

# **Report on University Course Ranking Model**

Submitted By:

Group Name: Shra&Nav

Navaneeta Naik (001027107)

Shravani Vaze (001375943)

## **ABSTRACT:**

The aim of this report is to establish a course ranking system that helps Universities keep a track of their academic work being taught to their students and the importance to the growth of the student after graduation from the University. The course ranking system is based on the data that is got from graduate students over the years. The course ranking system will help Universities keep a track of their students; courses that will help them make required changes to improve the quality of education.

## **PROBLEM STATEMENT:**

Most university ranking models base their data on University research and achievements rather than researching the overall success of those university graduates and how the courses offered by that University contributed to their success.

## **OBJECTIVES:**

Our objective is to build a performance assessment solution to allow Universities to assess their students' quality of education. To investigate how an educational system in terms of faculties and courses leads to the growth their students over a 5-year period. To track the work and graduate students' promotions over time and allocate rankings accordingly. Furthermore, track course interactions and their importance to their growth.

## **PROPOSED SOLUTION:**

This system design measures the success of each student who graduated over 5-year period together with statistics on which courses influenced their progress, to rate the courses based on the overall satisfaction of the student who studied it. The system will send out a google form to graduate students that will address variety of questions with respect to the current job, courses they took etc. The premise behind collecting this data from the alumni is based on the assumption that it will be a two-way exchange where the alumni can provide all the information laid out in the google form and gain access to the alumni database that will have all the details of them along with the details of the employer.

The google form will include following questions:

1. Rate the Job Satisfaction from 1 to 10
2. Mention the number of promotions you have received in the period of 5 years
3. Mention your Current Salary
4. Mention your Starting Salary
5. Mention the number of years you were unemployed
6. Mention the number of years you are employed
7. Rate your courses from 1 to 10 based on their structure
8. Rate your courses from 1 to 10 based on their relevance to your job
9. Rate your courses from 1 to 10 that helped you to get the job.

The grade pointer of the student from the Transcript class along with the data received from the alumni helps in student ranking algorithm which calculates score for an individual student.

Similarly, the data provided by the alumni helps in the course ranking algorithm which calculates the course score.

Faculty ranking can be calculated from the Student Score and the data obtained from the alumni google form.

## ALGORITHM:

### I. STUDENT RANK:

#### a) GET THE GRADE OF STUDENT:

In the Transcript Class, the grade of the student is calculated by averaging the grades obtained in every semester. The final grade is stored in a variable called as 'Grade'.

#### b) GET THE STUDENT EMPLOYMENT SCORE:

Company\_score =  $10 * (\text{number of companies} - \text{rank of the company})$

Promotion\_score =  $20 * (\text{number of promotions})$

Job\_satisfaction\_score =  $30 * (\text{satisfaction\_scale})$

Job\_relevance\_score =  $40 * (\text{relevance\_scale})$

Salary\_score =  $(\text{Current\_Salary} - \text{Starting\_Salary}) / (\text{number of employment years})$

Unemployment\_score =  $50 * \text{number of unemployment years}$

StudentEmploymentScore =  $(\text{Company\_score} + \text{Promotion\_score} + \text{Job\_satisfaction\_score} + \text{Job\_relevance\_score} + \text{Salary\_score} + \text{Unemployment\_score})$ ;

**STUDENT RANK = Grade + Student Employment Score**

## II. COURSE RANK:

Course score = (sum of all graduate scores in the course) /  
(number of graduates in the course \* ((Course\_Rating +  
Relevant\_CourseRating + Helpful\_Course / 3));

