

# University Performance Measurement Model

## Objective

The objective of this model is to create a performance measurement solution using software engineering design and programming techniques to enable the university to measure the quality of the education they deliver to their students. We have built a University management system that helps the administrator, teachers, and students with their activities and keeps them up to date with their data. To analyze the performance of a student in the university, we took into consideration different factors like student's GPA and their professional growth over 5 years time. We have generated reports that show a list of values used for analytical calculations.

## Implementation

In our system, we received data of students and staff details through manual records. This software aims to integrate all the modules and allows different section heads to have access to their specific departments only. All the sections are grouped into a single central zone, which is the main administration. It helps to manage all student, teacher, and other faculty members' data and all other activities.

- **Student**

- Student can login-in into their account using username and password.
- Student details like name of the student, age, contact details, email address, the address are stored for every student which can be updated by the student.
- Student can register for the courses provided by its department for that particular semester. The courses list displays information like the course name and name of the faculty for that course and has an option to rate the faculty of that course based on the student experience with the faculty.
- Grades of all the courses and total GPA of the student can be viewed from the Grades option.
- Student can add their employment details like their employer, job profile, and timeline and display their employment history.
- Student also has to provide feedback to the university about the courses which he found relevant and helpful for his job which is further used for analysis.

- **Admin**

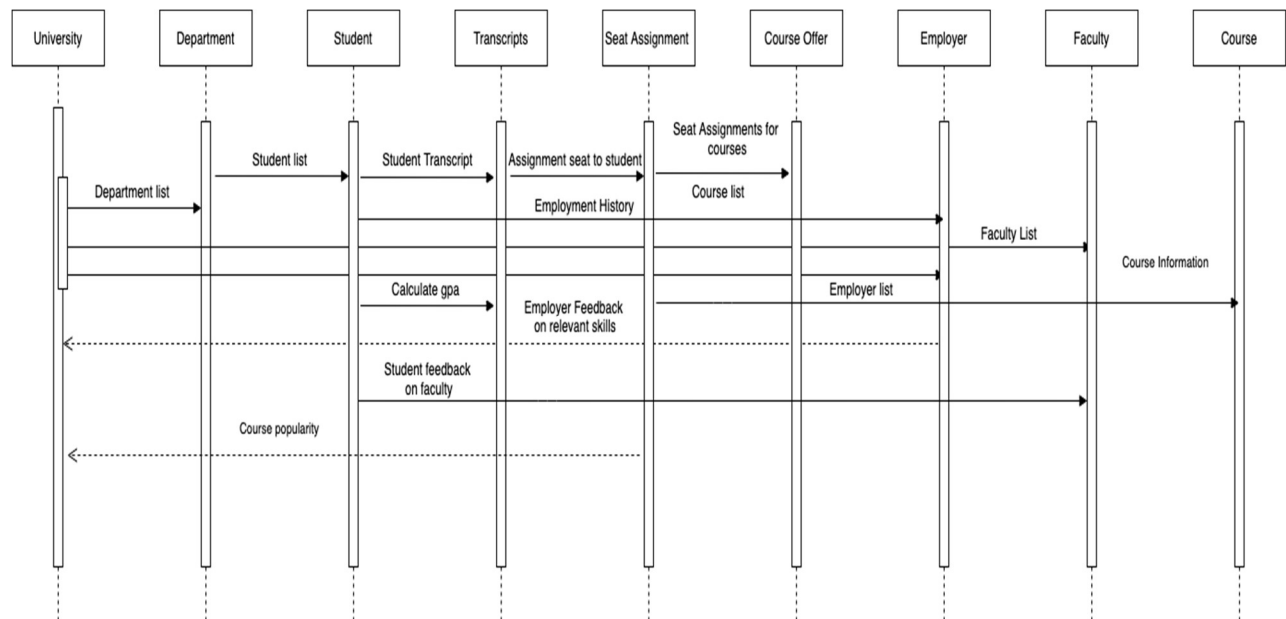
- Admin can log in to the application using a username and password.
- Admin can perform the update, add and delete operations on Student, faculty, employer, department and have access to all student's profile and their employment history.
- Admin can view the revenue generated by different Departments, colleges, and universities.

