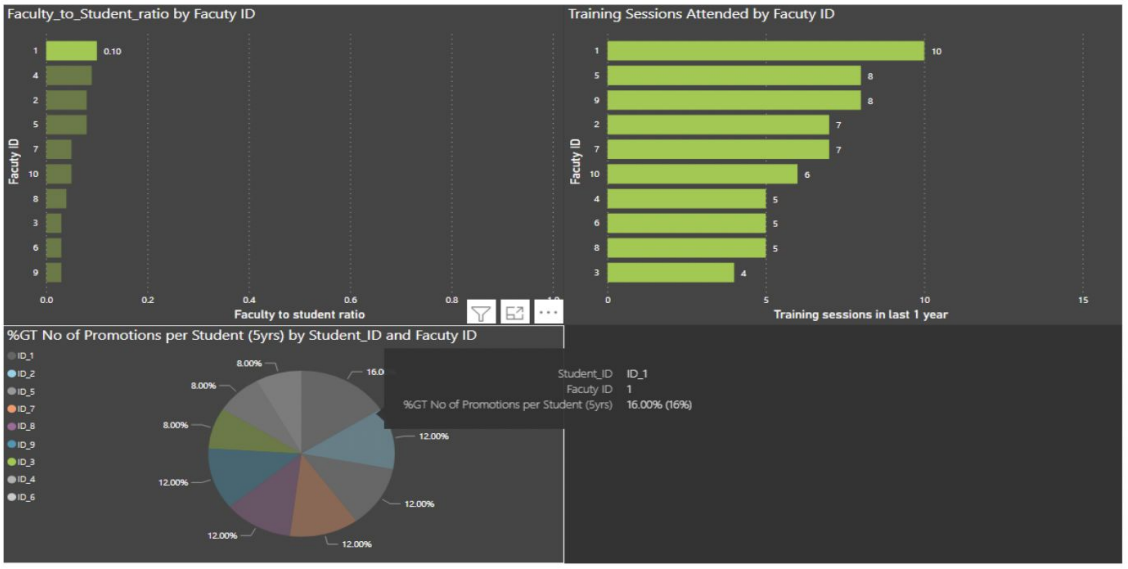


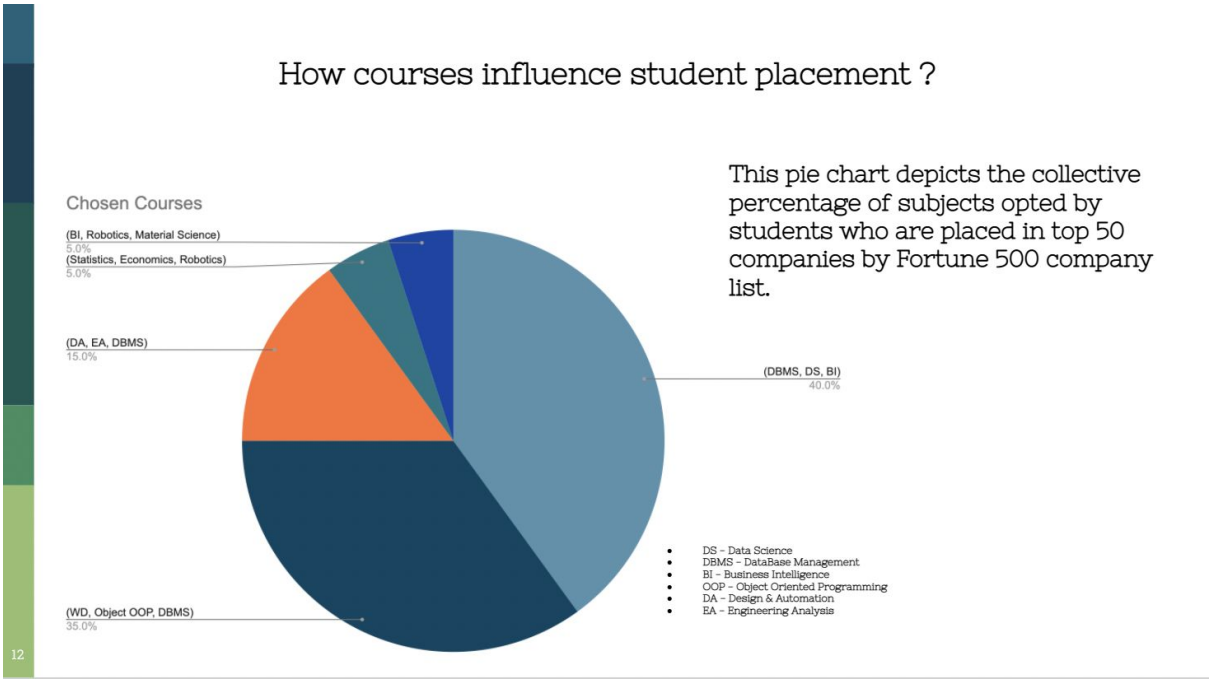
Better the graduation rate, better is the placement rate of the university.





How does faculty influence student profile at work ?

