

Goldstone Fitness (Revised)

Prepared by
Davin Barron

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Business Description

Business Description

Goldstone Fitness is one of the biggest gyms in Ireland, offering state of the art equipment and facilities designed to empower individuals of all fitness levels on their journey to a healthier and more active lifestyle. Located in the heart of Waterford City, become a member of our hi-tech facility and enjoy a diverse selection of cardio and resistance machines, massive free weights areas, free fitness classes including our neon Spinzone, separate male and female saunas and much more. Our mission is to inspire, support, and transform lives through fitness, fostering a community that values health and well-being.

Business Rules

All members must provide their name, address, phone number, email and date of birth. Gym entry is only available for people age 16 and over. Additionally, members have the option to voluntarily include their medical history, which can assist staff in identifying and accommodating any special needs or requirements. Members will have a choice of a one day pass, a monthly and an annual membership plan. Members have the option to include a referral to their plan for a discount on their subscription. Members can access their account information, renew memberships, and book fitness classes. Members also have the option to rent themselves a locker. Each locker has a number and availability, the rent for a locker is €3.

The staff who work at the gym must provide their name, phone number, email, address, PPS number and IBAN. Additionally, the date they commenced their employment is recorded for reference. Furthermore, staff members have the flexibility to include their specific role within the gym. All staff must hold qualifications for fitness training and medical assistance. The name and description for the qualification itself is stored. The issuing body and date of the issuing is stored also.

Each member may attend a fitness lesson at the gym. Lessons take place at specific dates and times. Lessons have a name and description about the lesson. The duration of each lesson may vary. There are different lessons available, ranging from yoga, spinning and weight lessons. Yoga lessons encompass a variety of styles and equipment to suit a members preference, while spinning lessons span a spectrum of intensities and are equipped with varying numbers of stationary bikes. For those interested in weight training, each lesson features an array of weight types. These lessons are completely free of charge as they are included with their membership. Each lesson must be carried out by a qualified instructor. Fitness lessons also have a limited number of slots available which can facilitate up to a maximum of 40 members. Additionally, there is an optional fitness level indicator to help members select lessons that align with their current fitness capabilities.

The gym is home to some of the most state of the art gym equipment. Gym equipment must have a unique name and manufacturer associated with it along with instructions on how to use the equipment. The condition of the equipment may be included if needed. Each member can reserve gym equipment for a specific date and duration starting at a certain time. Staff can add new equipment, update equipment details, and mark equipment as out of order for maintenance. Equipment availability will indicate whether it's available for use or undergoing maintenance. Among the equipment offerings, you'll find a versatile selection, including cardio machines, weight machines, and free weights. Cardio equipment is distinguished by its maximum speed settings and an abundant supply of machines available for use. Weight equipment provides insight into targeted muscle groups, featuring a wide variety of machines tailored to fitness needs. For those who prefer free weights, there is an array of options in various weight ranges, catering to a wide spectrum of fitness preferences and goals.

If a gym equipment is out for maintenance staff will submit a maintenance request. Each request has a unique request number. This request must state a brief description of the fault, and the date the equipment was left in. The maintenance status will notify whether the equipment is undergoing maintenance or is finished maintenance.

When gym equipment is ordered, the name, address and contact telephone number and email of each manufacturer is stored.

When members want to renew or extend their membership payment records will include the amount, payment status, and receipt details. Discounts are offered, where applicable, to reduce the overall cost. Payments will be linked to membership plans and can be used to track billing for gym sessions. Payment status will indicate whether a payment is pending, completed, or failed. Different membership plans cost different amounts: €10 day pass, €35 monthly, and €300 annually. Furthermore, multiple payment methods are available to cater to our members' convenience. Payment options include cash, card, and check. Please note that cash payments must be made in euros as no other currency is accepted. Card payments are securely processed, retaining card type, card number, expiry date, CCV, and the cardholder's name. For those who prefer check payments, essential details such as the check number, bank number must be provided to ensure efficient and accurate transactions.

