CSCI 5408

DATA MANAGEMENT AND  
WAREHOUSING

Assignment - 1

Banner ID: B00981041

Name: Meer Patel

Gitlab URL:

# Initial ERD

## Entity list:

1. University

* University\_ID
* Name
* Street
* City
* Postal Code
* Email
* Phone\_no
* Rank
* Established\_Date
* History

Description: University entity contains list of Universities in Halifax city like Dalhousie University, Saint Mary University, Mount Saint Vincent University so that council can have track of it. (for simplicity I have used Address and contactInfo as attribute in all Entity and not to make ER Diagram congested.)

1. Campus

* Campus\_ID
* Name
* Street
* City
* Postal Code

Description: Campus entity can be served as student service, operational management, Infrastructure, administrative task and central hub for connecting various entities.

1. Departments

* Department\_ID
* Name
* Unit
* Street
* City
* Postal Code
* Email
* Phone\_no
* Description

Description: Department entity is essential for organizing faculty members, course scheduling, academic, events and news and central unit for the students of university.

1. Staff

* Staff\_ID
* FirstName
* MiddleName
* LastName
* ContactInfo
* Address
* Date\_of\_Birth
* Gender
* Salary
* Employment\_status (full/part time)
* Qualification

Description: The Staff entity is crucial for managing the various workforce in University including professor, admin staff, support staff and also facilitates tracking of staff roles, responsibilities and qualifications.

1. Fees

* Fees\_ID
* Description
* Amount
* Currency
* Late\_Fees\_Penalty
* Fees\_status
* Terms\_&\_Conditions

Description: Fees entity enables the management of financial transaction pertaining to tuition fees, course fees and also helps to track fees payment status.

1. News and Events

* News\_ID
* Title
* Description
* Schedule
* ContactInfo
* Address
* Organizer
* Category (Academic/Sport)
* Images
* Status
* Link

Description: News and Events entity allows to organize the various events, announcements, updates and upcoming events happening in different University campus.

1. Students

* Student\_ID
* Enrollment\_status
* FirstName
* MiddleName
* LastName
* Email
* Phone\_no
* Guardian\_Info
* Date\_of\_Birth
* Gender
* Program\_name
* Academic\_Year

Description: Students entity helps to manage the student record, enrollment, academic progress and performance.

1. Courses

* Course\_ID
* Name
* Credits
* Duration
* Description
* Materials
* Enrollment\_Capacity
* Syllabus

Description: Courses entity act as central repository for academic offering, curriculum development and enrollment process that a student can take into the University.

1. Admissions

* Admission\_ID
* Name\_of\_applicant
* Date
* Status
* Aplication\_Type
* LOR
* Resume
* Portfolio
* Application\_fees

Description: Admission entity helps to keep track of new applicants for the particular university and also helps for admission decision and enrollment process.

1. Scholarships

* Scholarship\_ID
* Name
* Description
* Amount
* Deadline
* Duration
* URL
* Provider

Description: Scholarships entity allows management of financial aid opportunities to students to access higher education.

1. Grades

* Grades\_ID
* Grade
* Percentage
* Status
* AssesmentType

Description: Grade entity enables the tracking of student academic performance and also provides data for evaluating progress.

1. Dining

* Dining\_ID
* Type
* Name
* Cuisine\_type
* Address
* Capacity
* Operating\_hours

Description: Dinig entity helps to manage dining facilities providing nutritious meal to staff and students.

1. Athletics\_and\_recreational

* Ath\_ID
* Name
* Game\_names
* Address
* ContactInfo
* Size
* Days
* Start\_time
* End\_time

Description: Athletics\_and\_recreational entity helps to manage sports facilities available at different campus of the University to promote physical fitness, teamwork and student engagement.

1. Transport

* Transport\_ID
* Capacity
* Type
* Route
* Departure\_time
* Arrival\_time
* Fare

Description: Transport entity helps to manage transportation services, facilitating safe movement of students and staff across campus.

1. SocialMedia

* SocialMedia\_ID
* Platform\_name
* URL
* Description
* Mobile App
* Founder

Description: SocialMedia entity helps to manage various social media platform used for communication, engagement with University community and enhancing connectivity.

1. Parking

* Parking\_ID
* Capacity
* Type (Multi storey / Surface Parking)
* Location
* Fees
* Availability

Description: Parking entity allows centralize management of parking facilities and ensure efficient allocation parking spaces.

1. Residence\_and\_housing

* Residence\_ID
* Name
* Address
* Room\_Type
* Type
* Capacity
* Amenities
* Utilities
* Rent

Description: Residence entity allows centralize management of parking facilities and ensure efficient allocation parking spaces.

1. Library

* Library\_ID
* Name
* ContactInfo
* Address
* Facilities
* Collections
* Capacity

Description: Library entity helps to manage wide range of academic material and research material for the students and professor and can be access by the whole campus.

1. Research\_Centre

* Research\_centre\_ID
* Title
* Research \_area
* Objective
* Timeline
* Outcome
* Budget

Description: Research\_Centre entity facilitates the students and organization to perform specialized research, enables expertise and funding opportunity for students.

1. Academic\_Calendar

* Calendar\_ID
* Academic\_year
* Start\_Date
* End\_Date
* Exam\_Period
* Holidays
* Academic\_events
* Course\_period

Description: Academic\_Calendar entity serves as centralized reference for important dates, events and exam periods, holidays, course period of the University.

1. BookStore

* BookStore\_ID
* Name
* Address
* ContactInfo
* Inventory
* Description

Description: BookStore entity helps to manages the academic textbooks, course materials and for purchasing, renting, and selling educational resources with University system.