- Admin can access the analysis which includes Student's performance, individual department performance and ranking based on it, faculty performance, and course ranking through different solutions.

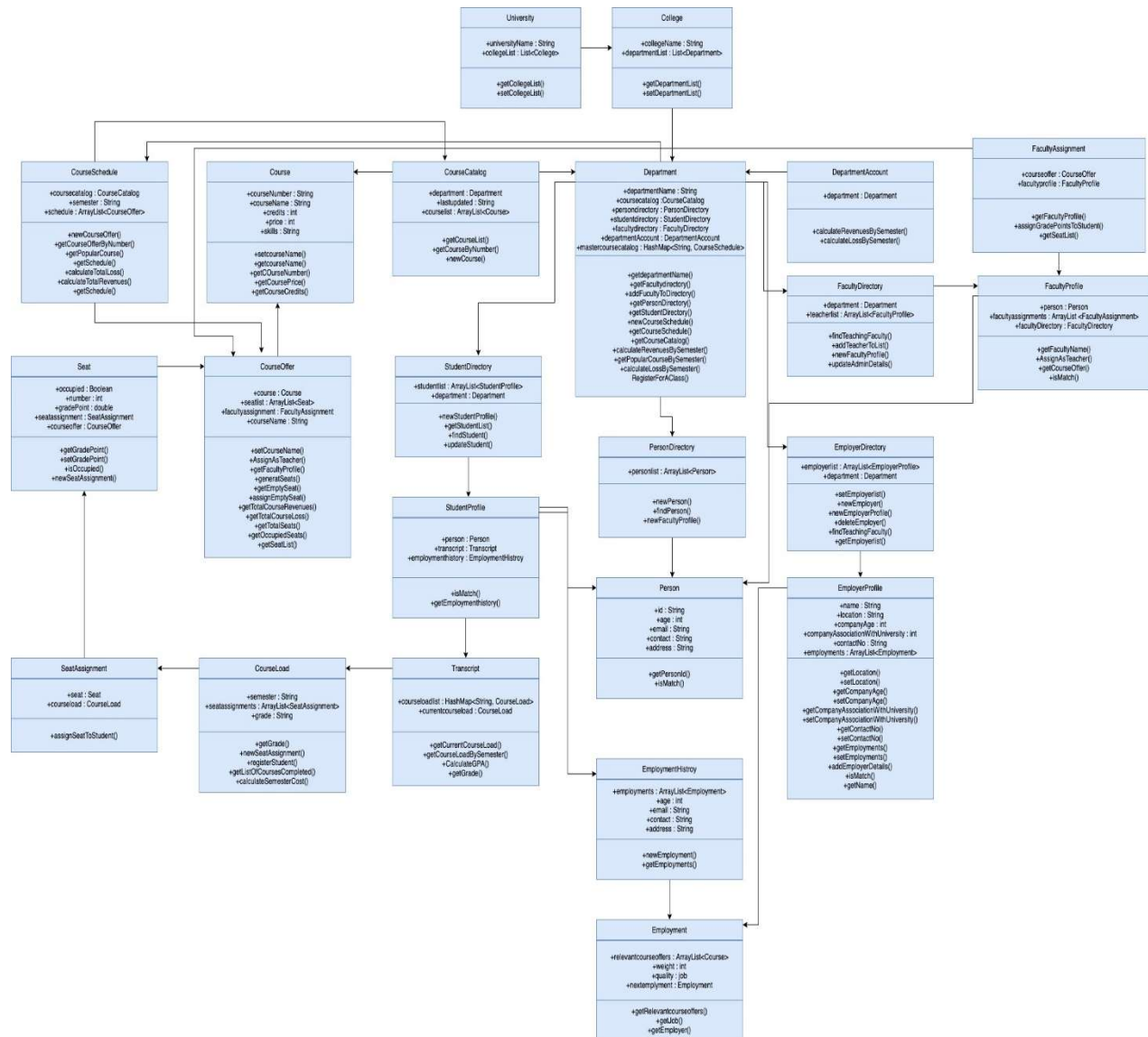
## • Employer

- An employer can log in to the application using a username and password.
- Employers can be anyone from the company with access rights.
- Employers can enter feedback to the system about their experience if any issue or problems in the hiring process they face
- Employers can post about future openings of job roles in their company.
