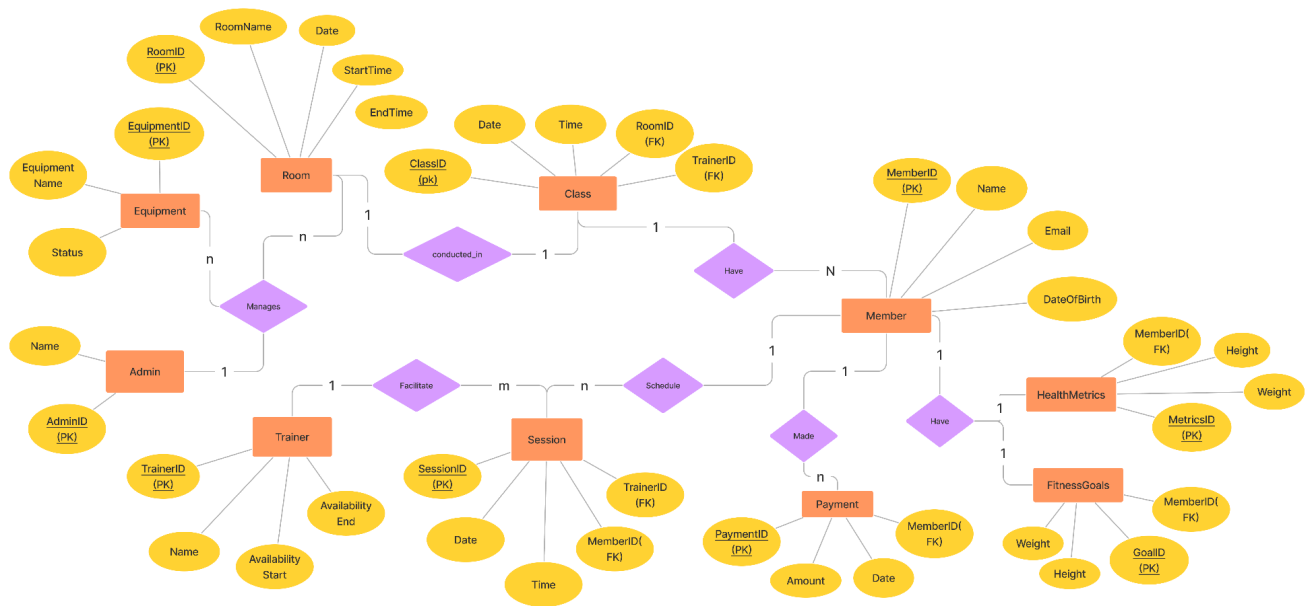
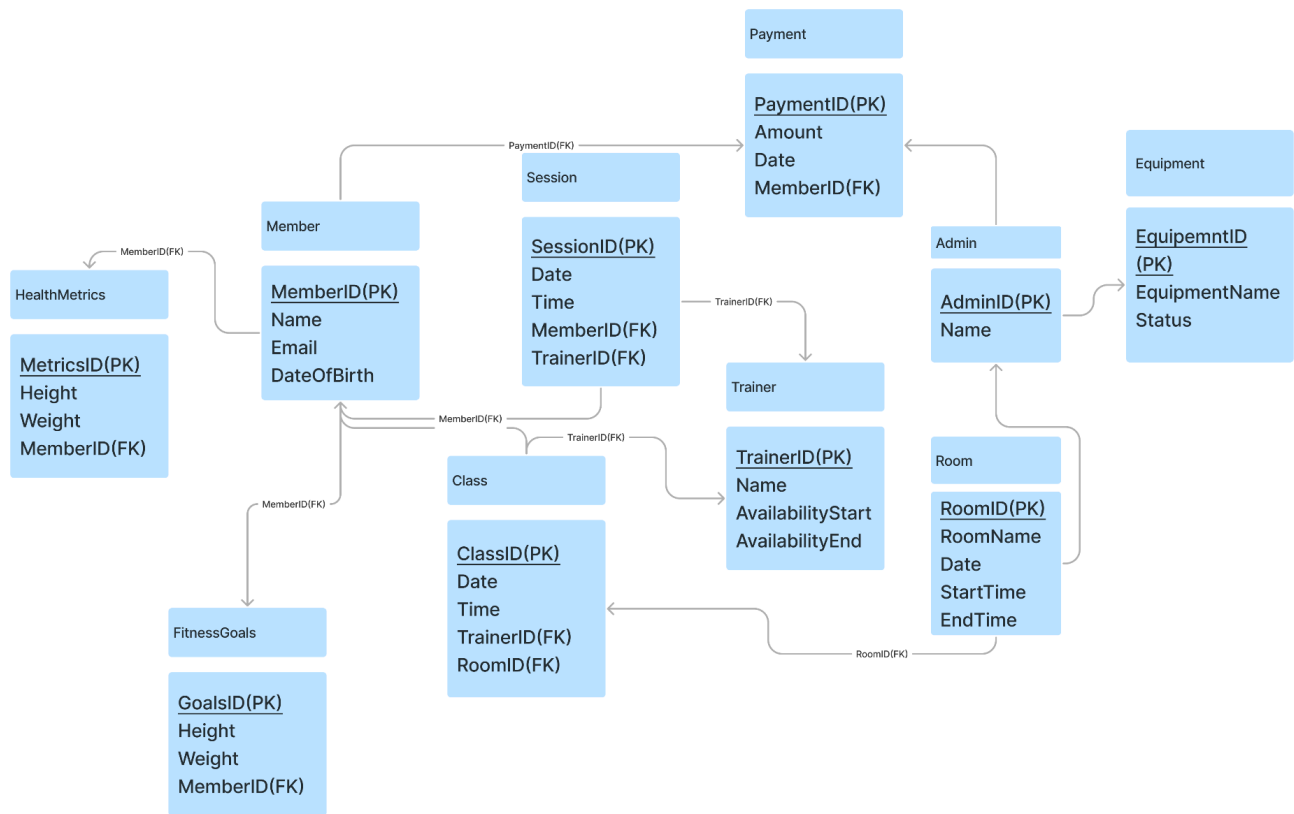


