

# University Performance Measurement Solution

## **Assignment 3**

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## Proposed Solution

### Introduction

Our approach to the solution is mainly Alumni-Centric. Employability and employee growth opportunities are considered prominent factors in our proposed solution. We rate the jobs a student assumes right after graduation to the period of 5 years. Each of the assumed roles, the industry in which they work, and the reputation of the employer carries an impact on our proposed model. In addition, the feedback we receive from the alumni is a deterministic component to understand course relevance, quality of education, and quality of life through employment opportunities.

Also, student feedback on the courses they are enrolled in, is an important indicator to understand the quality of education they received.

### Performance Indicators

1. Employability: Employee Role, Employer Industry and Innovation Index, Alumni Feedback
2. Course Relevance: Course Grade of students and GPA Achieved

### Calculation

The above mentioned performance indicators can be utilized to quantitatively comment on a student's overall performance as well as be utilized as a ranking mechanism for career paths.

Employee Role	Employee Role Rating	Course Grade	Grade Pointer
Senior level	5	A	5
Mid-to-senior level	4	B	4
Mid-level	3	C	3
Junior-level	2	D	2
Fresh Grad	1	F	1

***Figures: Quantitative weightage for Employee Role and Course Grade achieved***

This calculation also presents a way to rank the courses and universities in view of all the career paths that are offered.

#### **a. Course Relevance Calculation**

Let,

R = Employee role ranking (0 to 5 Points)

I = Employer innovation index (0 to 5 Points)

F = Feedback towards a particular course (0 to 5 Points)

C = Grade attained in a particular course (0 to 5 Points)

G = Overall GPA (0 to 5 Points)

Course Relevance Index for an Alumni,  $v = \frac{R + I + F + C + G}{5}$

Overall Course Relevance Index,  $V = \frac{v_1 + v_2 + \dots + v_n}{n}$ ; ( $V_{max} = 5$  &  $V_{min} = 0$ )

$v_1, v_2, \dots, v_n$  represents the course rating calculated by  $n$  different alumni, where  $v_1$  represents rating by alumni-1 and  $v_n$  represents rating by alumni- $n$ .