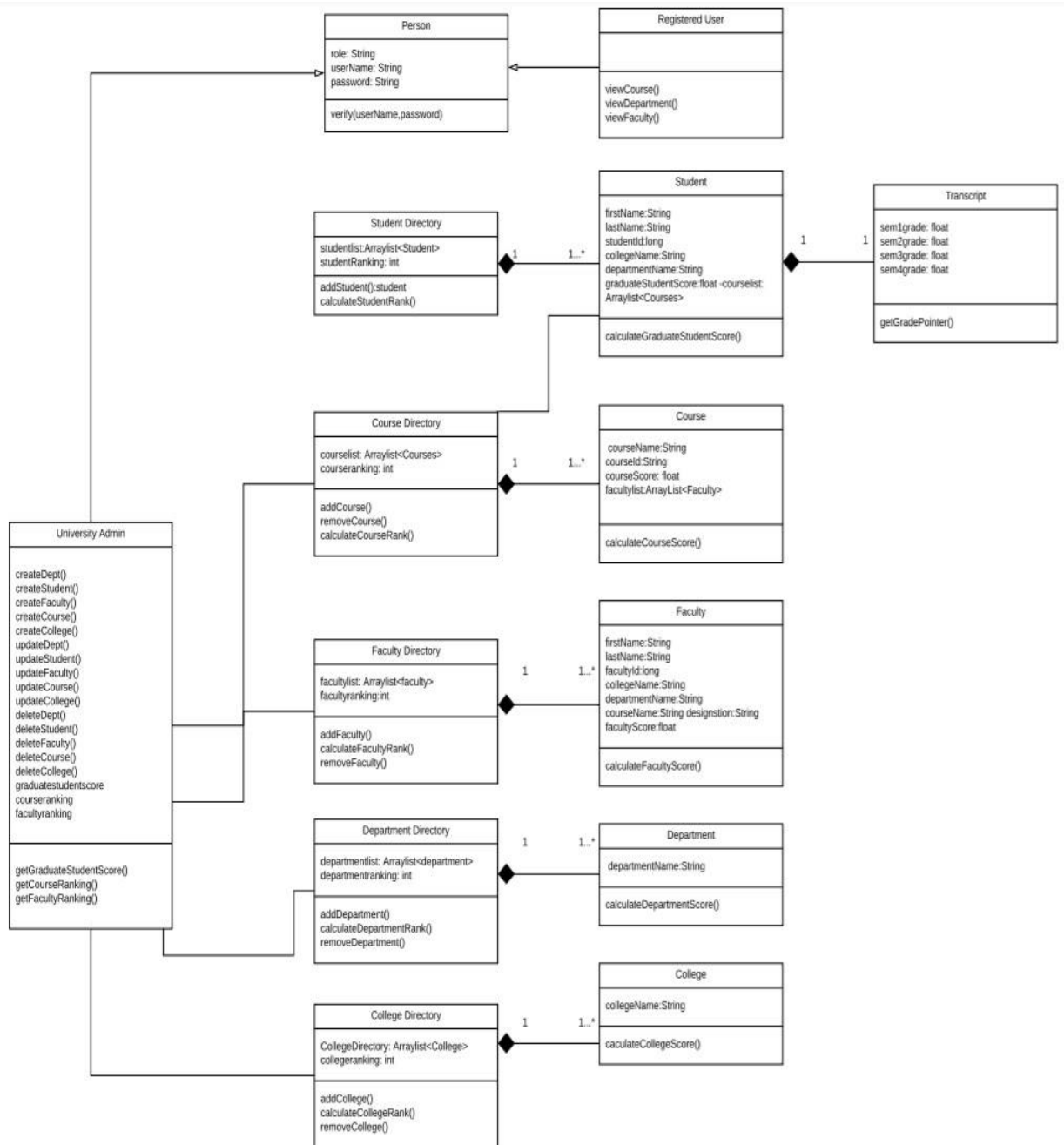
**CourseRanking[]** = sortDescending(courseList)

## III. FACULTY RANK:

Faculty score = (sum of all graduate scores under the faculty) /  
(number of graduates under the faculty);

