

Northeastern University

AED - Application Engineering & Development Fall '21

Group Member -

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Introduction:

A university is a higher education institution that offers teaching and research opportunities and is accredited to award academic degrees. Undergraduate and postgraduate education are typically provided by universities. When a student enrolls in a university, they must go through several procedures since the university is looking for a student who best matches their requirements and will be an asset to the university. The university and the companies are constantly at odds because the university must produce a fruitful outcome that aids the market's progress and deliver a quality product in the form of a student, as the university's performance is measured by how well their students perform in their jobs after completing their studies.

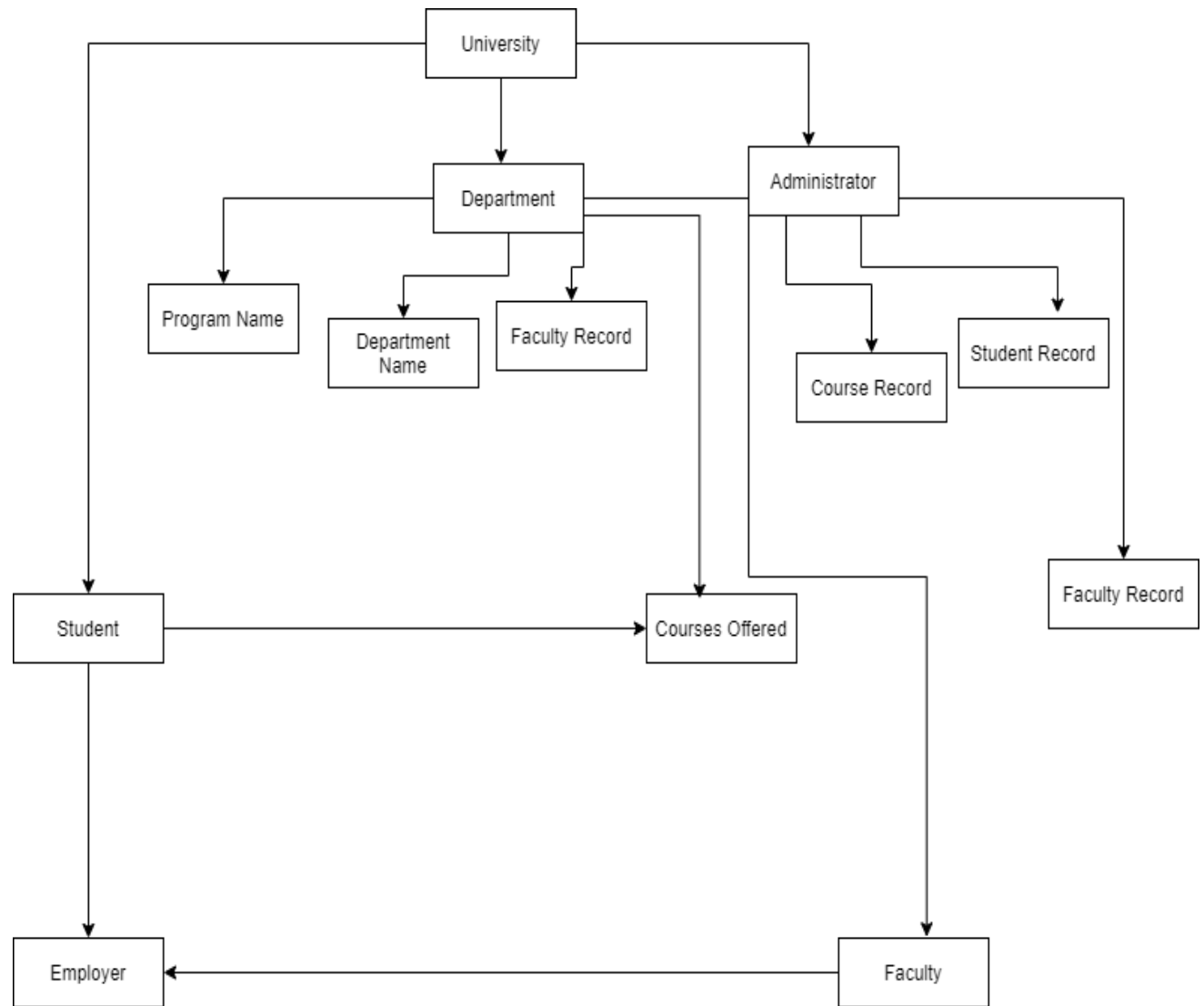
Proposed Approach:

The purpose of this design is to provide a performance assessment tool that will help universities to evaluate and improve the quality of education they deliver to their students. To do this, we have established a structure in which students, colleges, and businesses all play important roles. Employers and the university may or may not have a relationship. When a university has a working partnership with a company, it might conduct a career fair for students on campus to help them find an internship.

