Assignment 4
(Application Engineering & Development - Spring 2018)

INTRODUCTION

Universities no matter their geographic location have a similar organizational structure. This structure is much like that of any corporate company, however the hierarchy of a university structure varies slightly. A university has multiple subclasses that are its college's, for example Northeastern University has 'College of Engineering', 'D'Amore McKim School of Business' and many more. Each of these colleges will have several departments like Chemical Engineering and Bioengineering. Once a prospective student has decided their choice of department, they will be given the choice of degree they wish to pursue, this list will vary depending on the university, however the most common ones are usually Undergraduate, Graduate or Postgraduate. The last instance of the university hierarchy is the course selection, a step that students must complete once they have been accepted into the university.

PROBLEM

Currently, universities have no way of knowing the progression of students once they graduate. They may know of the first job a student gets since they had some part in that individual attaining the placement, although a university does not have the systems in place to track a students progression after the first year of their professional career. In order for universities to increase their business profits and rank higher, they must have access to these records. Future students rely on a university being up-to-date and at the forefront of technology & innovation, failure to do so can result in a university losing its reputation, which ones lost is difficult to get back.

FUTURE PROOFING/CONCLUSION

Solving these problem means the university can update the alumni data with more than just the generic contact information, this data can be used to measure the success rate of its students long after they graduate, this will help in modifying the course structure to keep the universities course ahead of their competition. However this leads to a new problem, a system like this will need constant updating, which means the university will have to hire an individual for this job. To eliminate the need of constant updates, a system can be put in place where the alumni enters their social network profiles and business profiles upon graduating so these attributes can autofill when required. Another step to take would be to create one survey that graduating students take to rate their experience immediately after they finish the courses and another to measure the relevance of the courses taken to their responsibilities in the workforce.

Objective

In this assignment, we have three objectives
Objective 1: To study ways to create a performance measurement solution to enable universities to measure the quality of the education they deliver to their students
Solution.

Objective 2: To design a dashboard that enables college and university administrators to compare the performance of their academic units
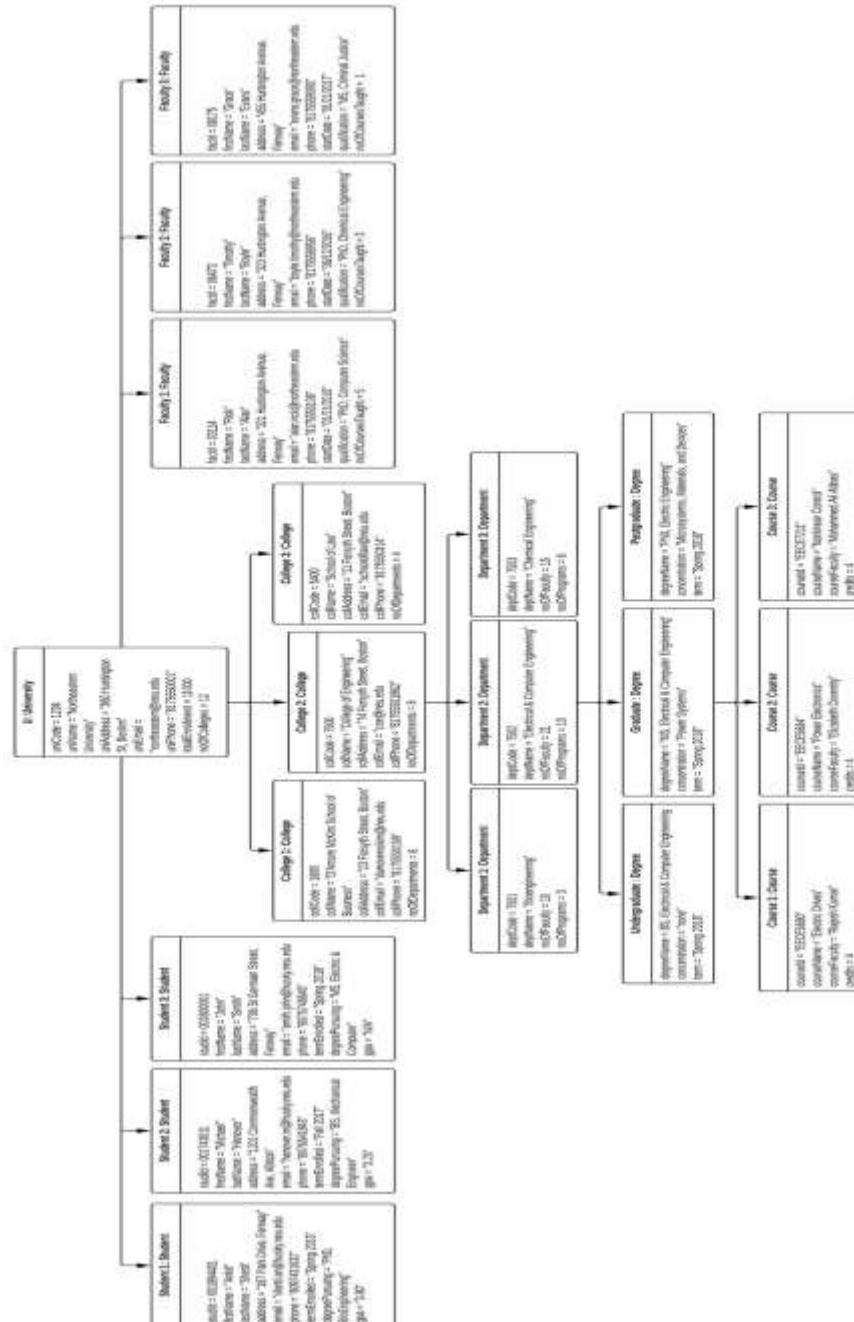*Solution.* The university administrator will initiate the interaction. We have three subsystems-AlumniCatalogue, ReviewAcademicUnit and AnaylseProgress. The university will ask the ReviewAcademicUnit to review the alumni. The AlumniCatalogue will consist of the alumni details such as the employer, promotions, position, salary, salary, a courseCatalogue having course details and the faculty associated, the ReviewAcademicUnit will review each academic unit based on the details retrieved from the AlumniCatalogue. Now, these details will be sent to the AnalyseProgress unit which will further send the analysis to the administrator.

