

AED - Assignment 3 Report

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Problem Statement

Educational institutions invest in numerous resources in order to deliver an education of the highest quality to their students. There needs to be a method of checks and balances to these resources. It is a responsibility to look into each unit of the system invested in and make sure that students are getting the best. Students need to have a way to communicate with the authorities of the education being provided to them to maintain this.

Objective

The objective of the application proposed is to have a performance measurement solution that holds the educational system accountable for the quality of education that is being delivered. Through an application like this, universities should be able to get an overview of the impact the resources have on students. Thereby, they should also be able to take the right corrective measures to provide education of top-tier quality.

Proposed Solution

The solution that is proposed for the university model has three factors that determine the performance of the education system. The three factors are:

1. Student feedback in a course-end survey
2. Alumni feedback of courses relevant to employment
3. Faculty qualifications and related student feedback

Additionally, the university can also view employment rates, graduation rates, and expenditures related to the resources that are being invested in. A dashboard that compares these metrics can also be viewed to understand these metrics better. The front page of the UI is as below:



Figure 1

The contribution of each button in figure one is explained in detail in the rest of the report.

Feedback from a course end survey

Students are required to fill out a survey at the end of every course that is taken. The sequence diagram below elucidates the same.

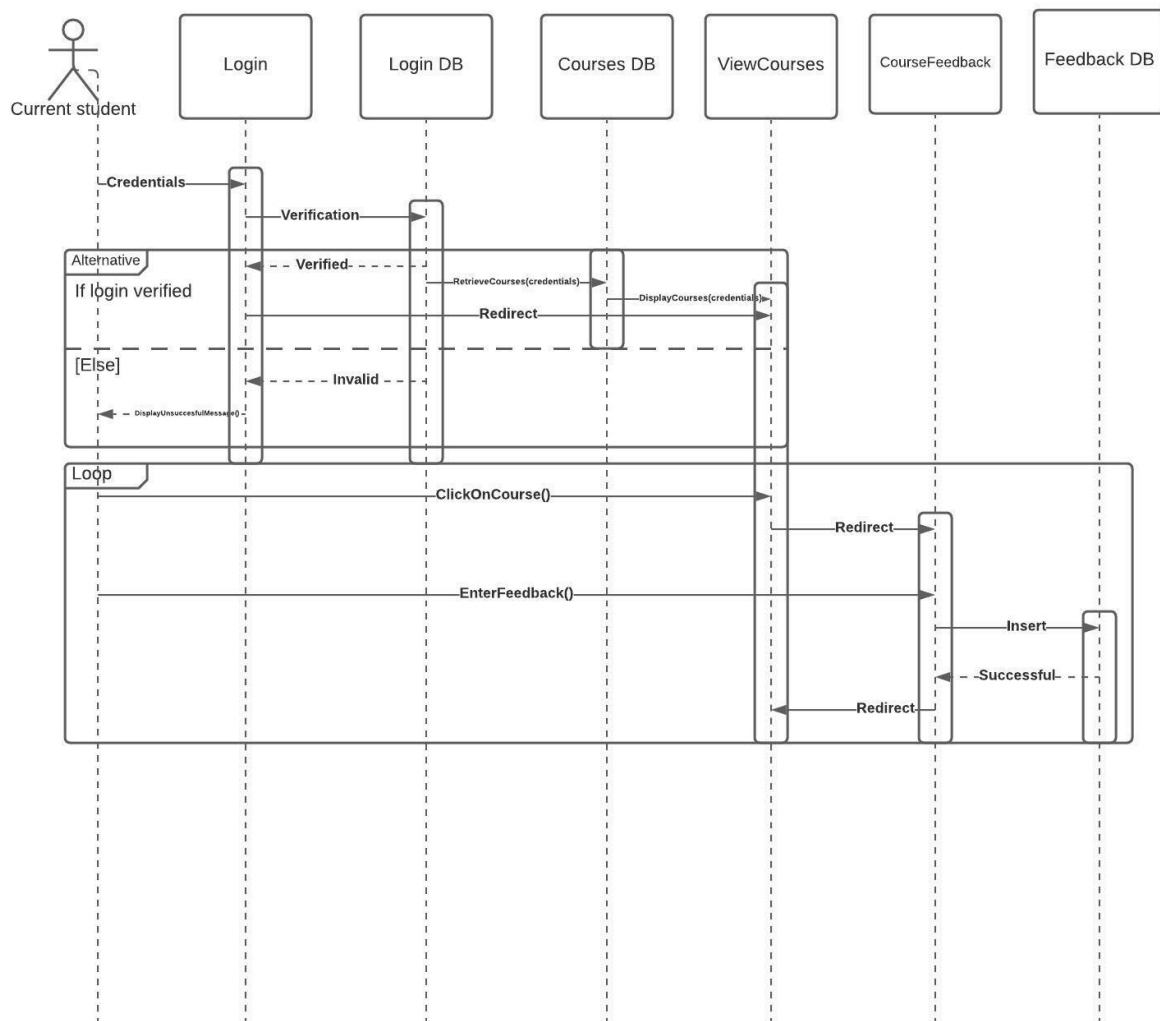


Figure 2

Students have to log in with their credentials and answer questions related to the courses that have been taken by them. This feedback can be viewed by a university administrator who can then determine if the processes are according to expectations. The screenshots below indicate the UI for the same.