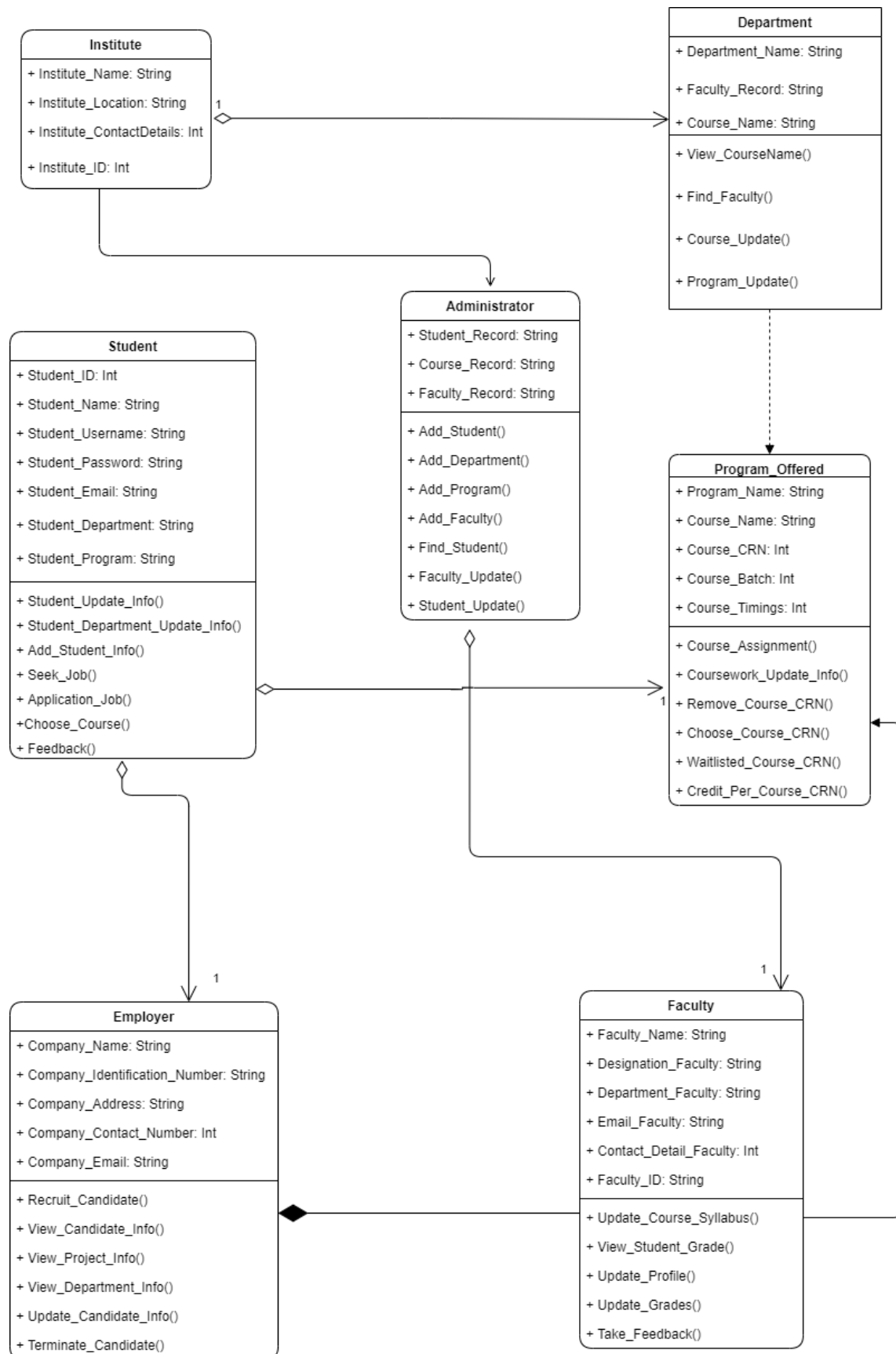
Students will be tracked from the time they enroll in university until five years later, when they graduate from their respective degrees. The university will keep track of which courses students will take and with which teachers over the graduation period. It will provide students with access to the system to track their professional advancement, such as obtaining a new job or promotion.

Graduates will be able to evaluate whether the abilities they obtained during their studies are applicable in today's rising industries. The school might make changes to its curriculum based on the feedback received from students. On their myNortheastern alumni account, the university can also build a google form with required questions and request alumni to fill out the form once a month to stay up with market changes. Professors can keep track of their students' success at the company where they work by embedding a responsive feedback system into their myNortheastern alumni account, allowing the school to improve the quality of their education by learning about their growth over the last five years. The sequence diagrams below show how students, universities, and employers interact, as well as how the system works efficiently. To establish the structure of our system, the object model and class diagram show the classes, their properties and methods, as well as the links between them.