**FacultyRanking[]** = sortDescending(facultyList)

# OBJECT DIAGRAM:



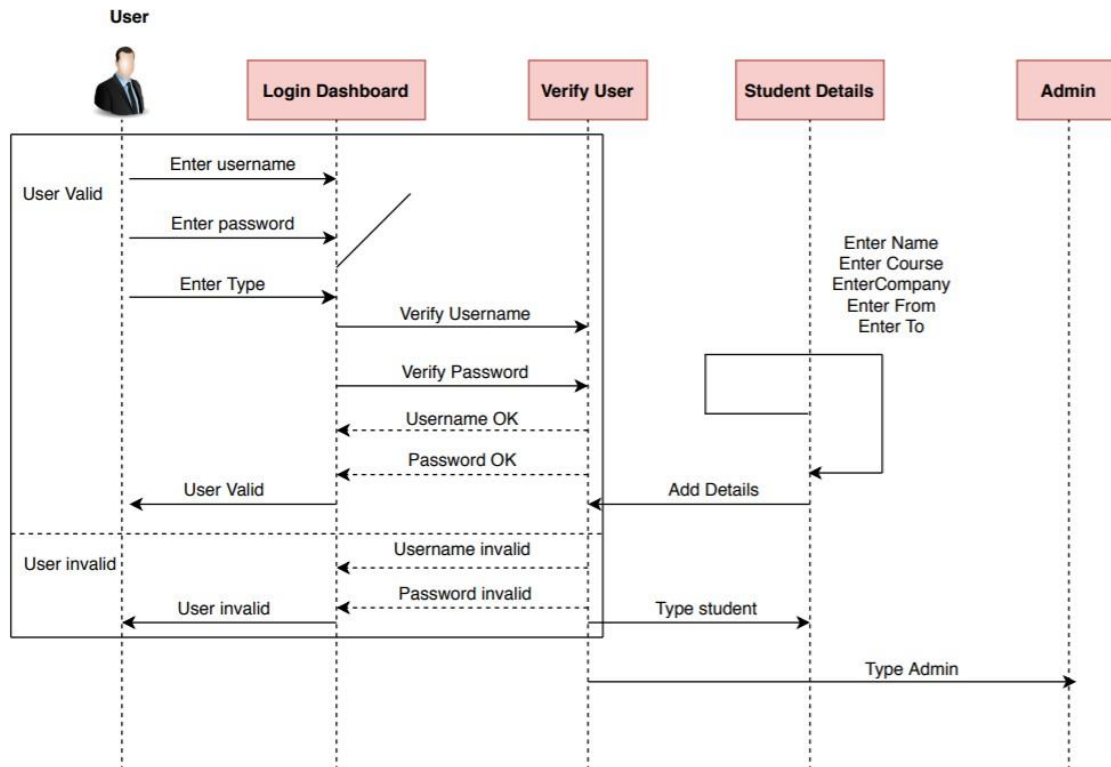


## DEFINED METHODS AND ATTRIBUTES:

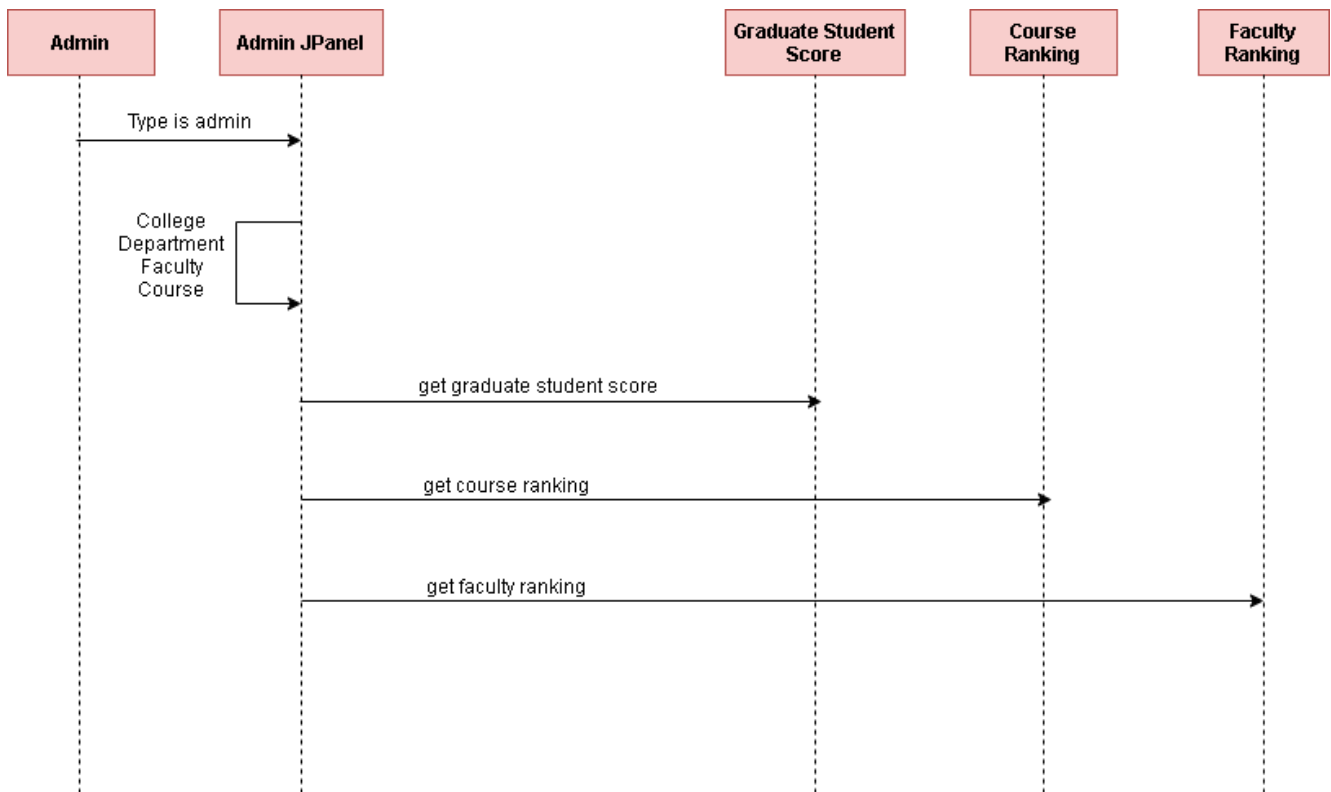
createDepartment()	Admin function to create a new department.
createStudent()	Admin function to create a new student
createFaculty()	Admin function to create a new faculty
createCourse()	Admin function to create a new course
createCollege()	Admin function to create a new college
updateStudent()	Admin function to update student details
updateCourse()	Admin function to update course details
updateFaculty()	Admin function to update faculty details
updateDepartment()	Admin function to update department details
updateCollege()	Admin function to update student details
deleteStudent()	Admin function to delete student detail
deleteCourse()	Admin function to delete a course
deleteFaculty()	Admin function to delete faculty detail
deleteDepartment()	Admin function to delete a department
deleteCollege()	Admin function to delete a college
getGraduateStudentScore()	To calculate student rank based on student score
getCourseRanking()	Calculate course score based on student feedback
getFacultyRanking()	Calculate faculty score based on student feedback and course score

