UNIVERSITY RANKING MODEL

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1. Introduction

It is very important for universities to be aware of the quality of education provided by them. A performance measurement solution is created using software engineering techniques that enables universities to measure the quality of the education they deliver to their students. The feedback from the alumni and students are taken into account to determine the factors like faculty and courses in the educational system that contributed to their growth over a 5-year span.

2. Proposed Solution

Our important focus is to build a performance measurement solution to measure the quality of education they deliver to the students, so the future students will have a better idea about selecting courses by analyzing their interest and relevant university ranking.

The design will involve a set of parameters for evaluating the quality of education university such as graduation rate, relevant courses offered, faculty, alumni feedback, etc. and based on these factors the universities will be ranked.

The dashboard will include admin, student, alumni and ranking system modules through which the admin team can evaluate the performance that will be helpful for upcoming students.

3. Model Assumptions:

➢ The factors which affect the rating of the course have been emphasized upon directly to the ranking of the university. Any undeclared condition and/or parameters would be a limitation to the scope of the university course's ranking model and its evaluation.
➢ The amalgamation of roles and responsibilities of namely Students, Faculty and employer outputs the factors affecting the ranking of the university model and its course evaluation.

4. ENTITY:

- **Course:** It holds all the courses offered in the university.
- **Course Feedback:** It takes into account all the feedback from the particular courses.
- **Course Catalog :** It is a catalog of all the Courses that would be provided
- **Course Load :** Describes the course load per semester
- **Course Offer :** All the courses offered in the respective semesters
- **Course Schedule :** Takes into account the Course schedule, semester.
- **Seat :** How many seats are occupied in a course , semester , seats Assigned for each Course is linked to Course Offer
- **Seat Assignment :** Assigns the seats and grades per semester and is linked to Course Load
- **Calendar :** Schedules the courses per semester be it fall, spring, summer.
- **Department :** This will have department ID, courses in department, faculty list, average GPA, total students enrolled, course schedules of every department.
- **Employer Directory:** Holds all Employer Records
- **Employer Profile :** Gives a detailed insight into the name, employment type of each employer.
- **Alumni :** Each Alumni record has student ID, name, GPA, department, future career path, organization name(company they are placed in), role, year of passing, three courses and three faculties that they considered most helpful in strengthening their career and their short term goals.
- **Person :** Each Person has an ID, name attributed to it
- **Person Directory :** Holds all Person Records
- **Student Account :** Holds all Student information.
- **Student Directory :** Holds the department information, and student list.
- **Student Profile :** It has attributes related to the Student name, employment history, Student Id, and transcripts.
- **Transcript :** This will include the Student ID, course ID, GPA obtained of every student.
- **Employment :** Talks about the relevant course offers,quality,job, weightage and the next Employment that would be found in the records.
- **Employment History :** Talks about the employment history.
- **Faculty Assignments:** Talks about all the Faculty profile related information