- Employers can add, update and delete their Roles and departments in the company.
- An employer can fill a feedback form that will contain a set of skills and the employer can choose the skills that are most relevant to them based on their requirements.

## Sequence Diagram

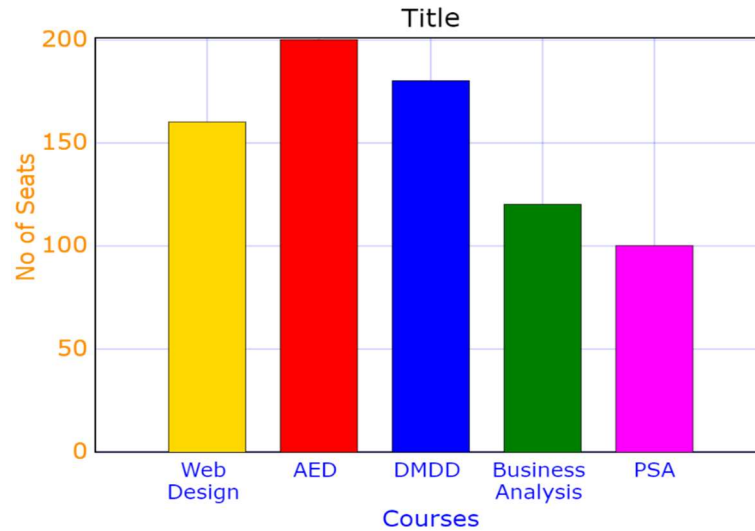


# Object Diagram

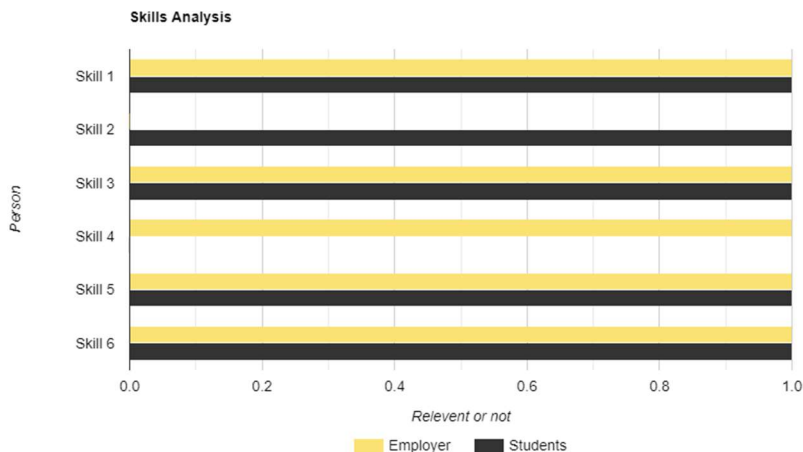


## Performance Measurement

- **Course Popularity:** It is calculated by the percentage of filled seats for a course in the given semester which will help in getting the most popular course.