Changes Made Since the Original

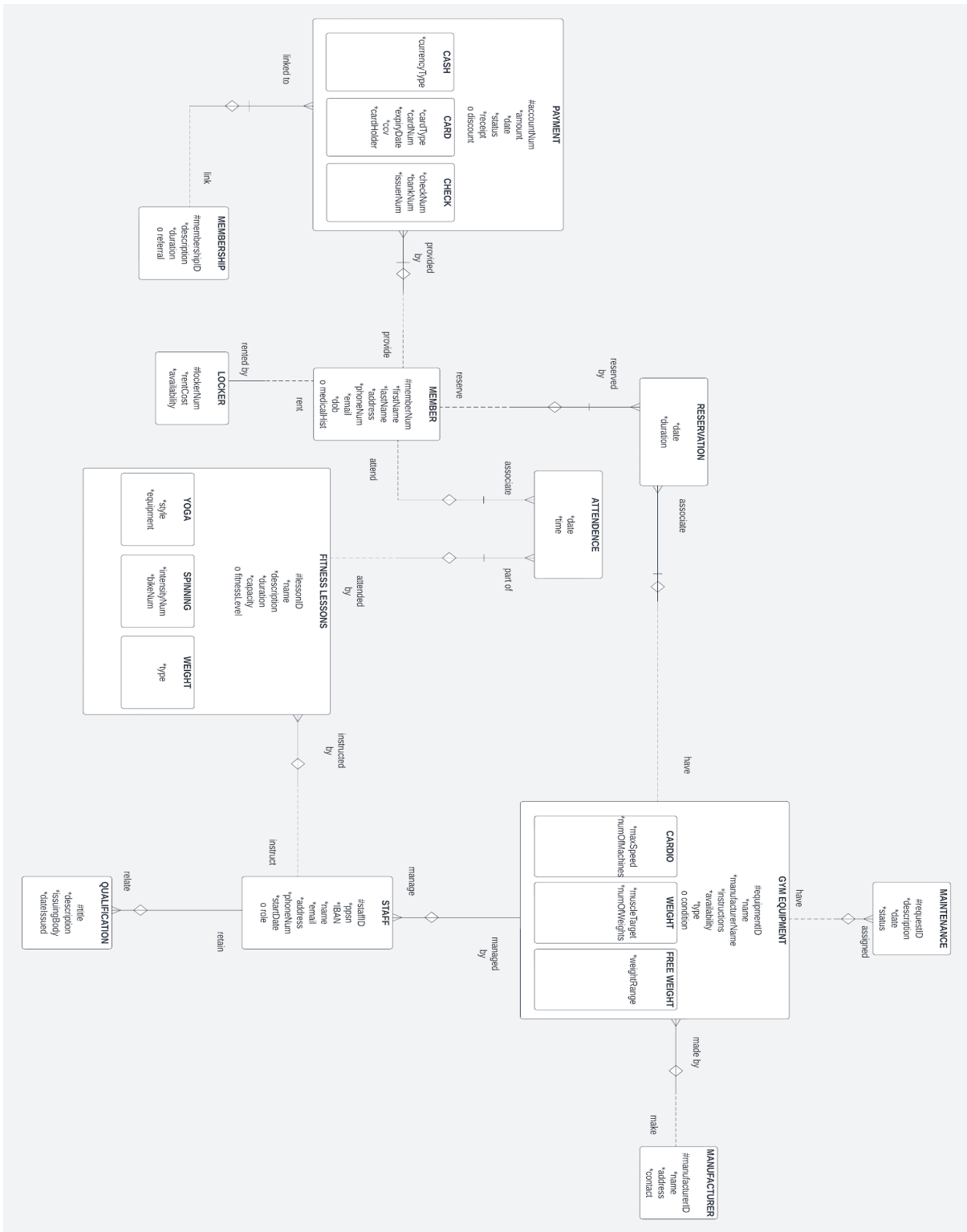
The changes I made were primarily in the EER model. The changes in the description accommodate this. Everything was kept mostly the same bar from a few minor adjustments. For Manufacturer, instead of having a contact attribute I changed it to phone number and email as it makes sense for a business to have this information because contact could mean anything. For Gym Equipment, I removed the manufacturer name because that can be found from the manufacturer ID that is linked to the specific gym equipment. I changed the name attribute in Staff to be first name and last name. I added a time attribute for Reservation to record when the reservation starts. For Qualification, I added a code to act as a primary key for a Qualification similar to how each course in real life would have a number associated with it. Finally, for Payments, I removed the account number key and the attribute issuer number in Check and card holder in Card since it has a barred relationship with Membership and Member these can be retrieved from them instead.