Objective 3: To consider the ways to define a ranking system for students to decide where they want to go for studies
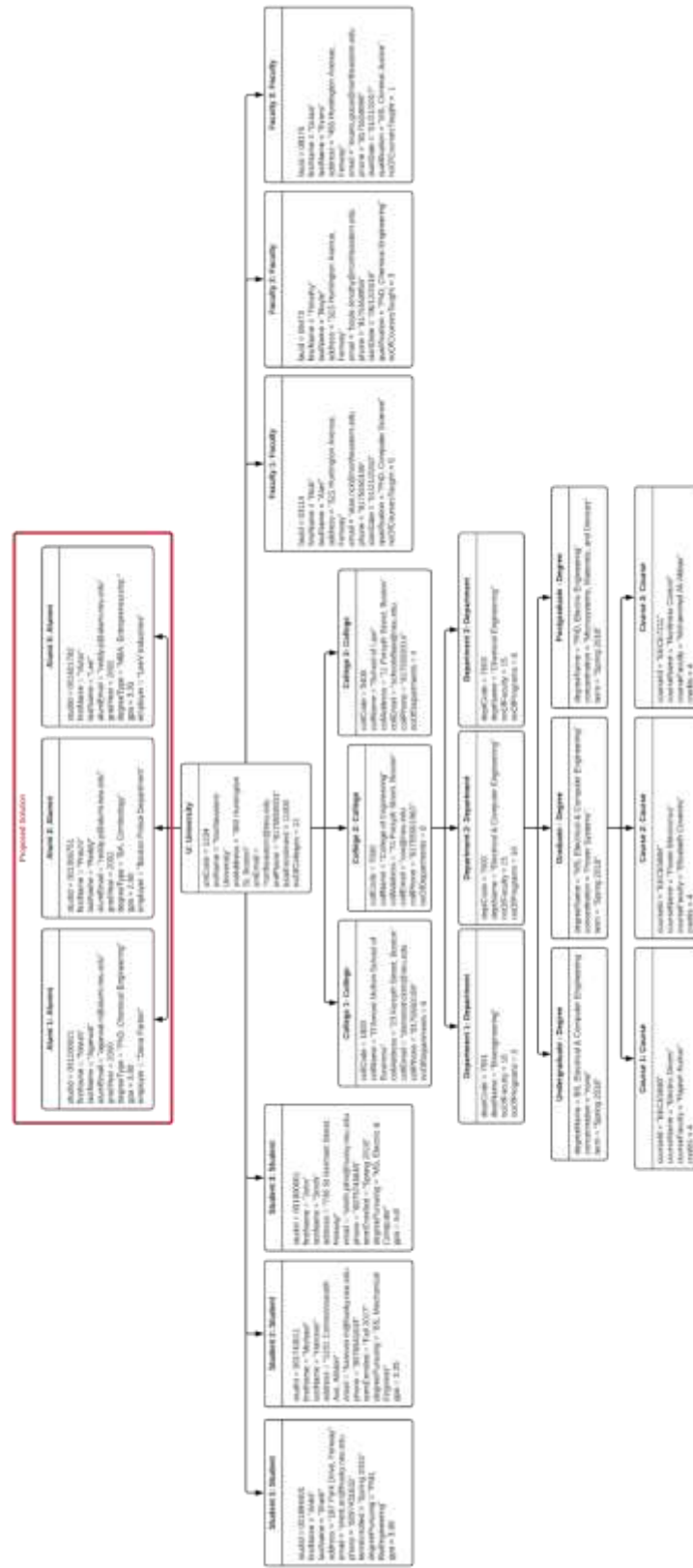*Solution.* The student will initiate the interaction. We have three subsystems- University, RankingSystem and AnalyseProgress. The student requests the University for the ranking. Now, the University will request the student details such as course taken, gpa, concentration,etc. from the Student. On receiving the student details from the Student, the University will request the RankingSystem for the department ranking. The University will then pass the student details and the department ranking to the AnalyseProgress unit which will perform the analysis and return the best department to the student.

UML Diagrams

1. Object Diagram

Before Modification:

After Modification:

2. Sequence Diagram: