1. Name of Your Company

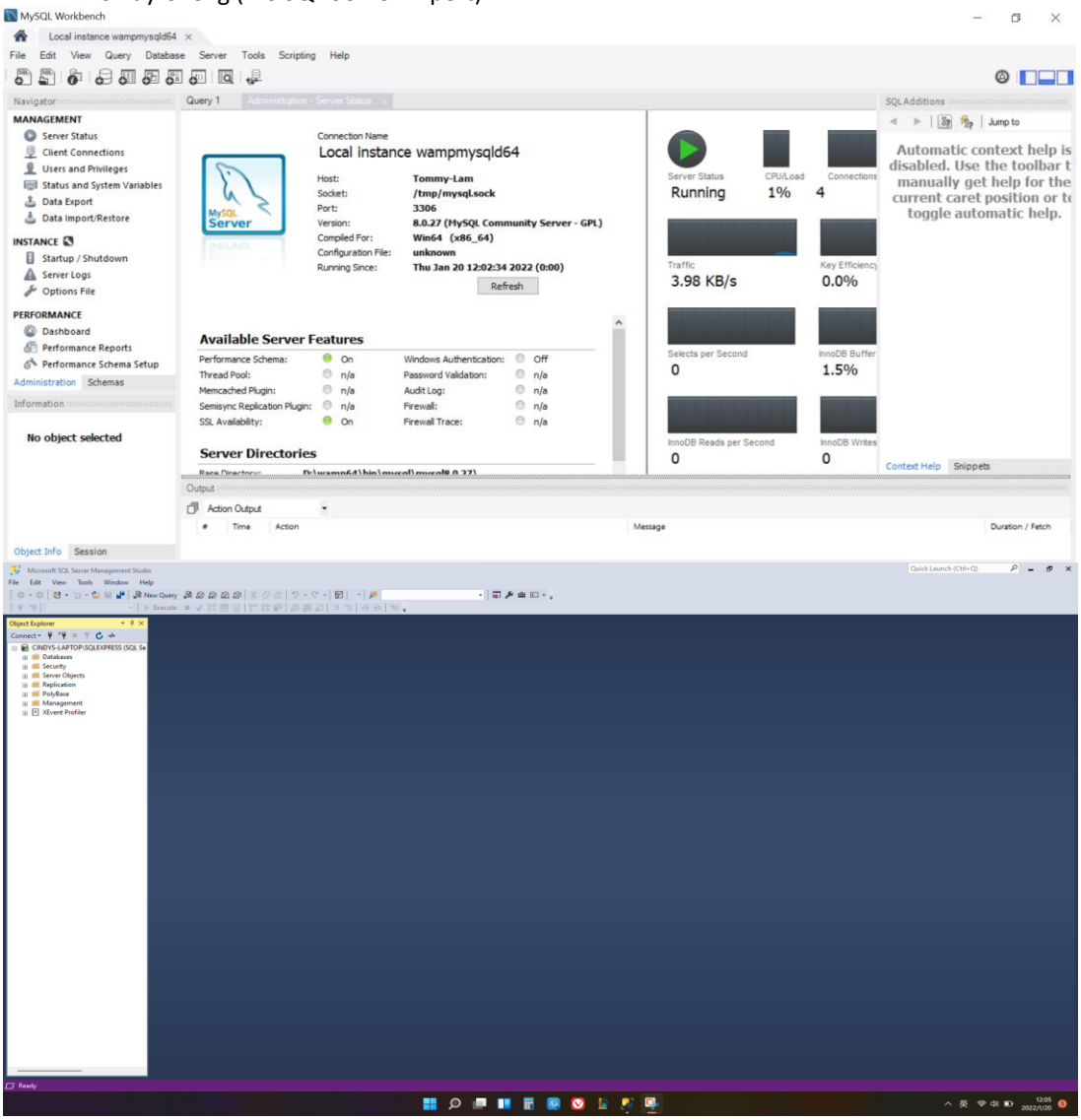
Two small potatoes Ltd.

2. Project Title

Students Clubs Management

3. Team

- Tommy Lam (MySQL Expert)
- Cindy Cheng (MS SQL Server Expert)



4. Weekly Meeting Hours

Every Tuesday 9 pm and Friday 2 pm

5. Project Description

The purpose of creating this database as student clubs' management is to hold the data regarding student clubs such as sports clubs, religious clubs, programming clubs, computer networks clubs, database clubs, and music clubs, which students can join one of the groups inside one of the clubs based on their interests.