# UML SEQUENCE DIAGRAM:

## LOGIN SEQUENCE DIAGRAM:

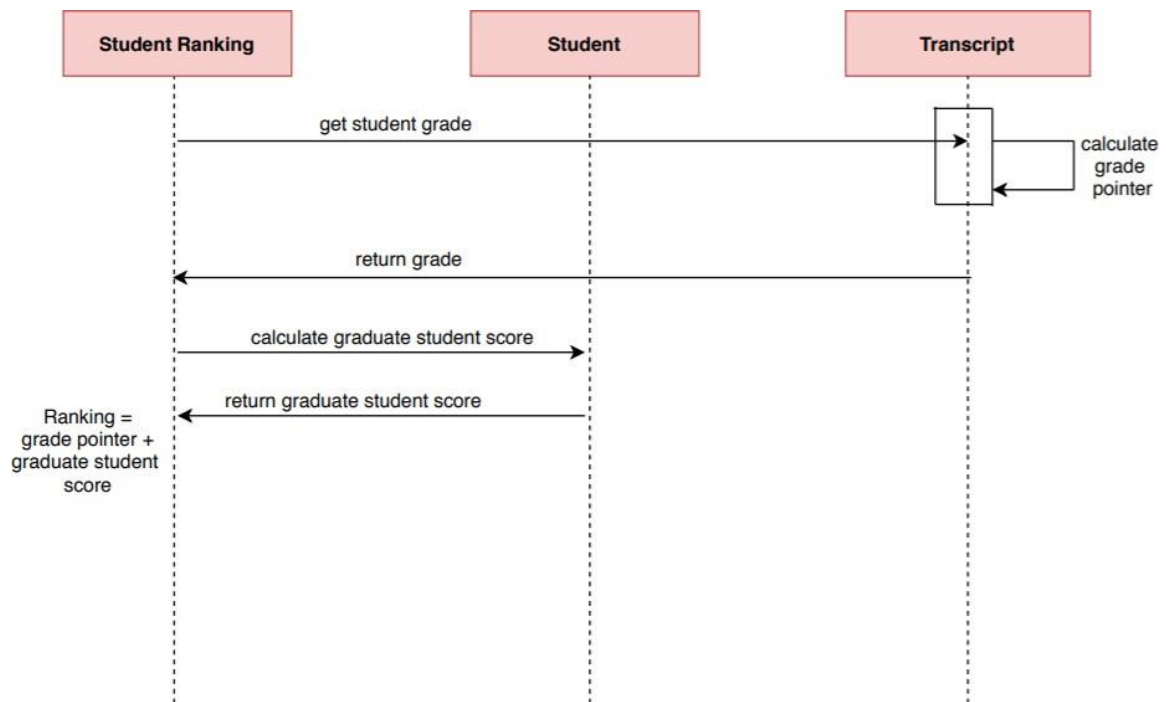


## ADMIN SEQUENCE DIAGRAM:



The admin can login using username and password. He can access records of students, faculty, courses and can add, update and delete any of these records. Additionally, the admin can also view the graduate student score, course ranking and faculty ranking.

