

## COMP 3005 Project Report

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### Conceptual Design

<https://github.com/116taj/COMP3005Project/blob/main/ER-Model.png>

There are three types of users, members, trainers, and admins, since they all do different things in the program. Since Schedules are from Monday-Sunday, for each class/session/trainer the foreign ids will relate to 7 different rows, which makes it one to many. Schedules were made this way to avoid having 4 null foreign keys for each schedule. Achievements are many to many with members because members to fitness goals is one to many, and if the admin wants to apply one specific achievement to all members, that's one to many from achievements to members, making it many to many. The reason I have admin as a table even though they have no interaction with other tables is for authentication, as 4 of the functions are supposed to only be accessed by them.

### Reduction to Relation Schemas

<https://github.com/116taj/COMP3005Project/blob/main/Relation-Schema.png>

### DDL File

<https://github.com/116taj/COMP3005Project/blob/main/SQL/ddl.sql>

### DML File

<https://github.com/116taj/COMP3005Project/blob/main/SQL/dml.sql>

### Implementation

For my implementation, I used python with pycpg2 to access the database. There is a command line interface to access all 10 functions, although some aren't fully functional and lack some features. Throughout all functions, numerous queries are made to the database, and nothing is stored permanently, only some variables are locally stored to print them or to post to the database. Therefore, my implementation ensures the use of a relational database. I wouldn't say there is one part specifically that is crucial, as most of it is taking input from the user, making a query based on that, then outputting the result. If anything, the menu is significant because without it the program won't run properly. In total, my implementation has 40 queries to the database, with some repeated like the email authentication prompt at the beginning of almost every function.

### Bonus Features

The only thing I'd consider being a bonus feature is the slight authentication by checking if the email provided exists in the corresponding user table, whether it's Members, Trainers, or Administrators.

Repository: <https://github.com/116taj/COMP3005Project>

### Youtube Video for Demonstration

<https://www.youtube.com/watch?v=rOOKHCrvltc>