- **Faculty Directory:** Faculty would keep an update on all the students' Profiles, there would be a list of Teachers in this and every department would be assigned respectively.
- **Faculty Profile :** Holds information of all the persons , faculty assignments, name, id, and courses allocated to them.
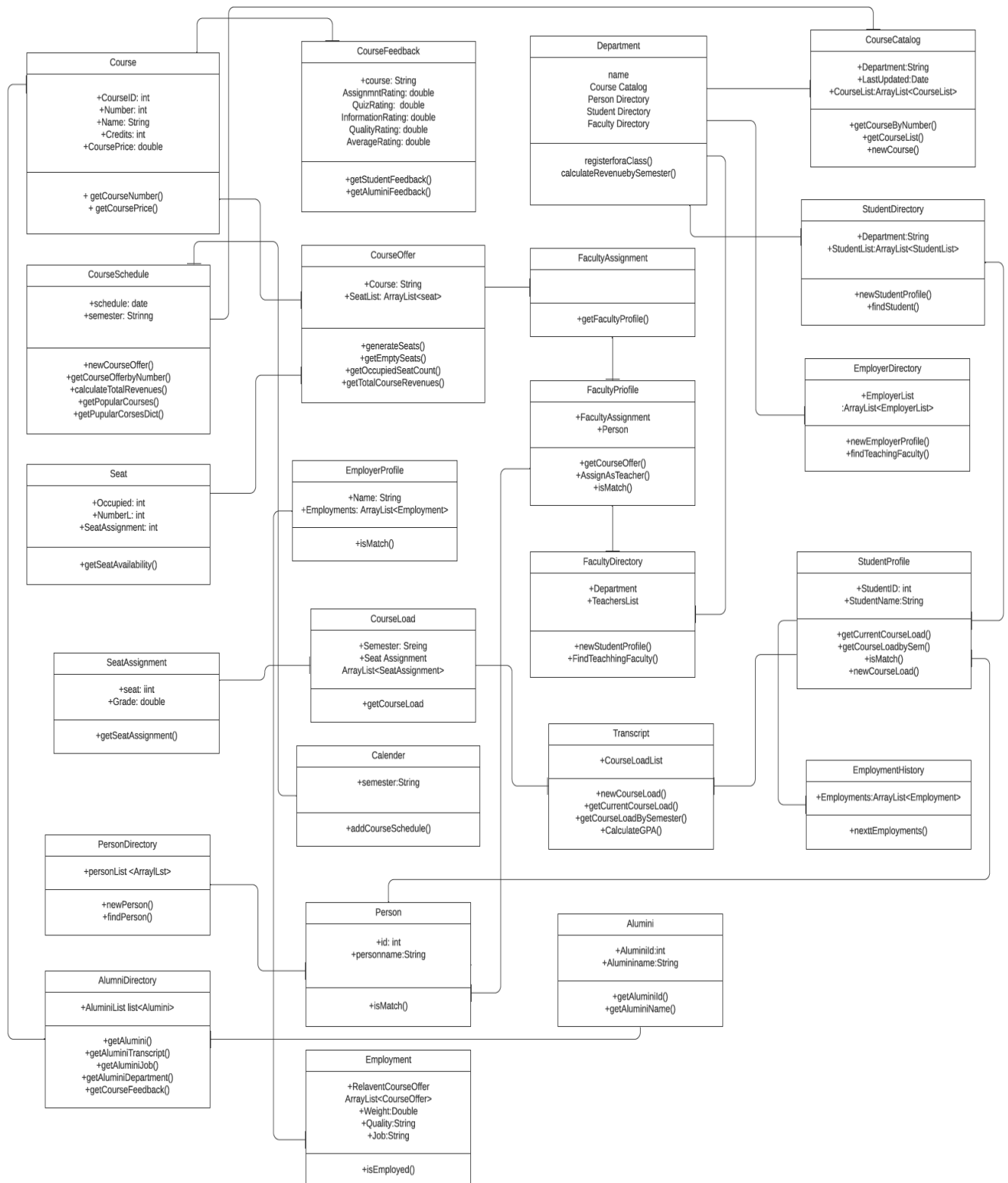
UML DIAGRAM

Course

+CourseID: int
+Number: int
+Name: String
+Credits: int
+CoursePrice: double

+ getCourseNumber()
+ getCoursePrice()

CourseFeedback

+course: String
AssignmntRating: double
QuizRating: double
InformationRating: double
QualityRating: double
AverageRating: double

+getStudentFeedback()
+getAluminiFeedback()

Department

name
Course Catalog
Person Directory
Student Directory
Faculty Directory

registerforaClass()
calculateRevenuebySemester()

CourseCatalog

+Department:String
+LastUpdated:Date
+CourseList:ArrayList<CourseList>

+getCourseByNumber()
+getCourseList()
+newCourse()

CourseSchedule

+schedule: date
+semester: Strinng

+newCourseOffer()
+getCourseOfferbyNumber()
+calculateTotalRevenues()
+getPopularCourses()
+getPupularCorsesDict()

CourseOffer

+Course: String
+SeatList: ArrayList<seat>

+generateSeats()
+getEmptySeats()
+getOccupiedSeatCount()
+getTotalCourseRevenues()