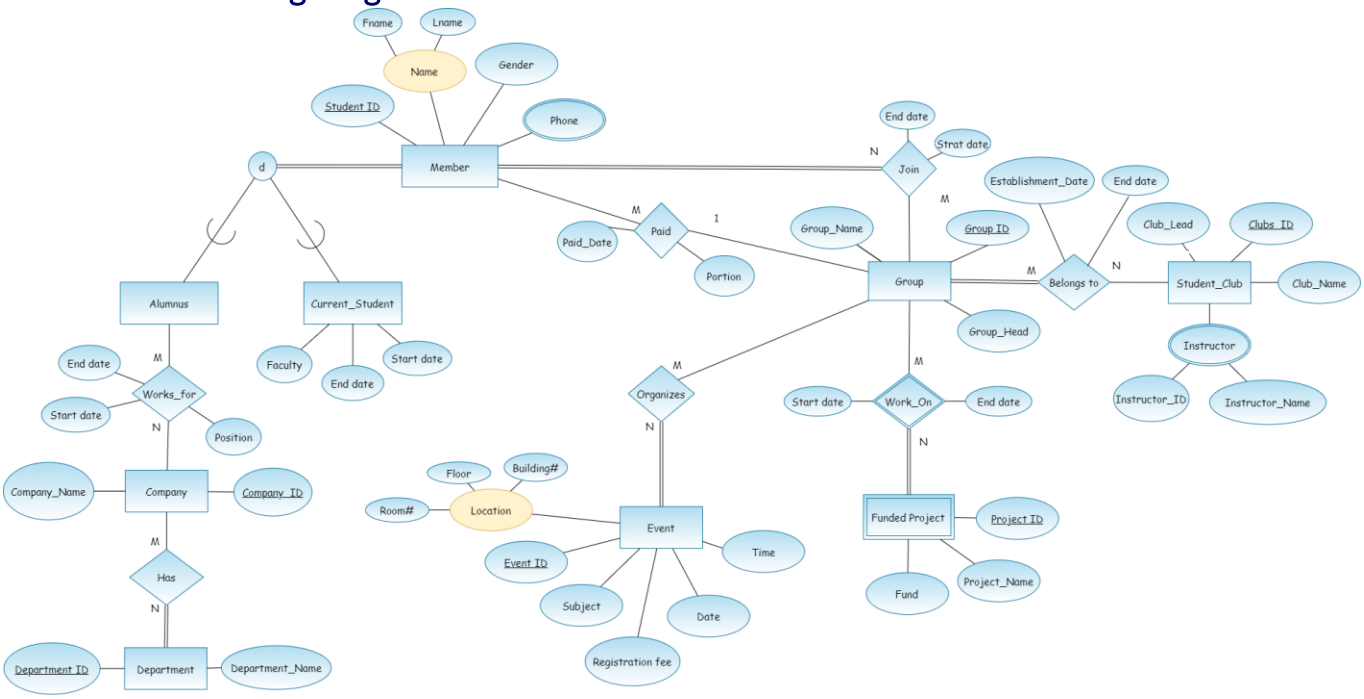
This database stores the student's information such as student ID, member status (current student or alumni), enrollment start date, enrollment end date, role inside the clubs and groups (a lead, head, or regular member), membership start date, and membership end date. If a member is alumni, the database will also store the member's work history information such as the student ID, name of the company, position, department, start date, end date, Besides that, this database also stores the group's event details such as group ID, event organizers, event member, event date, event time, event location (room number, floor, building), event subject, and event registration to identify the event data as the future records. The database will also store the funded projects including the project ID, project name, funding amount, which will be able to analyze the fund or budget that they have received for the project. Besides that, it will also have a data set to store the project ID and the student ID as the main key, therefore, it will be easier to pull out the funding data that is divided and paid to students with the portion amount that each student receives for the project.

6. Assumptions about Cardinality and Participations

You can write all the assumptions about Cardinality and Participations (total/partial) here.

