QUESTION SET-7

**QUESTION 1: Members Collection Queries**

**a) Retrieve all members whose healthMetrics document shows a BMI greater than 25.**

db.Members.find({ "healthMetrics.BMI": { $gt: 25 } })

**b) Find members who have performed either "Cardio" or "Strength Training" as part of their workouts.**

db.Members.find({ workouts: { $in: ["Cardio", "Strength Training"] } })

**c) Identify members with a membership type of "Gold" and whose contact information includes a phone number starting with "987."**

db.Members.find({

membershipType: "Gold",

"contact.phone": { $regex: "^987" }

})

**d) Sort the members in ascending order of their age (use the healthMetrics document) and limit the result to the first 10 records.**

db.Members.find().sort({ "healthMetrics.age": 1 }).limit(10)

**e) Group members by their membership type and calculate the total number of members for each type.**

db.Members.aggregate([

{ $group: { \_id: "$membershipType", totalMembers: { $sum: 1 } } }

])

**QUESTION 2: Trainers Collection Queries**

**a) Retrieve trainers who specialize in "Yoga" but have less than 3 years of experience.**

db.Trainers.find({ specialization: "Yoga", experience: { $lt: 3 } })

**b) Find trainers who are scheduled to work on both "Tuesday" and "Thursday."**

db.Trainers.find({ schedule: { $all: ["Tuesday", "Thursday"] } })

**c) Display the names and qualifications of trainers whose qualifications include a certification from "ACE Fitness."**

db.Trainers.find({ "qualifications.certifications": "ACE Fitness" }, { name: 1, qualifications: 1, \_id: 0 })

**d) Create a compound index on the specialization and experience fields to optimize queries that filter trainers based on these attributes.**

db.Trainers.createIndex({ specialization: 1, experience: 1 })

**e) Use aggregation to project only the trainer's name, specialization, and years of experience, and then filter out trainers with more than 10 years of experience.**

db.Trainers.aggregate([

{

$project: {

name: 1,

specialization: 1,

experience: 1

}

},

{ $match: { experience: { $lte: 10 } } }

])