Northeastern University
College of Engineering

University Education System's Measurement

Design Report

Course #: *INFO5100*

Course Name: *Application Engineer & Development*

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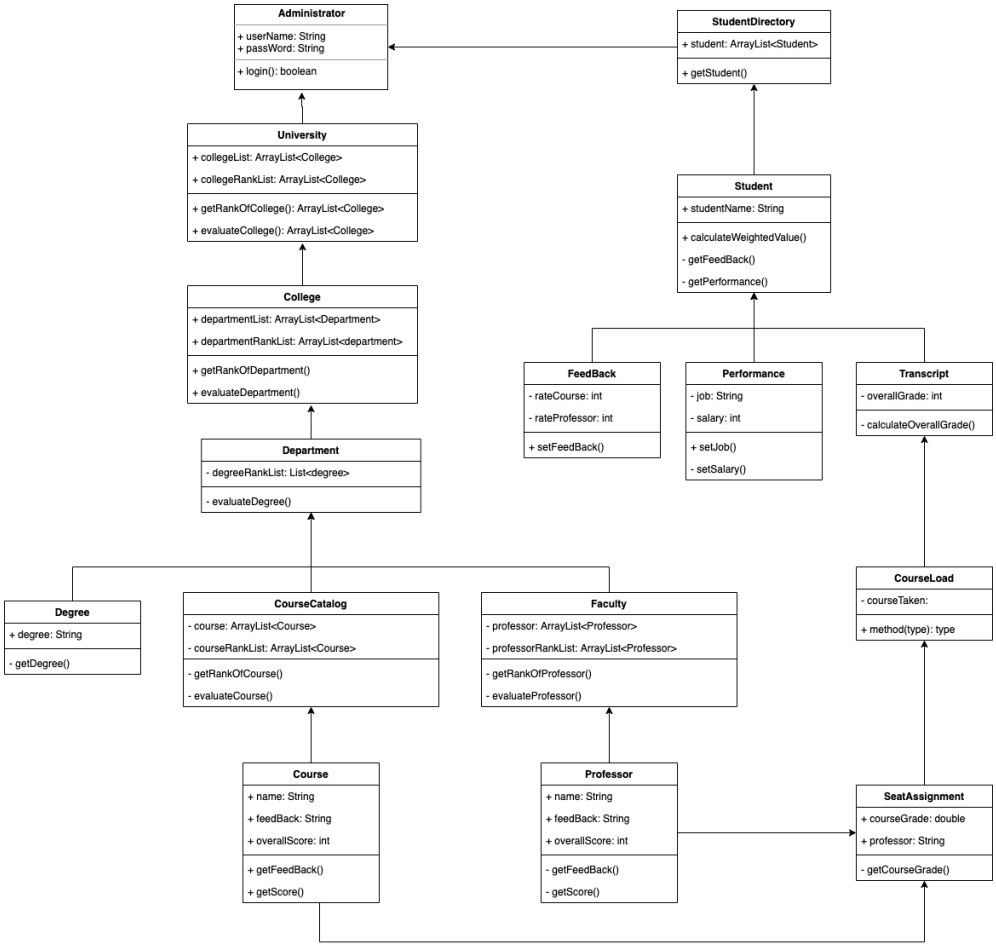
Project Introduction

By tracking the performance of graduates and collecting their feedback, we can analyze the relationship between career performance with their education performance, such as degree, courses they had taken, or the teaching skill of professors. Those results will be demonstrated as not only comments, but also rankings and scores.

Object Model Diagram

The object model diagram Figure 1 shows how the information and results will be collected and displayed. As we can see, the administrator is able to check and update the data from University level after login. University class generate and shows the ranking of colleges. Similarly, college combines departments feedback with students' performance to rank the departments. In the next level, department class has information of courses and professors, both rated by students. This evaluation and ranking system will help university to understand how its education delivers in different levels, as well as help students at school to choose their courses and future study areas.

Figure 1.1 Object Model Diagram



Administrator

The system starts with administrator login, once log into the system, users are allowed to check the rankings and update the student data.

University

getRankingOfCollege()

University class is able to display the ranking of colleges and allow user to check the details of each college in the list. Also, this class has access to the student directory, and allowed to modify the student information.

College

getRankingOfDeparment()

College class is able to display the ranking of departments in this college and allow user to check the details of each department.

Department

evaluateDegree()

Department class will show both rankings of courses and professors, evaluated from student feedback and rate.

CourseCatalog

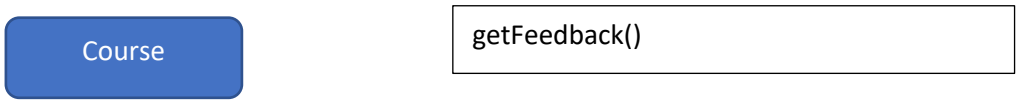
evaluateCourse()

Courses information are stored in courseCatalog class and will be evaluated and ranked in this class.