STUDENT PORTAL

Uni ID

Password

Figure 3

Welcome A**! : ID: 002145678**

Department	Course Name	Faculty	Semester

The Instructor teaching is engaging and useful
The course materials meets your learning experience?
Assignments and projects are relevant to the learning process
Do you recomend this course to others?

(Enter additional text)

Figure 4

Figure 4 displays the courses taken by the student and for each course selected, the student must answer the questions given below the table. Question 1 decides feedback for the faculty in charge of the course and questions two, three, and four decide how well the course is doing.

Alumni Feedback

A feedback survey must be taken from students that have graduated and are employed. This survey helps in knowing how relevant the courses are to a real-world scenario. The sequence diagram below depicts this process.

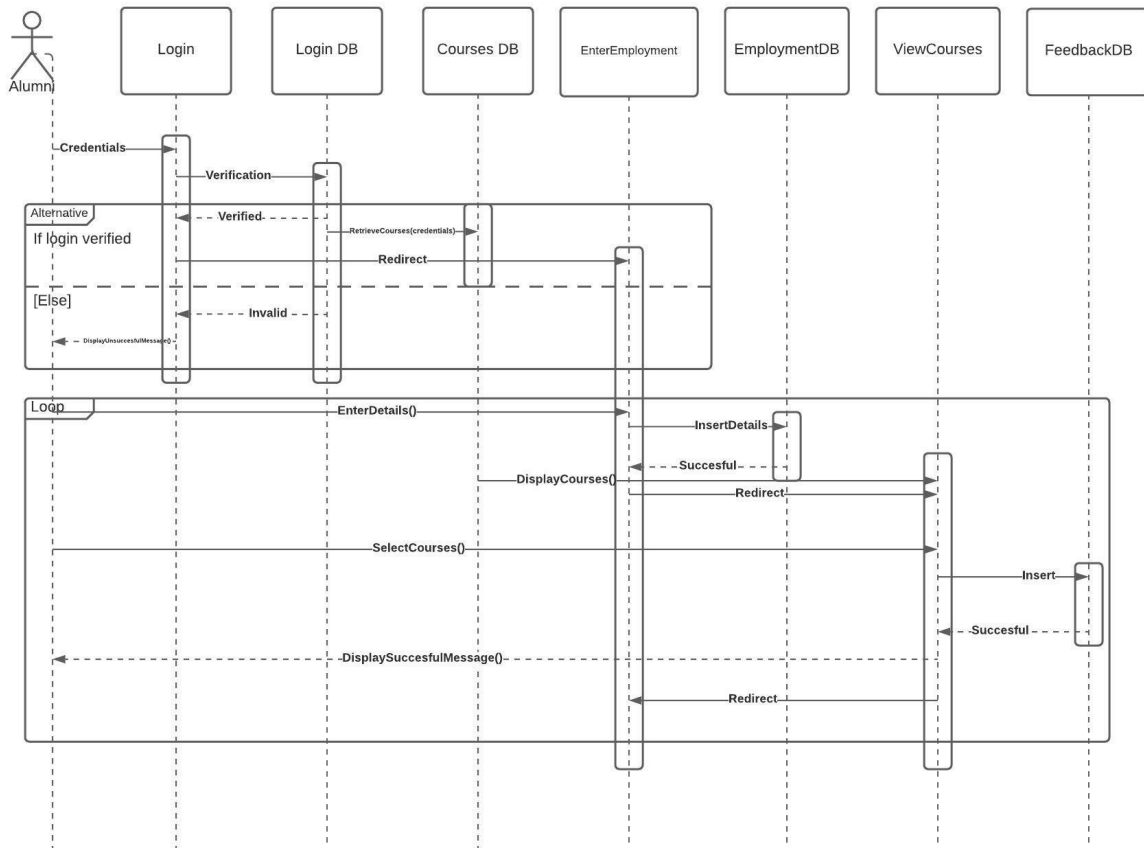
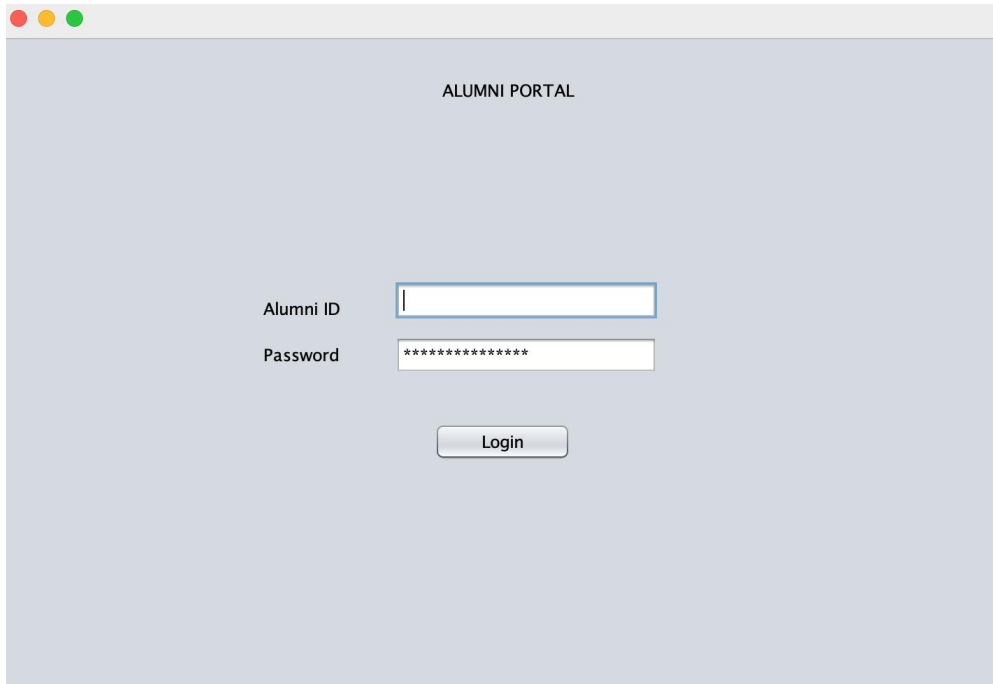