Object Diagram:



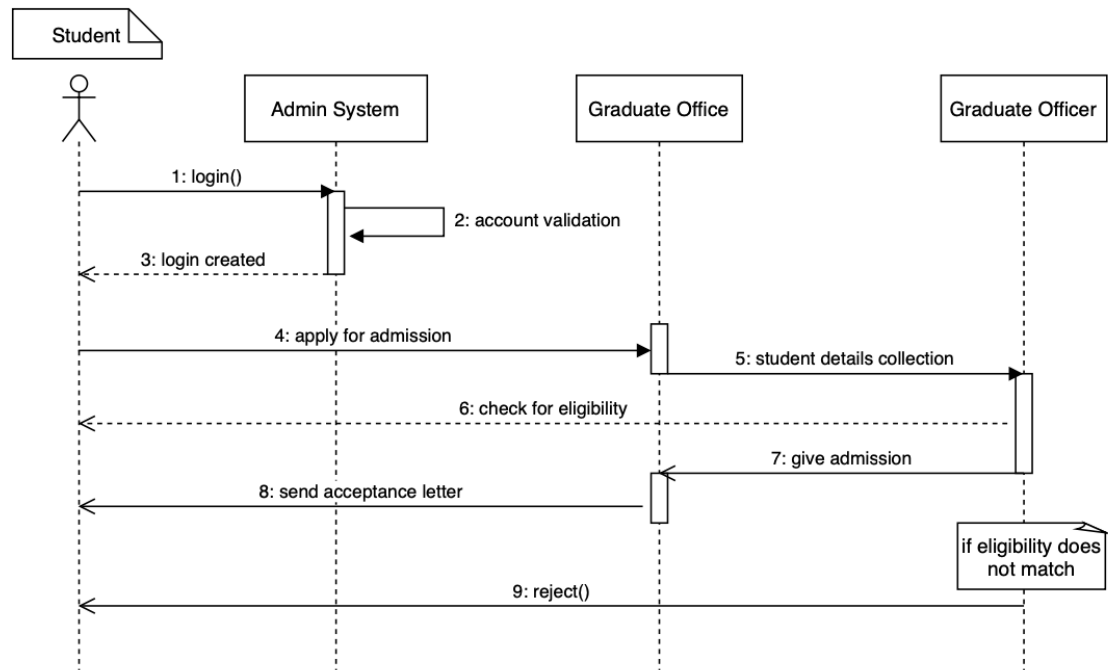
Class Diagram:



METHODS	EXPLANATION
View_CourseName()	Will help to display Course Name
Find_Faculty()	Will display faculty list
Course_Update	Will help update course
Program_Update	Will help update program
Add_Student()	We can add students to Student Record
Add_Department()	Administrators add department
Add_Program()	Faculty add program to course record
Add_Faculty()	Administrators add faculty
Find_Student()	Will help search/find a student
Faculty_Update()	Update Faculty Information
Student_Update()	Update Student Information
Student_Department_Update_Info()	Update Student's Department Information
Seek_Job()	Student search for a job
Application_Job()	Students apply for a job
Feedback()	Once the student status changes to alumni the student gives feedback
Choose_Course()	Help students to choose a course
Course_Assignment()	Course assignment being displayed & then submitted by students to their respective faculty
Coursework_Update_Info()	Faculty update coursework
Remove_Course_CRN()	Help students to delete the course
Choose_Course_CRN()	Help students to choose the course
Waitlisted_Course_CRN()	When the class for a faculty is full the course turns out to be waitlisted for other students
Credit_Per_Course_CRN()	Each course is associated with some credit points
Recruit_Candidate()	Employer will recruit the candidate
View_Candidate_Info()	Will help to view the information about candidate
View_Project_Info()	Employer will see how employees work on a project
View_Department_Info()	Employer can see, in which department selected candidate is working
Update_Candidate_Info()	Selected candidates has to update his/her information
Terminate_Candidate()	Employer can fire the selected candidate or employee can leave the company
Update_Course_Syllabus()	Faculty can update course syllabus
View_Student_Grade()	Faculty can view student's grades
Take_Feedback()	Faculty asks for feedback from students