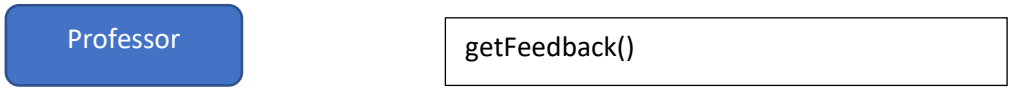
Faculty

evaluateProfessor()

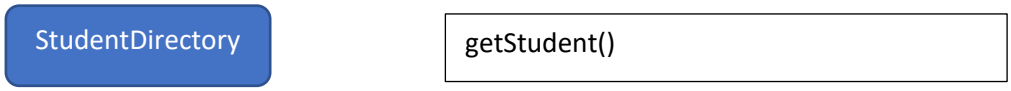
All faculty information is stored here and will be evaluated and ranked in this class.



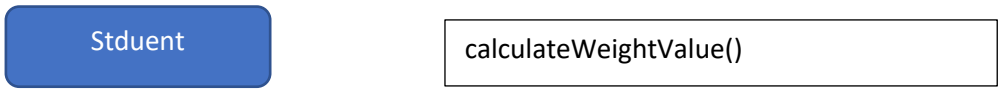
Course basic information and feedback from student about this course are stored in this class.



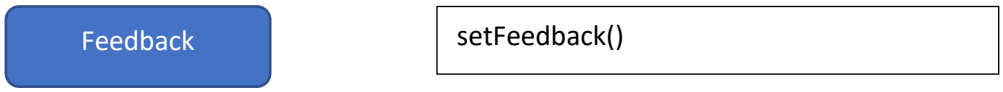
Professor's basic information and feedback from student about this professor are stored in this class, which will be used for evaluation in faculty class.



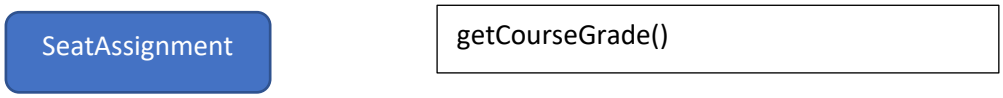
All student data are here, which can be updated.



We can calculate the weight of each student based on the performance of this student, the performance includes student's course grade and career achievement.



Student's feedback for courses and professors could be both comments and rates.



Student's specific course grade is here, which will used for ranking calculation. This class connects student and department together.

Sequence Diagram

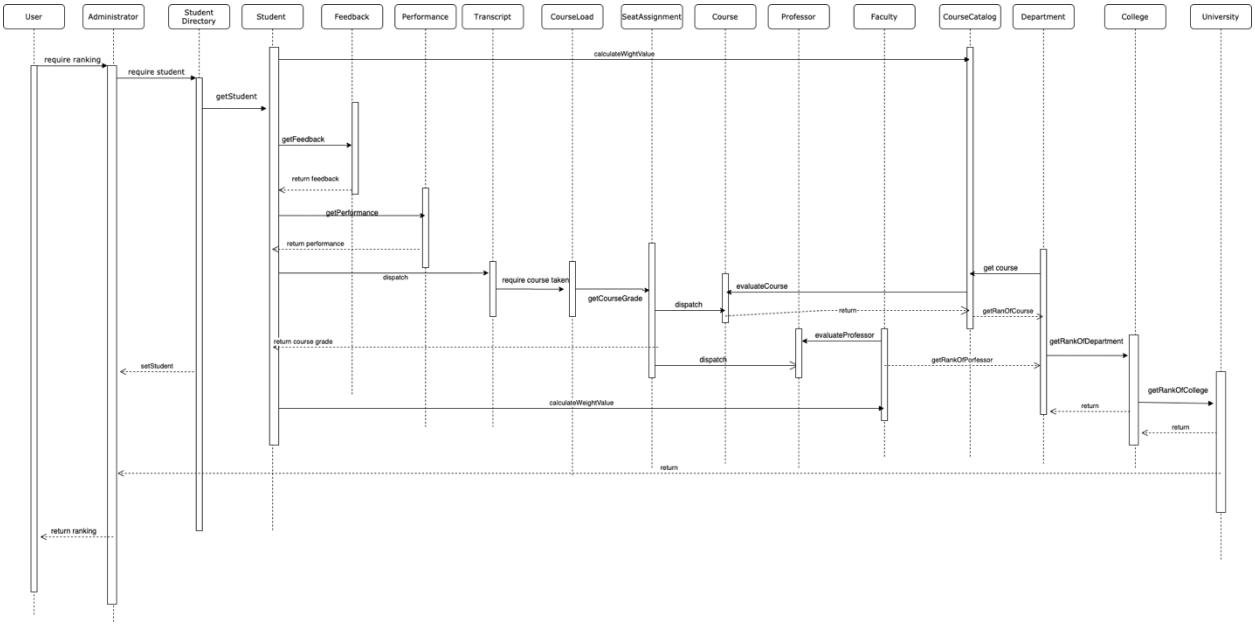


Figure2.1 Sequence Diagram

The Sequence Diagram demonstrates how the information flow inside the system, as well as the results generating process from responding data. Users are allowed to see the rankings, from college level to professor/course level. Administrators are allowed to update graduates' information, they also can modify the rule of ranking system, for example, administrators can change the weight value calculation rule of graduates.