Figure 5

The students after logging in with their credentials will be able to view the list of courses they took while in college. The courses most relevant to their role in the company can be chosen. Through this, the university administrator can see the courses that are most relevant to the industry. The screenshots below depict the UI to implement this.

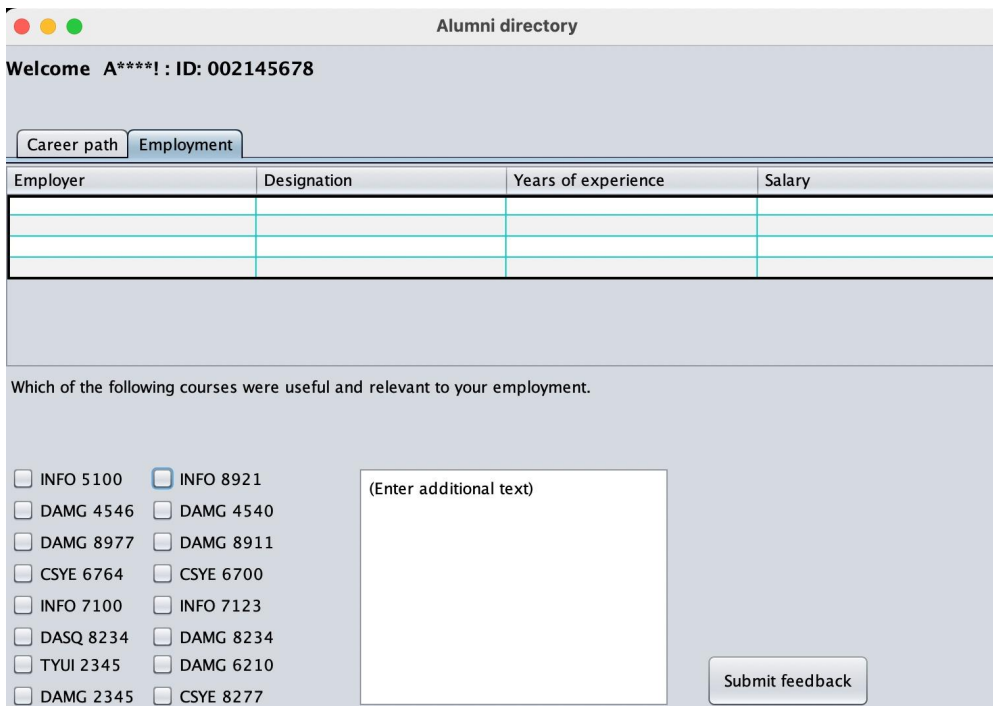


ALUMNI PORTAL

Alumni ID

Password

Figure 6



Alumni directory

Welcome A**! : ID: 002145678**

Employer	Designation	Years of experience	Salary

Which of the following courses were useful and relevant to your employment.

☐ INFO 5100 ☒ INFO 8921

☐ DAMG 4546 ☐ DAMG 4540

☐ DAMG 8977 ☐ DAMG 8911

☐ CSYE 6764 ☐ CSYE 6700

☐ INFO 7100 ☐ INFO 7123

☐ DASQ 8234 ☐ DAMG 8234

☐ TYUI 2345 ☐ DAMG 6210

☐ DAMG 2345 ☐ CSYE 8277

(Enter additional text)

Figure 7

The students will be able to enter their employment experience and for each role, will be able to select the relevant courses.

Faculty

Faculty qualifications can be viewed to correlate how the course is doing and the ratings that the faculty gets from the students. Faculty can view their ratings which stay anonymous and also enter qualifications. Faculty can access these provisions only after entering the right credentials. The sequence diagram below depicts this process.

