



HALIFAX - ONE UNIVERSITY SCHEME INITIATIVE – CSCI5408

Problem #1

Abstract

Listed out the number of entities possible in Halifax One University Scheme and identified the relationship between them in a conceptual level using the ER Diagram.

Srikrishnan Sengottai Kasi
sr284605@dal.ca

CSCI5408 Data Management Warehousing Analytics.

Entities:

1 University information

The university information keeps track of its location, branch details, faculty count and student strength etc.

2 Students [current, future and alumni]

Student entity comprises of information like name, student id, address, phone number, etc.

3 Departments

Department entity carries the information related to the various departments present in the university.

4 Programs

Lists the various programmes offered by the particular department in the university.

5 Courses

Lists the various courses given by each program in the university.

6 Student accounts

Keeps track of the fee payment status of the students.

7 Health Department

Maintains health records associated with students, faculties and their dependents.

8 Sports

Keeps list of the various sports activities involved in the University.

9 Registration

Stores the registration status of the students in a course at the university.

10 Help and support.

To keep track of the ticket details. The ticket might be created as general enquiries from people(Students, parents or anyone who wants to know anything about the university).

11 Library

An extensive entity to store the list of books under sections in the University.

12 Laboratories

A detailed list of all laboratories which are associated with various department in the university.

13 Auditoriums

A list of various halls in the university. This is where an event might take place. To know its availability status for booking is needed for the future events.

14 Admission Application

Keeps track of all the applicants who applied for the university and maintains the admission offered status.

15 Employee Payroll

This entity holds the payroll details of all the employees who are working in the university.

16 Residence

This entity carries the details of various on-campus residence options available for the students.

17 Meals

This entity lists down the available food options for the university students each term.

18 Careers

This entity stores the details of the employment opportunities available for the university students.

19 Scholarships

This entity procures the various details associated with the scholarship and its eligibility for the students to avail.

20 Faculty

This entity contains the list of teaching and non-teaching faculty associated with all the departments across the department.

21 Events

It is used to show the list of events organized for the students from various clubs and departments in the University.

22 Student Society

This lists out recreational clubs and societies monitored by student representatives present in the university.

23 Payment

An entity to monitor and store the various payment made to the university like donations, fees, registration deposit etc.

24 Infrastructure

Keeps record of various buildings and its association with the respective departments.

25 Insurance

A separate entity to monitor the claims done by the students, faculties and dependents in case they are sick.

26 Feedbacks

An entity to keep track of various feedbacks received from the person inside University.

27 Books

An entity to store the ISBN number as unique value and its attributes like name, author and revision. It is needed to create a relation between course and library.