I made slight adjustments to the cardinality of the relationships between these entities. For Staff, I included a recursive manager relationship so that a staff may manage one or more staff. I changed the relationship between Qualification and Staff so that a qualification may relate to one and only one staff, meanwhile I kept the opposite the same: a staff must have one or more qualifications. Similarly, I changed the relationship between Staff and Gym Equipment, so that a staff may manage one and only one gym equipment, meanwhile I kept the opposite the same whereby a gym equipment must be managed by one or more staff. Finally, I changed the relationship between Locker and Member. Instead of a locker must be rented by one and only one member, I changed it to a locker may be rented by one and only one member. I kept the opposite relationship the same where a member may rent one and only one locker.

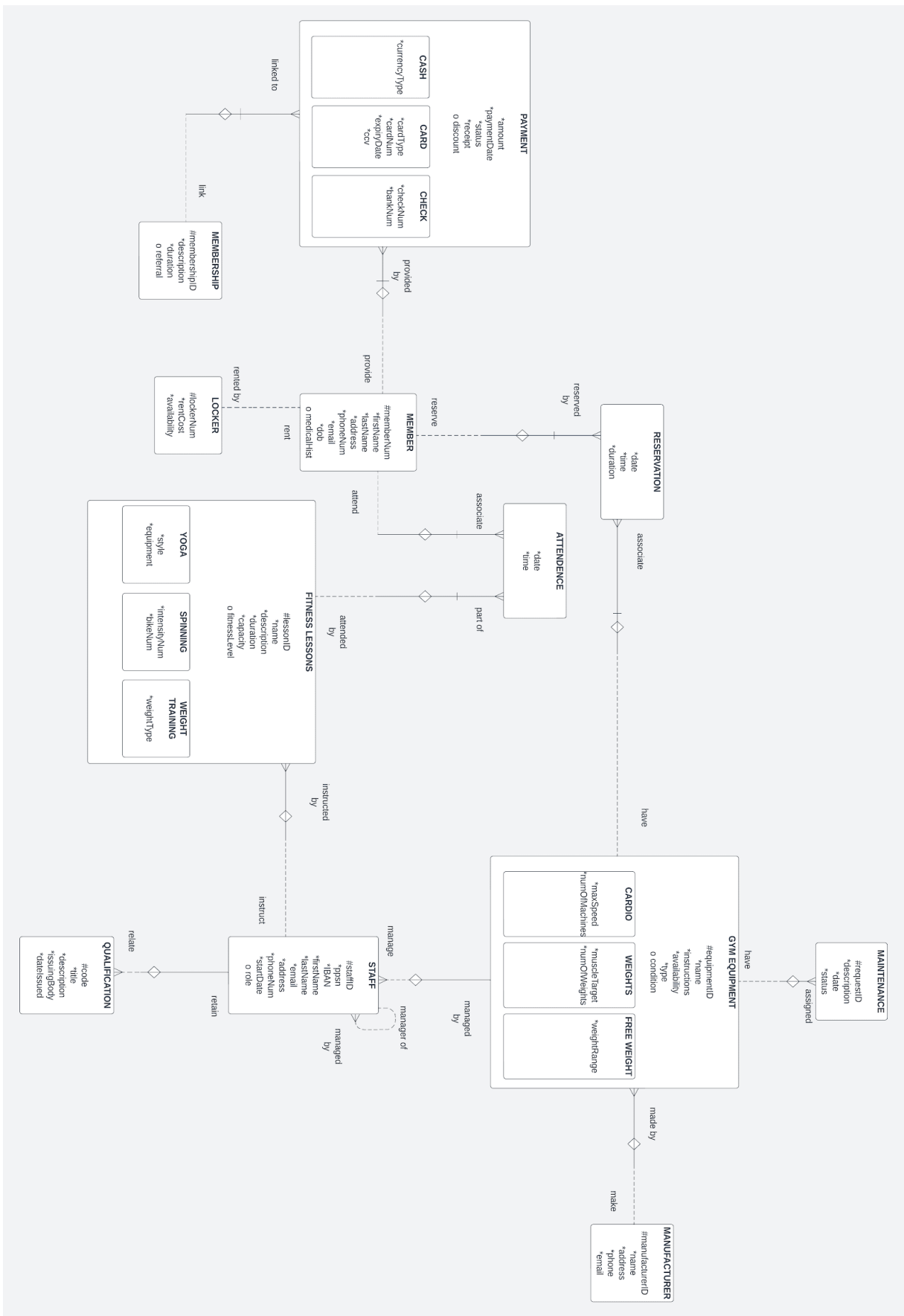
The main reason for these changes was because of the SQL statements. As I was creating the code I needed to change the relationships so that the foreign keys made sense so that the tables could be created and linked with each other. The same can be said for the attributes too, however some attributes I did so it would look better on a table such as contact in manufacturer being changed to phone number and email.

