

COMP3005 - Final Project: Contributions

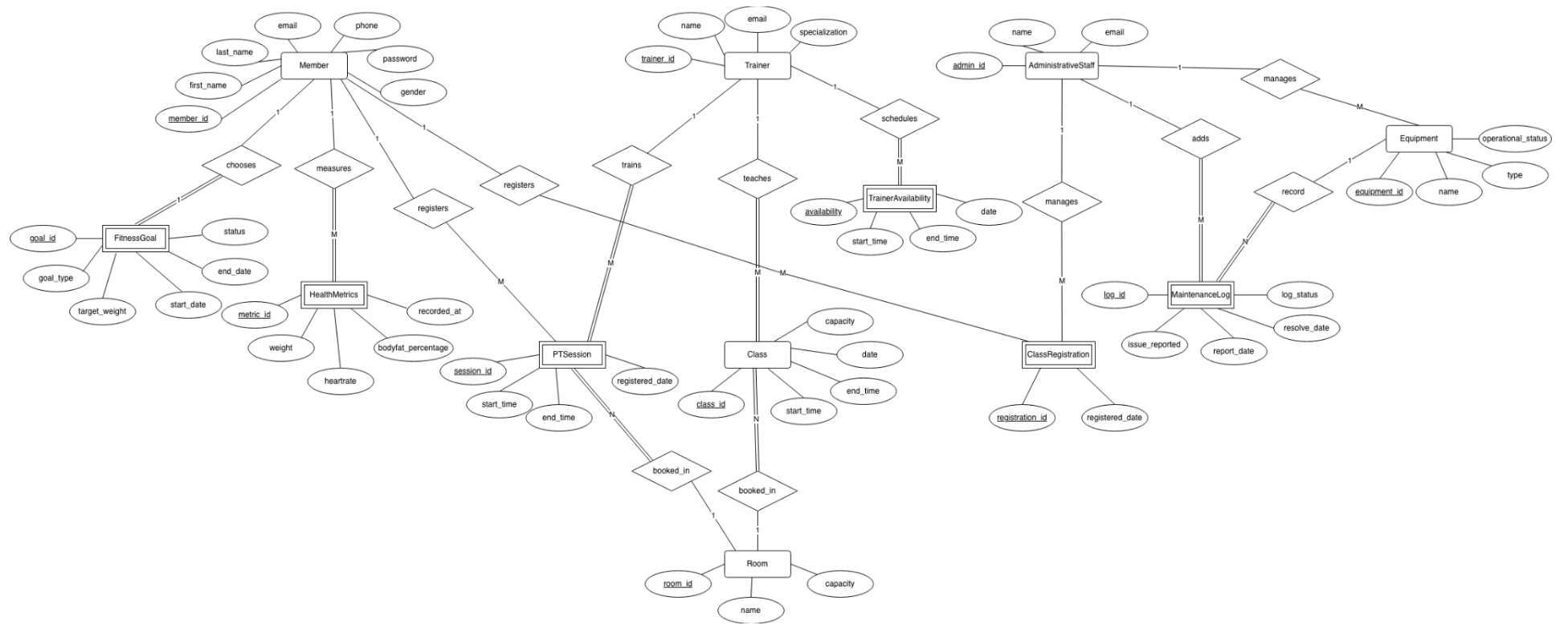
Neelaksh Gupta

- Completed the DDL.sql and DML.sql code
- Completed the Member and Trainer database functions
- Completed the database normalization (explained why our diagram is already normalized)

Celina Yang

- Completed the ER model
- Completed the relational mapping
- Completed the Admin database functions

