

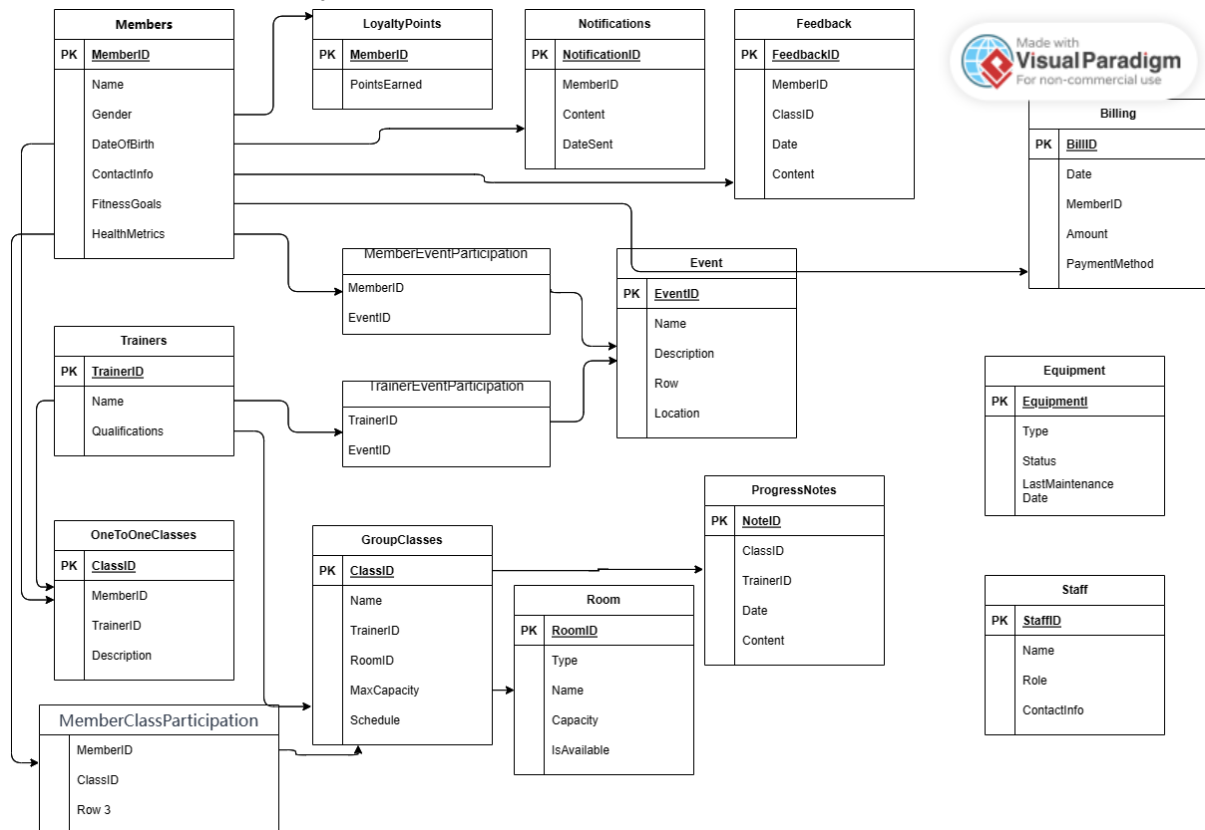
Group members:

