**Health and Fitness Club Management System – Project Report**

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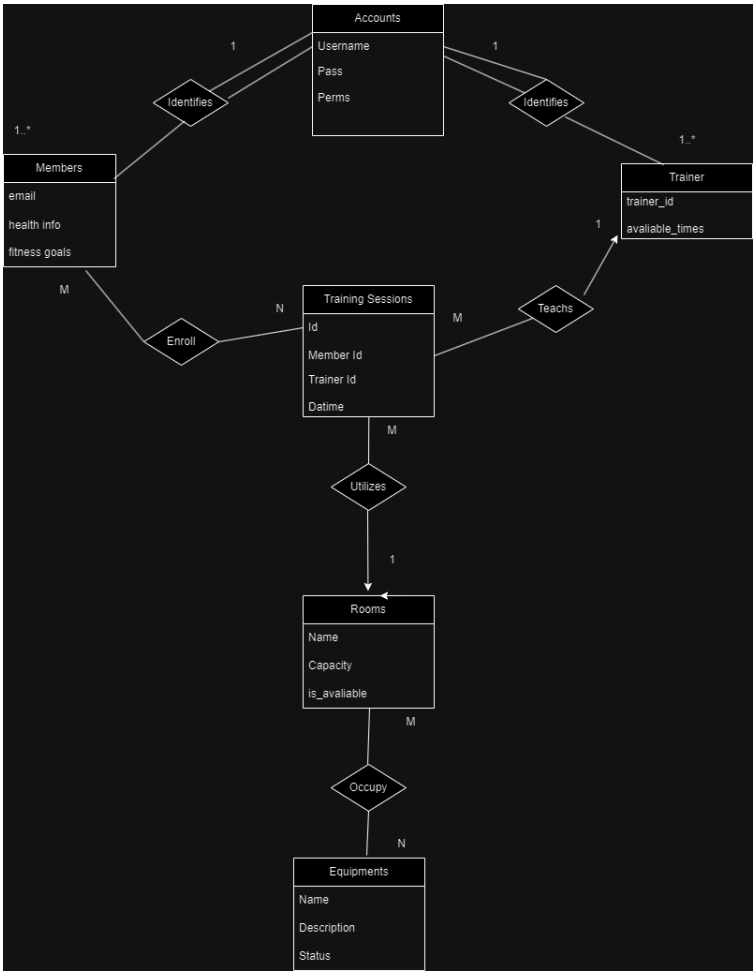
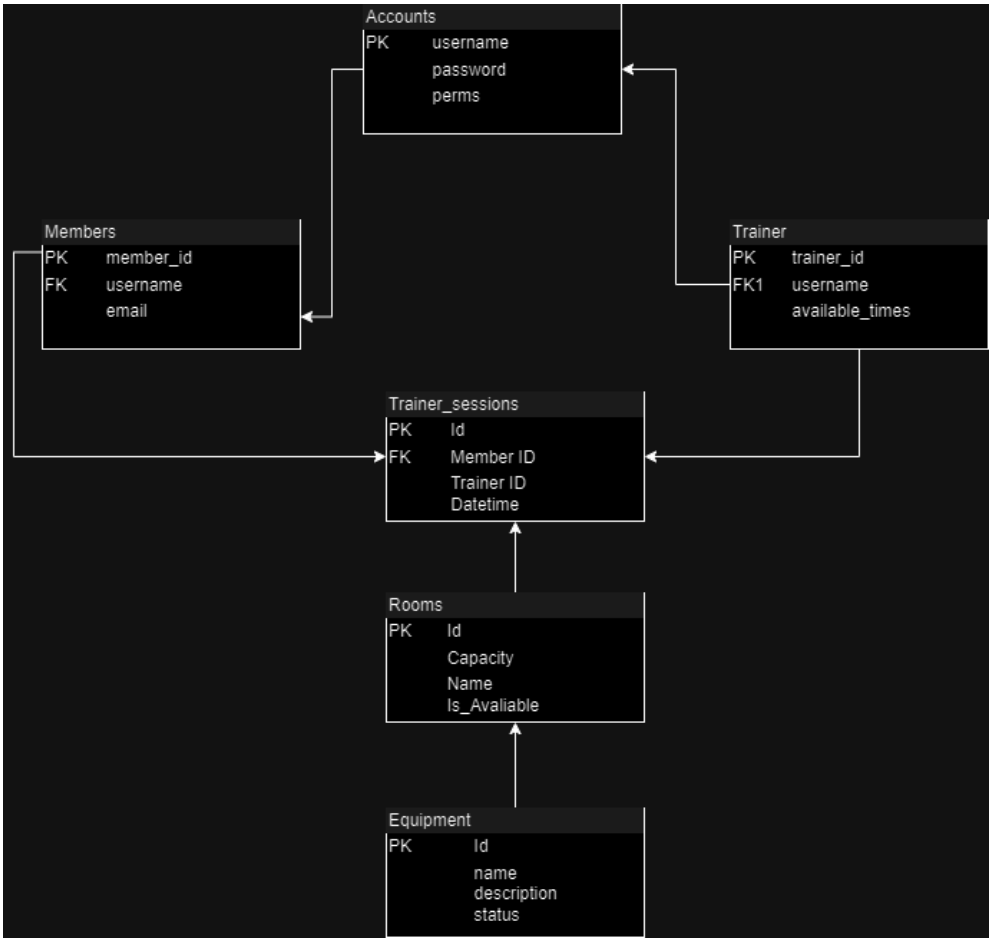
# Project Requirements

The project is a highly complex software program which is purpose-oriented and fulfills the needs of a Health and Fitness Club. This software has a variety of users, comprising of club members, fitness trainers, and administrative workers, with it being a unified digital system for the management of club operations. The central component of this software system is a properly established relational database, which is designed to efficiently collect and store essential operational data.

## *Database Schema Design*

The initial step in the development of this software system is the design of the relational database schema. This schema must reflect the real-world relationships and requirements of the fitness club environment. It includes entities such as Members, Trainers, Training Sessions, Group Fitness Classes, Equipment, and Rooms. Each entity is defined with attributes that are crucial for the club's operations; for example, members have profiles, trainers have schedules, and fitness classes have capacity limits and scheduled times.






**Relationships:**

Identifies: Links Accounts with Members and Trainers indicating that both members and trainers have user accounts which grant them access to the system.

**Enroll:** Members can enroll in multiple training sessions, indicating a many-to-many relationship, which requires a junction table (not explicitly shown in the diagram).

**Teaches:** Trainers conduct multiple training sessions. While not explicitly marked in the ER diagram, it implies a one-to-many relationship where one trainer can be associated with many training sessions.

**Utilizes:** Training sessions utilize a single room, but a room can be used for multiple sessions over time. This suggests a many-to-one relationship from the sessions to the room.

**Occupy:** Rooms may occupy multiple pieces of equipment, while equipment can be utilized in more than one room, indicating a many-to-many relationship.

**Assumptions**

One Account Per Person: Each member and trainer has a unique account, which is used to identify them within the system.

Exclusive Sessions: Each training session is exclusively between one member and one trainer; the diagram does not cater for group sessions.

Room Scheduling: Although rooms are linked to training sessions, the diagram does not show direct scheduling capabilities, implying that room booking is either implicit in the training session or handled separately.

Static Equipment Status: The status of equipment is shown as a static attribute, meaning the diagram does not account for dynamic scheduling or maintenance updates within the depicted structure.