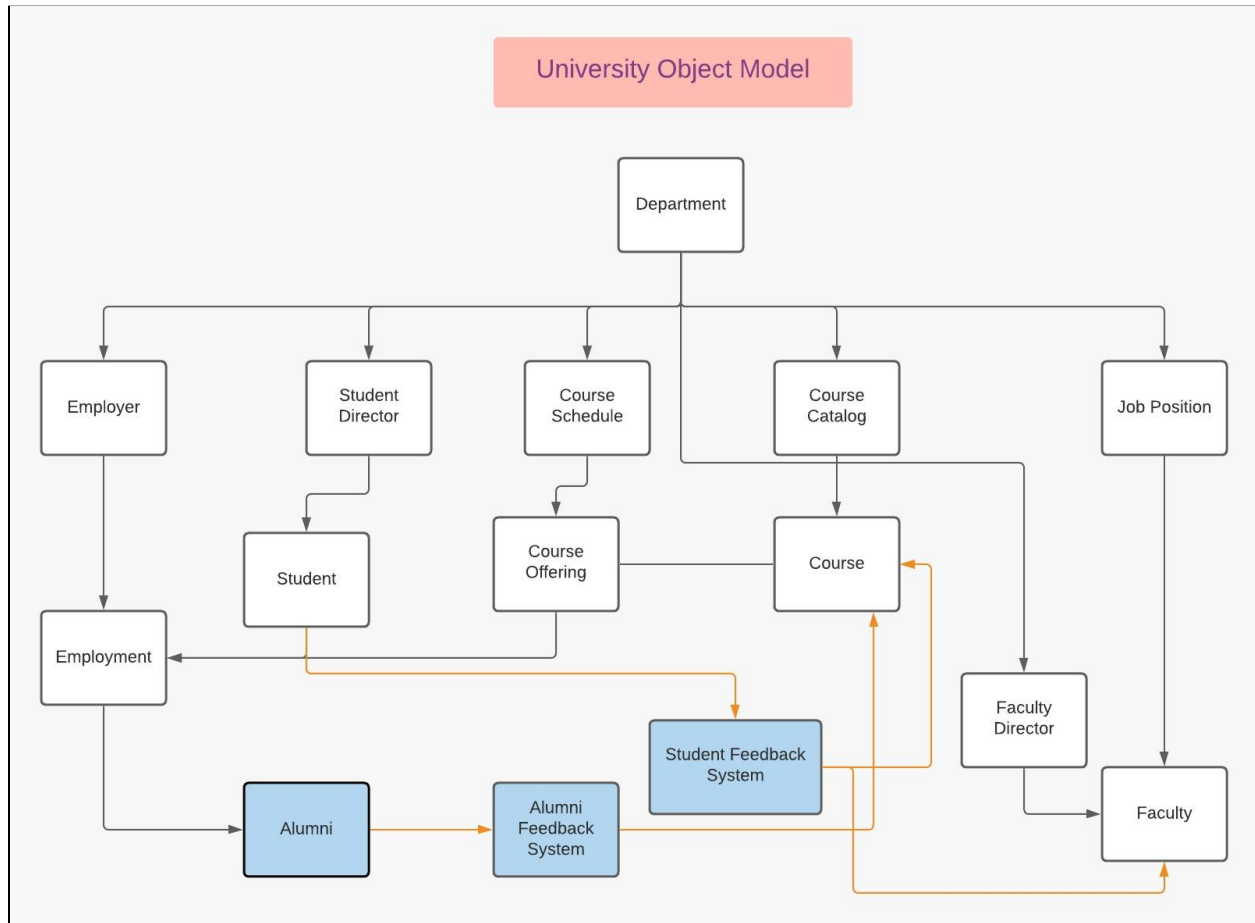
#### **b. Faculty Rating**

Let us assume that each student is given an opportunity to rate the faculty (0 to 5 points) at the end of each course. Final Faculty rating is calculated by averaging the rating provided by all the students who have took the faculty's class

Final Faculty Rating,  $R = \frac{r_1 + r_2 + \dots + r_n}{n}$ ; ( $R_{max} = 5$  &  $R_{min} = 0$ )