Every time user wants to see the ranking, it starts from university level. System calls the student directory first, go through each graduate's information, and calculates the weight value based on his/her course grade during school and performance in career. Then the system calculates the score of courses and professors with the feedbacks. After that, the ranking of students and courses could be gained based on all the students' rate and their weight value.

With the ranking of courses and professors, we can get the ranking of departments, basing on the grade of courses and professors' feedback in each department. Those rankings will be stored for user view. Similarly, we will get the college ranking.

Administrator will get the college ranking first and return to user for viewing, then departments are available. Professors and courses are in the departments. Users cannot go to courses or professors ranking directly.

GUI Design

The initial GUI design of this platform is illustrated as below.

1) Welcome Page
    a. College button will guide the user to the college page to find out the college ranking, department ranking and professor ranking;
    b. Student button will guide the user to the student page to find out student profile information.

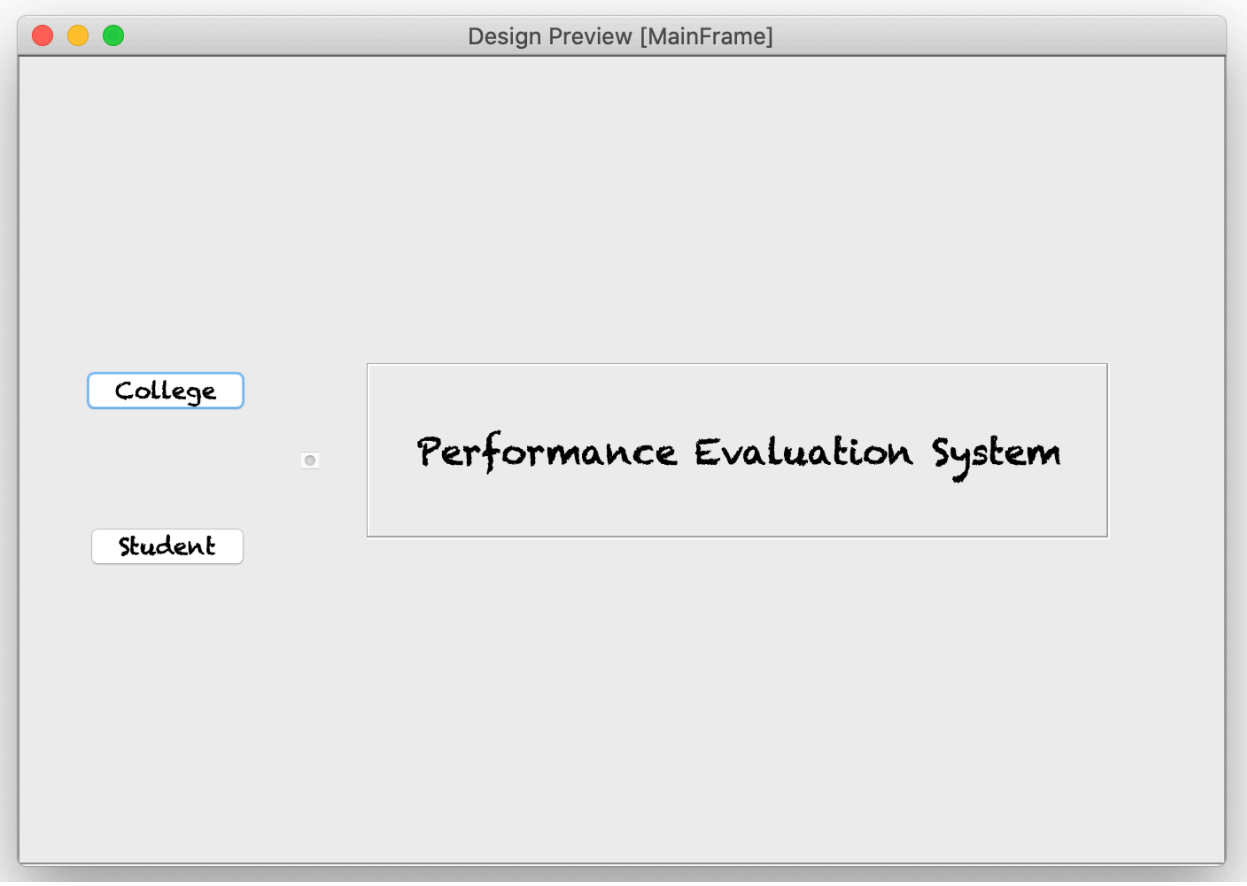


Figure3.1 Welcome page

2) College Page

a. Different College button represents for different college in the university;

b. Each specific button will lead the user to the main page of this college to get the detailed information of department, professor and students.