FacultyAssignment

+getFacultyProfile()

StudentDirectory

+Department:String
+StudentList:ArrayList<StudentList>

+newStudentProfile()
+findStudent()

Seat

+Occupied: int
+NumberL: int
+SeatAssignment: int

+getSeatAvailability()

EmployerProfile

+Name: String
+Employments: ArrayList<Employment>

+isMatch()

FacultyPriofile

+FacultyAssignment
+Person

+getCourseOffer()
+AssignAsTeacher()
+isMatch()

EmployerDirectory

+EmployerList
:ArrayList<EmployerList>

+newEmployerProfile()
+findTeachingFaculty()

SeatAssignment

+seat: iint
+Grade: double

+getSeatAssignment()

CourseLoad

+Semester: Sreing
+Seat Assignment
ArrayList<SeatAssignment>

+getCourseLoad

FacultyDirectory

+Department
+TeachersList

+newStudentProfile()
+FindTeachhingFaculty()

StudentProfile

+StudentID: int
+StudentName:String

+getCurrentCourseLoad()
+getCourseLoadbySem()
+isMatch()
+newCourseLoad()

Calender

+semester:String

+addCourseSchedule()

Transcript

+CourseLoadList

+newCourseLoad()
+getCurrentCourseLoad()
+getCourseLoadBySemester()
+CalculateGPA()

EmploymentHistory

+Employments:ArrayList<Employment>

+nexttEmployments()

PersonDirectory

+personList <ArraylLst>

+newPerson()
+findPerson()

Person

+id: int
+personname:String

+isMatch()

Alumini

+AluminiId:int
+Alumininame:String

+getAluminiId()
+getAluminiName()

AlumniDirectory

+AluminiList list<Alumini>

+getAlumini()
+getAluminiTranscript()
+getAluminiJob()
+getAluminiDepartment()
+getCourseFeedback()

Employment

+RelaventCourseOffer
ArrayList<CourseOffer>
+Weight:Double
+Quality:String
+Job:String