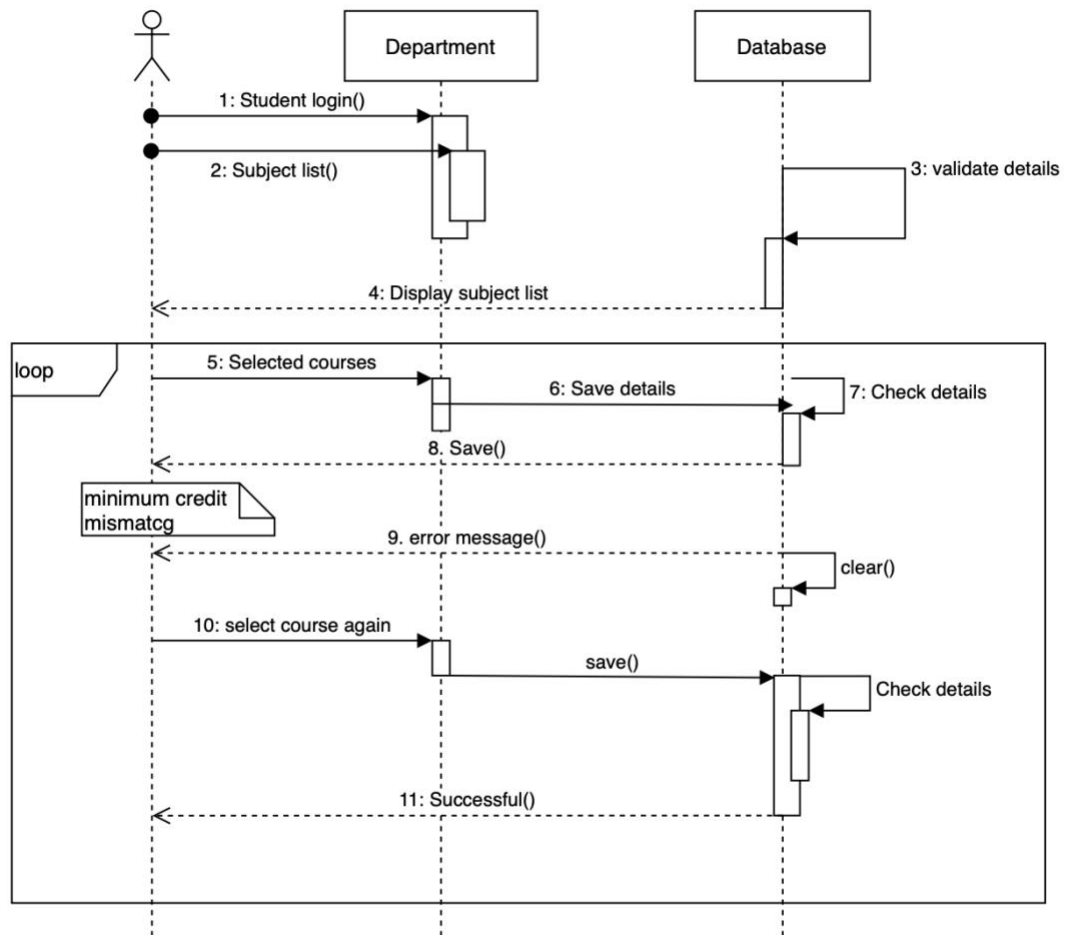
Sequence Diagram:

1. Student applies to university



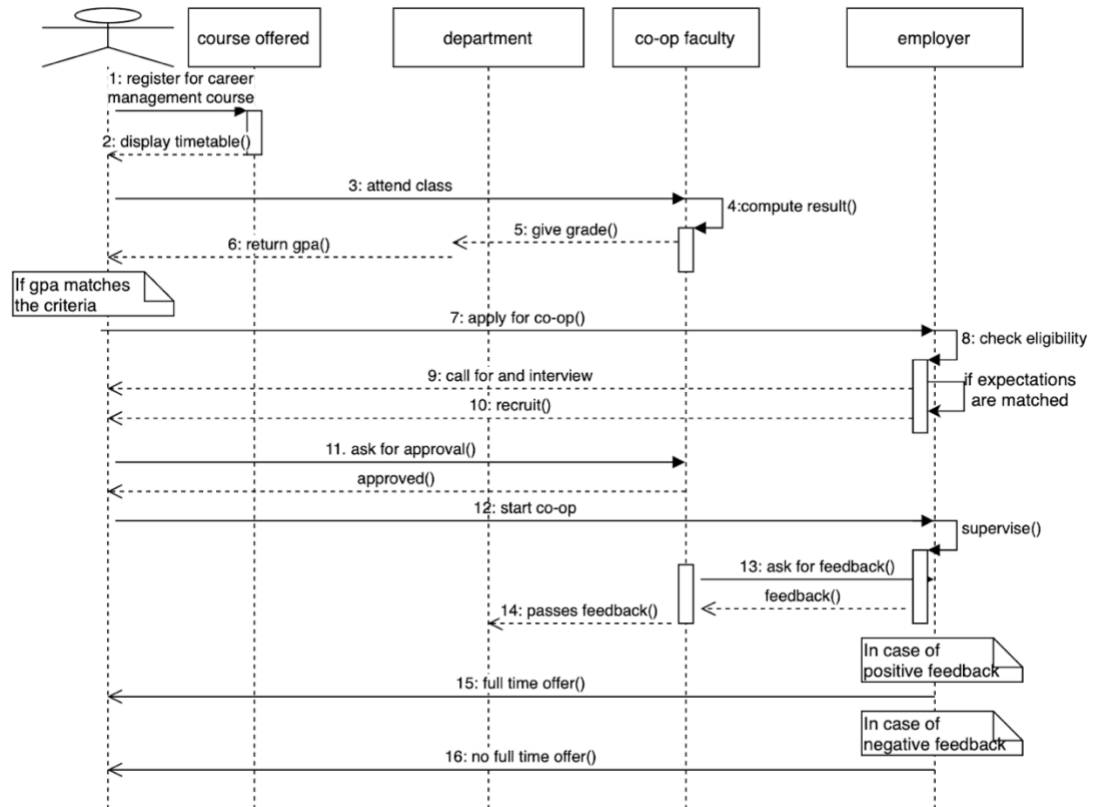
- Student creates an account on the university's website.
- Student applies to the university for admission, and a graduate officer compares the student's profile to the university's requirements before accepting or rejecting the applicant.

