**ASSIGNMENT 4:**

**STEP 1:**

Use FitnessCenterdb

db.members.insertMany([

{ member\_id: 1, name: "Anjali Rao", age: 28, gender: "Female", city: "Mumbai",

membership\_type: "Gold" },

{ member\_id: 2, name: "Rohan Mehta", age: 35, gender: "Male", city: "Delhi",

membership\_type: "Silver" },

{ member\_id: 3, name: "Fatima Shaikh", age: 22, gender: "Female", city: "Hyderabad",

membership\_type: "Platinum" },

{ member\_id: 4, name: "Vikram Das", age: 41, gender: "Male", city: "Bangalore",

membership\_type: "Gold" },

{ member\_id: 5, name: "Neha Kapoor", age: 31, gender: "Female", city: "Pune",

membership\_type: "Silver" }

])

db.trainers.insertMany([

{ trainer\_id: 101, name: "Ajay Kumar", specialty: "Weight Training", experience: 7

},

{ trainer\_id: 102, name: "Swati Nair", specialty: "Cardio", experience: 5 },

{ trainer\_id: 103, name: "Imran Qureshi", specialty: "Yoga", experience: 8 }

])

db.sessions.insertMany([

{ session\_id: 201, member\_id: 1, trainer\_id: 101, session\_type: "Strength",

duration: 60, date: new Date("2024-08-01") },

{ session\_id: 202, member\_id: 2, trainer\_id: 102, session\_type: "Cardio", duration:

45, date: new Date("2024-08-02") },

{ session\_id: 203, member\_id: 3, trainer\_id: 103, session\_type: "Yoga", duration:

90, date: new Date("2024-08-03") },

{ session\_id: 204, member\_id: 1, trainer\_id: 102, session\_type: "Cardio", duration:

30, date: new Date("2024-08-04") },

{ session\_id: 205, member\_id: 4, trainer\_id: 101, session\_type: "Strength",

duration: 75, date: new Date("2024-08-05") },

{ session\_id: 206, member\_id: 5, trainer\_id: 103, session\_type: "Yoga", duration:

60, date: new Date("2024-08-05") }

**STEP 2:**

1. db.members.find({ city: "Mumbai" });
2. db.trainers.find({ experience: { $gt: 6 } });
3. db.sessions.find({ session\_type: "Yoga" });
4. db.trainers.findOne({ name: "Swati Nair" });
5. db.sessions.find({ date: new Date("2024-08-05") });
6. db.sessions.aggregate([

{

$group: {

\_id: "$member\_id",

session\_count: { $sum: 1 }

}

},

{

$project: {

\_id: 0,

member\_id: "$\_id",

session\_count: 1

}

}

])

1. db.sessions.aggregate([

{

$group: {

\_id: "$session\_type",

avg\_duration: { $avg: "$duration" }

}

},

{

$project: {

\_id: 0,

session\_type: "$\_id",

avg\_duration: 1

}

}

])

1. db.sessions.aggregate([

{ $match: { duration: { $gt: 60 } } },

{

$lookup: {

from: "members",

localField: "member\_id",

foreignField: "member\_id",

as: "member"

}

},

{ $unwind: "$member" },

{ $match: { "member.gender": "Female" } },

{ $project: { \_id: 0, name: "$member.name", duration: 1 } }

]);

1. db.sessions.find().sort({ duration: -1 });
2. db.sessions.aggregate([

{

$group: {

\_id: "$member\_id",

unique\_trainers: { $addToSet: "$trainer\_id" }

}

},

{

$project: {

\_id: 0,

member\_id: "$\_id",

trainer\_count: { $size: "$unique\_trainers" }

}

},

{

$match: { trainer\_count: { $gt: 1 } }

}

])

1. db.sessions.aggregate([

{

$lookup: {

from: "members",

localField: "member\_id",

foreignField: "member\_id",

as: "member"

}

},

{ $unwind: "$member" },

{

$lookup: {

from: "trainers",

localField: "trainer\_id",

foreignField: "trainer\_id",

as: "trainer"

}

},

{ $unwind: "$trainer" },

{

$project: {

session\_type: 1,

duration: 1,

date: 1,

member\_name: "$member.name",

trainer\_name: "$trainer.name"

}

}

]);

1. db.sessions.aggregate([

{

$group: {

\_id: "$trainer\_id",

total\_time: { $sum: "$duration" }

}

},

{

$project: {

\_id: 0,

trainer\_id: "$\_id",

total\_time: 1

}

}

])

1. db.sessions.aggregate([

{

$group: {

\_id: "$member\_id",

total\_time: { $sum: "$duration" }

}

},

{

$project: {

\_id: 0,

member\_id: "$\_id",

total\_time: 1

}

}

])

1. db.sessions.aggregate([

{

$group: {

\_id: "$trainer\_id",

session\_count: { $sum: 1 }

}

},

{

$project: {

\_id: 0,

trainer\_id: "$\_id",

session\_count: 1

}

}

])

1. db.sessions.aggregate([

{

$group: {

\_id: "$trainer\_id",

avg\_duration: { $avg: "$duration" }

}

},

{

$project: {

\_id: 0,

trainer\_id: "$\_id",

avg\_duration: 1

}

},

{

$sort: { avg\_duration: -1 }

},

{

$limit: 1

}

])

1. db.sessions.aggregate([

{

$group: {

\_id: "$trainer\_id",

unique\_members: { $addToSet: "$member\_id" }

}

},

{

$project: {

trainer\_id: "$\_id",

unique\_count: { $size: "$unique\_members" }

}

}

]);

1. db.sessions.aggregate([

{

$group: {

\_id: "$member\_id",

total\_time: { $sum: "$duration" }

}

},

{

$project: {

\_id: 0,

member\_id: "$\_id",

total\_time: 1

}

},

{

$sort: { total\_time: -1 }

},

{

$limit: 1

}

])

1. db.sessions.aggregate([

{ $match: { session\_type: "Strength" } },

{

$lookup: {

from: "members",

localField: "member\_id",

foreignField: "member\_id",

as: "member"

}

},

{ $unwind: "$member" },

{ $match: { "member.membership\_type": "Gold" } },

{ $project: { \_id: 0, name: "$member.name" } }

]);

1. db.sessions.aggregate([

{

$lookup: {

from: "members",

localField: "member\_id",

foreignField: "member\_id",

as: "member"

}

},

{

$unwind: "$member"

},

{

$group: {

\_id: "$member.membership\_type",

session\_count: { $sum: 1 }

}

},

{

$project: {

\_id: 0,

membership\_type: "$\_id",

session\_count: 1

}

}

])

1. db.members.aggregate([

{

$lookup: {

from: "sessions",

localField: "member\_id",

foreignField: "member\_id",

as: "sessions"

}

},

{

$match: {

sessions: { $eq: [] }

}

}

]);