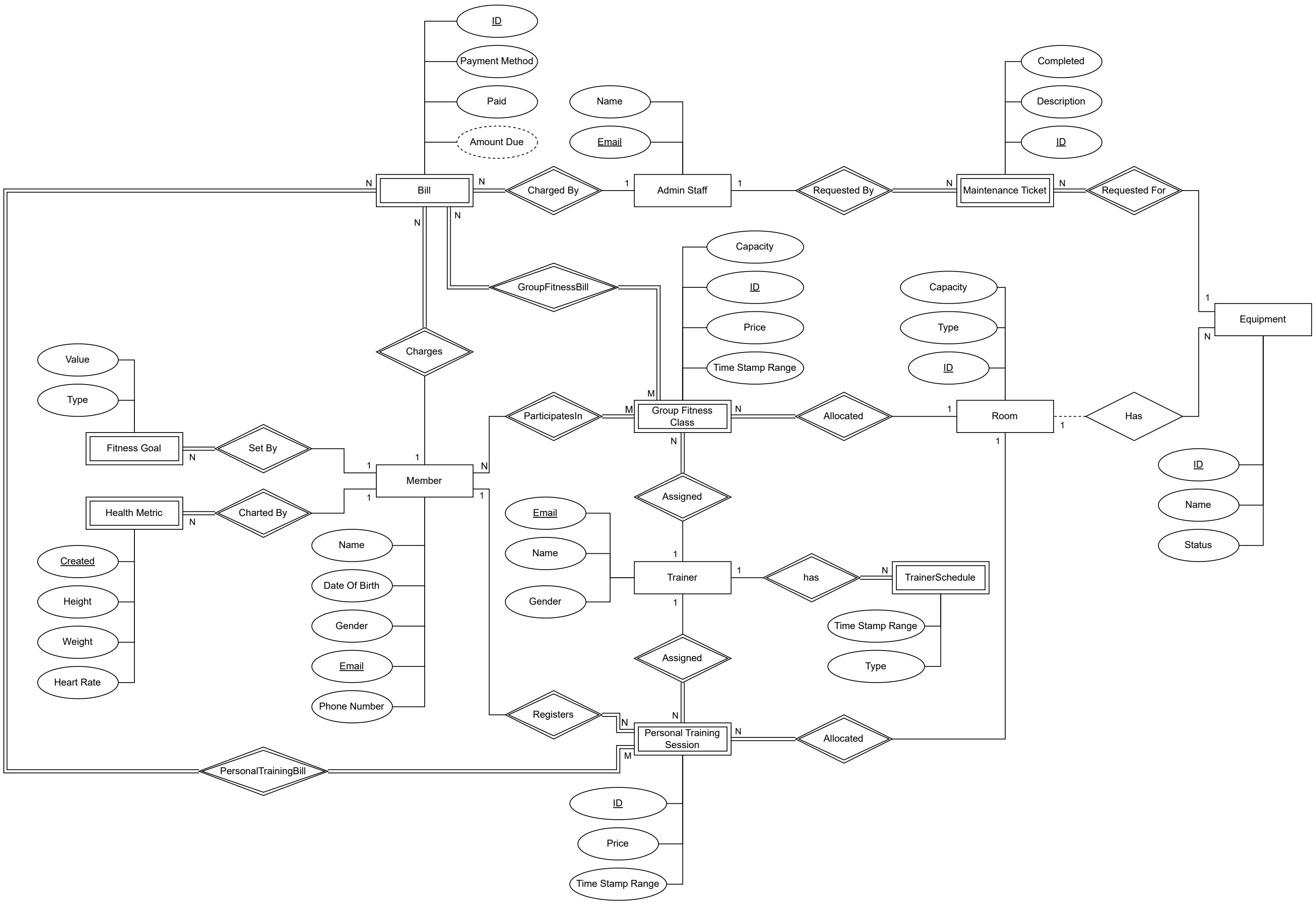
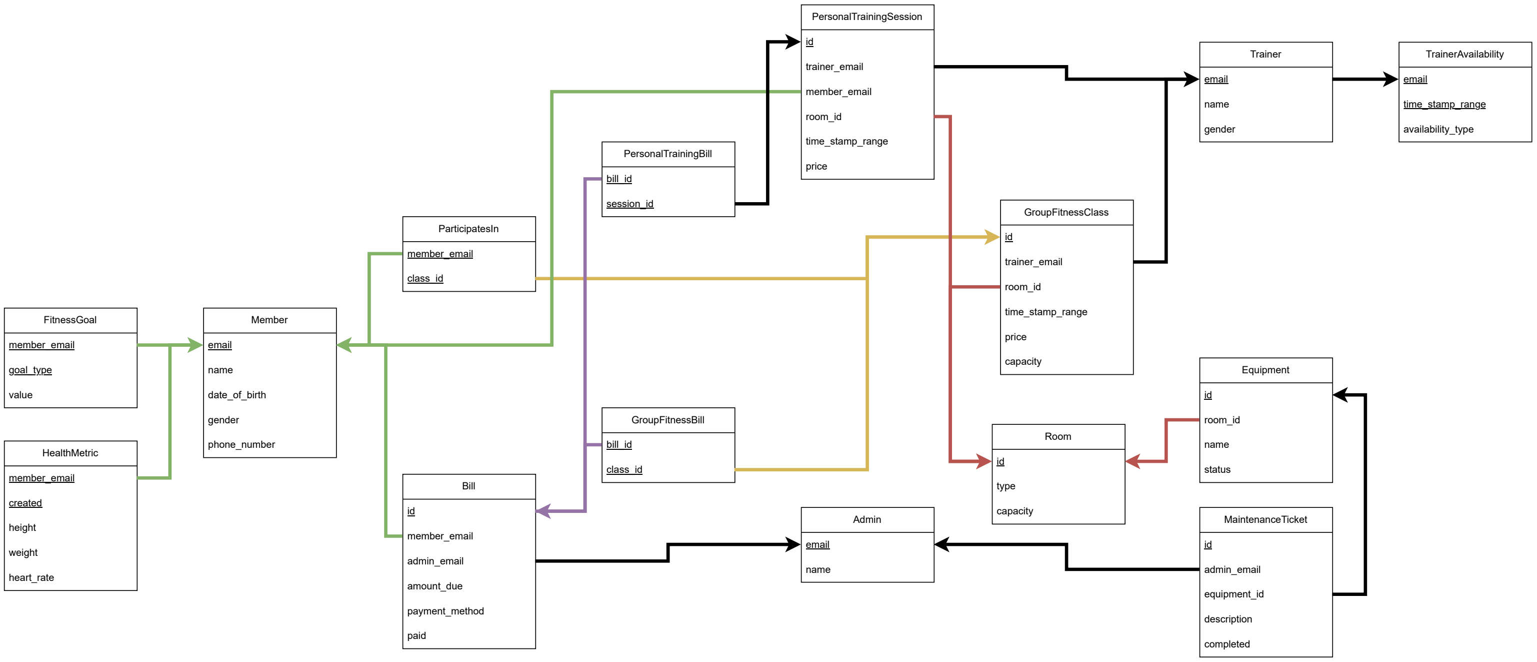