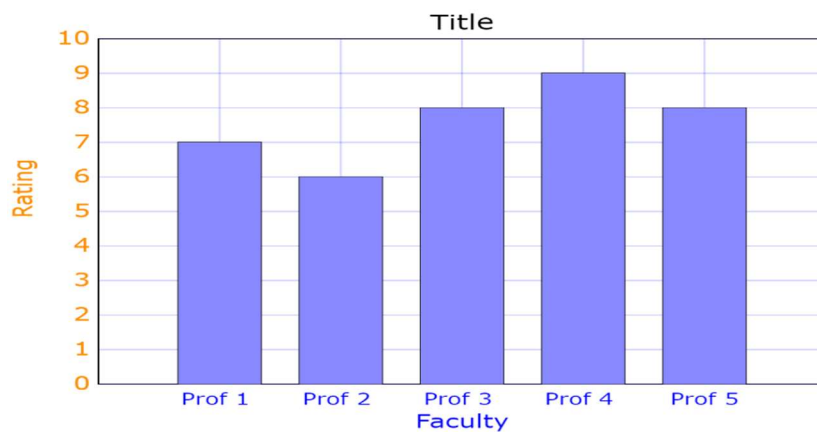
- **Course Relevance using employer and student feedback:** This is very important which helps decide students choose a course from an economic and learning perspective. We take details from the student about his employment like his employer, job profile and the courses he feels are relevant to his job profile from his course load. The courses have skills that he learned during the course duration. The list of skills obtained from all the students who are currently employed for the job profile is sent to the employer to take feedback. An analysis of related courses and professional growth is performed based on this feedback taken from students and employers to find the gaps between the industry needs and the coursework provided by the university which can help the university to update its courses accordingly.



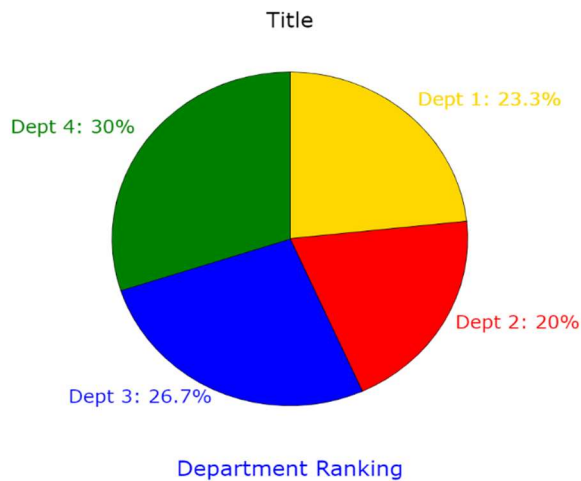
Yellow – value 1 : Employer thinks skills is relevant

Black – value 1 : Students thinks skills is relevant

- **Industrial success and GPA relationship:** We have analyzed that to succeed in the industry, Courses and the skills gained through the courses are more relevant. From the above analysis of relevance of the course and skills acquired by studying those course have helped students get jobs rather than having a good GPA.
- **Faculty performance based on feedback:** Students given feedback form to submit which rates the faculty on the basis of how well the coursework is taught by the professor.



