Assignment - 3

Performance Measurement Metrics for University Model

Prepared by:

Aditi Krishna

Kruthika Radhakrishnan

Sreshtha Jupudi

INFO 5100 Application Engineering & Development

Prof. Kal Bugrara

I. Problem Statement:

The objective of this assignment is to instil in you the techniques for turning an object model into a machine for information gathering and data aggregation. We want to use software engineering techniques to improve the quality of education anywhere and hold people accountable for improving the quality of life through education, learning to learn, and feedback. Your task is to study ways to create a performance measurement solution to enable universities to measure the quality of the education they deliver to their students. The approach will be to look into how an educational system in terms of faculty and courses contribute to the growth of their graduates over a 5-year period. You must figure out ways to track the jobs and promotions graduates get over time and assign rankings accordingly. In addition, track the connection of courses and their relevance to graduates' growth.

One of your deliverables will be to design a dashboard that enables college and university administrators to compare the performance of their academic units. One additional question is to consider ways to define your own ranking system for students to decide where they want to go for their studies. The current system is biased toward research.

Deliverables:

- Report outlining your proposed solution
- Sequence diagrams showing how to navigate the university object model to deliver performance metrics needed for performance and feedback
- A class diagram showing the changes to the university model to support the new capabilities. This diagram must include the additional methods and attributes required to deliver the results

II. Solution:

The idea is to utilise the following classes in the University Model:

- Alumni
- Student Profile
- Department
- Transcript
- Course Load
- Employment
- Employer Profile
- Employer Directory
- Faculty Directory
- Career Services