# Problem Statement 1

Build DBMS modelling for the given hypothetical scenario – To achieve this task, you need to explore the given links and list possible entities and relevant attributes. Once the entities are identified, you should create ERD with appropriate relationship. Note: Try not to include M:N relationships, and solve design issues.

## List of Entities and its justification.

(For simplicity I have used Address and contactInfo as attribute in all Entity and not to make ER Diagram congested.)

|  |  |  |  |
| --- | --- | --- | --- |
| **Index** | **Entity name** | **Attributes** | **Justification** |
| 1 | University | * University\_ID * Name * Street * City * Postal Code * Email * Phone\_no * Rank * Established\_Date * History | University entity contains list of Universities in Halifax city like Dalhousie University, Saint Mary University, Mount Saint Vincent University so that council can have track of it. |
| 2 | Campus | * Campus\_ID * Name * Street * City * Postal Code | Campus entity can be served as student service, operational management, Infrastructure, administrative task and central hub for connecting various entities. |
| 3 | Departments | * Department\_ID * Name * Unit * Street * City * Postal Code * Email * Phone\_no * Description | Department entity is essential for organizing faculty members, course scheduling, academic, events and news and central unit for the students of university. |
| 4 | Staff | * Staff\_ID * FirstName * MiddleName * LastName * ContactInfo * Address * Date\_of\_Birth * Gender * Salary * Employment\_status (full/part time) * Qualification | The Staff entity is crucial for managing the various workforce in University including professor, admin staff, support staff and also facilitates tracking of staff roles, responsibilities and qualifications. |
| 5 | Fees | * Fees\_ID * Description * Amount * Currency * Late\_Fees\_Penalty * Fees\_status * Terms\_&\_Conditions | Fees entity enables the management of financial transaction pertaining to tuition fees, course fees and also helps to track fees payment status. |
| 6 | News and Events | * News\_ID * Title * Description * Schedule * ContactInfo * Address * Organizer * Category (Academic/Sport) * Images * Status * Link | News and Events entity allows to organize the various events, announcements, updates and upcoming events happening in different University campus. |
| 7 | Students | * Student\_ID * Enrollment\_status * FirstName * MiddleName * LastName * Email * Phone\_no * Guardian\_Info * Date\_of\_Birth * Gender * Program\_name * Academic\_Year | Students entity helps to manage the student record, enrollment, academic progress and performance. |
| 8 | Courses | * Course\_ID * Name * Credits * Duration * Description * Materials * Enrollment\_Capacity * Syllabus | Courses entity act as central repository for academic offering, curriculum development and enrollment process that a student can take into the University. |
| 9 | Admissions | * Admission\_ID * Name\_of\_applicant * Date * Status * Aplication\_Type * LOR * Resume * Portfolio * Application\_fees | Admission entity helps to keep track of new applicants for the particular university and also helps for admission decision and enrollment process. |
| 10 | Scholarships | * Scholarship\_ID * Name * Description * Amount * Deadline * Duration * URL * Provider | Scholarships entity allows management of financial aid opportunities to students to access higher education. |
| 11 | Grades | * Grades\_ID * Grade * Percentage * Status * AssesmentType | Grade entity enables the tracking of student academic performance and also provides data for evaluating progress. |
| 12 | Dining | * Dining\_ID * Type * Name * Cuisine\_type * Address * Capacity * Operating\_hours | Dinig entity helps to manage dining facilities providing nutritious meal to staff and students. |
| 13 | Athletics\_and\_rec | * Ath\_ID * Name * Game\_names * Address * ContactInfo * Size * Days * Start\_time * End\_time | Athletics\_and\_recreational entity helps to manage sports facilities available at different campus of the University to promote physical fitness, teamwork and student engagement. |
| 14 | Transport | * Transport\_ID * Capacity * Type * Route * Departure\_time * Arrival\_time * Fare | Transport entity helps to manage transportation services, facilitating safe movement of students and staff across campus. |
| 15 | SocialMedia | * SocialMedia\_ID * Platform\_name * URL * Description * Mobile App * Founder | SocialMedia entity helps to manage various social media platform used for communication, engagement with University community and enhancing connectivity. |
| 16 | Parking | * Parking\_ID * Capacity * Type (Multi storey / Surface Parking) * Location * Fees * Availability | Parking entity allows centralize management of parking facilities and ensure efficient allocation parking spaces. |
| 17 | Residence\_and\_housing | * Residence\_ID * Name * Address * Room\_Type * Type * Capacity * Amenities * Utilities * Rent | Residence entity allows centralize management of parking facilities and ensure efficient allocation parking spaces. |
| 17 | Library | * Library\_ID * Name * ContactInfo * Address * Facilities * Collections * Capacity | Library entity helps to manage wide range of academic material and research material for the students and professor and can be access by the whole campus. |
| 18 | Research\_Centre | * Research\_centre\_ID * Title * Research \_area * Objective * Timeline * Outcome * Budget | Research\_Centre entity facilitates the students and organization to perform specialized research, enables expertise and funding opportunity for students. |
| 19 | Academic\_Calendar | * Calendar\_ID * Academic\_year * Start\_Date * End\_Date * Exam\_Period * Holidays * Academic\_events * Course\_period | Academic\_Calendar entity serves as centralized reference for important dates, events and exam periods, holidays, course period of the University. |
| 20 | BookStore | * BookStore\_ID * Name * Address * ContactInfo * Inventory * Description | BookStore entity helps to manages the academic textbooks, course materials and for purchasing, renting, and selling educational resources with University system. |