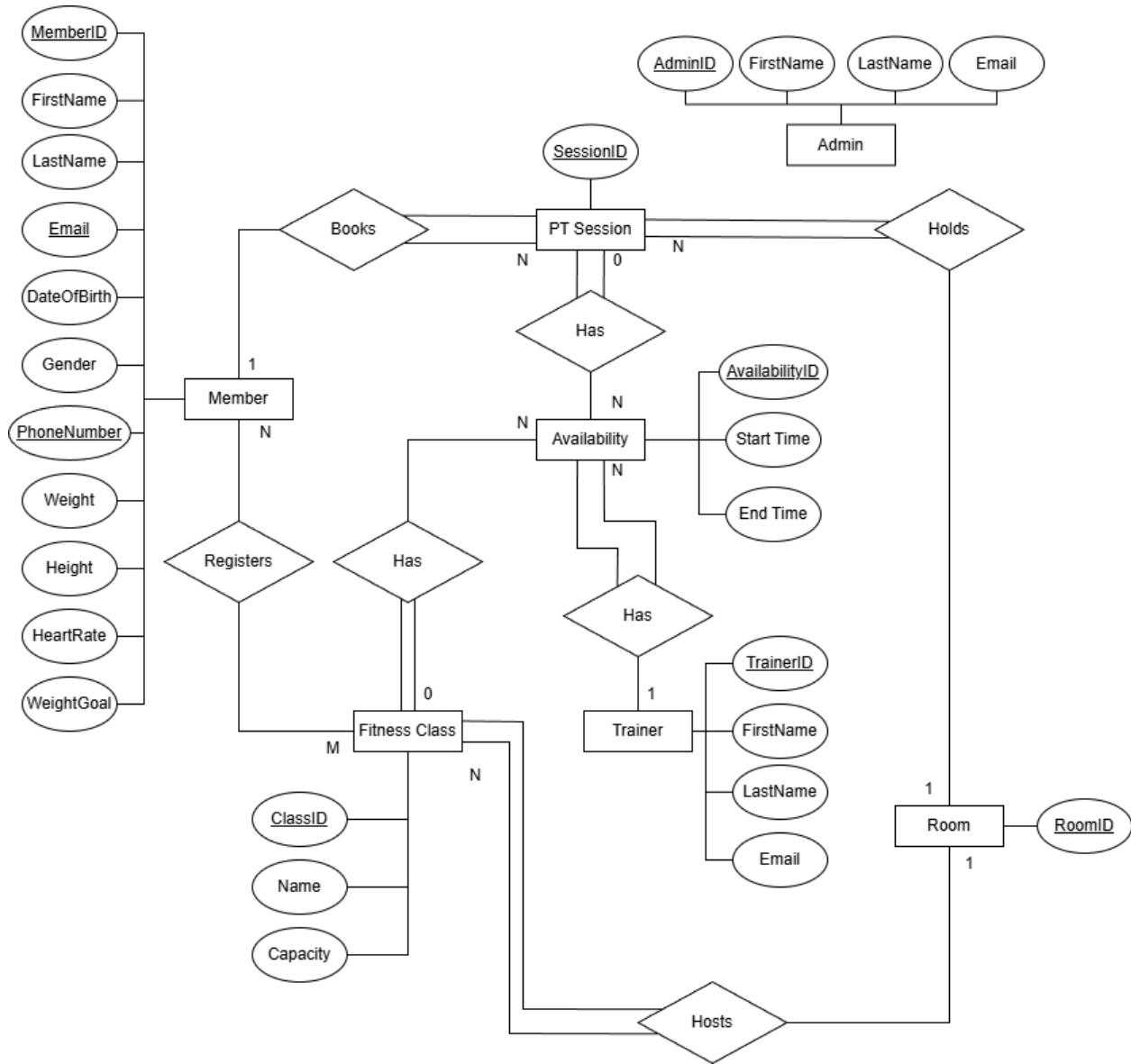