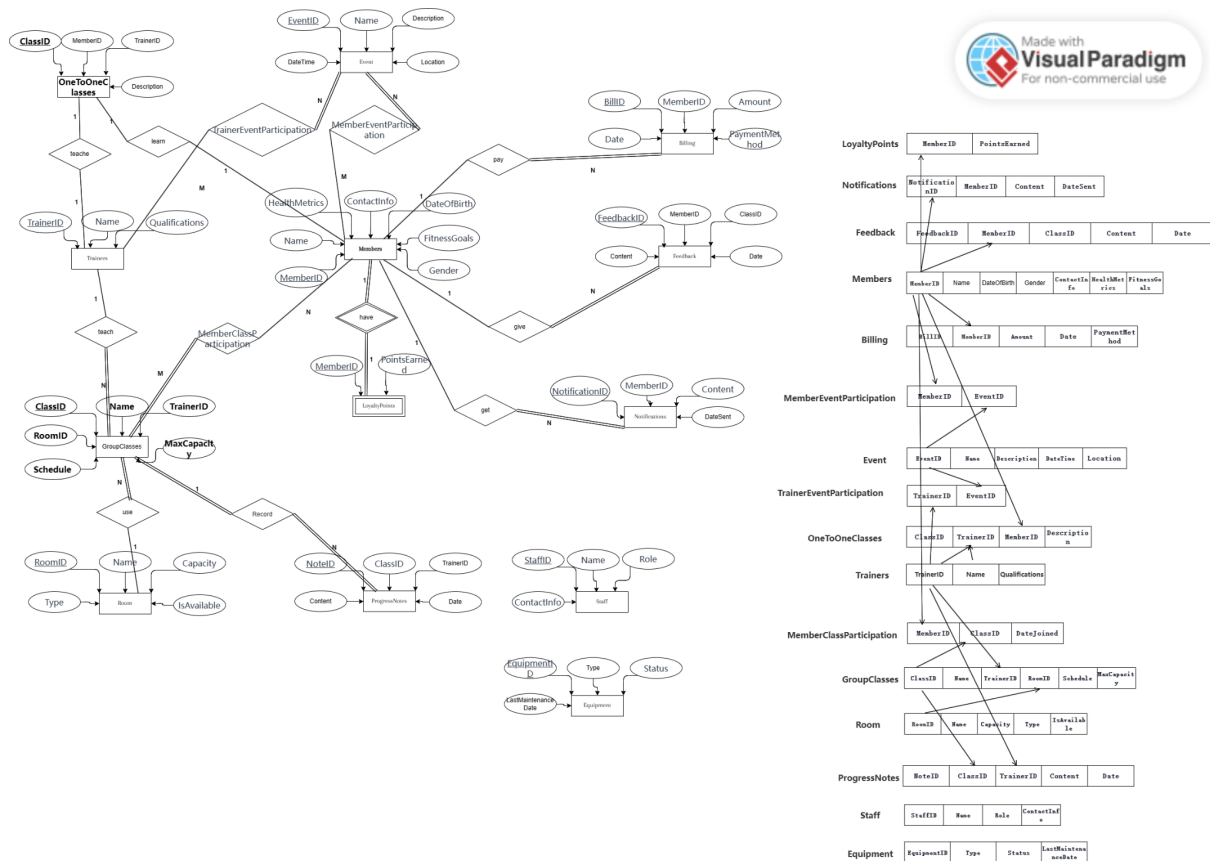
TianyuZhang

ShihaoXu

requirements

Our database contains members, coaches, classes, equipment, rooms, events. The member port allows you to register, modify information, participate in courses or event, and view fees. Staff port can add coach, modify coach, delete coach, add course, modify course, delete course. Add room, modify room, delete room.





1. Members

Candidate Key: MemberID

FDs: MemberID → Name, DateOfBirth, Gender, ContactInfo, HealthMetrics, FitnessGoals

Analysis: All non-key attributes fully depend on the primary key, meets 2NF. No transitive dependencies, meets 3NF.

2. Trainers

Candidate Key: TrainerID

FDs: TrainerID → Name, Qualifications

Analysis: Meets 2NF and 3NF.

3. Staff

Candidate Key: StaffID

FDs: StaffID → Name, Role, ContactInfo

Analysis: Meets 2NF and 3NF.

4. Room

Candidate Key: RoomID

FDs: RoomID → Name, Capacity, Type, IsAvailable

Analysis: Meets 2NF and 3NF.

5. GroupClasses

Candidate Key: ClassID

FDs: ClassID → Name, TrainerID, RoomID, Schedule, MaxCapacity

Analysis: Meets 2NF and 3NF. Note: TrainerID and RoomID are foreign keys, which do not affect normalization.

6. Equipment

Candidate Key: EquipmentID

FDs: EquipmentID → Type, Status, LastMaintenanceDate

Analysis: Meets 2NF and 3NF.

7. Event

Candidate Key: EventID

FDs: EventID → Name, Description, DateTime, Location

Analysis: Meets 2NF and 3NF.

8. MemberClassParticipation

Candidate Key: (MemberID, ClassID)

FDs: MemberID, ClassID → DateJoined

Analysis: Meets 2NF and 3NF. No single primary key but a composite key.

9. Billing

Candidate Key: BillID

FDs: BillID → MemberID, Amount, Date, PaymentMethod

Analysis: Meets 2NF and 3NF.

10. LoyaltyPoints

Candidate Key: MemberID

FDs: MemberID → PointsEarned

Analysis: Meets 2NF and 3NF.

11. ProgressNotes

Candidate Key: NoteID

FDs: NoteID → ClassID, TrainerID, Content, Date

Analysis: Meets 2NF and 3NF.

12. Feedback

Candidate Key: FeedbackID

FDs: FeedbackID → MemberID, ClassID, Content, Date

Analysis: Meets 2NF and 3NF.

13. Notifications

Candidate Key: NotificationID

FDs: NotificationID → MemberID, Content, DateSent

Analysis: Meets 2NF and 3NF.

14. MemberEventParticipation

Candidate Key: (MemberID, EventID)

FDs: MemberID, EventID → [None]

Analysis: Meets 2NF and 3NF. This table has no non-key attributes.

15. TrainerEventParticipation

Candidate Key: (TrainerID, EventID)

FDs: TrainerID, EventID → [None]

Analysis: Meets 2NF and 3NF.

16. OneToOneClasses

Candidate Key: ClassID

FDs: ClassID → TrainerID, MemberID, DateTime, Description

Analysis: Meets 2NF and 3NF.