Updated EER Model

Old Model



Revised Model



Normalised Table List

- Locker (locker_num, rent_cost, availability)
- Members (member_num, first_name, last_name, address, phone_num, email, dob, medical_hist, lockerNum)
- Membership (membership_id, description, duration, referral)
- CardPayments (memberNum, membershipID, amount, payment_date, status, receipt, discount, card_type, card_num, expiry_date, ccv)
- CheckPayments (memberNum, membershipID, amount, payment_date, status, receipt, discount, check_num, bank_num)
- CashPayments (memberNum, membershipID, amount, payment_date, status, receipt, discount, currency_type)
- Qualifications (code, title, description, issuing_body, date_issued)
- Staff (staff_id, first_name, last_name, ppsn, iban, email, address, phone_num, start_date, role, Code, managerID)
- FitnessLesson (lesson_id, name, description, duration, capacity, fitness_level, staffID)
- Yoga (lesson_id, style, equipment)
- Spinning (lesson_id, intensity_num, bike_num)
- WeightTraining (lesson_id, weight_type)
- Attendance (memberNum, lessonID, date, time)
- Manufacturer (manufacturer_id, name, address, phone_num, email)
- GymEquipment (equipment_id, name, instructions, availability, type, equipment_condition, staffID, manufacturerID)
- Cardio (equipment_id, max_speed, num_of_machines)
- Weights (equipment_id, muscle_target, num_of_weights)
- FreeWeight (equipment_id, weight_range)
- Maintenance (request_id, description, date, status, equipmentID)
- Reservation (memberNum, equipmentID, date, time, duration)

Table Mapping

MEMBER				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
member_num	INT	AUTO	PK	Member ID
first_name	CHAR	20	NOT NULL	First Name
last_name	CHAR	20	NOT NULL	Last Name
address	CHAR	100	NOT NULL	Address
phone_num	CHAR	10	NOT NULL	Phone Number
email	CHAR	30	NOT NULL	Email
dob	DATE	-	NOT NULL	Date of Birth
medical_history	CHAR	100	-	Medical History
locker_num	INT	-	FK: LOCKER	Locker Number