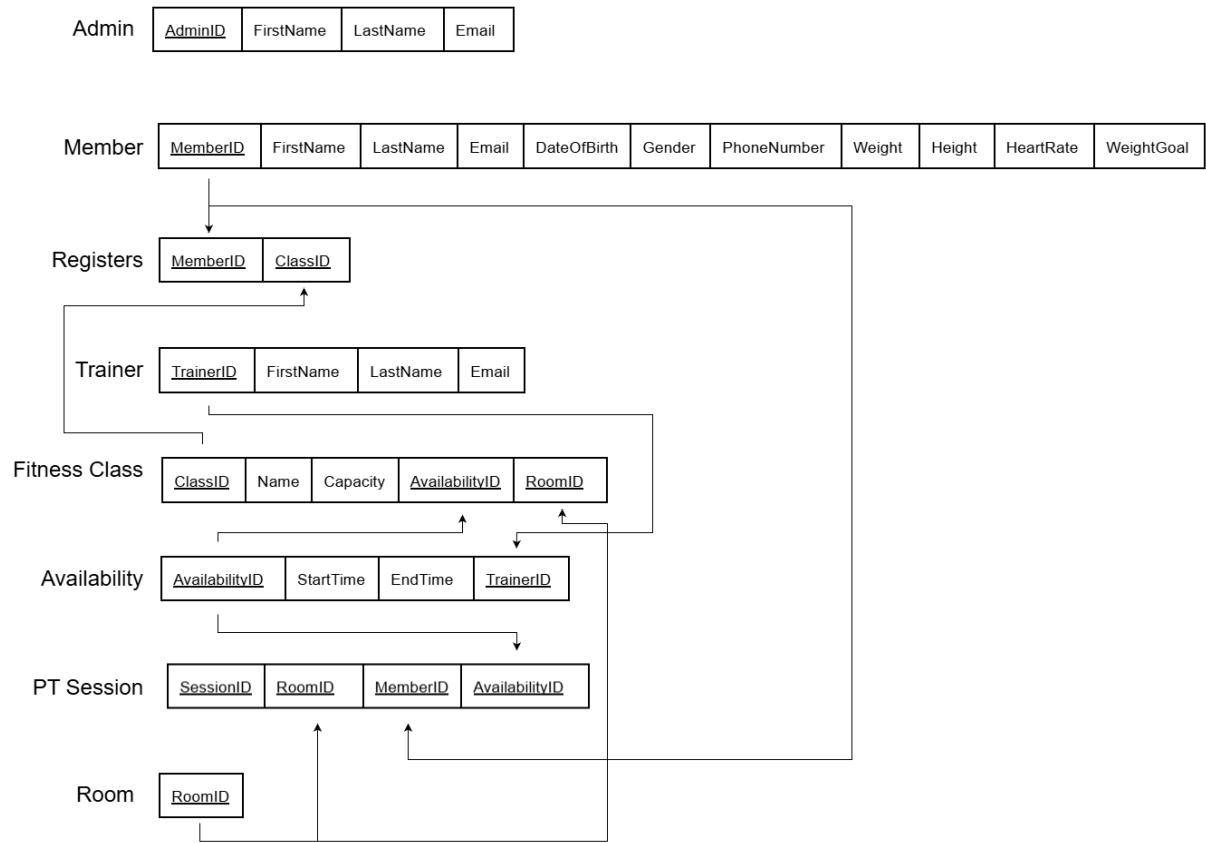