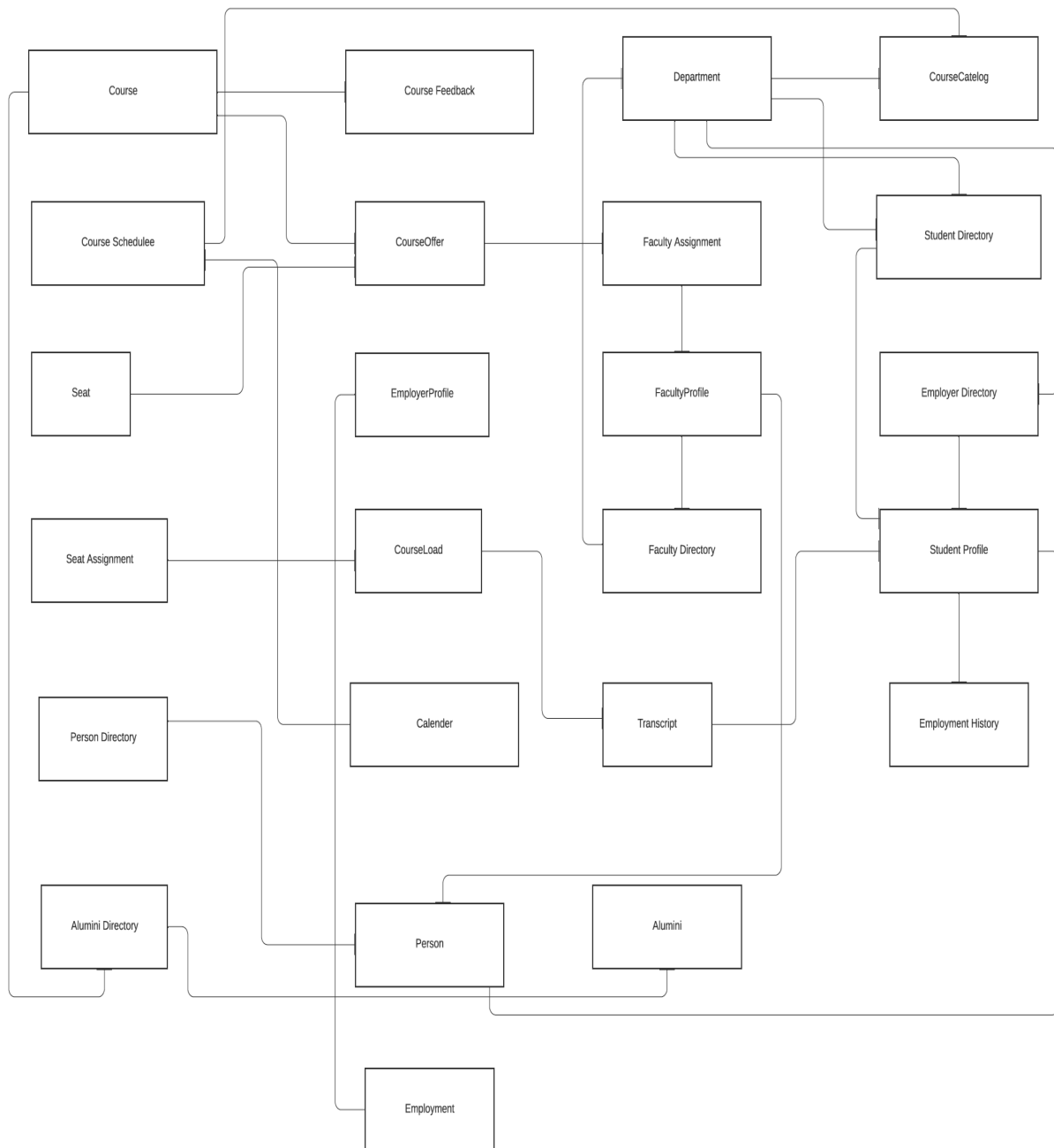+isEmployed()