MEMBERSHIP				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
membership_id	INT	AUTO	PK	Unique Membership ID
description	CHAR	50	NOT NULL	NOT NULL
duration	INT	10	NOT NULL	DURATION
referral	CHAR	20	-	Referral

CARD PAYMENTS				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
MemberNum	INT	-	NOT NULL; PK, FK: MEMBER	Member ID
MembershipID	INT	-	NOT NULL; PK, FK: MEMBERSHIP	Membership ID
amount	DECIMAL	12,2	NOT NULL	Amount
payment_date	DATE	-	NOT NULL	Payment Date

status	VARCHAR	20	NOT NULL	Status
receipt	VARCHAR	3	NOT NULL	Receipt
discount	DECIMAL	12,2	-	Discount
card_type	VARCHAR	20	NOT NULL	Card Type
card_num	INT	30	NOT NULL	Card Number
expiry_date	DATE	-	NOT NULL	Expiry Date
ccv	INT	11	NOT NULL	CCV

CHECK PAYMENTS				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
MemberNum	INT	-	NOT NULL; PK, FK: MEMBER	Member ID
MembershipID	INT	-	NOT NULL; PK, FK: MEMBERSHIP	Membership ID
amount	DECIMAL	12,2	NOT NULL	Amount
payment_date	DATE	-	NOT NULL	Payment Date
status	CHAR	10	NOT NULL	Status
receipt	CHAR	3	NOT NULL	Receipt
discount	DECIMAL	12,2	-	Discount
check_num	INT	11	NOT NULL	Check Number
bank_num	INT	11	NOT NULL	Bank Number

CASH PAYMENTS				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
MemberNum	INT	-	NOT NULL; PK, FK: MEMBER	Member ID
MembershipID	INT	-	NOT NULL; PK, FK: MEMBERSHIP	Membership ID
amount	DECIMAL	12,2	NOT NULL	Amount
payment_date	DATE	-	NOT NULL	Payment Date

status	CHAR	10	NOT NULL	Status
receipt	CHAR	3	NOT NULL	Receipt
discount	DECIMAL	12,2	-	Discount
currency_type	CHAR	10	NOT NULL	Currency Type

FITNESS LESSON				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
lesson_id	INT	AUTO	PK	Lesson ID
name	CHAR	20	NOT NULL	Name
description	CHAR	50	NOT NULL	Description
duration	CHAR	20	NOT NULL	Duration
capacity	INT	3	NOT NULL	Capacity
fitness_level	INT	3	-	Fitness Level
staff_id	INT	11	NOT NULL: FK; STAFF	Staff ID

YOGA				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
lesson_id	INT	-	NOT NULL: FK; FITNESS LESSON	Lesson ID
style	CHAR	20	NOT NULL	Style
equipment	CHAR	20	NOT NULL	Equipment

SPINNING				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
lesson_id	INT	-	NOT NULL: FK; FITNESS LESSON	Lesson ID
intensity_num	INT	2	NOT NULL	Intensity Number
bike_num	INT	2	NOT NULL	Bike Number

WEIGHT TRAINING				
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COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
lesson_id	INT	-	NOT NULL: FK; FITNESS LESSON	Lesson ID
weight_type	CHAR	20	NOT NULL	Weight Type

ATTENDANCE				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
memberNum	INT	-	NOT NULL: PK, FK; MEMBERS	Member ID
lessonID	INT	-	NOT NULL: PK, FK; FITNESS LESSON	Lesson ID
date	DATE	-	NOT NULL	Date
time	TIME	-	NOT NULL	Time

LOCKER				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
locker_num	INT	AUTO	PK	Locker Number
rent_cost	DECIMAL	12,2	NOT NULL	Rent Cost
availability	CHAR	20	NOT NULL	Availability