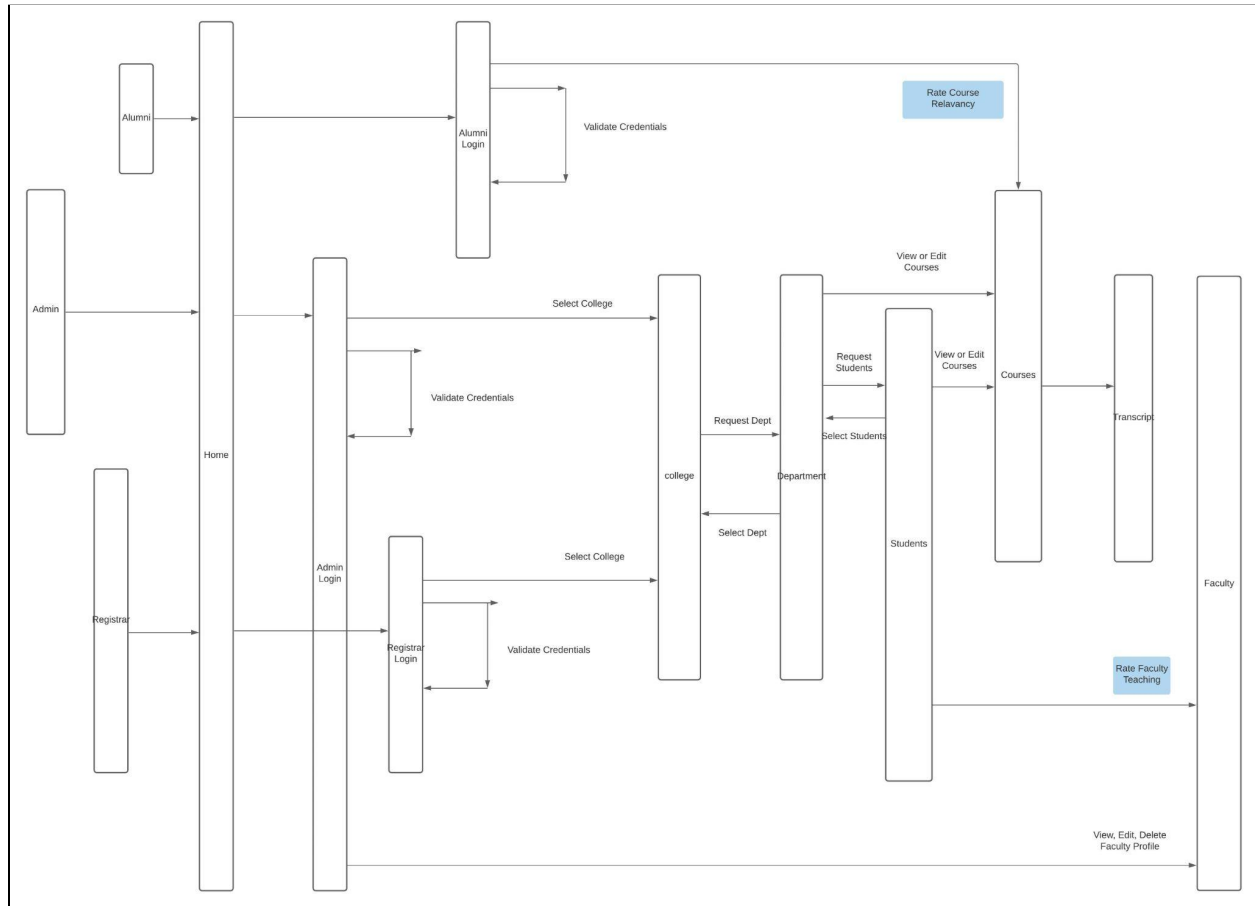
$r_1, r_2, \dots, r_n$  are ratings provided by  $n$  unique students who attended his class.

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**Figure: University Object Model with Performance Measurement Capability**