ID
Payment Method
Paid
Amount Due
Name
Email
Completed
Description
ID
Bill
N
Charged By
1
Admin Staff
1
Requested By
N
Maintenance Ticket
N
Requested For
1
Equipment
N
N
N
GroupFitnessBill
M
Capacity
ID
Price
Time Stamp Range
Capacity
Type
ID
Charges
1
Value
Type
Fitness Goal
N
Set By
1
ParticipatesIn
M
Group Fitness Class
N
Allocated
1
Room
1
Has
Member
N
1
Health Metric
N
Charted By
1
N
Assigned
1
ID
Name
Status
Email
Name
Gender
Trainer
1
has
N
TrainerSchedule
1
Created
Height
Weight
Heart Rate
Name
Date Of Birth
Gender
Email
Phone Number
Time Stamp Range
Type
Assigned
N
Registers
N
Personal Training Session
N
Allocated
M
PersonalTrainingBill
ID
Price
Time Stamp Range


PersonalTrainingSession
id
trainer_email
member_email
room_id
time_stamp_range
price
Trainer
email
name
gender
TrainerAvailability
email
time_stamp_range
availability_type
PersonalTrainingBill
bill_id
session_id
ParticipatesIn
member_email
class_id
GroupFitnessClass
id
trainer_email
room_id
time_stamp_range
price
capacity
FitnessGoal
member_email
goal_type
value
Member
email
name
date_of_birth
gender
phone_number
Equipment
id
room_id
name
status
GroupFitnessBill
bill_id
class_id
Room
id
type
capacity
HealthMetric
member_email
created
height
weight
heart_rate
Bill
id
member_email
admin_email
amount_due
payment_method
paid
Admin
email
name
MaintenanceTicket
id
admin_email
equipment_id
description
completed