STAFF				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
staff_id	INT	AUTO	PK	Staff ID
first_name	CHAR	20	NOT NULL	First Name
last_name	CHAR	20	NOT NULL	Last Name
ppsn	CHAR	20	NOT NULL	PPSN
iban	CHAR	20	NOT NULL	IBAN
email	CHAR	30	NOT NULL	Email Address
address	CHAR	100	NOT NULL	Home Address
phone_num	INT	10	NOT NULL	Phone Number

start_date	DATE	-	NOT NULL	Start Date
role	CHAR	10	-	Role
Code	INT	-	FK: QUALIFICATIONS	Qualification Code
manager_id	INT	-	FK: STAFF	Manager ID

QUALIFICATIONS				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
code	INT	AUTO	PK	Qualification Code
title	CHAR	50	NOT NULL	Title
description	CHAR	50	NOT NULL	Description
issuing_body	CHAR	30	NOT NULL	Issuing Body
date_issued	DATE	-	NOT NULL	Date Issued

MANUFACTURER				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
manufacturer_id	INT	AUTO	PK	Manufacturer ID
name	CHAR	50	NOT NULL	Name
address	CHAR	100	NOT NULL	Address
phone_num	INT	10	NOT NULL	Phone Number
email	CHAR	30	NOT NULL	Email

GYM EQUIPMENT				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
equipment_id	INT	AUTO	PK	Equipment ID
name	CHAR	20	NOT NULL	Name
instructions	CHAR	50	NOT NULL	Instructions
availability	CHAR	10	NOT NULL	Availability

type	CHAR	10	NOT NULL	Type
condition	CHAR	10	-	Condition
manufacturerID	INT	-	NOT NULL: FK; MANUFACTURER	Manufacturer ID
staffID	INT	-	NOT NULL: FK; STAFF	Staff ID

CARDIO				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
equipment_id	INT	-	NOT NULL: FK; GYM EQUIPMENT	Equipment ID
max_speed	INT	2	NOT NULL	Maximum Speed
num_of_machines	INT	2	NOT NULL	Number of Machines

WEIGHTS				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
equipment_id	INT	-	NOT NULL: FK; GYM EQUIPMENT	Equipment ID
muscle_target	CHAR	20	NOT NULL	Muscle Target
num_of_weights	INT	2	NOT NULL	Number of Weights

FREE WEIGHT				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
equipment_id	INT	-	NOT NULL: FK; GYM EQUIPMENT	Equipment ID
weight_range	CHAR	10	NOT NULL	Weight Range

MAINTENANCE				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION

request_id	INT	AUTO	PK	Request ID
description	CHAR	100	NOT NULL	Description
date	DATE	-	NOT NULL	Date
status	CHAR	30	NOT NULL	Status
equipment_id	INT	-	FK; GYM EQUIPMENT	Equipment ID

RESERVATION				
COLUMN NAME	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
memberNum	INT	-	NOT NULL: PK, FK; MEMBERS	Member ID
equipmentID	INT	-	NOT NULL: PK, FK; GYM EQUIPMENT	Equipment ID
date	DATE	-	NOT NULL	Date
time	TIME	-	NOT NULL	Time
duration	CHAR	30	NOT NULL	Duration

SQL Query Explanation

Selecting the total number of yoga classes for each style taught by staff from Dublin

Who: This query could be used by a Yoga Coordinator.

Why: They might use this information to understand the distribution of yoga styles being taught in Dublin. This could help in planning future classes.

Selecting the total amount paid by members from Dublin for each membership type

Who: This query could be used by a Sales Manager.

Why: They might use this information to analyse revenue from different membership types in Dublin. This can show if their pricing is effective. It can also show what their sales looks like too.

Selecting the total number of spinning classes for each intensity number taught by staff with a specific qualification

Who: This query could be used by a Spinning Coordinator.

Why: They might use this information to ensure that there are enough classes of each intensity level being taught by qualified instructors. This can once again help with scheduling classes which meet the demands of their customers.

Selecting the total number of gym equipment from a specific manufacturer

Who: This query could be used by an Equipment Manager.

Why: They might use this information to keep track of the gym's equipment inventory from a specific manufacturer, which could influence purchasing decisions.