- There are only two types of members, alumnus or current student
- All the members are joining at least one group, and some groups are joined by member only
- Some alumni work for a company, which means there are some alumni don't work for any companies
- An alumnus can join the same company in different periods
- Some companies have all departments, and all the department are belonging to at least 1 company,
- Some groups are working on the funded project, and the funded project are worked by the groups only
- Some member received the paid from a group, and a group can pay to at least 1 member
- Some groups are organizes event, and all the events are organized by groups
- All the groups are belonging to clubs, and some clubs have at least 1 group

7. EER Modeling Diagram



8. ER-Model Mapping to Database Relational Schema

Student_Clubs_Member(SudentID, First_name, Last_name, Gender)

Member_Phone (**StudentID,** Phone)

Alumnus(**StudentID,** Graduation_Date)

Company(CompanyID, CompanyName)

Department(DepartmentID, Department_Name)

Department_BelongsTo_Company(**CompanyID,DepartmentID**)

Alumnus_WorksFor_Company(**StudentID**,**CompanyID, DepartmentID,** Hire_Date, Position_Name, End_Date)

Current_Student(**StudentID,** Faculty, Enrollment_date)

Instructor(Instructor_ID, First_name, Last_name)

Student_Club(ClubsID, ClubsName,Club_Lead, InstructorID)

Groups_BelongsTo_Club (**ClubsID,** GroupID,Group_Head, Establishment_Date, End_Date)

Event_Detail (EventID, Event_Subject, Room_Number, Building_Floor, Building_Number, RegistrationFee, Event_Date, Event_Time)

Group_Organizes_Event(**ClubsID, GroupID, EventID, SudentID**)

Member_Join_Group(**StudentID, ClubsID, GroupID**, Start_Date, End_Date)

Member_PaidBy_Group(**StudentID, ClubsID, GroupID,** Portion, Paid_Date)

Funded_Project(ProjectID, ProjectName, Fund)

Group_WorkOn_FundedProject(**ClubsID, GroupID, ProjectID**, Start_Date, End_Date)

9. Normalization

All relations must be normalized up to BCNF. You must explain why you believe every relation in your database in normalized.

1 NF: The database does not include any composite, multivalued and nested relations attributes.

1. We used First name and Last name to represent a student name, same as instructor name.
2. We used a new table to store Member_Phone that contains multivalued attributes.
3. Every club has multiple groups, therefore, we used different tables to store these data to avoid redundancy.
4. Every company has many departments, hence, we also separate company and department into different tables.

2 NF: We checked all composite particle keys that do not have any partial functional dependency.

1. Alumnus_WorksFor_Company: StudentID→all other attributes, CompanyID, DepartmentID→Hire_Date, Position_Name, End_Date, Hire_Date→Position_Name, End_Date
2. Same as Member_Join_Group, Member_PaidBy_Group and Group_WorkOn_Project.

3NF: There is no transitive functional dependency in our database.

BCNF: All data is in BCNF.

10. Determining Data Types (Domain) and Constraints

StudentID, instructorID, Phone, Company_ID (ABN), Club_Lead and Group_head, Event_Organizer are numeric type as the size are fixed, where Club_Lead, Group_head, and Event_organizer has to be the member in the club's member table

First_name, Last_name, CompanyName, Department_Name, Position_Name, faculty, club_name, Event_Subject, Building_Floor, Project_Name are varchar types as not all the value has the same size, but we only provide the maximum length for the user to input, and cannot be null

Gender, and Building_Number are char types with 1 size, where 'F', 'M', 'O', and 'N' represents Female, Male, and Other, Not Applicable respectively. Building number can only be 'S', 'N', 'E', 'W', and 'O', which represents the south building, north building, east building, west building, and online respectively.

Department_ID, Clubs_ID, EventID, Room_number are integer types, where they do not have fixed-length and can be added as much as the user wants.

Graduation_date, Hire_date, Enrollment_date, Event_Date, Start_Date, Paid_Date, and End_date are date types, where Graduation_date, Hire_date, and Enrollment_date cannot be null, where Hire_date, Enrollment_date, and Start_date have to be greater than their end_date.

Registration_fee, Portion, Fund are decimal where is the best way for money purpose

Event_Time is the time type to specificity the time

11. Creating Database and Tables - SQL DDL

You do not need to copy SQL commands here. Save your SQL commands in a script file and just mention the name of the file here. Make sure the script file is stored besides this document within the same folder.

MySQL Scripts / StudentClubsManagement
SQL Server Scripts / (SQL Server) Create data

12. Inserting Values in Tables

You do not need to copy SQL commands here. Save your SQL commands in a script file and just mention the name of the file here. Make sure the script file is stored beside this document within the same folder.

MySQL Scripts / Insert_StudentClubsManagement
SQL Server Scripts / (SQL Server) Insert data

13. SQL Queries

You do not need to copy SQL commands here. Save your SQL commands in a script file and just mention the name of the file here. Make sure the script file is stored beside this document within the same folder.

Query / Queries

14. Views

You do not need to copy SQL commands here. Save your SQL commands in a script file and just mention the name of the file here. Make sure the script file is stored beside this document within the same folder.

Query - Queries