The relationship diagram, **ERD1**

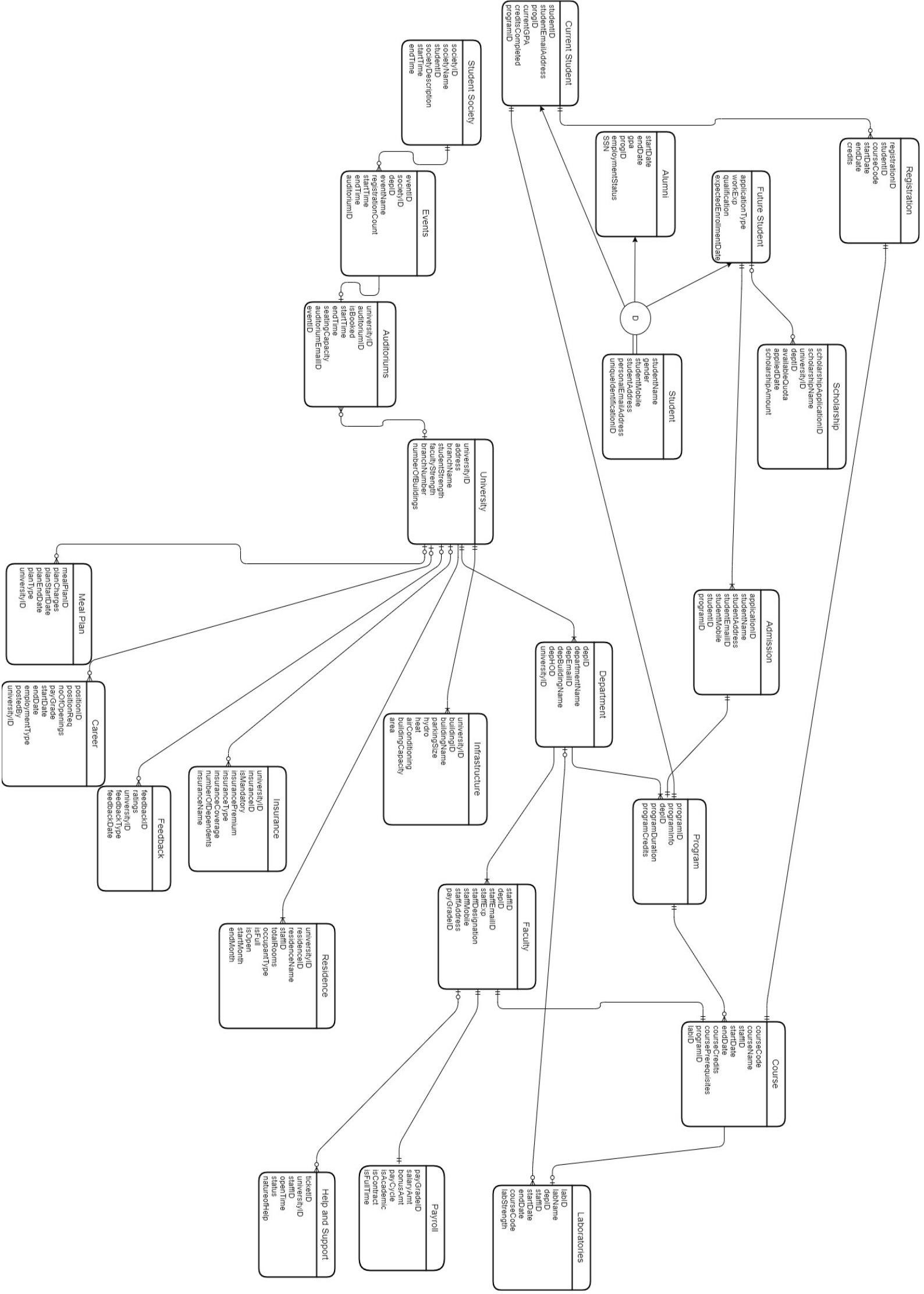


Image view link:

https://dal-my.sharepoint.com/:i:/g/personal/sr284605_dal_ca/EVUhJNiCwSdAsN1meuIY29ABGrXwSlvFnN0R3014wBBv7A?e=C3Wc2B

Relationships:

In the above entity relationship diagram,

- i. Student comprises of Future Students, Alumni and Current Students.
- ii. Current Students will have Dalhousie Email ID and Student ID.
- iii. Current Students will be registered in 1 program.
- iv. 1 Current Student will register in 0 or N courses.
- v. 1 record in Registration entity must include 1 course.
- vi. Future Students, 1 Future Student puts N applications for Admission of different programs.
- vii. 1 Future Student applies for 0 to N Scholarships.
- viii. 1 Admission application corresponds to only 1 program.
- ix. Each admission corresponds to One program.
- x. 1 Program has N courses associated with it.
- xi. 1 course may or may not have 1 Lab associated with it.
- xii. 1 University branch contains N departments.
- xiii. Each Department has 1 or N Faculties.
- xiv. 1 department has 0 or N labs with it.
- xv. 1 department has 1 or N faculties associated with it.
- xvi. 1 faculty have 1 paygrade associated with them in a particular time.
- xvii. In a particular time 1 course will be handled by 1 Faculty
- xviii. 1 faculty will have 0 or N tickets assigned in Help and support at a time.
- xix. 1 University branch will have 1 to N buildings under it.
- xx. 1 university branch will have 0 to N residence options.
- xxi. 1 university branch will have 0 to N Meal plans provided by them.
- xxii. 1 university branch will have 0 to N career openings with them.
- xxiii. 1 university branch will provide 0 to N insurance plan based on availability to its students and faculties.
- xxiv. 1 university branch will have separate 0 to N feedback from different persons. (Parents, Students etc)
- xxv. 1 University branch has 0 or N auditoriums in it.
- xxvi. 1 Student Society organizes 0 to N events.
- xxvii. 1 Event can happen 0 or 1 Auditorium at a time.

The entities Payment, Student accounts and Health records are not added in Entity diagram because of its vast and independent nature.

Student accounts keep track of transactions like,

- 1) When student submits an application.
- 2) When student pays registration deposit.
- 3) When student pays tuition fee on an annual basis upfront
- 4) When student pays for residence
- 5) When student opts for meal plan
- 6) When student registers for course credit in a term.

and many more.

While the payment entity duly corresponds to,

- 1) Tracking payments from external banks.
- 2) Tracking payments in the form of cash.
- 3) Accounting donations made from alumni.
- 4) Paying salary to the Faculties duly.
- 5) Payments processed for construction works.

and many more.