Dennis Chen



Entities in ER Model	Relationships in ER Model
1. Member Attributes: member_id(PK), first_name, last_name, email(UNIQUE), phone, password, gender Dashboard – view Indexing – member email, this can be used to login in, and for lookup with admin or trainor View → viewing all the classes you are taking/going to take from the members point of view	<ul style="list-style-type: none"> - 1 Member has many FitnessGoals (1-M) - 1 Member has many HealthMetrics (1-M) - 1 Member has many ClassRegistrations (1-M) - 1 Member can register for many PTSessions (1-M)
2. Trainer Attributes: trainer_id (PK), name, email (UNIQUE), specialization	<ul style="list-style-type: none"> - 1 Trainer teaches many Classes (1-M) - 1 Trainer teaches N PTSessions (1-M) - 1 Trainer has many Availability Spots (1-M)
3. Administrative Staff Attributes: admin_id (PK), name, email (UNIQUE)	
4. Room Attributes: room_id (PK), name, capacity	<ul style="list-style-type: none"> - 1 Room hosts many Classes (1-M) - 1 Room hosts many PTSessions (1-M) - 1 Room contains many Equipment (1-M)
5. Class Attributes: class_id (PK), name, trainer_id (FK → trainer), room_id (FK → room), start_time, end_time, date, capacity Trigger Class conflict: a trainer cannot teach two classes at the same time Room conflict: a trainer cannot host two classes at the same time	<ul style="list-style-type: none"> - Each Class has many ClassRegistrations (M-M) - Each Class has 1 Trainer (M-1) - Each Class is in 1 Room (M-1)
6. FitnessGoal Attributes: goal_id (PK), member_id (FK → member), goal_type, target_weight, start_date, end_date, status	<ul style="list-style-type: none"> - Each FitnessGoal belongs to 1 Member (M-1)
7. HealthMetric Attributes: metric_id (PK), member_id (FK → member), weight, heartrate, body_fat_percentage, recorded_at	<ul style="list-style-type: none"> - Each HealthMetric belongs to 1 Member (M-1)
8. ClassRegistration Attributes: registration_id (PK), member_id (FK → member), class_id (FK → class), registered_date View → view all the classes as admin	

9. PTSession Attributes: session_id (PK), member_id (FK → member), room_id (FK → room), trainer_id (FK → trainer), start_time, end_time, date, registered_date Trigger-trainer-overbooking: prevent overbooking a trainer Trigger-room-overbooking: prevent overbooking a room at the same time and day	- Each PTSession has 1 Trainer (M-1) - Each PTSession has 1 Member (M-1) - Each PTSession is in 1 Room (M-1)
10. TrainerAvailability Attributes: availability (PK), trainer_id(FK → trainer), start_time, end_time, date	
11. Equipment Attributes: equipment_id (PK), room_id (FK → room), name, type, operational_status	- Each Equipment is located in 1 room (M-1)
12: MaintenanceLog Attributes: log_id (PK), equipment_id (FK → equipment), issue_reported, report_date, resolve_date, log_status	- Each MaintenanceLog is attached to 1 Equipment (M-1)

Application Operations

Members

1. User Registration: Create a new member with unique email and basic profile info
2. Profile Management: Update personal details, fitness goals (e.g., weight target), and input new health metrics (e.g., weight, heart rate)
3. Health History: Log multiple metric entries; do not overwrite. Must support time-stamped entries
4. Dashboard: Show latest health stats, active goals, past class count, upcoming sessions
5. PT Session Scheduling: Book or reschedule training with a trainer, validating availability and room conflicts
6. Group Class Registration: Register for scheduled classes if capacity permits

Trainers

7. Set Availability: Define time windows when available for sessions or classes. Prevent overlap
8. Schedule View: See assigned PT sessions and classes
9. Member Lookup: Search by name (case-insensitive) and view current goal and last metric. No editing rights

Administrative Staff

10. Room Booking: Assign rooms for sessions or classes. Prevent double-booking
11. Equipment Maintenance: Log issues, track repair status, associate with room/equipment
12. Class Management: Define new classes, assign trainers/rooms/time, update schedules

Member

<u>member_id</u>	first_name	last_name	email	phone	password	gender
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Trainer

<u>trainer_id</u>	name	email	specialization
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AdministrativeStaff

<u>admin_id</u>	name	email
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Room

<u>room_id</u>	name	capacity
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Class

<u>class_id</u>	<u>trainer_id</u>	<u>room_id</u>	name	start_time	end_time	date	capacity
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FitnessGoal

<u>goal_id</u>	<u>member_id</u>	target_weight	start_date	end_date	status	goal_type
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HealthMetric

<u>metric_id</u>	<u>member_id</u>	weight	heartrate	bodyfat_percentage	recorded_at
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ClassRegistration

<u>registration_id</u>	<u>member_id</u>	<u>class_id</u>	registered_date
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PTSession

<u>session_id</u>	<u>member_id</u>	<u>room_id</u>	<u>trainer_id</u>	start_time	end_time	date	registered_date
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TrainerAvailability

<u>availability_id</u>	<u>trainer_id</u>	start_time	end_time	date
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Equipment

<u>equipment_id</u>	<u>room_id</u>	name	type	operational_status
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MaintenanceLog

<u>log_id</u>	<u>equipment_id</u>	<u>admin_id</u>	issue_reported	report_date	resolve_date	log_status
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