## Sequence Diagram to navigate University Object Model



**Figure: Sequence Diagram to navigate the Modified University Model**

# Class Diagram to highlight the changes to the University Model

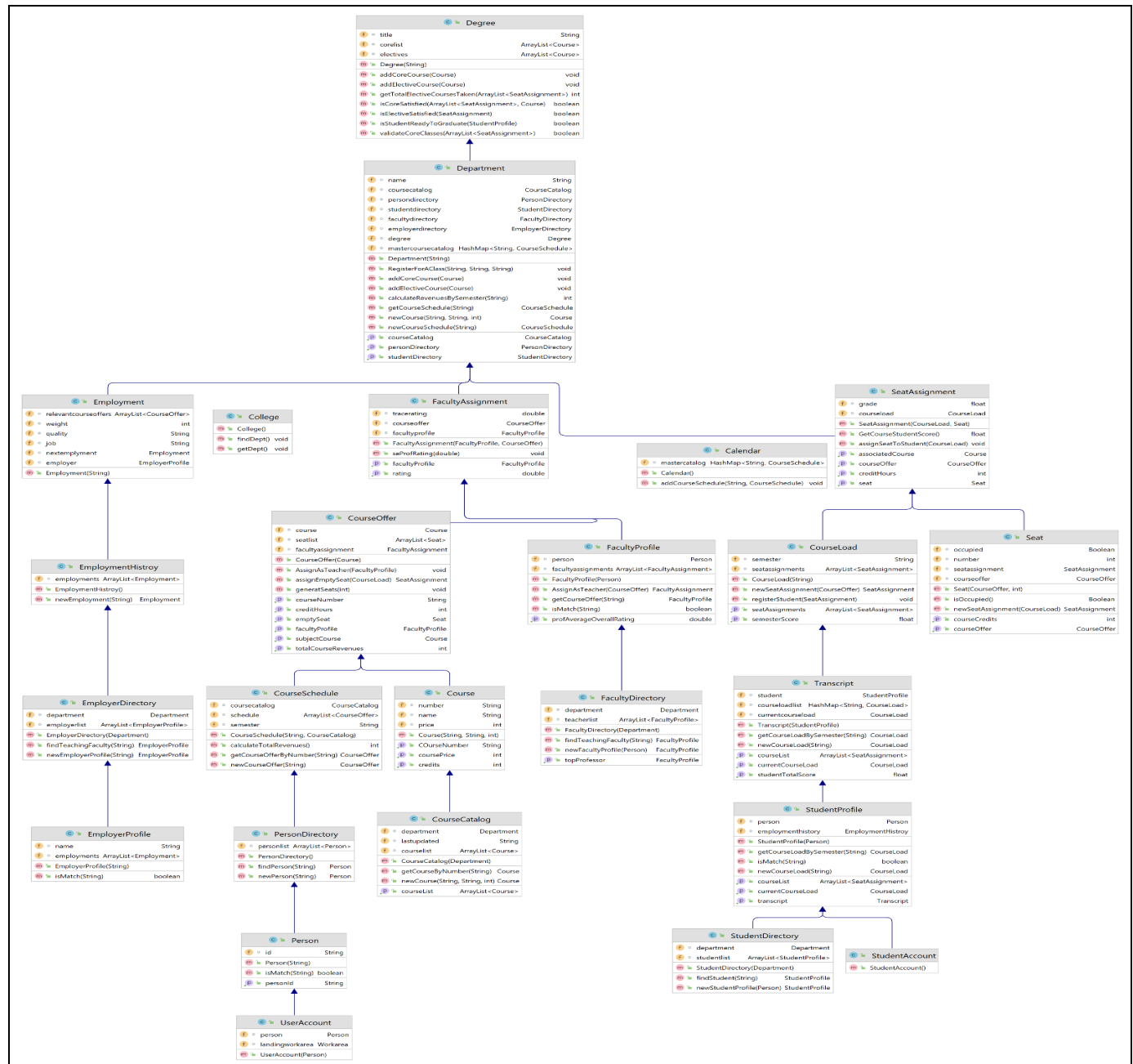
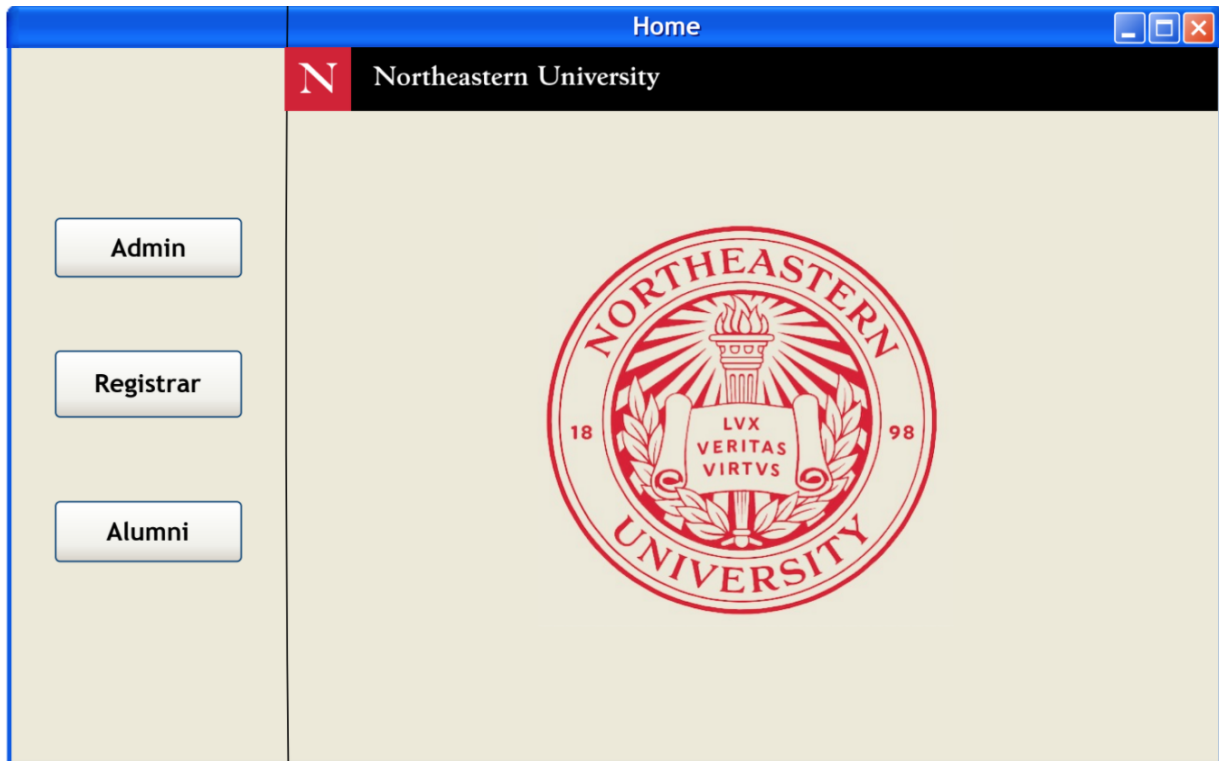