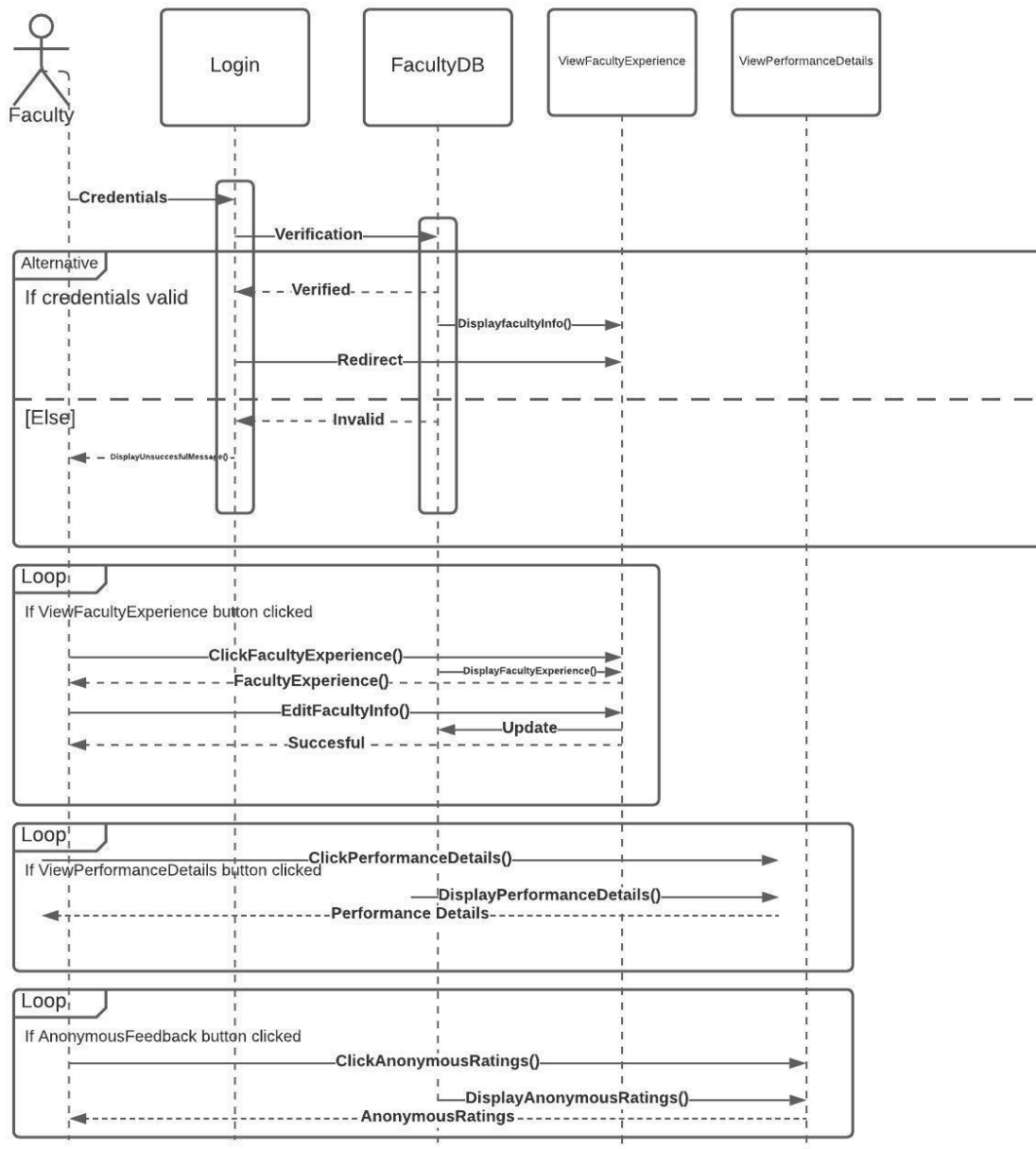



Figure 8

The screenshots below depict this implementation



A screenshot of a web browser window displaying a login form titled "FACULTY PORTAL". The form is centered on a light blue background. It contains two input fields: "Staff ID" and "Password". The "Staff ID" field is empty, while the "Password" field contains a series of asterisks. Below the input fields is a "Login" button. The browser window has a standard macOS-style title bar with red, yellow, and green window control buttons.

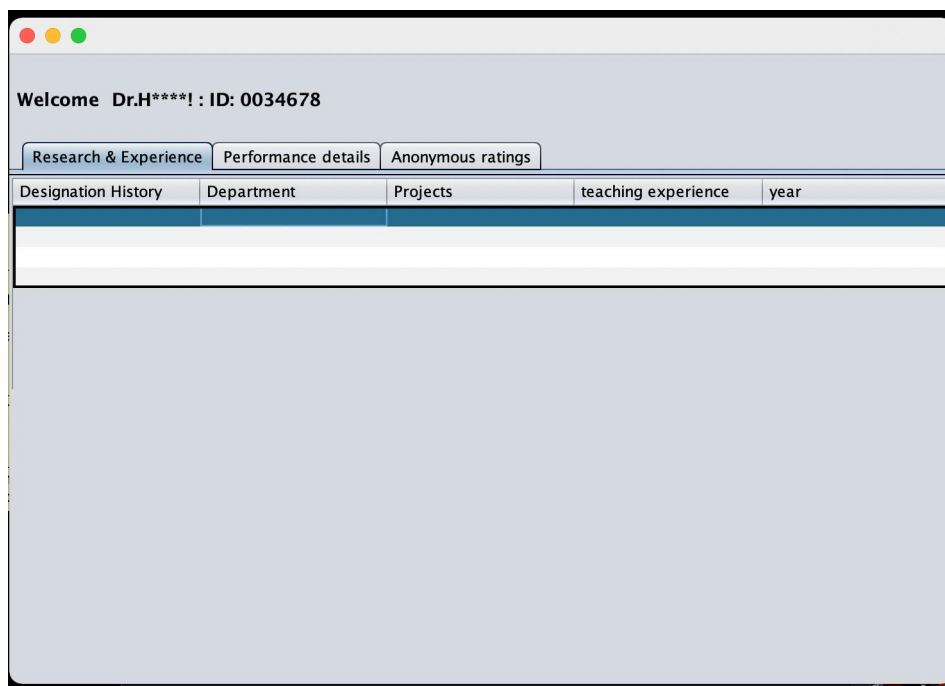
FACULTY PORTAL

Staff ID

Password

Login

Figure 9



A screenshot of a web browser window displaying a dashboard titled "Welcome Dr.H****! : ID: 0034678". The dashboard has a light blue background and a white header bar. Below the header bar are three tabs: "Research & Experience", "Performance details", and "Anonymous ratings". The "Research & Experience" tab is selected. Below the tabs is a table with five columns: "Designation History", "Department", "Projects", "teaching experience", and "year". The table has a blue header row and a white body row. The body row is currently empty.