Figure1 : UML

OBJECT MODEL DIAGRAM

Figure2: Object Model Diagram

SEQUENCE DIAGRAM
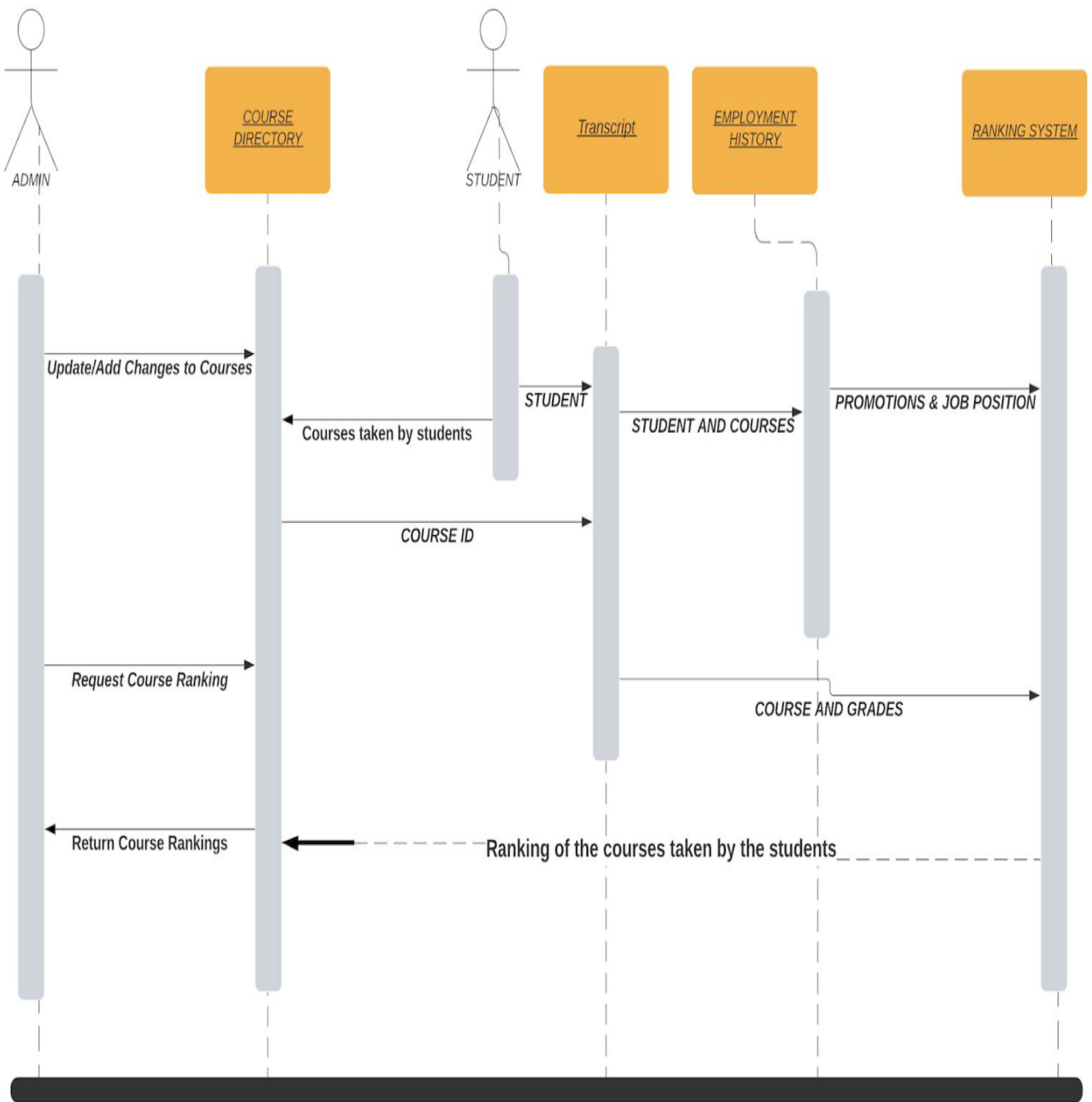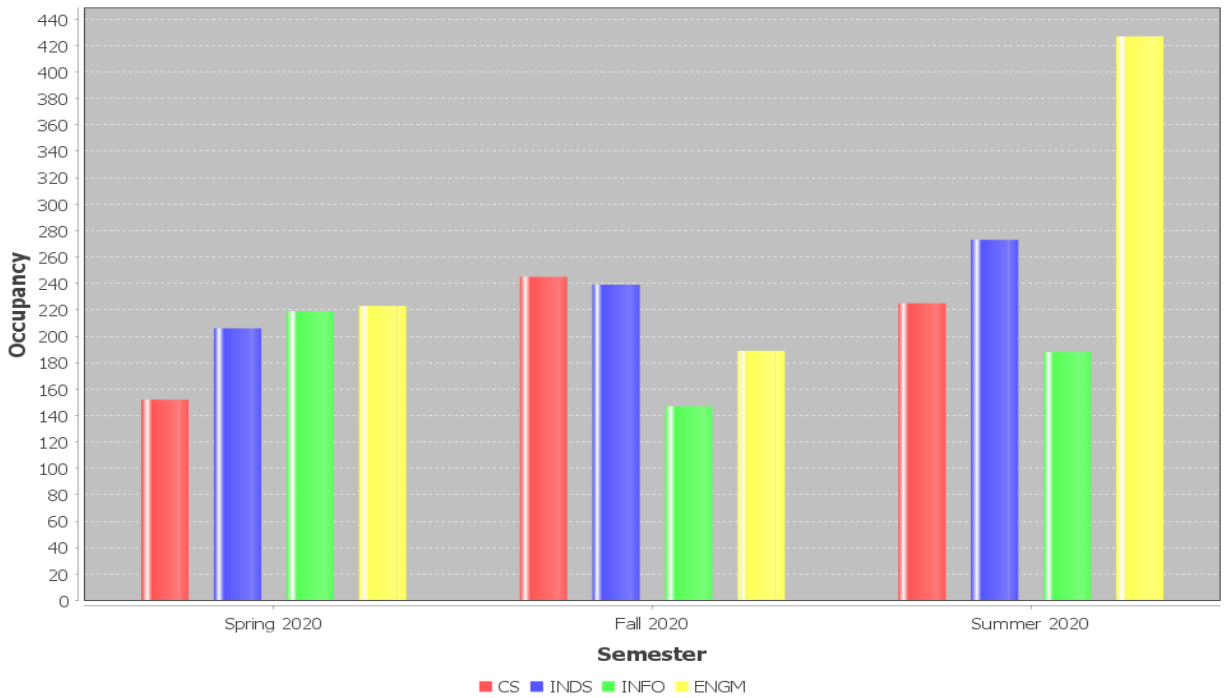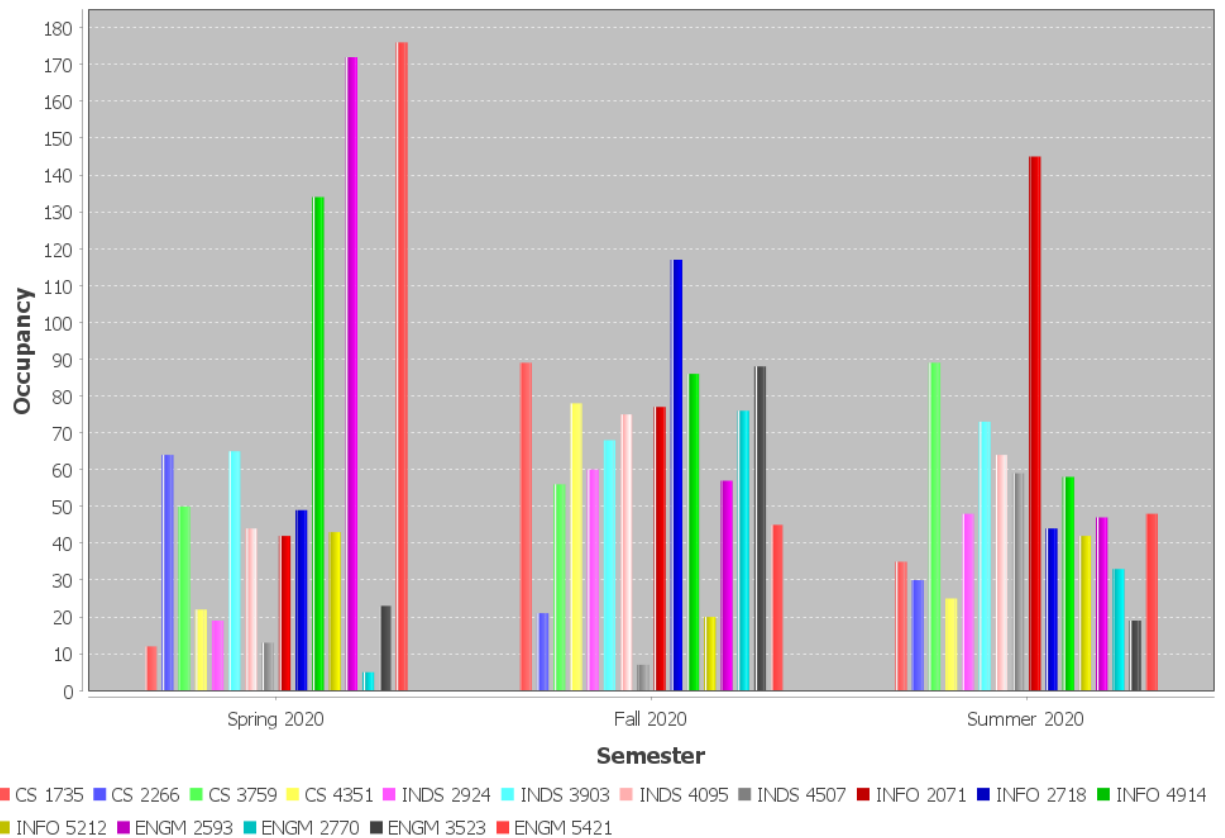