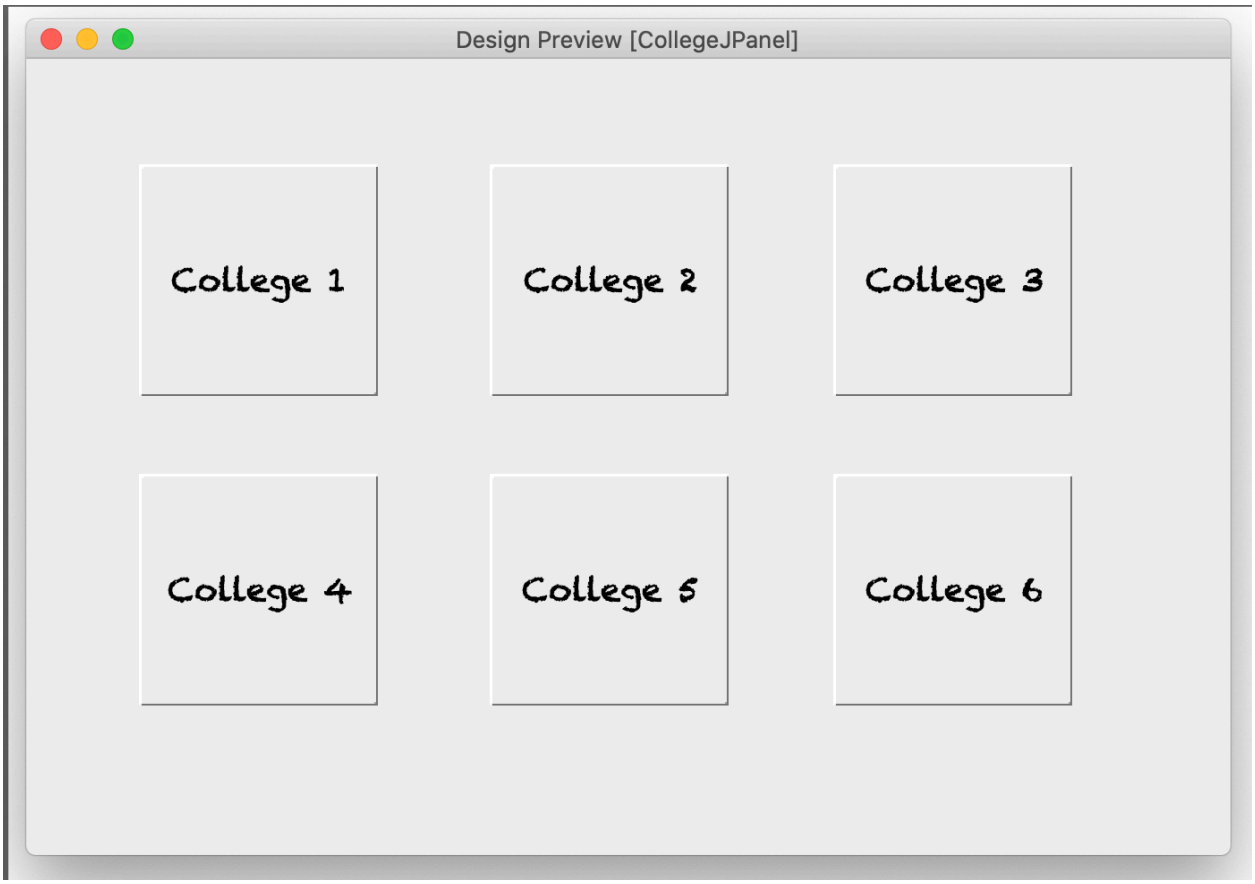


Figure3.2 College page

3) College detail

a. This page shows the detailed information of the selected college.

b. User can also choose the college on the side bar;

c. This page includes department list, professor list, course list and student list;

d. Each “View Detail” button will jump to the detailed information of each selected item.