2. Student register for classes



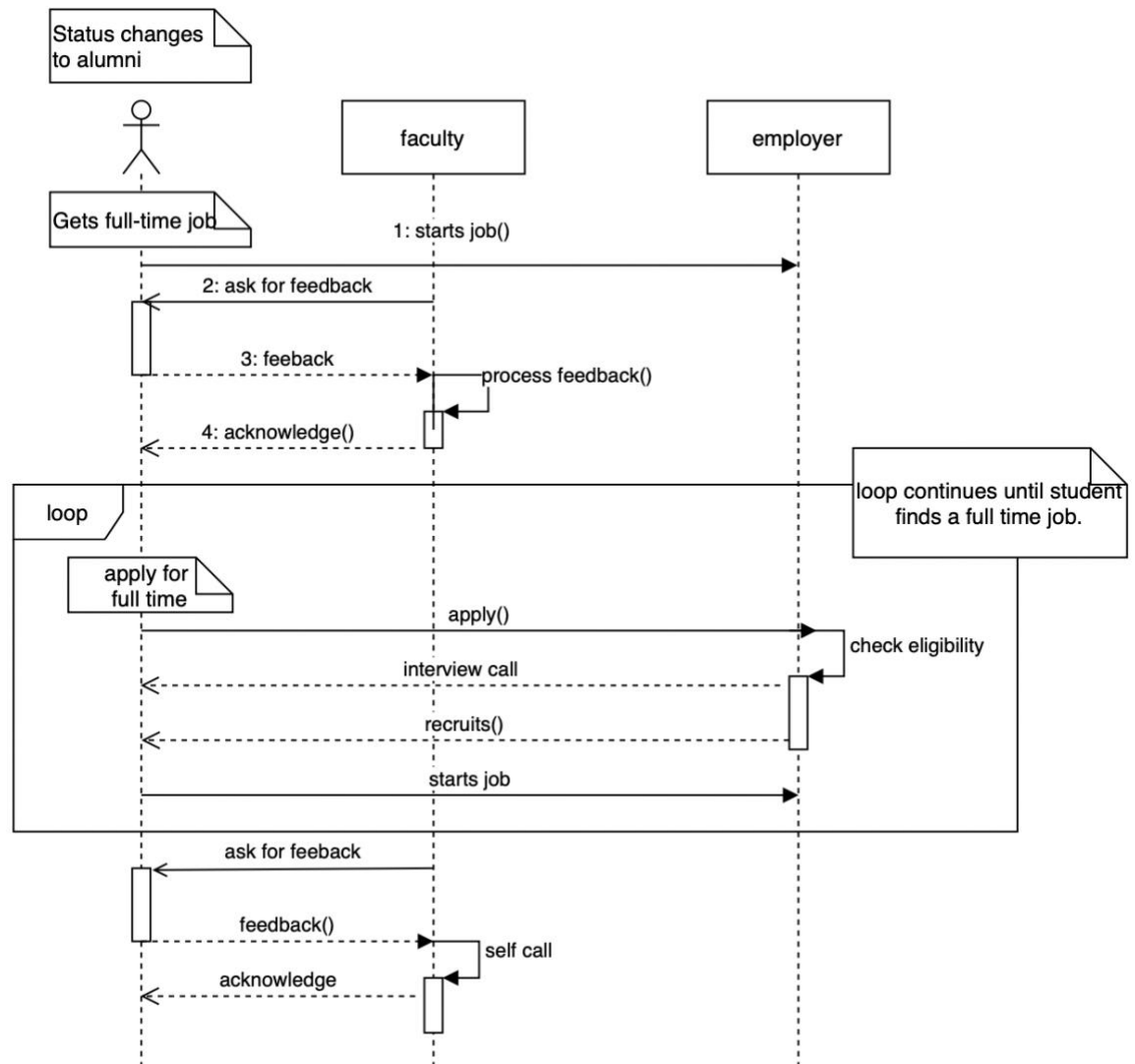
- Once a student has been accepted to a university for a specific degree, he or she must now choose courses for the semester.
- The courses are listed in the course directory, and the student chooses one from the list.
- Credits are allocated to each subject, and students are required to take a minimum of 9-10 credits per semester as stipulated by the university.