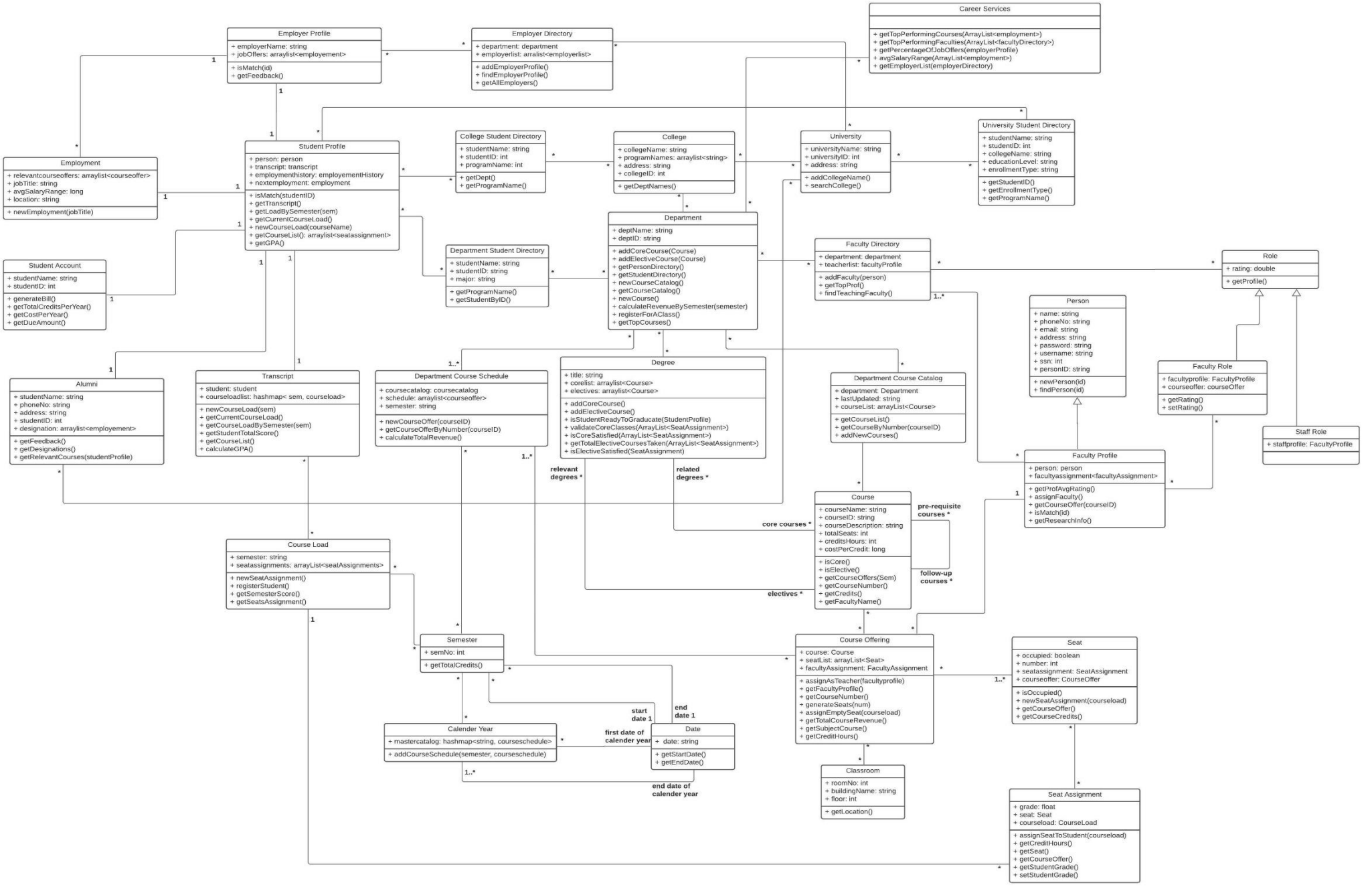

Fig 1.0 UML Class Diagram for University Model

Currently, the University's performance is ranked based on the research opportunities. Our model is based on the various real time metrics from a corporate perspective, which is used to measure the performance of the Department, College, and thereby ranking the University.

We use the following attributes to define a performance metrics:

- List of top performing courses within each department
- List of top-rated professors within each department
- Percentage of students who received a job offer
- Average salary range
- List of top employers