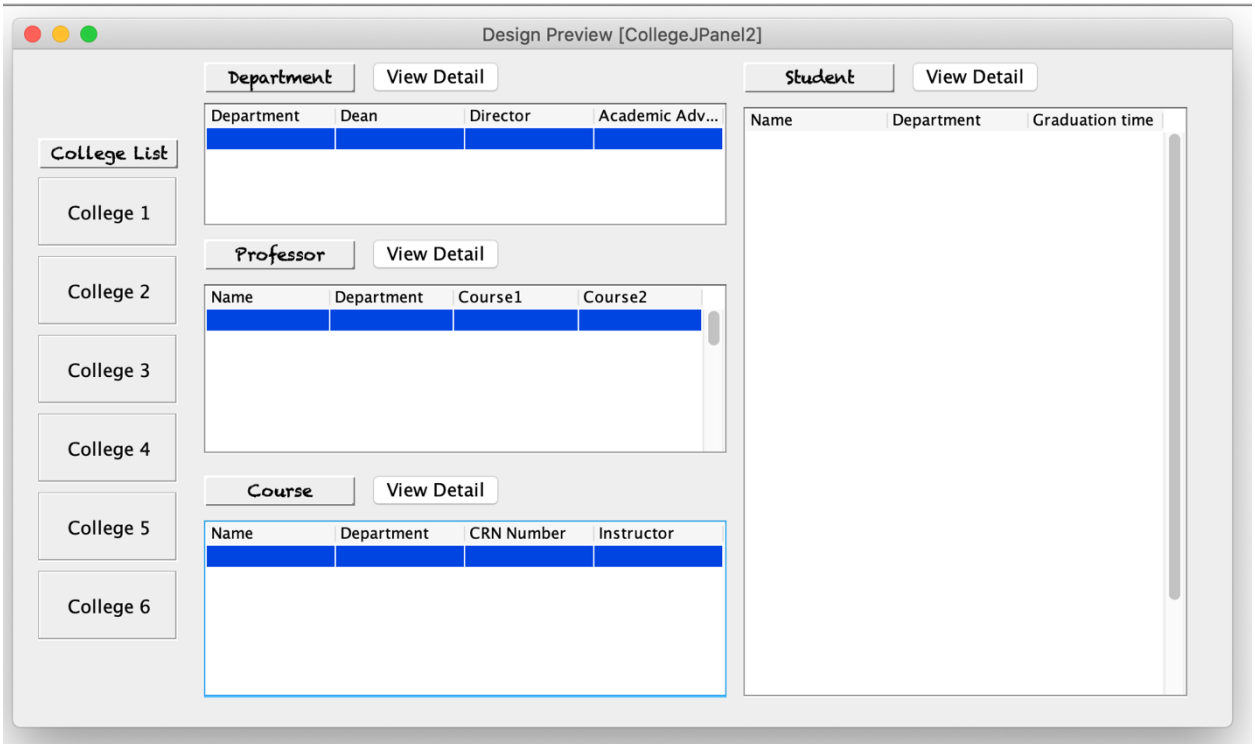


Figure3.3 College detail page

4) Department ranking

a. This page shows the department ranking, course ranking and professor ranking, all of which are calculated by students' feedbacks, grades and job performance.