3. Student looks for co-op/internship:



- After taking a career management course, the student determines whether or not to apply for an internship.
- This course prepares the student for the interview, and the student is offered an internship depending on his abilities.
- The student's co-op teacher requests comments on how well the student is performing in the internship.
- The business decides to offer the student a full-time position based on the student's performance, discipline, and talents.

4. Student looks for full-time



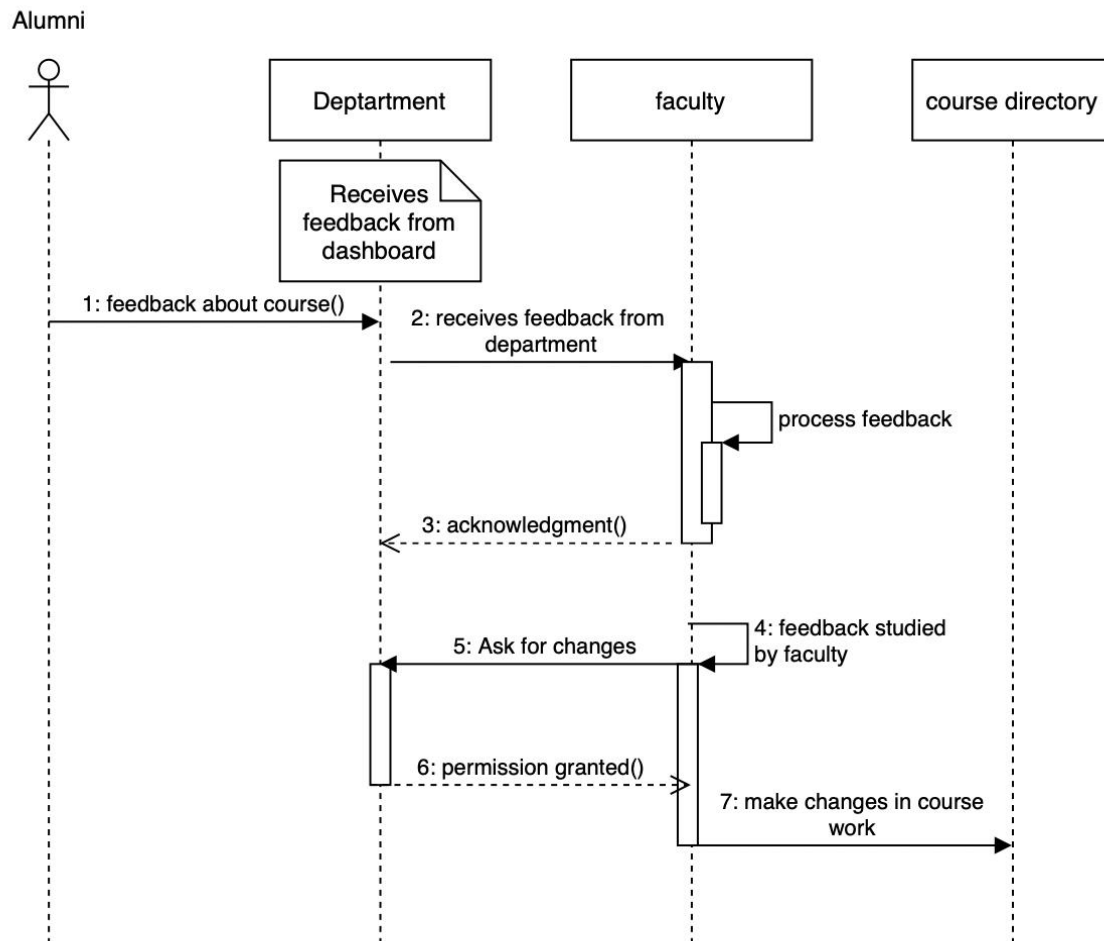
Case 1:

- After the student receives a full-time offer at his internship, the faculty will seek for input from the student after he graduates.