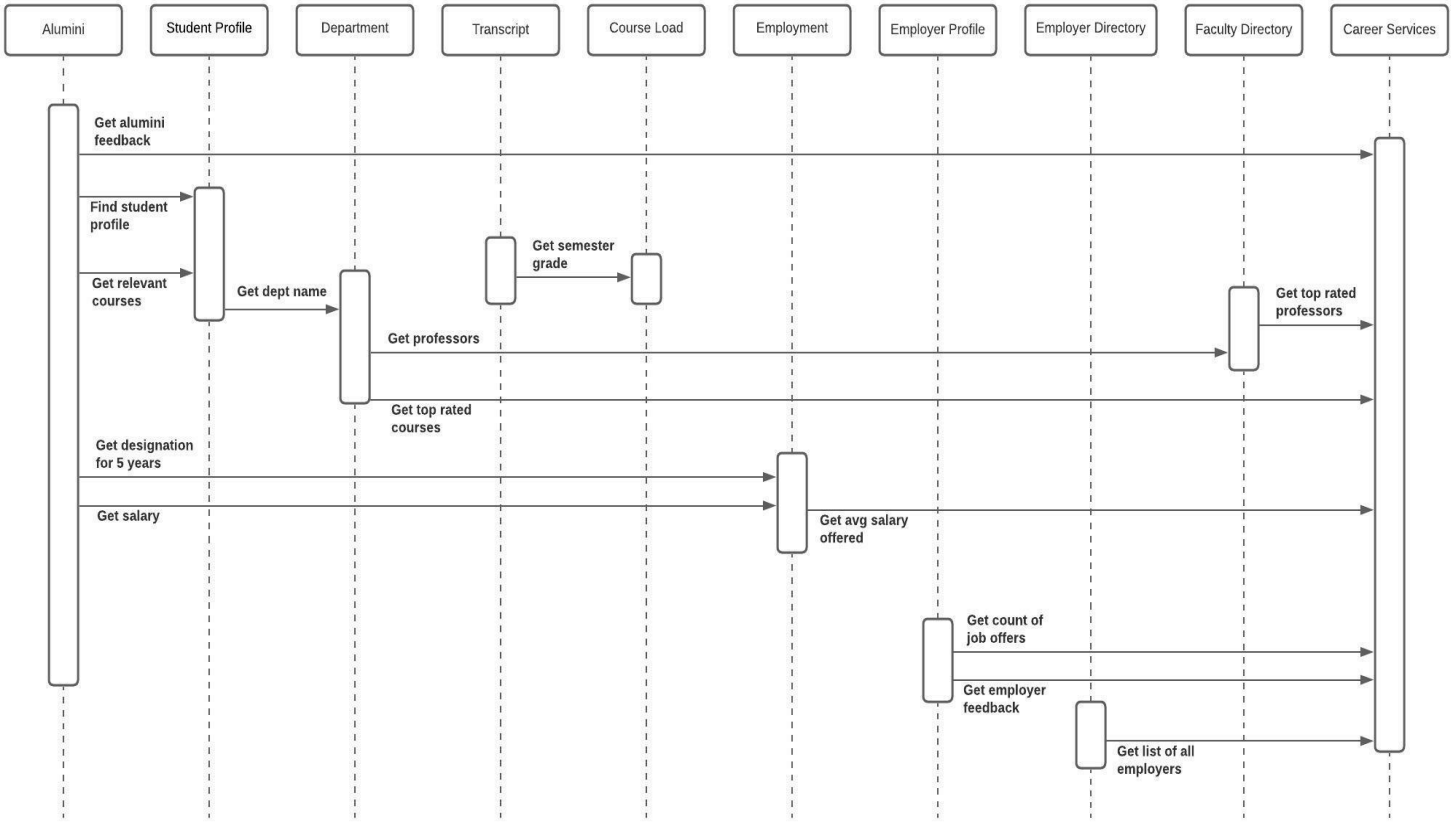

Fig. 2.0 UML Sequence Diagram for University model performance metrics

1. Alumni Performance Measure:

Using the University model, we can access various details about the student, such as, list of relevant courses, GPA, co-op information, current employment information, location, etc.

The alumni logs into the alumni portal through the university website and updates their current details about their employment. It helps the university keep a track of the alumni network, which can be utilized by the current students by seeking guidance and mentorship from them. They also provide feedback for the university and update their current job role, hence tracking their promotions.

The employment details of the alumni can be derived from the Employment class, which stores information such as:

- jobTitle
- salaryOffered (at the time they received the job offer)
- jobLocation
- relevantCourses

By taking this measure, we are determining how much the university has offered to the alumni growth that has made him land up in the job of his choice and has made him successful.