# COMP 3005 ProjectV2

## ER Model Diagram:



Database Schema Diagram:



Mapping:

Requirement	Assumption	Representation in ER Model	Representation in Database Schema
Members are uniquely identified by IDs and have personal details	N/A	Entity: Member Attributes: MemberID (PK), Name, Email, DateOfBirth	Table: Member Columns: MemberID (PK), Name, Email, DateOfBirth
Trainers are uniquely identified by their ID and have availability times.	N/A	Entity: Trainer Attributes: TrainerID (PK), Name, AvailabilityStart, AvailabilityEnd	Table: Trainer Columns: TrainerID (PK), Name, AvailabilityStart, AvailabilityEnd
Administrative staff are uniquely identified by their ID.	N/A	Entity: Admin Attributes: AdminID (PK), Name	Table: Admin Columns: AdminID (PK), Name

Members have fitness goals tracked by height and weight.	Each member has one set of fitness goals.	Weak Entity: FitnessGoals Attributes: GoalID (PK), Height, Weight Related to: Member	Table: FitnessGoals Columns: GoalID (PK), MemberID (FK), Height, Weight
Members have health metrics also tracked by height and weight.	Each member has one set of health metrics.	Weak Entity: HealthMetrics Attributes: MetricID (PK), Height, Weight Related to: Member	Table: HealthMetrics Columns: MetricID (PK), MemberID (FK), Height, Weight
Training sessions are scheduled with trainers at specific times.	Sessions are associated with one member and one trainer.	Entity: Session Attributes: SessionID (PK), Date, Time, TrainerID (FK), MemberID (FK)	Table: Session Columns: SessionID (PK), Date, Time, TrainerID (FK), MemberID (FK)
Rooms can be booked for specific times.	Each room is booked separately and identified by an ID.	Entity: Room Attributes: RoomID (PK), RoomName, Date, StartTime, EndTime	Table: Room Columns: RoomID (PK), RoomName, Date, StartTime, EndTime
Classes are scheduled within rooms by trainers.	Classes take place at scheduled times and are held in specific rooms.	Entity: Class Attributes: ClassID (PK), Date, Time, TrainerID (FK), RoomID (FK)	Table: Class Columns: ClassID (PK), Date, Time, TrainerID (FK), RoomID (FK)
Equipment is monitored and managed.	Every piece of equipment is tracked individually.	Entity: Equipment Attributes: EquipmentID (PK), EquipmentName, Status	Table: Equipment Columns: EquipmentID (PK), EquipmentName, Status
Payments are recorded for members.	Payments are associated with specific members	Entity: Payment Attributes: PaymentID (PK), MemberID (FK), Amount, Date	Table: Payment Columns: PaymentID (PK), MemberID (FK), Amount, Date

#### Explanation

- Primary Keys (PK): These are unique identifiers for each entity in the database.
- Foreign Keys (FK): These denote relationships between tables, establishing connections between different entities (e.g., linking MemberID in Payment to MemberID in Member).
- Weak Entities: Entities like FitnessGoals and HealthMetrics are dependent on their parent entity (Member) and cannot exist without a corresponding member.