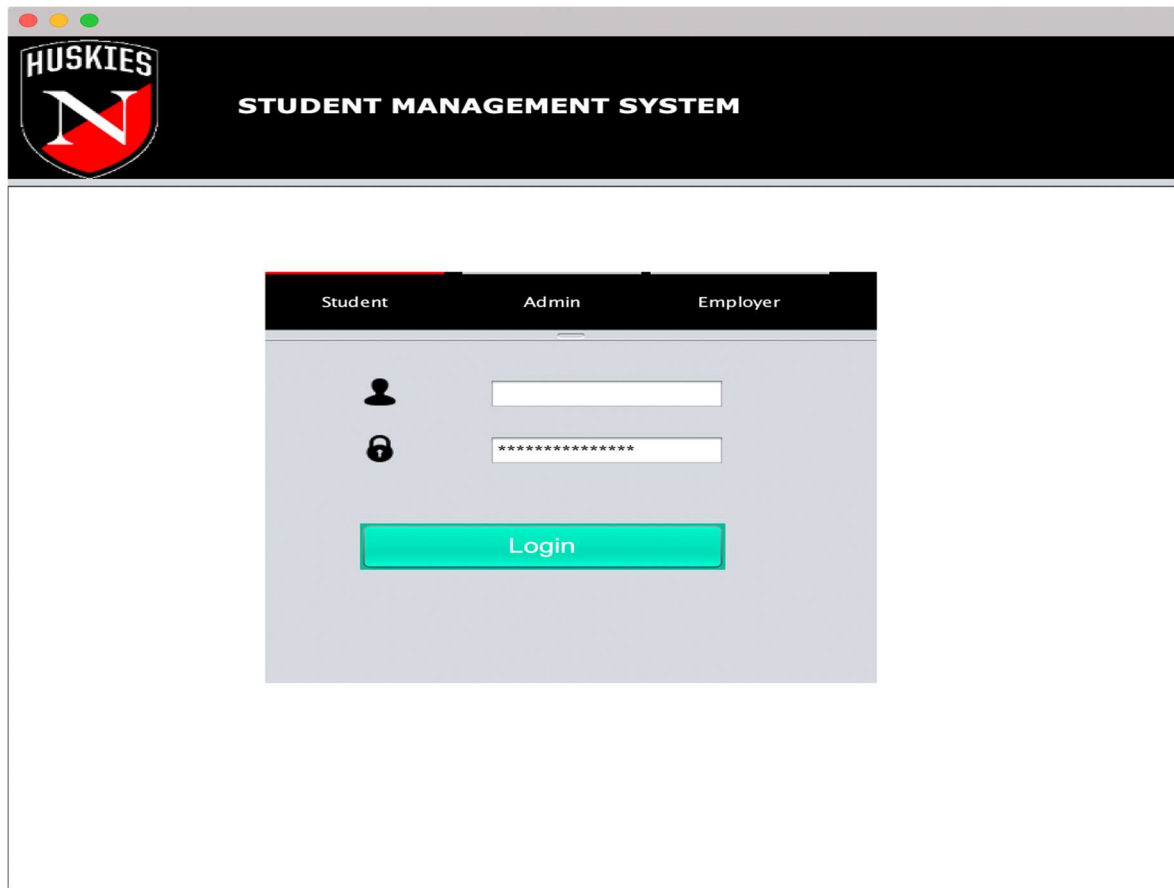
- **Department ranking based on employment history:** We fetch records of alumni employment history. Every alumnus will be linked to a department. Based on this information we get a percentage of students employed in a particular department and rank the department accordingly.



## User Interface

Login Page:

Login page for the Student Management System. Student, Administrator and Employer enter username and password to login to their respective account.



The screenshot displays the login interface of the Student Management System. At the top, a black header bar features the 'HUSKIES' logo on the left and the text 'STUDENT MANAGEMENT SYSTEM' in white on the right. Below the header, a central login panel is shown. This panel has a dark header with three tabs: 'Student' (highlighted with a red underline), 'Admin', and 'Employer'. The main area of the panel is light gray and contains a user icon, a password icon, a username input field, a password input field (masked with asterisks), and a prominent red 'Login' button.

### Student Dashboard:

Student will select the semester and their department and on clicking on search button the list of the available courses will be displayed by the above-mentioned criteria. From the displayed list student can add the course which they desire.

The screenshot shows a web application titled "STUDENT MANAGEMENT SYSTEM" with a "HUSKIES" logo. A left sidebar contains a "Student" profile icon and a menu with options: Profile, Courses, Register, Feedback, Grades, Job, Employment, and Logout. The main content area is titled "Register a course" and contains the following form elements:

- Semester:** A dropdown menu currently showing "Fall 2021".
- Department:** A dropdown menu currently showing "Information Systems".
- Buttons:** "Search" and "Clear" buttons are positioned below the department dropdown.
- Available Courses:** A dropdown menu currently showing "--None--".
- Add a course:** A button located below the available courses dropdown.

Students will give feedback about which courses offered they feel were related to their job profile.

The screenshot shows the same web application, but the main content area is titled "Student Employment Feedback Form". The left sidebar remains the same. The form contains the following elements:

- Employer Name:** A text input field.
- Job Profile:** A dropdown menu currently showing "--None--".
- Relevant courses:** Two dropdown menus, both currently showing "--None--", connected by right-pointing and left-pointing arrow buttons.
- Department:** A dropdown menu currently showing "--None--".
- Submit:** A button at the bottom center of the form.