Figure : University Model Class Diagram

## Dashboard (Solution Specifications)



*Figure : Proposed Solution - Home Page*

Admin Dashboard



Admin

Registrar

Alumni

N

Northeastern University

Username :

Password :

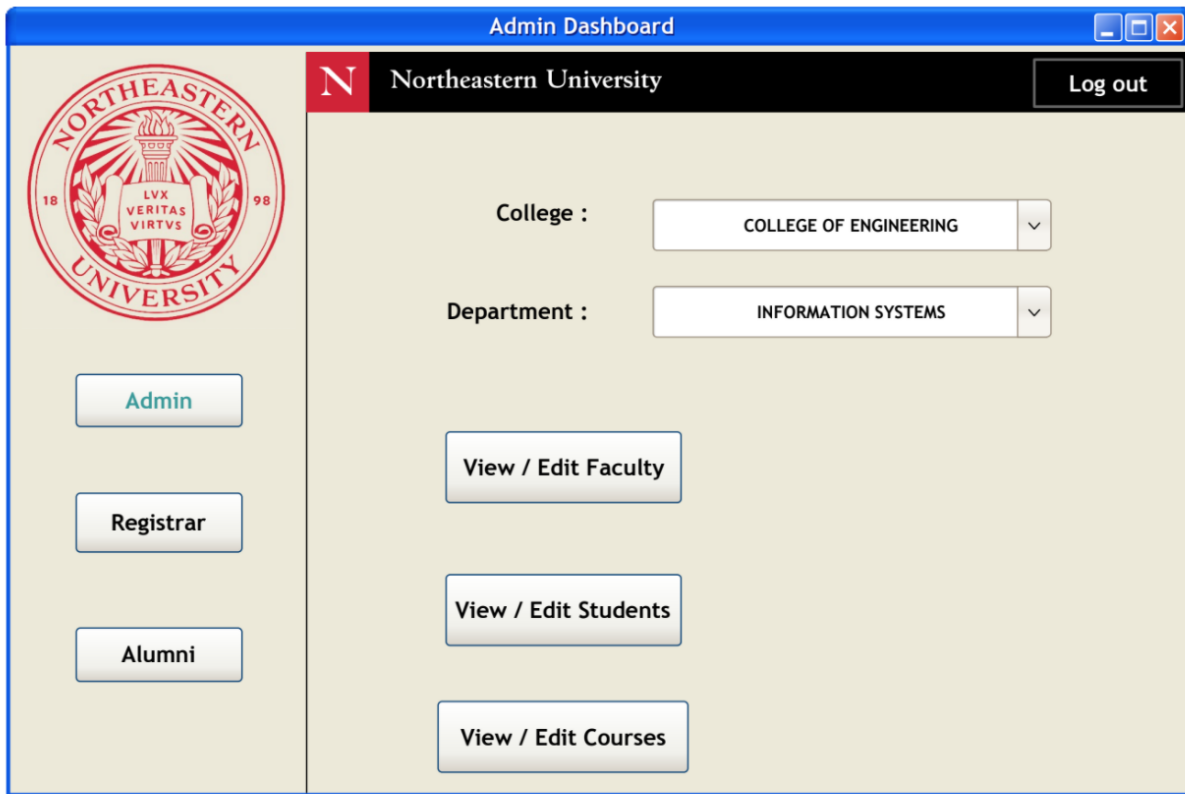
[forgot password ?](#)