## BACKEND SEQUENCE DIAGRAM:



The student ranking is determined as the sum of the grade pointer and graduate student score. The grade pointer is the total grade point average of all the grades that the student got on his transcript for all the semesters.

## APPLICATION USER INTERFACE DESIGNS:

### Admin Login

College	NEU College of Engineering ▾	Add	Update	Delete
Department	Information Systems ▾	Add	Update	Delete
Faculty	Mr. Khaled Bugrara ▾	Add	Update	Delete
Course	AED ▾	Add	Update	Delete
Student	ABC ▾	Add	Update	Delete

Graduate Student Score

Course Ranking

Faculty Ranking

### STUDENT DETAILS

Name	<input type="text"/>
Course	<input type="text"/>
Company	<input type="text"/>
From	<input type="text"/>
To	<input type="text"/>

Add

Save

# LOGIN

Username:

Password:

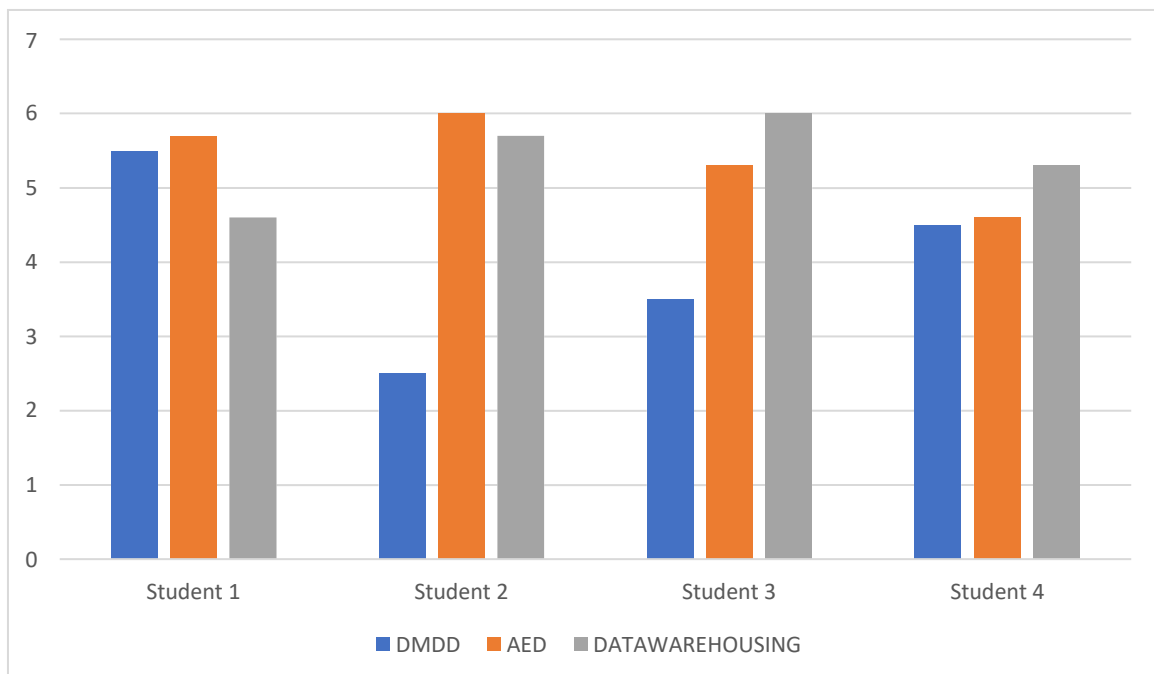
Role

☐ Admin

☐ Student

Submit

## SAMPLE DATA:



As per the diagram above, the courses Application Engineering Development and Data Warehousing have the highest ranking.

## **CONCLUSION:**

The lack of performance measurement solution in universities is to measure the quality of the education they deliver to their students. One criterion was to look at the educational system in terms of faculty and courses and how it contributed to the growth of their graduates over a 5-year period. Tracking the jobs and promotions of the graduates also provided insight towards their growth. This provided us with an important connection about how the courses and faculty respectively contributed to the graduate's growth. By keeping all of this data and criteria in mind, we were able to provide a solution for the performance measurement solution and define the ranking system of educational institutions, especially for the developing world.