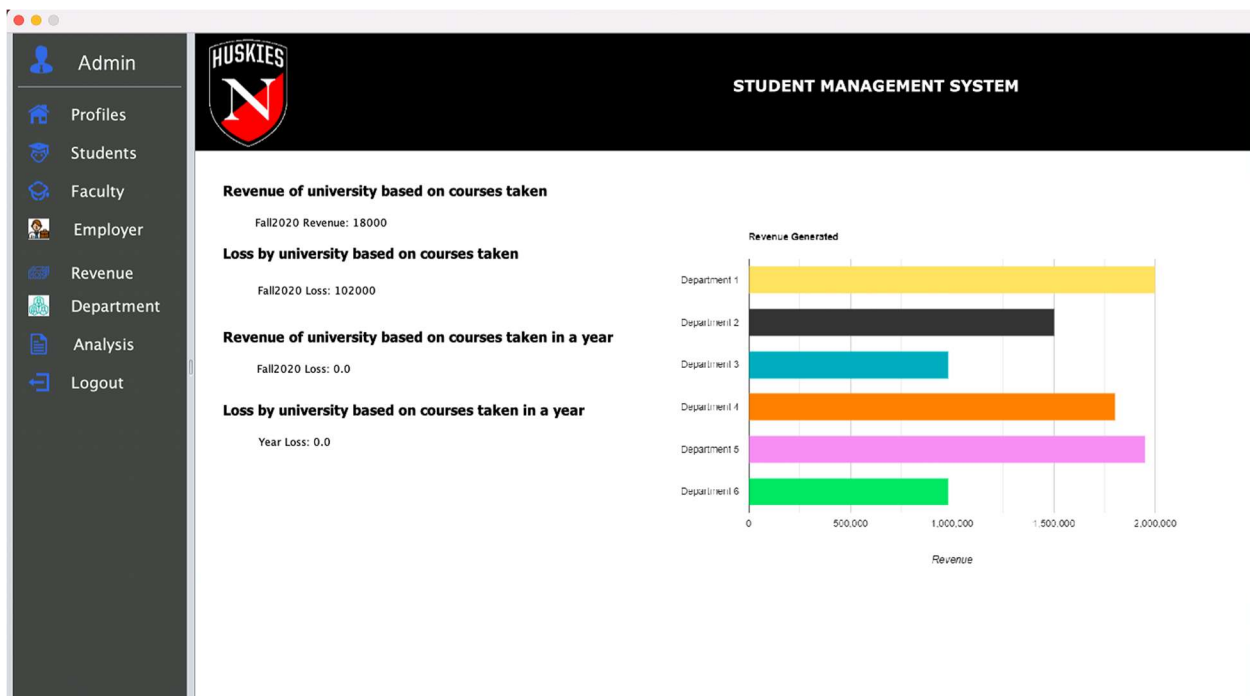
## Faculty Dashboard:

Administrator is provided with options to add student, faculty, department and employer into System.

The screenshot shows the 'STUDENT MANAGEMENT SYSTEM' interface. On the left is a sidebar with navigation links: Admin, Profiles, Students, Faculty, Employer, Revenue, Department, Analysis, and Logout. The main content area is divided into two sections. The 'Add an employer' section contains a form with fields for Employer Name, Contact No, Associated with university, Established since (in years), and Address, followed by an 'Add Employer' button. The 'View employers' section displays a table of existing employers.

| Name     | Contact   | Establis... | Address    | Associati... |
|----------|-----------|-------------|------------|--------------|
| Amazon   | 123-45... | 5           | Boston     | 3            |
| Google   | 123-45... | 10          | California | 5            |
| facebook | 123-45... | 15          | NewYork    | 13           |
| Tesla    | 123-45... | 20          | Boston     | 2            |
| ABC      | 123-45... | 20          | Boston     | 2            |
| DEF      | 123-45... | 20          | Boston     | 2            |

Revenue generated according to the department by the university in a semester or a year.





Analysis of how many students ended up with a job in a particular field.