Health Records entity holds,

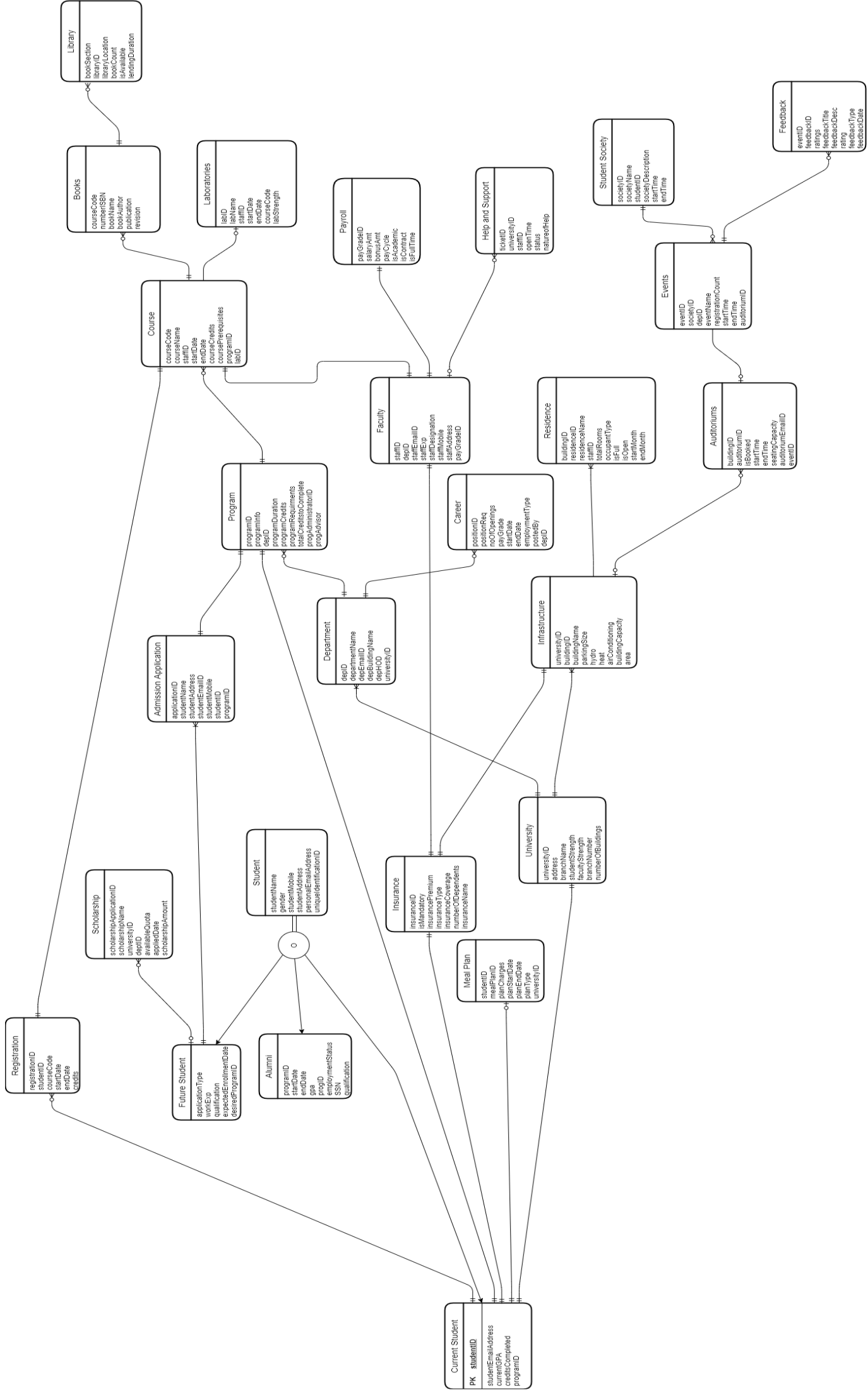
- 1) Any insurance claims made for the illness.
- 2) Records related to doctor consultations.
- 3) Records related to disabilities of the Students and Faculty to provide timely assistance.
- 4) Past appointments made by the Students for the Doctor visit.
- 5) Past surgeries and treatments made for by the Students.

and many more.

From the above ER diagram, we can clearly witness the fan trap occurred around the university entity. So, the ERD is revised and added new entities to avoid design issue. Those are book and library entity.

ERD11 is:

In this ERD I have tried to add the student accounts and associated that with the infrastructure. In fact, the funds from the accounts are used to build the buildings which are part of infrastructure.