Welcome Dr.H****! : ID: 0034678

Research & Experience Performance details Anonymous ratings

Designation History	Department	Projects	teaching experience	year

Figure 10

Welcome Dr.H****! : ID: 0034678

Research & Experience Performance details Anonymous ratings

Courses taught	Semester	Mean performance %	Fail %

Figure 11

Welcome Dr.H****! : ID: 0034678

Research & Experience Performance details Anonymous ratings

Course rating	Teaching feedbacks	Semester

Figure 12

University Administrator

The university administrator can view all the inputs given by students and faculty. These inputs are viewed as calculated fields in the form of ranks and graphs. The diagram below depicts the sequence diagram for this process.

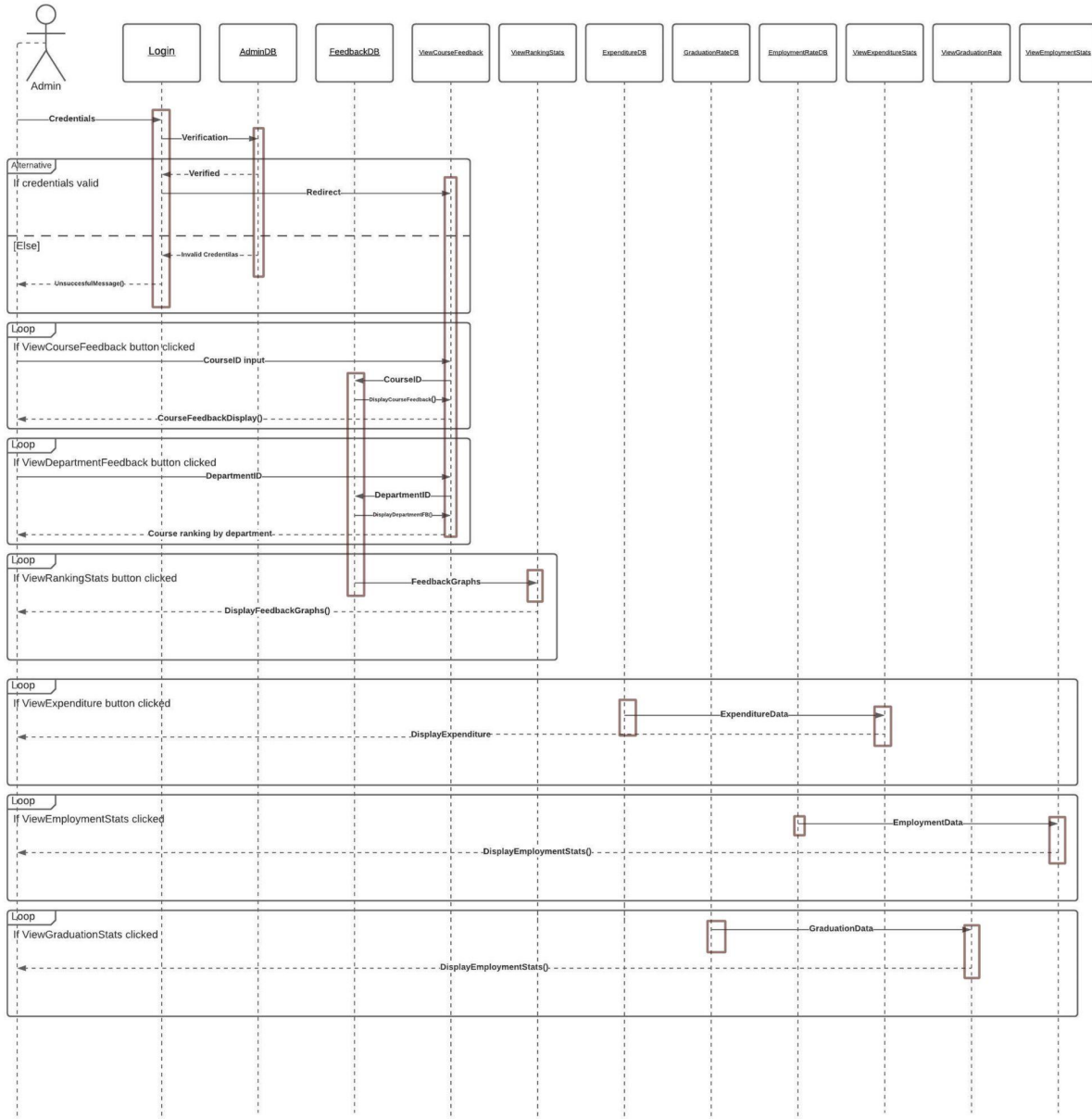


Figure 13

The administrator has to log in with their credentials to be able to access this information. This information is available in the form of tabs. The following screenshots will elucidate the same.