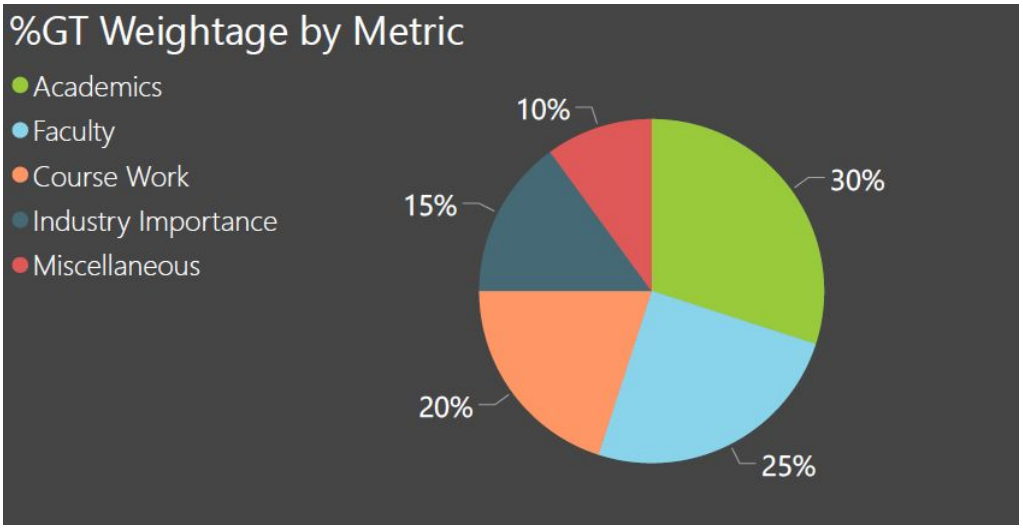




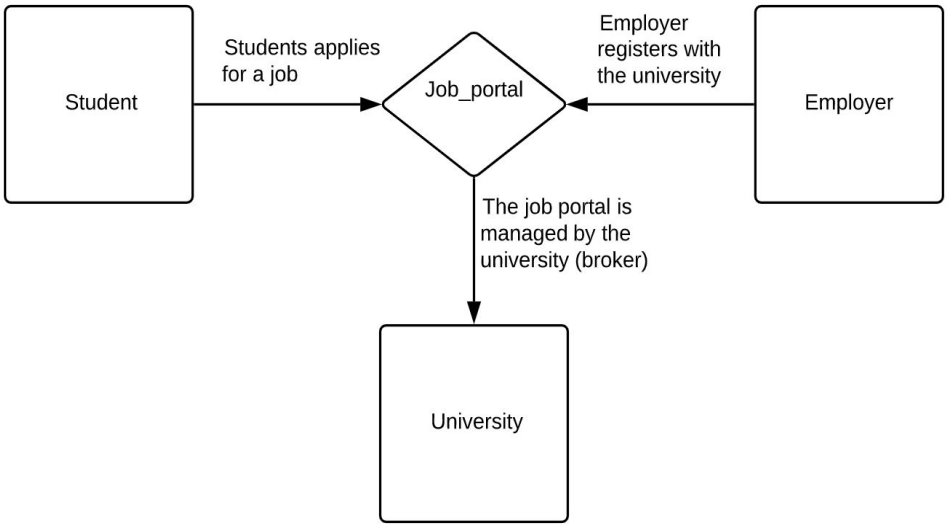
How does our system work?

Our ultimate solution shows a distribution of how different factors/metrics are responsible to decide the quality of an educational institution.
A wide range of diverse metrics decide the quality of education, but the majority of the share which contributes in deciding the quality of an institution is as follows:

1. Academics (30%)
2. Faculty (25%)
3. Course Work (20%)
4. Industry Importance (15%)
5. Miscellaneous (10%)



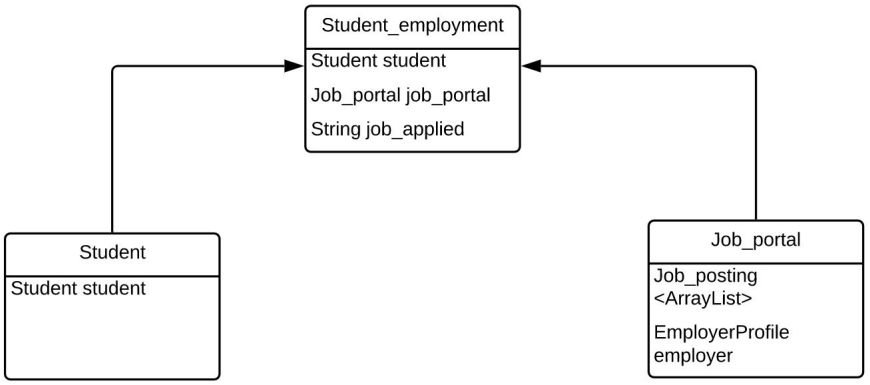
Broker Model :



- In this model, the University acts as the broker between the Student (seller) and the Employer (buyer).
- The Employer class can be used to provide information to the university regarding job offers for the students. This can be done by including a new class (Job_portal) which would provision the registration of an employer with the university, by capturing details from the employer portal class and also allow the students to apply for jobs.
- The current version of the University model doesn't include such an intermediate (broker) class. Thus, the broker model can have a new Job_portal class which would allow the university class to link the employer and student classes.

- This would allow the employers to provide information regarding job openings to the university. The students can then access such a portal and apply for jobs based on the requirements of the employer.

- Also, the inclusion of an associative class between Student and Job_portal would allow us to track the job which any student has applied for in the Student_employment class, as shown below.



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