Cancel


Login

Figure : Admin Login Page





*Figure : Admin Dashboard main page after logging in*



Admin

Registrar

Alumni

Admin Dashboard

Northeastern University

Logout

College : COLLEGE OF ENGINEERING

Department : INFORMATION SYSTEMS

+ Add New


Faculty Name	Faculty ID	No. of Courses	Avg. Rating (5)
Facult 1	FA001	2	4
Facult 2	FA002	3	3
Facult 3	FA003	2	3.5
Facult 4	FA004	1	4

Delete

View

[Home](#) > [Admin Dashboard](#) > [View / Edit Faculty](#)

Figure : Admin Dashboard, view / Edit Faculty page



Admin
Registrar
Alumni

Admin Dashboard

N

Northeastern University

Log out

College : COLLEGE OF ENGINEERING

Name : Faculty 3

ID : FA003

+ Add New


Course Name	Course ID	Department	College	Rating (5)
Course 1	CA001	Information Systems	COE	4
Course 2	CA002	Robotics	COE	3
Course 3	CA003	Robotics	COE	4

Note: Rating is given anonymously by students after undertaking the course and we calculate the weighted avg

Delete

Home > Admin Dashboard > View / Edit Faculty > FA003

Figure : View particular faculty from admin Dashboard



Admin

Registrar

Alumni

Admin Dashboard

Northeastern University

Log out

College : COLLEGE OF ENGINEERING

Department : INFORMATION SYSTEMS

+ Add New

Student Name	Student ID	No. of Courses	GPA
student 1	NEU001	8	4
student 2	NEU002	7	3
student 3	NEU003	8	3.5
student 4	NEU004	8	4


Delete

View

[Home](#) > [Admin Dashboard](#) > [View / Edit Students](#)

Figure : View / Edit Students from Admin Dashboard

Admin Dashboard



Admin
Registrar
Alumni

N

Northeastern University

Logout

Period : 2018 - 2021  
College : COLLEGE OF ENGINEERING  
Department : INFORMATION SYSTEMS 

+ Add New

Course Name	Course ID	No. of Students	Course Relavence (%)
Course 1	C0001	56	40
Course 2	C0002	642	100
Course 3	C0003	124	62
Course 4	C0004	26	10


*Note: Course Relavence is Calculated by tracking Alumni course feedback and their performance after graduation*

Delete

View

[Home](#) > [Admin Dasboard](#) > [View / Edit Courses](#)

**Figure : view / Edit courses from Admin Dashboard**



Admin

Registrar

Alumni

N

Northeastern University

Log out

College Period :

2012 - 2016

College :

COLLEGE OF ENGINEERING

Major Department :

INFORMATION SYSTEMS

No. of Promotions :

