COMP3005 – Project Report

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Youtube Link: https://youtu.be/R_TvT6AhmK8
Github Repositories: https://github.com/khoigithub/Health_and_Fitness

Reductions to Relation Schemas:

1. All Tables:

We will have 13 tables for this project:

- Member (member_id, member_name, email, phone_number)
- Trainer (trainer_id, trainer_name, available_date, start_available_time, end_available_time)
- Personal_Training_Session (session_id, member_id, trainer_id, session_date, start_session_time, end_session_time)
- Group_Fitness_Class (class_id, class_name)
- Attend (attend_id , member_id, class_id)
- Fitness_Goals (goal_id, member_id, weight_goal, time_goal)
- Health_Metrics (metric_id, member_id, weight, height)
- Room_Booking (room_id, room_name, booking_date, start_time, end_time)
- Admistrative_Staff(staff_id, staff_name)
- Equipment_Maintainance (maintainance_id, equipment_name, staff_id, room_id)
- Class_Schedule (class_schedule_id, class_id, staff_id, class_date, start_class_time, end_class_time)
- Billing (billing_id, member_id, staff_id, amount_due)
- Manage (manage_id, member_id, staff_id)

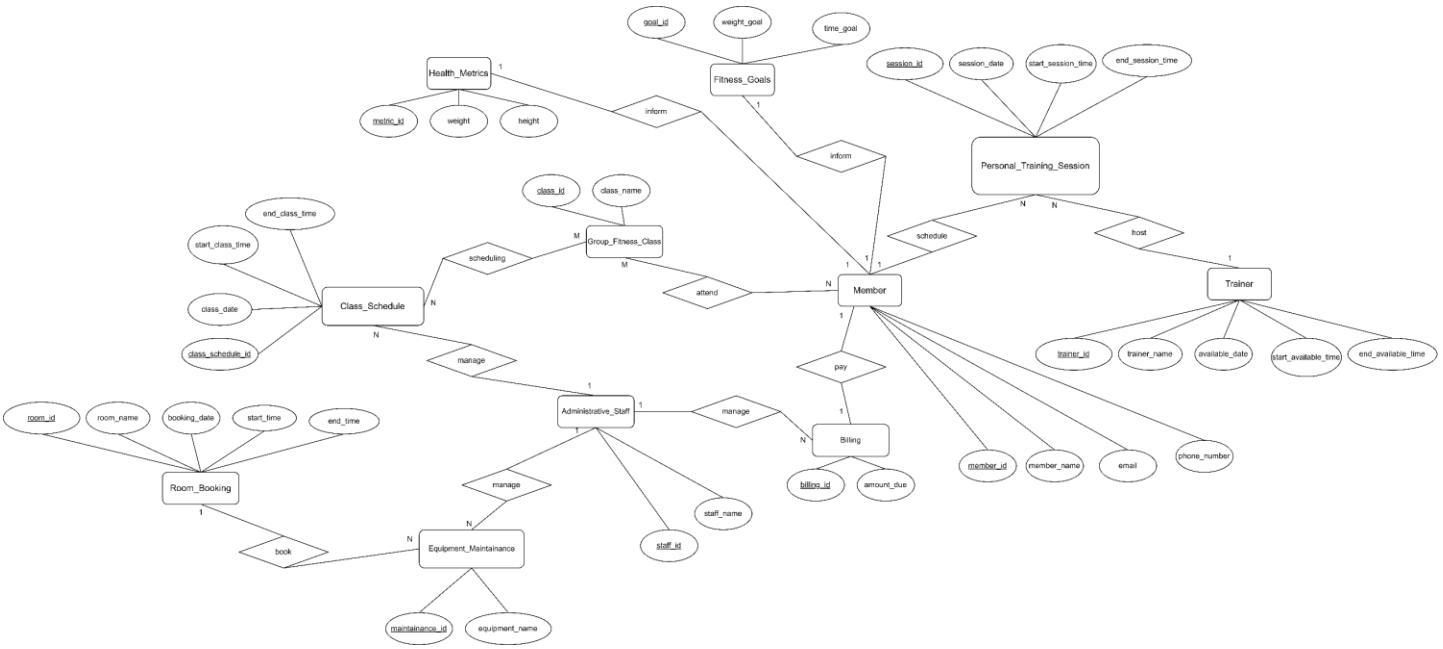
2. Explanations and Assumption:

Requirement	Assumption	Representation in ER
Members will be registered into the program; they will join many different training classes and group fitness classes.	N/A	**Member Entity:** member_id, member_name, email, phone_number
Each member will have their own Health Metrics.	Each member will have one Health Metrics and each Health Metrics belongs to one Member	**Health_Metrics Entity:** metric_id, member_id, weight, height
Each member will also have their own Fitness Goals.	Similarly to Health Metrics, each member will have their own fitness goal and each Fitness Goal belongs to one Member	**Health_Metrics Entity:** metric_id, member_id, weight, height
Each member can schedule personal training sessions with Trainers	Each member can join multiple personal training sessions, but each personal training session can only have one member	**Personal_Training_Sessions Entity:** session_id, member_id, trainer_id, session_date, start_session_time, end_session_time
Trainers can host personal training	Each member can only have one trainer to host	**Trainer Entity:** trainer_id, trainer_name, available_date,

session so that the members can join	them, while a trainer can host many different personal training session	start_available_time, end_available_time
Member can also attend Group Fitness Class	Each member can join multiple different group fitness classes and one group fitness class can contains multiple different members	**Group_Fitness_Class Entity:** class_id, class_name
After the end, members will have to pay for all the activities that they join, such as personal training or fitness class. The administrative staff will manage this	Each member has to pay one bill for all of the activities that they participate, and each bill will only belong to one Member	**Billing Entity:** billing_id, member_id, staff_id, amount_due
Group fitness classes will be scheduling on the big Class Schedule so that we know which class happens at what time so that members can attend them	Each Group Fitness class can schedule many different times to happen, and each schedule can have multiple classes happens at the same time	**Class_Schedule Entity:** class_schedule_id, class_id, staff_id, class_date, start_class_time, end_class_time
Administrative Staff will have the duty to manage all payment for the Member, manage different	N/A	**Administrative_Staff Entity:** staff_id, staff_name

equipment, manage room booking and scheduling for different group fitness class		
Administrative staff will manage different equipment maintenance process	Each staff will be responsible to maintain different equipment, but one equipment will only be the responsibility of one staff	**Equipment_Maintainance Entity:** maintainance_id, equipment_name, staff_id, room_id
To maintain the equipment, the administrative staff have to book a room for it.	Each room can be booked for the staff to maintain different equipment, but one equipment should only belong to one room only, otherwise it will be difficult for staff to find it, and each equipment cannot be at two places at the same time anyway	**Room_Booking Entity:** room_id, room_name, booking_date, start_time, end_time

3. ER Model Diagram:



4. DDL File:

A DDL file has been included in the same Github Repositories directory

5. DML File:

A DML file has been included in the same Github Repositories directory, this is the sample file for mostly all of the tables, some data for other tables will be add during the demonstration

6. Implementation:

This is the Health and Fitness application implementing using PostgreSQL, Python implements the backend. The connection between the backend and the PostgreSQL was established using the psycopg2 libraries.

This application is the Command-Line Interface that can help members to register into the Health Fitness Club. Members can join many different classes or have their own personal trainers. At the end they will have to pay for each class that they joined. We also have trainers who can schedule their own private training sections with the members. Administrative staff here will have to manage all of the members, different equipment, room booking and scheduling for different group fitness classes.