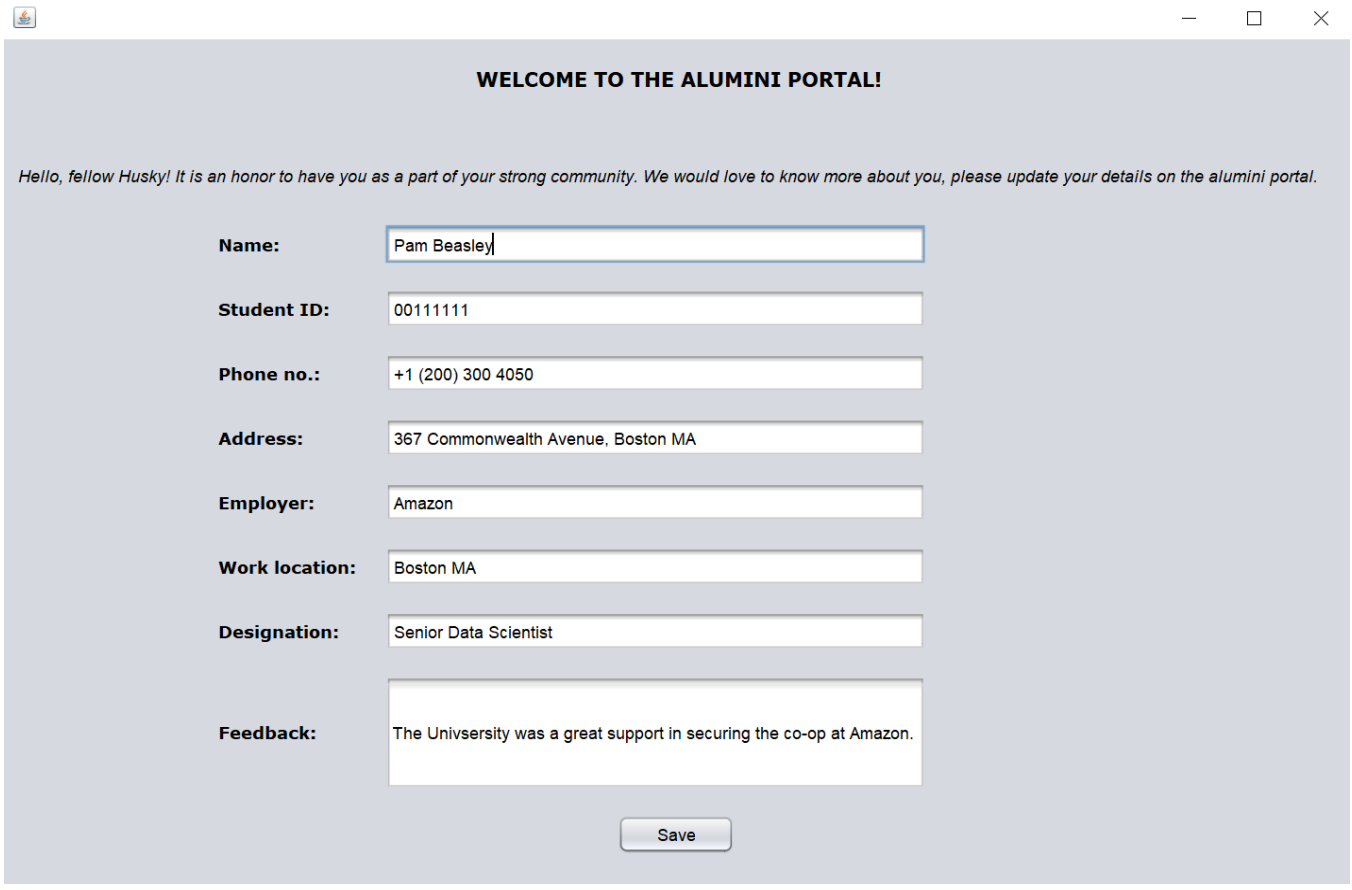

Fig. 3.0 Alumni portal

2. Employer Profile and Feedback:

Average placement rate is a major contributor for measuring the performance of the university. Placement rate of students is directly proportional to the quality of education delivered by the university. Learning outcomes from the university and the workforce preparedness are major factors which help to determine the performance.

We derive a count for the number of jobs offered per employer, along with the average salary offered. Feedback from the employer is also retrieved, it is tricky to get such information because of the confidentiality clause that most companies follow.

The employer directory class is responsible for storing details about all employers that have hired from the University. A list of the top employers is generated, those who hire the maximum number of students from the university and have a competitive salary offer.

3. Faculty Directory:

Performance of the faculty is measured by using the following metrics:

- Years of work experience
- Rating based on student feedback
- Research portfolio

In our solution we utilize the above measures to create a list of top-rated Professors in the department, which are also associated with the top relevant courses.

III. Conclusion:

A University's performance can depend on various brand enhancing characteristics such as Alumni/Student profile, Faculty profile and the Employer relations. A key advantage for any university is the successful recruitment of the students and various employers compete to recruit the quality students. All the factors together contribute to the performance measurement of a university, and we have designed a sample dashboard that represents the same.