Member Table Functional Dependencies

PK: email

email --> name

email --> date_of_birth

email --> gender

email --> phone_number

Member Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key email

3NF: No transitive dependencies (all attributes depend directly on email)

FitnessGoal Table Functional Dependencies

PK: (member_email, goal_type)

(member_email, goal_type) --> value

FitnessGoal Table Normalization Analysis:

1NF: All attributes are atomic

2NF: All non-key attributes depend on the full composite primary key (member_email, goal_type). No partial dependencies exist (amount cannot be determined by member_email alone since a member can have multiple goals of different types)

3NF: No transitive dependencies

HealthMetric Table Functional Dependencies

PK: (member_email, created)

(member_email, created) --> height

(member_email, created) --> weight

(member_email, created) --> heart_rate

HealthMetric Table Normalization Analysis:

1NF: All attributes are atomic

2NF: All non-key attributes depend on the full composite primary key (member_email, created). No partial dependencies exist (height cannot be determined by member_email alone, as a member can have multiple health metric entries over time)

3NF: No transitive dependencies (all attributes depend directly on the composite key)

Bill Table Functional Dependencies

PK: id

id --> member_email

id --> admin_email

id --> amount_due

id --> payment_method

id --> paid

Bill Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key id

3NF: No transitive dependencies (for example, amount_due does not depend on member_email or payment_method)

GroupFitnessBill Table Functional Dependencies

PK: (bill_id, class_id)

GroupFitnessBill Table Normalization Analysis:

This is an association table with only foreign keys so no other attributes exist other than the composite primary key.

1NF: All attributes are atomic

2NF: N/A (no non-key attributes)

3NF: N/A (no non-key attributes)

This table is a many-many relationship table and is properly normalized since it contains only the FK's needed to create the relationship

PersonalTrainingBill Table Functional Dependencies

PK: (bill_id, session_id)

PersonalTrainingBill Table Normalization Analysis:

This is an association table with only foreign keys so no other attributes exist other than the composite primary key.

1NF: All attributes are atomic

2NF: N/A (no non-key attributes)

3NF: N/A (no non-key attributes)

This table is a many-many relationship table and is properly normalized since it contains only the FK's needed to create the relationship

GroupFitnessClass Table Function Dependencies

PK: id

id --> trainer_email

id --> room_id

id --> time_stamp_range

id --> price

id --> capacity

GroupFitnessClass Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key id

3NF: No transitive dependencies (for example, price does not depend on trainer_email)

Equipment Table Functional Dependencies

PK: equipment_id

equipment_id --> room_id

equipment_id --> name

equipment_id --> status

Equipment Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key equipment_id

3NF: No transitive dependencies (for example, status does not depend on room_id)

MaintenanceTicket Table Functional Dependencies

PK: id

id --> admin_email

id --> equipment_id

id --> description

id --> completed

MaintenanceTicket Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key id

3NF: No transitive dependencies (for example, description does not depend on admin_email)

ParticipatesIn Table Functional Dependencies

PK: (member_email, class_id)

ParticipatesIn Table Normalization Analysis:

This is an association table with only foreign keys so no other attributes exist other than the composite primary key.

1NF: All attributes are atomic

2NF: N/A (no non-key attributes)

3NF: N/A (no non-key attributes)

This table is a many-many relationship table and is properly normalized since it contains only the FK's needed to create the relationship

Room Table Functional Dependencies

PK: room_id

room_id --> type

room_id --> capacity

Room Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key room_id

3NF: No transitive dependencies (for example, capacity does not depend on the room type)

Admin Table Functional Dependencies

PK: email

email --> name

Admin Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key email

3NF: No transitive dependencies (all attributes depend directly on email)

PersonalTrainingSession Table Functional Dependencies

PK: id

id --> trainer_email

id --> member_email

id --> room_id

id --> time_stamp_range

id --> price

PersonalTrainingSession Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key id

3NF: No transitive dependencies (for example, price does not depend on trainer_email or room_id)

Trainer Table Functional Dependencies

PK: email

email --> name

email --> gender

Trainer Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes fully depend on the primary key email

3NF: No transitive dependencies (all attributes depend directly on email)

TrainerAvailability Table Functional Dependencies

PK: (email, time_stamp_range)

(email, time_stamp_range) --> availability_type

TrainerAvailability Table Normalization Analysis:

1NF: All attributes are atomic (no repeating groups or multi-valued attributes)

2NF: All non-key attributes depend on the full composite primary key (email, time_stamp_range). No partial dependencies exist (availability_type cannot be determined by email alone because a trainer can have different availability types at different times)

3NF: No transitive dependencies (all attributes depend directly on email)