Case 2:

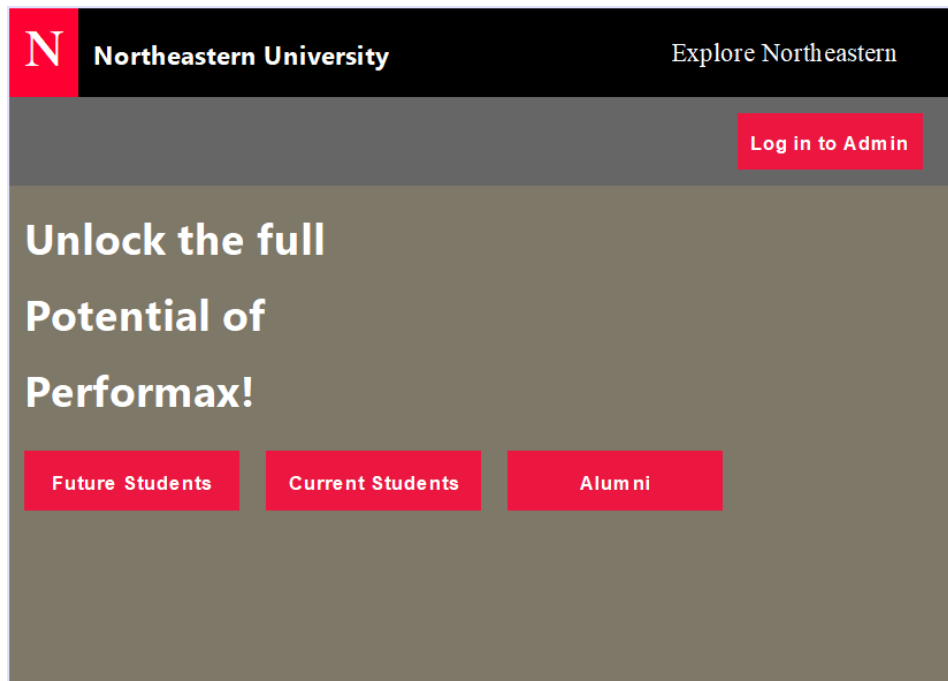
- If the student does not receive a full-time offer during his internship, he applies for jobs at different other companies, and the cycle repeats itself until he finds work.
- Faculty will seek for comments from the student once the student has a full-time job.

5. Student provides feedback of courses to department



- The feedback system is critical for assessing a student's performance as well as improving the university's educational quality.
- After receiving feedback from students on the courses and the faculty, the faculty decides to make the required changes to the courses in order to keep up with the current market trend.
- This will not only assist to improve the quality of education, but it will also give students who are currently enrolled in the course an idea of what the employer expects of them.

User Interface:



This screenshot shows the 'Alumni' section of the Northeastern University Performax system. The header features the Northeastern University logo (a red 'N' on a black background) and the text 'Northeastern University' on the left, and 'Explore Northeastern' on the right. Below the header is a navigation bar with links for 'Home', 'Edit', 'Profile', 'Feedback Form', and 'Alumni'. The 'Alumni' link is highlighted in red. The main content area is titled 'Feedback' and contains a form with the following fields:

Course	Score
Application Engineering... ▾	5 ▾
Application Engineering... ▾	5 ▾
Application Engineering... ▾	5 ▾

Below the table is a 'Submit' button.

Dashboard:

A dashboard app is an information management software application that visually tracks, analyzes and displays graph, charts, key performance indicators (KPI), metrics and key data points to monitor the health of your business[1]. Our dashboard displays the student's progress report after graduation from university; there are various charts that assist the administrator department in visualizing and studying the student's performance, position, subjects that aided the student, skills possessed, and overall GPA for all semesters. Our dashboard will also rank university and course's in the university.

University will be ranked based on Glassdoor rating. We will be using following formula to rank university.

no = Number of students in a Company A

rate = Company's Glassdoor rating (scaled from 0 - 5)

sum = Total number of students current employed.