The screenshot shows a web application interface. At the top, there is a dropdown menu set to '2021' and a label 'Year'. Below this is a table with the following columns: 'Course Name', 'Course Feedback', 'Course vs Employme...', 'Faculty Name', 'Teaching Experience', 'Citations & Research', and 'Avg teaching Feedba...'. The table has three empty rows. Below the table is a large grey rectangular area. At the bottom, there is a search bar, a 'Search' button, an 'Update' button, and an 'Edit' button.

Figure 14

Figure 12 displays data related to the course, based on the course ID entered in the search bar. The average course feedback is calculated based on the ratings given by students (according to figure 4). The course vs employment column displays feedback given by graduated students (according to figure 7). Teaching feedback is the average feedback given by students about faculty.

The screenshot shows a web application interface. At the top, there is a dropdown menu set to '2021' and a label 'Year'. Below this is a table with the following columns: 'Course ID', 'Course Name', and 'Course Rank'. The table has three empty rows. Below the table is a large grey rectangular area. At the bottom, there is a search bar, a 'Search' button, an 'Update' button, and an 'Edit' button. Below this is another table with the following columns: 'Program Name', 'Graduate %', 'Funded projects', and 'Year'. This table also has three empty rows.

Figure 15

Figure 15 displays a list of courses ranked in the order of course with the best ratings to worst. This order is calculated after considering both alumni and course-end feedback.

Course_rating Program_rating **Expenditure & Income** Employment Graduations & admissions Ranking

Private Expense(\$)	Public Expense(\$)	Expense Description	Course Income	Credit Hours	Year

Search Update Edit

Figure 16

The above figure displays the expenditure and outcome of the expenditure. Similarly, the employment tab describes the employment rate after graduation. The graduation and admissions tab displays the graduation rate and other related attributes. The following screenshots explain further.

Course_rating Program_rating Expenditure & Income **Employment** Graduations & admissions Ranking