Final Project

ER Model



Relational Schema



Normalization

Relations

Admin (AdminID, FirstName, LastName, Email)

Member (MemberID, FirstName, LastName, Email, DateOfBirth, Gender, PhoneNumber, Weight, Height, HeartRate, WeightGoal)

Registers (MemberID, ClassID)

Trainer (TrainerID, FirstName, LastName, Email)

FitnessClass (ClassID, Name, Capacity, AvailabilityID, RoomID)

Availability (AvailabilityID, StartTime, EndTime, TrainerID)

PTSession (SessionID, RoomID, MemberID, AvailabilityID)

Room (RoomID)

Admin Functional Dependencies:

- AdminID \rightarrow FirstName, LastName, Email
 - No non-key attributes depend on other non-key attributes, so it is 3NF

Member Functional Dependencies:

- MemberID \rightarrow FirstName, LastName, Email, DateOfBirth, Gender, PhoneNumber, Weight, Height, HeartRate, WeightGoal
 - No non-key attributes depend on other non-key attributes, so it is 3NF

Registers Functional Dependencies:

- MemberID, ClassID \rightarrow no non-key attributes
 - No non-key attributes partially dependent, so it is 2NF
 - No non-key attributes depend on other non-key attributes, so it is 3NF

Trainer Functional Dependencies:

- TrainerID \rightarrow FirstName, LastName, Email
 - No non-key attributes depend on other non-key attributes, so it is 3NF

FitnessClass Functional Dependencies:

- ClassID \rightarrow Name, Capacity, AvailabilityID, RoomID
 - No non-key attributes depend on other non-key attributes, so it is 3NF

Availability Functional Dependencies:

- AvailabilityID \rightarrow StartTime, EndTime, TrainerID
 - No non-key attributes depend on other non-key attributes, so it is 3NF

PTSession Functional Dependencies:

- SessionID → RoomID, MemberID, AvailabilityID
 - No non-key attributes depend on other non-key attributes, so it is 3NF

Room Functional Dependencies:

- No Functional Dependencies

The Registers relation is the only relation with composite primary keys, however there are no attributes dependent on it, therefore it follows 2NF.

No relations have non-key attributes depending on other non-key attributes, therefore they all follow 3NF.

Initial Data

Member

<u>MemberID</u>	FirstName	LastName	Email	DateOfBirth	Gender	PhoneNumber	Weight	Height	Heart Rate	WeightGoal
1	Nanako	Dojima	nanako.dojima@fitness.com	2004-10-04	Female	111-111-1111	60	120	90	65
2	Yu	Narukami	yu.narukami@fitness.com	1994-07-10	Male	222-222-2222	140	180	80	145
3	Akihiko	Sanada	akihiko.sanada@fitness.com	1991-09-22	Male	333-333-3333	160	175	90	170
4	Kanji	Tatsumi	kanji.tatsumi@fitness.com	1996-01-19	Male	444-444-4444	143	180	95	148
5	Chie	Satonaka	chie.satonaka@fitness.com	1994-10-30	Female	555-555-5555	135	158	85	130

Trainer

<u>TrainerID</u>	FirstName	LastName	Email
1	Will	Metaphor	will.metaphor@fitness.com
2	Strohl	Haliaetus	strohl.haliaetus@fitness.com
3	Eiselin	Hulkenberg	eiselin.hulkenberg@fitness.com
4	Heismay	Noctule	heismay.noctule@fitness.com
5	Basilio	Magnus	basilio.magnus@fitness.com

Admin

<u>AdminID</u>	FirstName	LastName	Email
1	Herlock	Sholmes	herlock.sholmes@fitness.com
2	Iris	Wilson	iris.wilson@fitness.com
3	Susato	Mikotoba	susato.mikotoba@fitness.com
4	Ryunosuke	Naruhodo	ryunosuke.naruhodo@fitness.com
5	Kazuma	Asogi	kazuma.asogi@fitness.com

Room

<u>RoomID</u>
1
2
3
4
5

Availability

<u>AvailabilityID</u>	StartTime	EndTime	<u>TrainerID</u>
1	2025-12-01 13:00:00	2025-12-01 14:00:00	1
2	2025-12-03 15:00:00	2025-12-03 16:00:00	2
3	2025-12-03 15:00:00	2025-12-03 16:00:00	3
4	2025-12-07 18:00:00	2025-12-07 19:00:00	4
5	2025-12-05 14:00:00	2025-12-05 15:00:00	5
6	2025-12-02 14:00:00	2025-12-02 15:00:00	1
7	2025-12-02 16:00:00	2025-12-02 17:00:00	2
8	2025-12-04 13:00:00	2025-12-04 14:00:00	3
9	2025-12-06 15:00:00	2025-12-06 16:00:00	4
10	2025-12-07 15:00:00	2025-12-07 16:00:00	5

Fitness Class

<u>ClassID</u>	Name	Capacity	<u>AvailabilityID</u>	<u>RoomID</u>
1	Yoga	5	1	1
2	Boxing	2	2	2
3	Cycling	10	3	3
4	Dance	15	5	4
5	HIIT	6	4	5

PT Session

<u>SessionID</u>	<u>RoomID</u>	<u>MemberID</u>	<u>AvailabilityID</u>
1	1	1	6
2	2	2	7
3	3	3	8
4	4	4	9
5	5	5	10

Registers

<u>MemberID</u>	<u>ClassID</u>
1	4
2	1
3	2
4	3
5	5