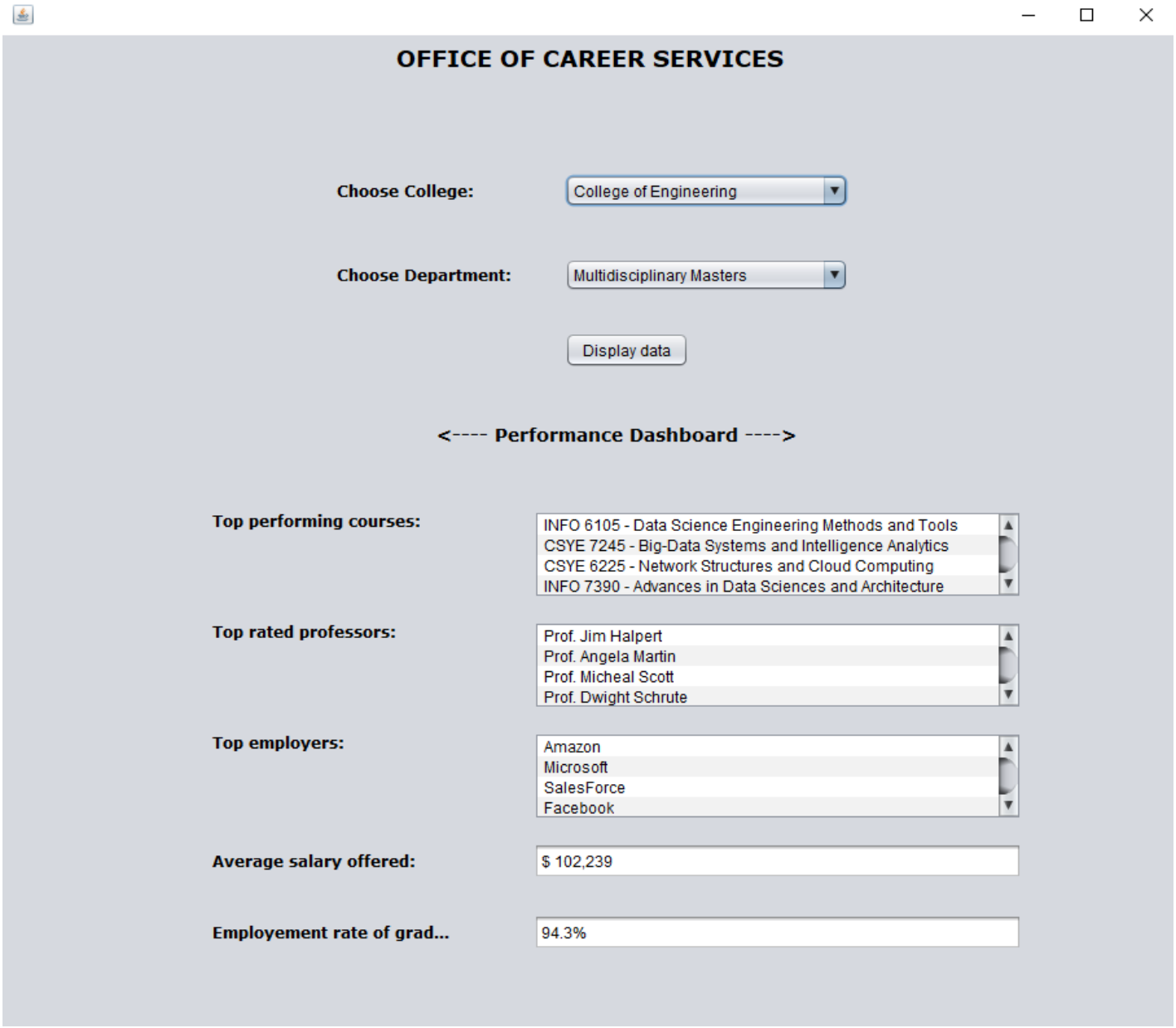

Fig. 4.0 Performance Dashboard