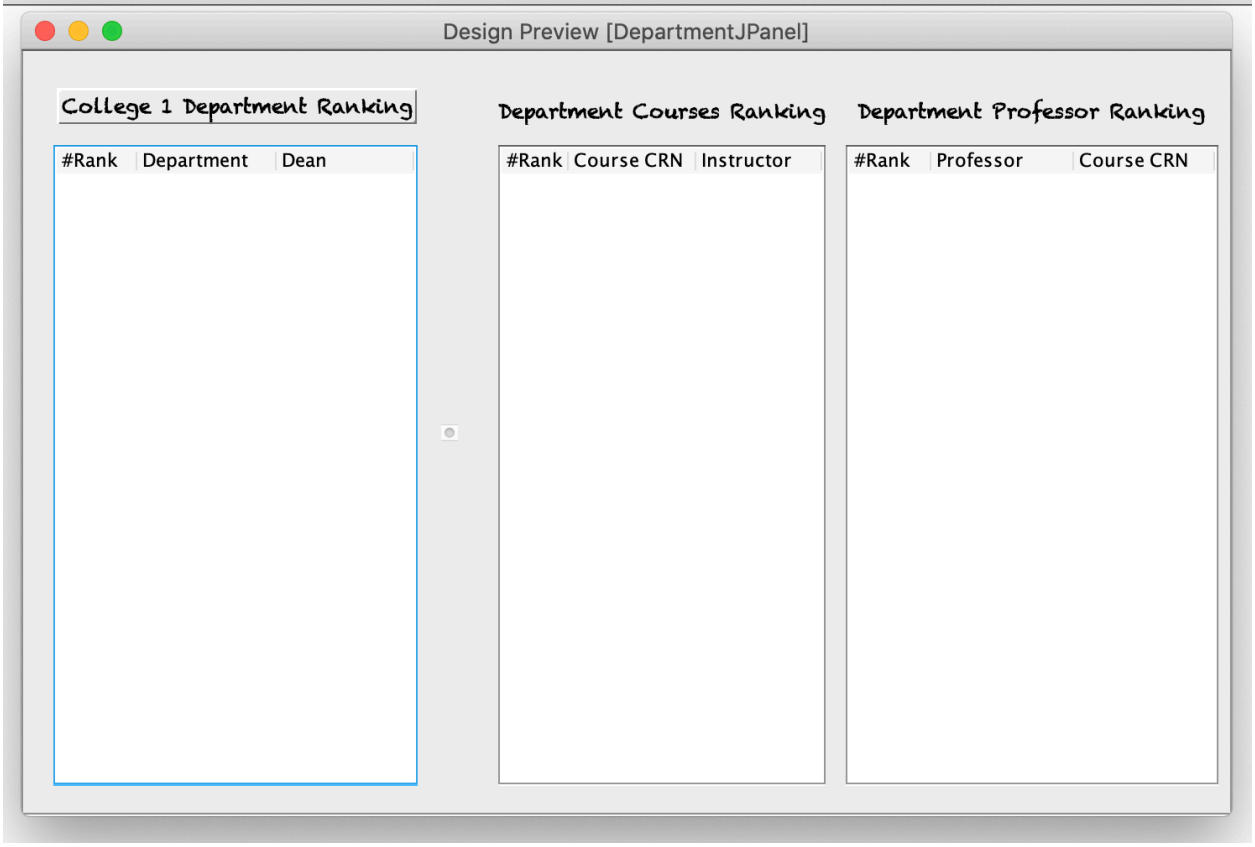


Figure3.4 Department detail page

5) Professor profile

a. This page shows the profile of professor in a specific college;

b. Professor profile includes personal information, academic accomplishment, academic feedback from students, contact information and social media;

c. Admin can add new professor or update professor information;

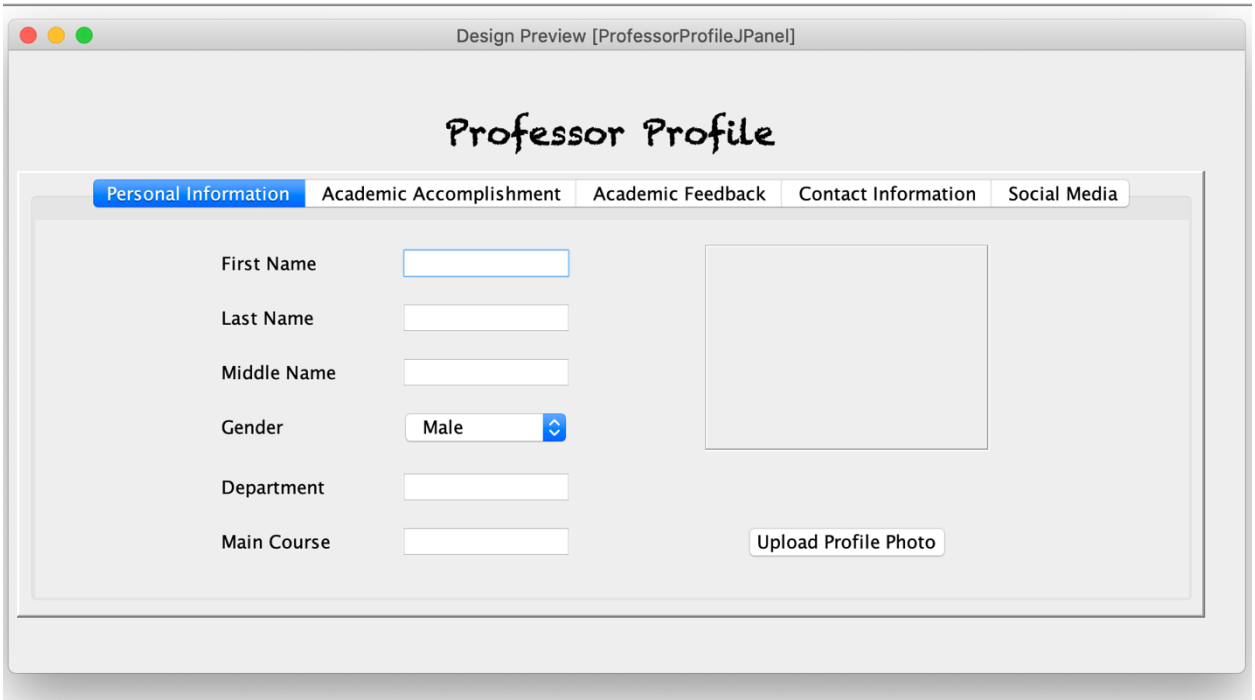


Figure3.5 Professor profile page

6) Course detail

a. This page shows the detail of course in a specific college;
b. The page will show the course basic idea, class details and most important one—course feedback from students.