Employment %	Mean Salary	Student_contribution %	Year

Filter by Year SEARCH

Figure 17

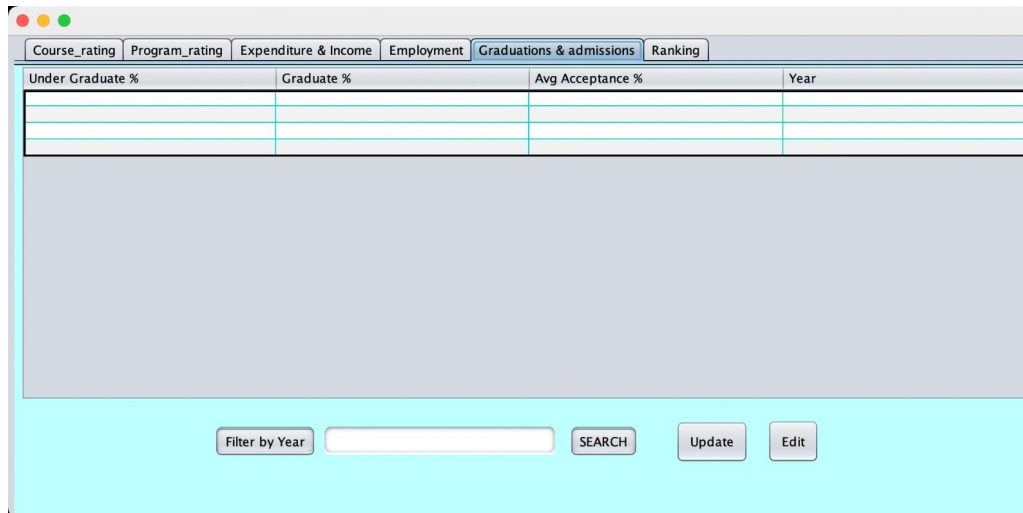


Figure 18

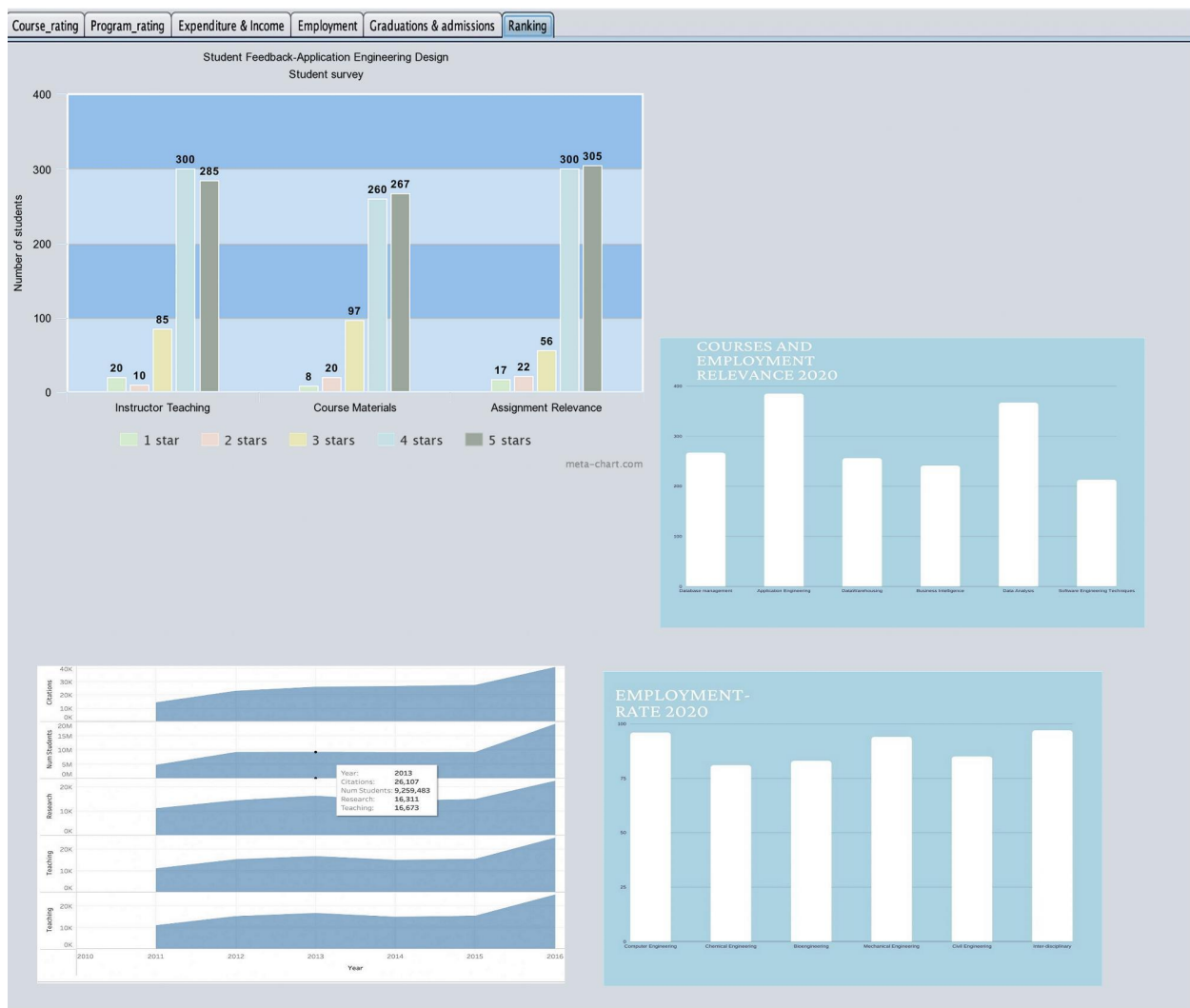


Figure 19

Figure 19 displays a dashboard where the performance metrics are compared. The employment rate for the year 2020 is displayed. Comparison of feedback by course is displayed for the same year and comparison of feedback related to employment is also displayed.

Course Rank Calculation

The course rank is calculated based on the course-end and alumni feedback.

Course-end Feedback

The questions considered are:

- 1) Is the instructor engaging and useful?
- 2) Do the course materials meet your expectations?
- 3) Are assignments and projects relevant to the learning process?

The first question is useful in finding out the average rating for each professor. The feedback can be chosen from the following options.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly disagree

These are taken for ranking in the form of one to five stars, one star being strongly disagree and five stars being strongly agree.

Alumni feedback

Students that have already graduated have to enter details of their employment. For each role they played in an organisation, alumni have to select two courses that are most relevant to their job experience. The courses that they select will each receive 5 stars and will determine the course's rank along with course-end feedback.

The final rank is given based on calculating ratings from both the feedback surveys. There is more weightage given to alumni feedback which pertains to the goal of the university being the courses must be relevant to industry experience.

Class Diagram

Figure 20 is a class diagram of the university model. All of the features discussed in figures 1-19 have been included in the class diagram along with additional features that enhance the performance of the university model.

Figure 20