Figure3 : Sequence Diagram

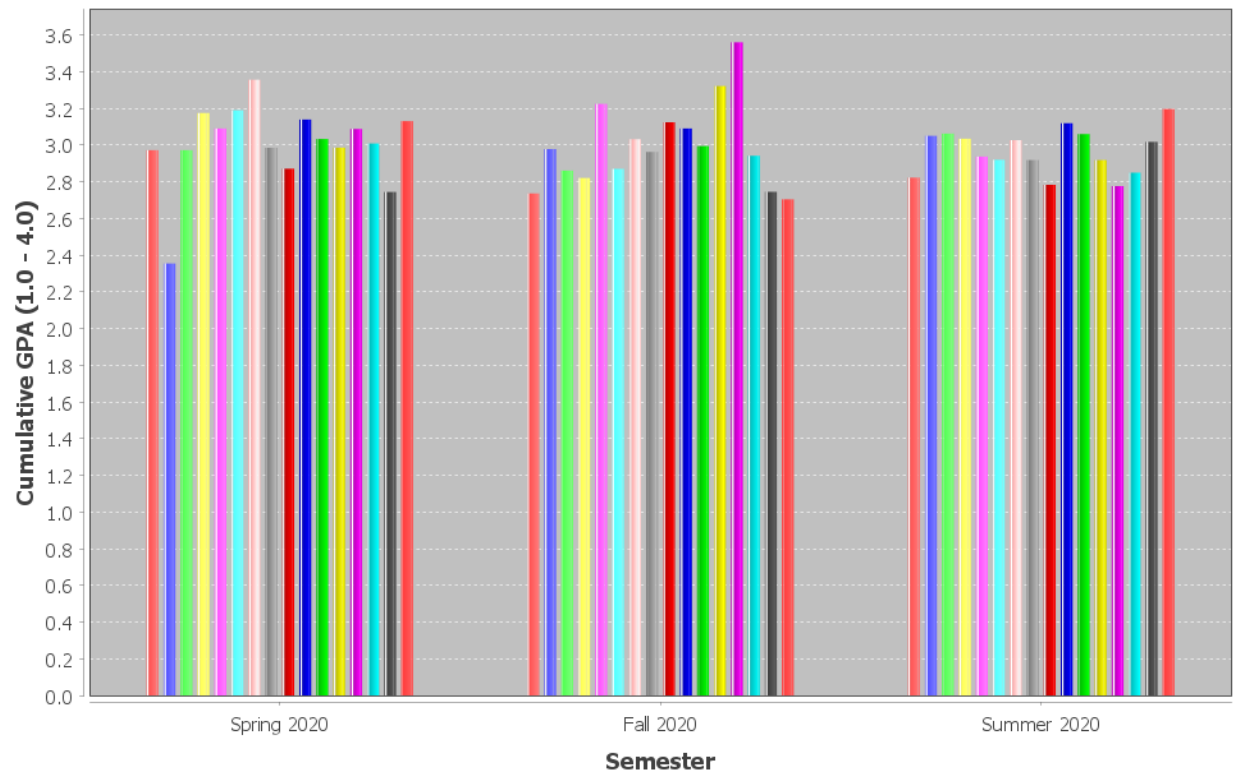# DASHBOARDS   :
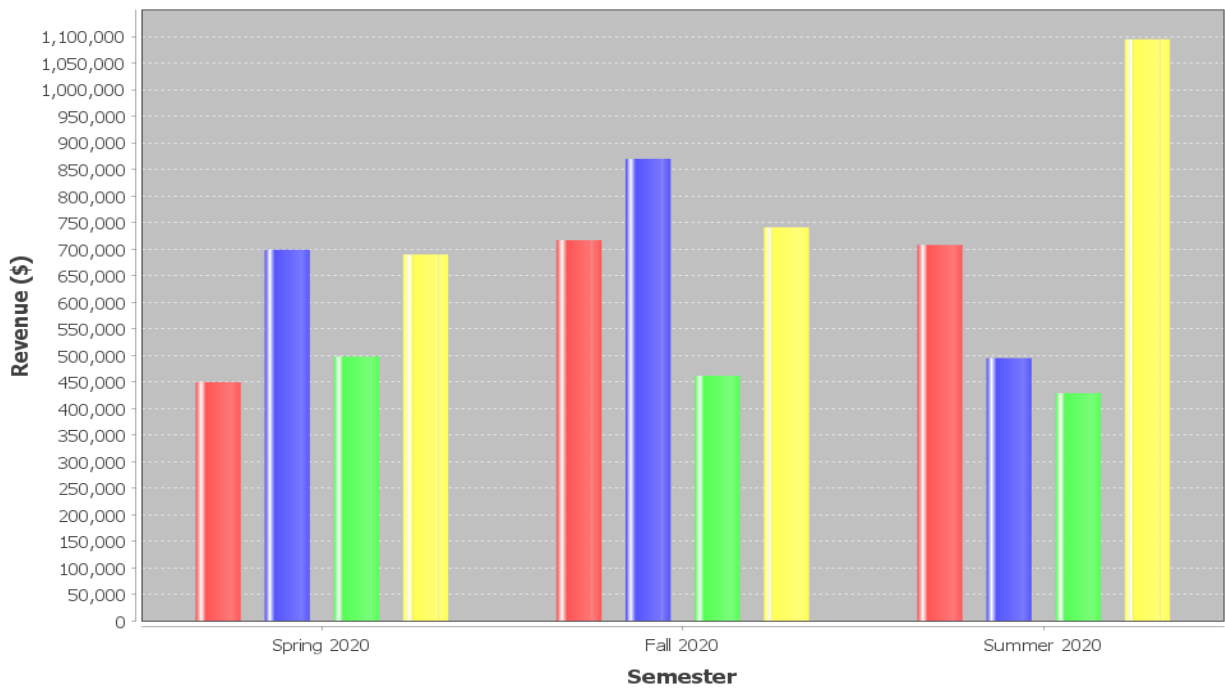
Total Occupancy

