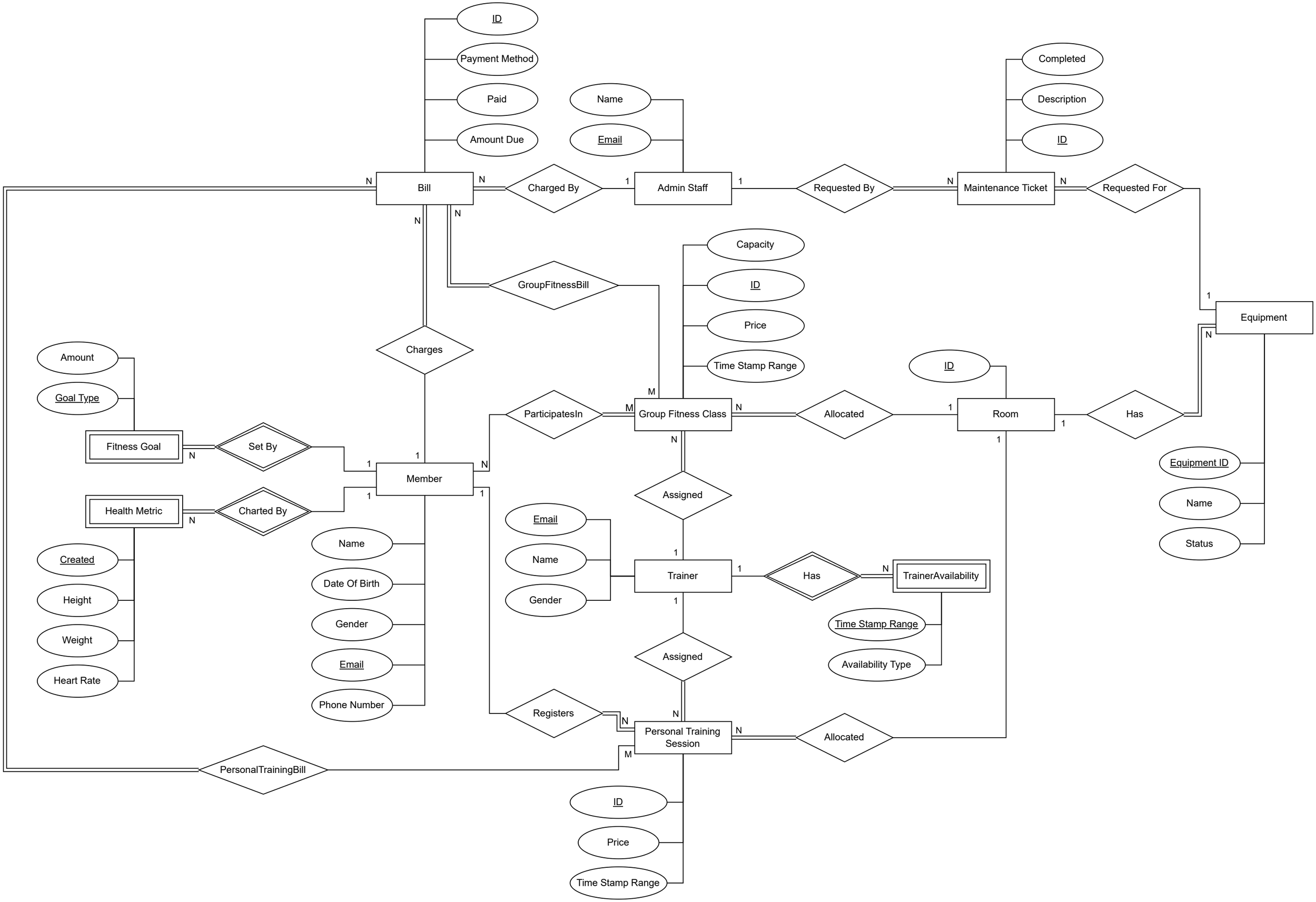
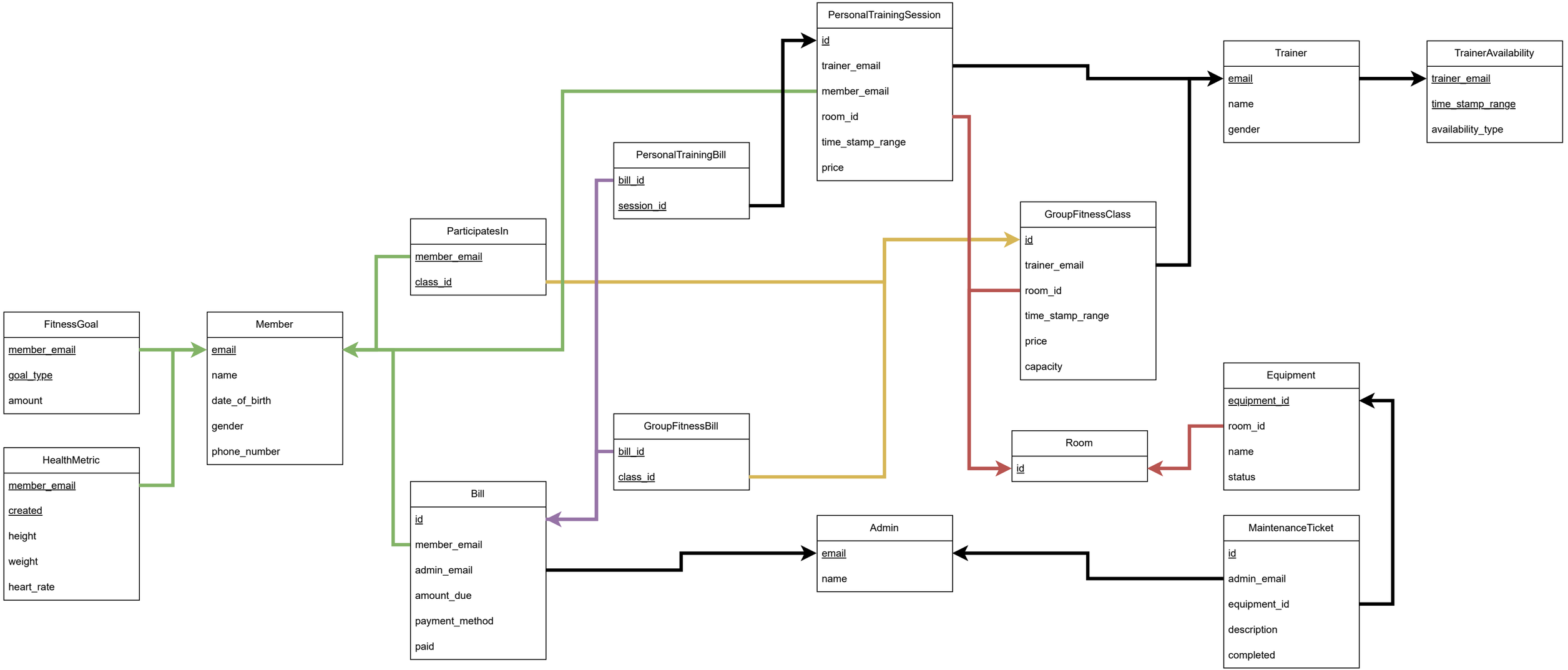

ID
Payment Method
Paid
Amount Due
Name
Email
Completed
Description
ID
Bill
Charged By
Admin Staff
Requested By
Maintenance Ticket
Requested For
Capacity
ID
Price
Time Stamp Range
GroupFitnessBill
Equipment
Charges
Amount
Goal Type
ID
Fitness Goal
Set By
ParticipatesIn
Group Fitness Class
Allocated
Room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


PersonalTrainingSession
id
trainer_email
member_email
room_id
time_stamp_range
price
Trainer
email
name
gender
TrainerAvailability
trainer_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
amount
Member
email
name
date_of_birth
gender
phone_number
HealthMetric
member_email
created
height
weight
heart_rate
GroupFitnessBill
bill_id
class_id
Room
id
Equipment
equipment_id
room_id
name
status
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 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)

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)

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)

TrainerAvailability Table Functional Dependencies
PK: (trainer_email, time_stamp_range)
(trainer_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 (trainer_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)

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)