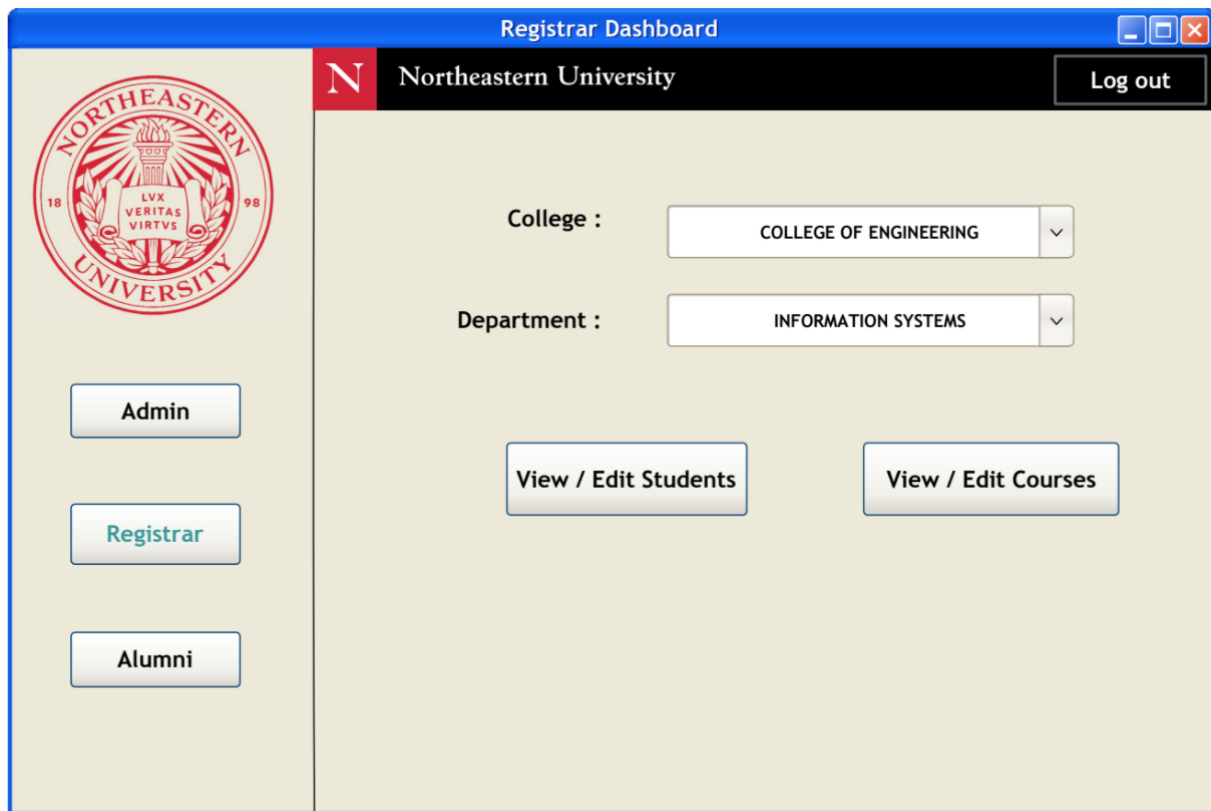
4

Course Name	Course ID	Grade	Department	College	Course Relavence
Course 1	C0001	C	IS	COE	3
Course 2	C0002	A	IS	COE	5
Course 3	C0003	B	Robotics	COE	4
Course 4	C0004	C	IS	COE	3

View/Edit


[Home](#) > Alumni Dashboard

Figure : Alumni Dashboard after logging in, where he will rate the course relevance (0-5 points)



*Figure : Registrar Dashboard with limited functionality, cannot edit faculty*

Registrar Dashboard



Admin

Registrar

Alumni

N

Northeastern University

Logout

College :

COLLEGE OF ENGINEERING

Department :

INFORMATION SYSTEMS

College Period :

2012

-

2016

Degree:

MASTERS

▼

+ Add New

Student Name	Student ID	No. of Courses	GPA
student 1	NEU001	8	4
student 2	NEU002	7	3
student 3	NEU003	8	3.5
student 4	NEU004	8	4

Delete

View

[Home](#) > [Registrar Dashboard](#) > [View / Edit Students](#)

Figure : Registrar Dashboard, view / Edit Students page

## Conclusion

Our approach to designing a performance measurement solution is focused on quantitatively rating courses and thereby assessing their relevance with careers and employability options. It is done through data aggregation in periodic feedback cycles, from alumni and students. This analysis presents a ranking system for courses, faculty, universities, career paths which helps incoming students in their decision making. Also, academic advisors, faculty, admins can use the platform to understand, evaluate and re-design the course delivery methods to make it more beneficial to students.