Legend: CS | INDS | INFO | ENGM

X-axis: Semester (Spring 2020, Fall 2020, Summer 2020)
Y-axis: Occupancy

Most Popular Course

Legend: CS 1735 | CS 2266 | CS 3759 | CS 4351 | INDS 2924 | INDS 3903 | INDS 4095 | INDS 4507 | INFO 2071 | INFO 2718 | INFO 4914 | INFO 5212 | ENGM 2593 | ENGM 2770 | ENGM 3523 | ENGM 5421

X-axis: Semester (Spring 2020, Fall 2020, Summer 2020)
Y-axis: Occupancy

Cumulative GPA (Per Course)

Legend: CS 3216, CS 4695, CS 5700, CS 5705, INDS 2676, INDS 2777, INDS 3912, INDS 4318, INFO 1337, INFO 2480, INFO 4664, INFO 5189, ENGM 2440, ENGM 2868, ENGM 3024, ENGM 4205

X-axis: Semester (Spring 2020, Fall 2020, Summer 2020)
Y-axis: Cumulative GPA (1.0 - 4.0)

Total Revenue

Legend: CS, INDS, INFO, ENGM

X-axis: Semester (Spring 2020, Fall 2020, Summer 2020)
Y-axis: Revenue ($)

USER INTERFACES:

Figure 4: Dashboard for Main Menu

Figure 5 : Admin UI

Figure 6: Alumni Page

Figure 7: Alumni Profile

Student Portal

Student ID

Student First Name

Student Last Details

Student GPA

Department

Courses that will help you attain your career goals :

Student Course - 1

Student Course - 2

Student Course - 3

Student Course - 4

Student Course 1 - Feedback — Good ▼

Student Course 2 - Feedback — Excellent ▼

Student Course 3 - Feedback — Bad ▼

Student Course 4 - Feedback — Good ▼

Admin

Student

Alumni

Ranking

Submit

Figure 8: Student Profile