COMP 3005: Project "V2"

Matthew Czarnowski 101151676

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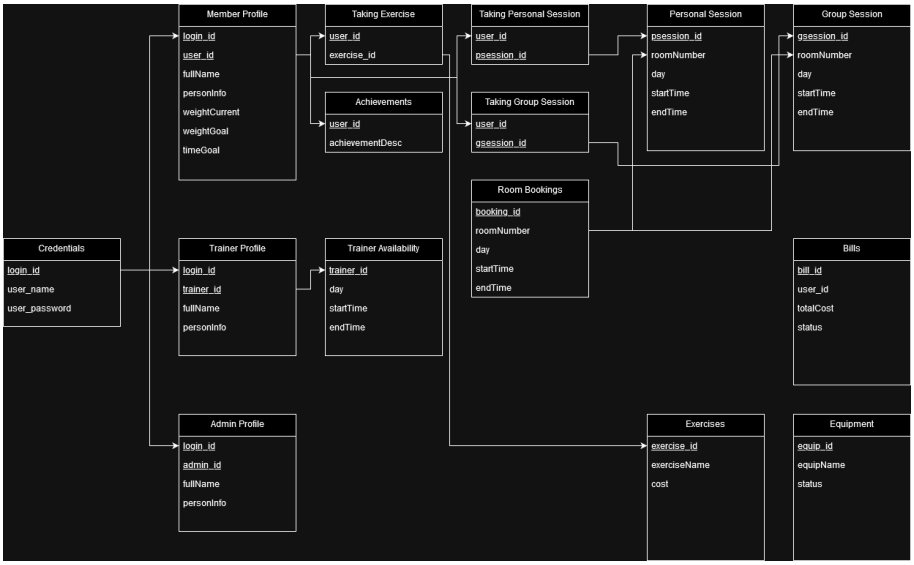
1 Conceptual Design (ER Diagram)

The full image file can be found inside the public repository, in the "Diagrams" folder.



The ER diagram starts by separating the members, trainers, and admins into different user types with their own profiles. However, all of these users are connected to one credentials table, where each user has an ID connecting to their login username and password. The idea is to have all users in the club to login through the same portal pulling from the same table, and depending on what type of user has logged in, the interface will be different.

Regular members have their fitness goals tied to their profile, so it can be viewed easily by trainers. Their personal achievements are also kept in another table, tied to members by their ID. Members are tied to three "taking" tables, which keep track of the exercises, personal sessions, and group sessions they are a part of. These "taking" tables are also tied to the sessions themselves.

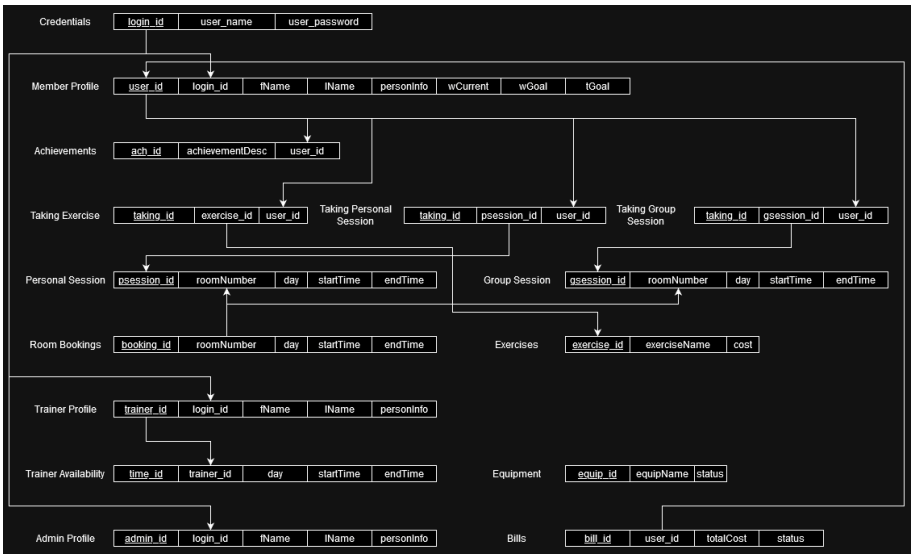
The sessions are their own tables, also connected to a "room bookings" table that keeps track of which rooms are booked, and at what time.

Trainers are a separate user from the regular members. They are connected to an "availability" table that shows when trainers are available. Trainers will be able to modify their own availability table entry. The trainers will also be able to search the "member profile" table, which shows every member in the club. Since the member health and goal information is stored directly in their profile, trainers will easily be able to look at a member's information.

Admins are their own user as well. They will be able to look at and modify the "room bookings" table, the "equipment" table, and "group session" table. Admins will also be able to modify the "bills" table, which can connect to members.

2 Reduction to Relational Schemas (RDS Diagram)

The full image file can be found inside the public repository, in the "Diagrams" folder.



The relational schemas stay fairly close to the structure of the ER diagram. All of the proper connections between primary keys and foreign keys are much more visible here.

3 DDL file

The DDL file can be found inside the public repository, in the "SQL" folder.
The biggest difference in the DDL file is the explicit cascade deletion assigned to the room bookings and sessions tables. This is because the room number is unique, and the sessions rely on the room number. So, to make deletion of any entries in any of those tables easier, the cascade deletion flag makes it so only one delete query has to be run, instead of manually deleting all related entries in different tables in a special specific order.

4 DML file

The DML file can be found inside the public repository, in the "SQL" folder.
A decent amount of information is stored inside the DML file as a default set of data.

5 Implementation

To create my interface, I used Python, as I am most familiar with that language. The driver I used to connect with my PostgreSQL database is psycopg. This is a Python based PostgreSQL driver.
The version of Python that I used for development was Python 3.12 (64-bit), and I installed the newest version of psycopg by following the instructions on their website.
The interface is a CLI, so to use the program, you can run either CMD or PowerShell in the folder containing the main.py file, and running the file with Python.
The video goes into much more detail on how the program works. The video is linked in the public repository.