Rank = (no(A) * rate(A) + no(B) * rate(B) + no(N) * rate(N)) / (sum * 5)

<div><div>N</div><div>Northeastern University</div><div>Explore Northeastern</div></div>		
<div>HomeUniversity RankingFeedback FormAdmin</div>		
University Ranking		
University Name	Score	Ranking
Harvard University	476	1
Northeastern University	466	2
Stanford University	456	3
MIT	446	4
University of Cambridge	436	5
Columbia University	426	6
Princeton University	416	7
Princeton University	406	8
Princeton University	396	9
Mayank University	386	10

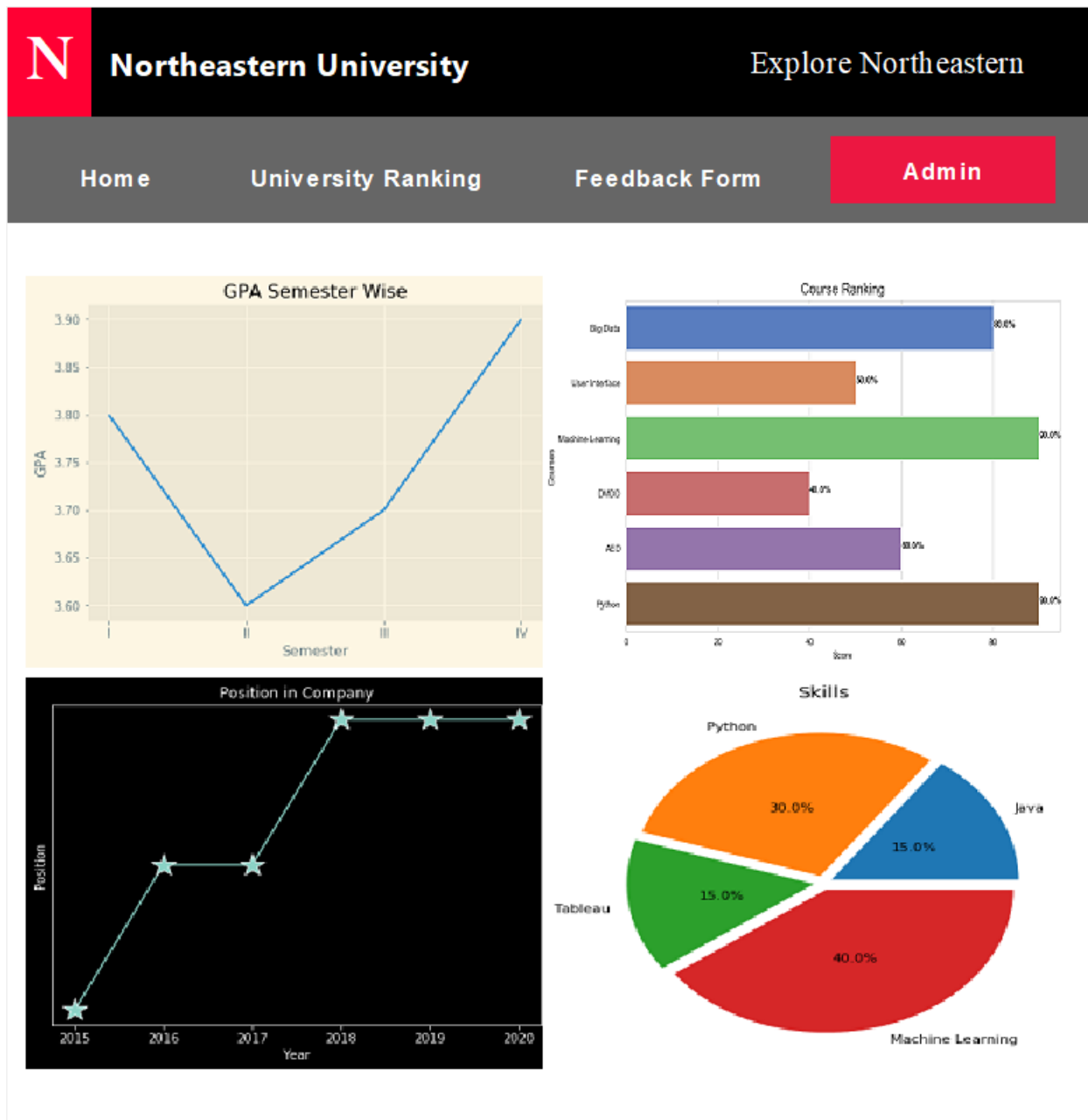
Courses will be ranked based on student's feedback on the course. Factors that affect course ranking will be the alumni's position in the current company for instance Alumni A is a Junior Analyst then his/her relevance to feedback will be least however if Alumni B is a manager, then his/her relevance to feedback will be more. To implement the strategy, we will assign points to each level of positions. For example: Entry-level = 1, Mid-level = 2 and Senior-level =3. We will be using following formula to rank courses.

point = Alumni's current position in a company (scaled from 1-3)

score = Alumni's feedback score for a course (scaled from 0 – 5)

sum = sum of all scores

Rank = (score(A) * point(A) + score(B) * point(B) + score(N) * point(N)) / (sum * 5 * 3)



Conclusion:

University should set up a feedback system so that alumni can provide feedback when it is needed. This will allow the university to stay current with market trends and build a strong alumni community that will be beneficial to future students.

References:

1. <https://dashboardbuilder.net/>