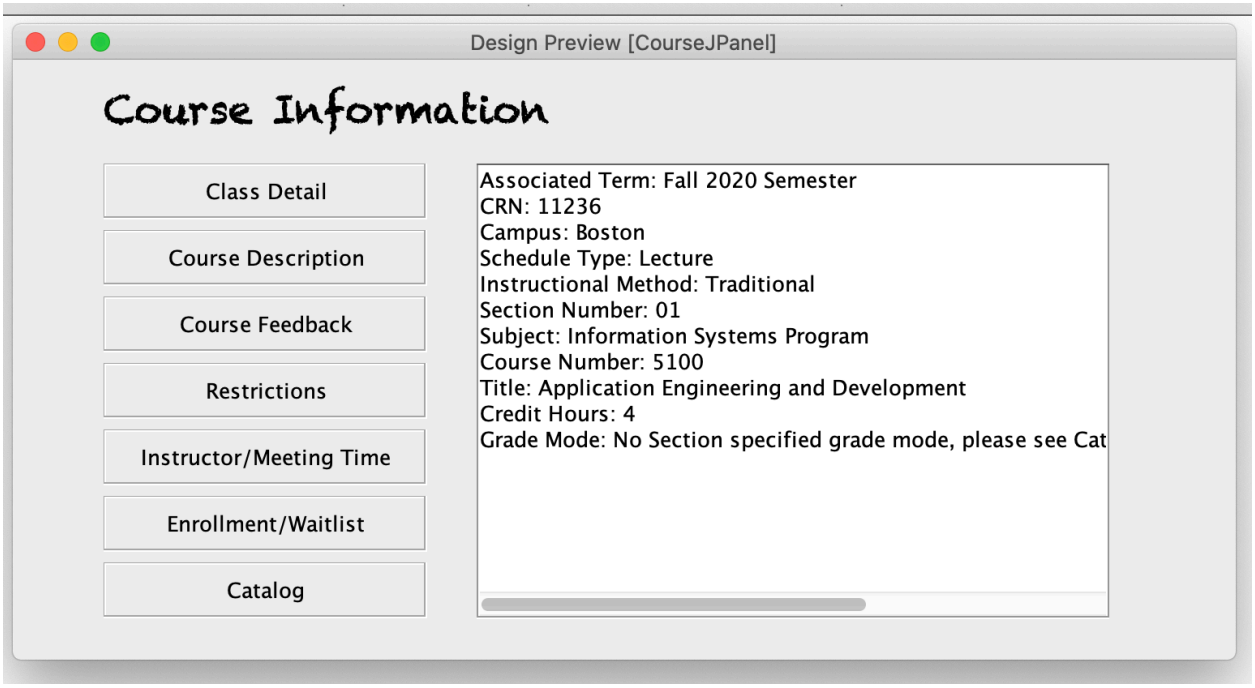


Figure3.6 Course detail page

7) Student Profile

a. This page shows the student profile, including personal information, academic performance in the school, contact information;
b. Specially, we collect students' feedback to the courses they had, as well as professors they had worked with. Also, we track the students' career status after their graduation.