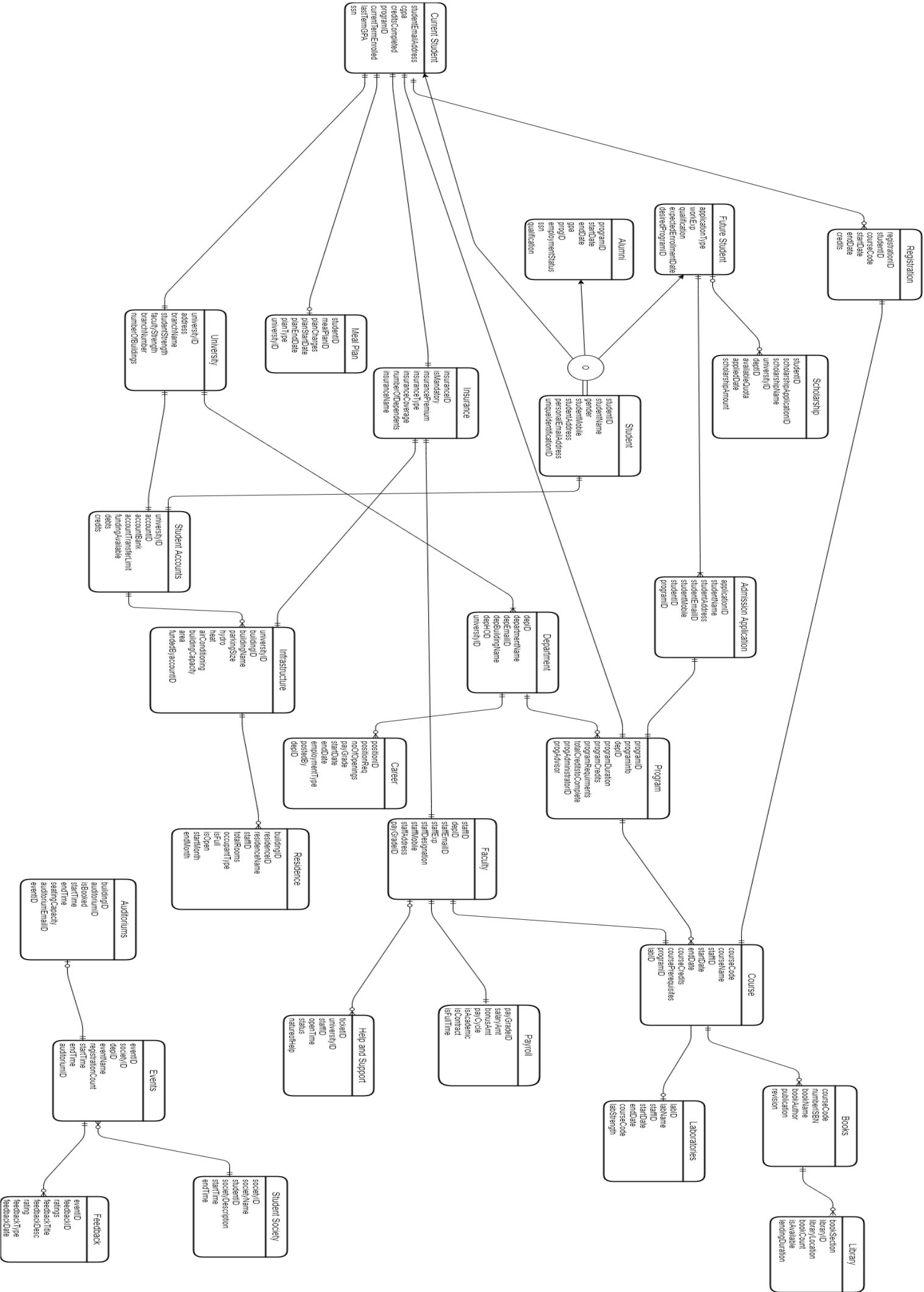


Image url:

https://dalumy.sharepoint.com/:i:/g/personal/sr284605_dal_ca/ET4YIXJ2woVDq09z2r6709ABOQfFuMhOFz3qWTfU3Jn5lg?e=IHezyh

Extended ERD can be seen for student entity in the above diagram. There are only 3 possible students for the university.

- 1) Alumni Students: They play a major role in donating to university and help the current students to get through their courses by providing appropriate guidance.
- 2) Current Students: Those are the students who are actively involved with the university at a given time. Alumni students will be current student at one point of time.
- 3) Future students are the people who wishes to enrol in the university by submitting an application. They can apply for any number of programs in the start and get decisions, but they can be enrolled to only one course at a given point of time, (i.e.) when they become current students.