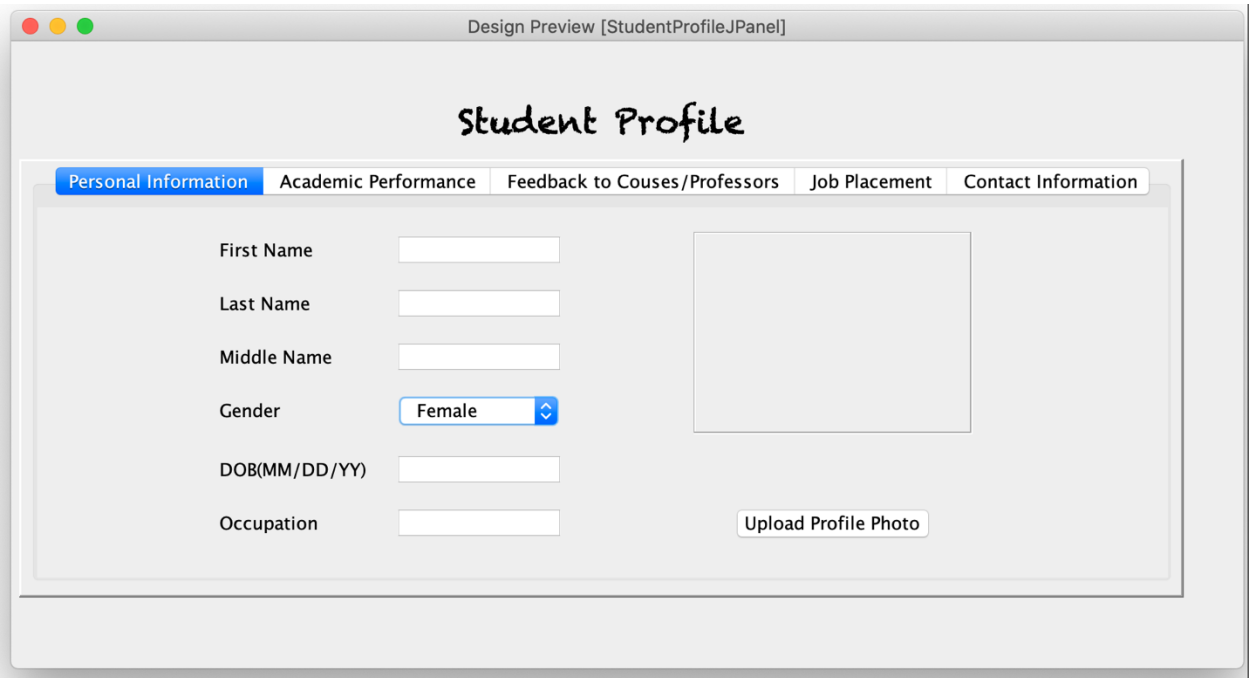


Figure3.7 Student Profile-1

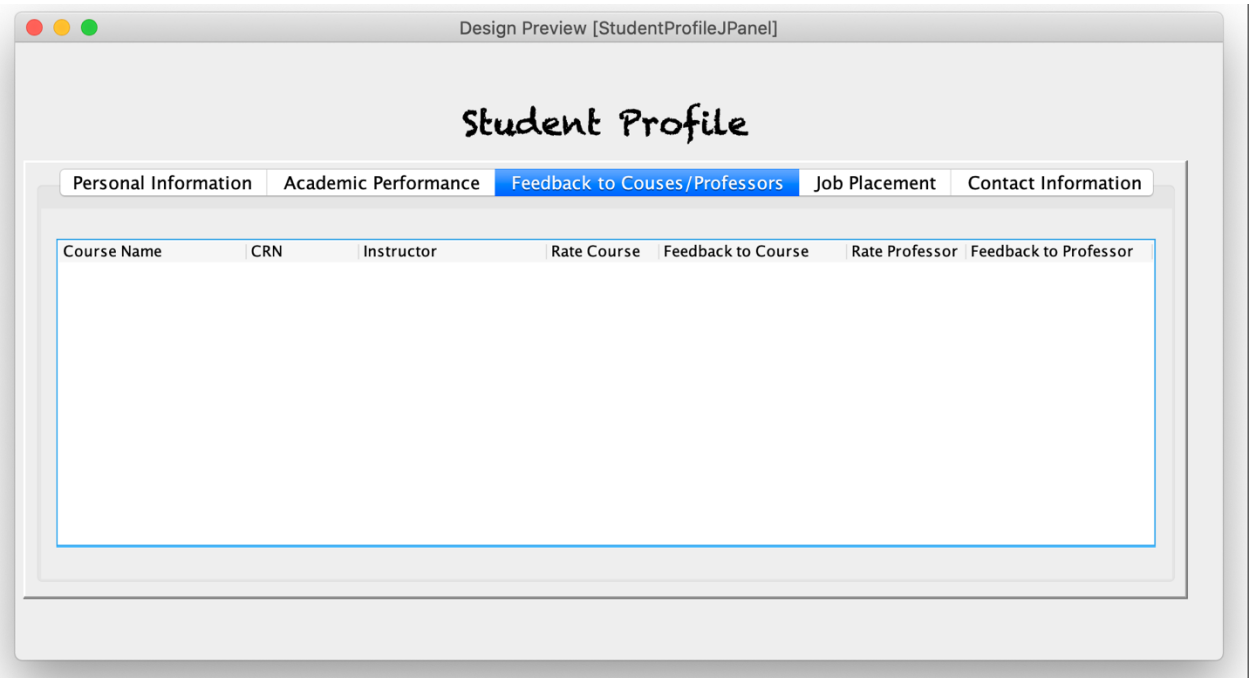


Figure3.7 Student Profile-2

Summary

This system biased on the graduates' feedback and career experience, can help current student to decide where to go for study.

Graduates will give feedbacks to the courses that they had taken and the related professors, and the feedback includes comments and rate points.

Students have their own weight values in the ranking system, based on their performance, including their college grade and career/research achievements.

This system ranks courses and professors based on student feedback. Departments are ranked based on the courses and professors in the department. The department has more high rated courses and professors will rank by the front. Similarly, college ranked based on departments.

In the administrator page, admin can either view college ranking or update graduate's data. Also, we can go to one specific college from this page, look at the ranking of departments in this college.