**Database**

db.zenClassProgram.insertMany([

// Users

{ type: "user", user\_id: 1, name: "John Doe", email: "john@example.com" },

{ type: "user", user\_id: 2, name: "Jane Smith", email: "jane@example.com" },

{ type: "user", user\_id: 3, name: "Bob Johnson", email: "bob@example.com" },

{ type: "user", user\_id: 4, name: "Alice Brown", email: "alice@example.com" },

{ type: "user", user\_id: 5, name: "Charlie Davis", email: "charlie@example.com" },

// CodeKata

{ type: "codekata", codekata\_id: 1, user\_id: 1, problems\_solved: 50, date: ISODate("2020-10-15") },

{ type: "codekata", codekata\_id: 2, user\_id: 2, problems\_solved: 30, date: ISODate("2020-10-16") },

{ type: "codekata", codekata\_id: 3, user\_id: 3, problems\_solved: 40, date: ISODate("2020-10-17") },

{ type: "codekata", codekata\_id: 4, user\_id: 4, problems\_solved: 60, date: ISODate("2020-10-18") },

{ type: "codekata", codekata\_id: 5, user\_id: 5, problems\_solved: 20, date: ISODate("2020-10-19") },

// Attendance

{ type: "attendance", attendance\_id: 1, user\_id: 1, date: ISODate("2020-10-15"), status: "present" },

{ type: "attendance", attendance\_id: 2, user\_id: 2, date: ISODate("2020-10-16"), status: "absent" },

{ type: "attendance", attendance\_id: 3, user\_id: 3, date: ISODate("2020-10-17"), status: "present" },

{ type: "attendance", attendance\_id: 4, user\_id: 4, date: ISODate("2020-10-18"), status: "absent" },

{ type: "attendance", attendance\_id: 5, user\_id: 5, date: ISODate("2020-10-19"), status: "present" },

// Topics

{ type: "topic", topic\_id: 1, name: "JavaScript Basics", date: ISODate("2020-10-05") },

{ type: "topic", topic\_id: 2, name: "React Fundamentals", date: ISODate("2020-10-10") },

{ type: "topic", topic\_id: 3, name: "Node.js Introduction", date: ISODate("2020-10-15") },

{ type: "topic", topic\_id: 4, name: "MongoDB Basics", date: ISODate("2020-10-20") },

{ type: "topic", topic\_id: 5, name: "Express.js Fundamentals", date: ISODate("2020-10-25") },

// Tasks

{ type: "task", task\_id: 1, name: "JavaScript Quiz", description: "Complete the JavaScript quiz", date: ISODate("2020-10-07"), submission\_date: ISODate("2020-10-10") },

{ type: "task", task\_id: 2, name: "React Project", description: "Build a small React application", date: ISODate("2020-10-12"), submission\_date: ISODate("2020-10-18") },

{ type: "task", task\_id: 3, name: "Node.js Assignment", description: "Create a simple Node.js server", date: ISODate("2020-10-17"), submission\_date: ISODate("2020-10-22") },

{ type: "task", task\_id: 4, name: "MongoDB CRUD Operations", description: "Implement CRUD operations using MongoDB", date: ISODate("2020-10-22"), submission\_date: ISODate("2020-10-28") },

{ type: "task", task\_id: 5, name: "Express.js Routing", description: "Create an Express.js app with multiple routes", date: ISODate("2020-10-27"), submission\_date: ISODate("2020-11-02") },

// Company\_Drives

{ type: "company\_drive", company\_drive\_id: 1, company\_name: "TechCorp", date: ISODate("2020-10-16"), appeared\_students: [1, 2] },

{ type: "company\_drive", company\_drive\_id: 2, company\_name: "InnovaSoft", date: ISODate("2020-10-20"), appeared\_students: [3, 4] },

{ type: "company\_drive", company\_drive\_id: 3, company\_name: "DataSystems", date: ISODate("2020-10-25"), appeared\_students: [1, 5] },

{ type: "company\_drive", company\_drive\_id: 4, company\_name: "WebSolutions", date: ISODate("2020-10-30"), appeared\_students: [2, 4] },

{ type: "company\_drive", company\_drive\_id: 5, company\_name: "AIInnovate", date: ISODate("2020-11-05"), appeared\_students: [3, 5] },

// Mentors

{ type: "mentor", mentor\_id: 1, name: "Michael Johnson", email: "michael@example.com", mentee\_count: 20 },

{ type: "mentor", mentor\_id: 2, name: "Sarah Williams", email: "sarah@example.com", mentee\_count: 15 },

{ type: "mentor", mentor\_id: 3, name: "David Brown", email: "david@example.com", mentee\_count: 18 },

{ type: "mentor", mentor\_id: 4, name: "Emily Davis", email: "emily@example.com", mentee\_count: 12 },

{ type: "mentor", mentor\_id: 5, name: "Robert Wilson", email: "robert@example.com", mentee\_count: 25 }

])

**Queries:**

**1. Find all the topics and tasks which are thought in the month of October**

db.zenClassProgram.find({

type: "company\_drive",

date: {

$gte: ISODate("2020-10-15T00:00:00Z"),

$lte: ISODate("2020-10-31T23:59:59Z")

}

})

2. **Find all the company drives which appeared between 15 oct-2020 and 31-oct-2020**

db.zenClassProgram.find({

type: "company\_drive",

date: {

$gte: ISODate("2020-10-15T00:00:00Z"),

$lte: ISODate("2020-10-31T23:59:59Z")

}

})

**3.Find all the company drives and students who are appeared for the placement.**

db.company\_drives.aggregate([

{

$lookup: {

from: "users",

localField: "appeared\_students",

foreignField: "\_id",

as: "students\_appeared"

}

},

{

$project: {

\_id: 1,

company\_name: 1,

date: 1,

students\_appeared: {

name: 1,

email: 1

}

}

}

])

**4.Find the number of problems solved by the user in codekata**

db.codekata.aggregate([

{

$group: {

\_id: "$user\_id",

total\_problems\_solved: { $sum: "$problems\_solved" }

}

},

{

$lookup: {

from: "users",

localField: "\_id",

foreignField: "\_id",

as: "user\_details"

}

},

{

$unwind: "$user\_details"

},

{

$project: {

\_id: 0,

user\_id: "$\_id",

user\_name: "$user\_details.name",

total\_problems\_solved: 1

}

}

])

**5.Find all the mentors with who has the mentee's count more than 15**

db.mentors.find({

mentee\_count: { $gt: 15 }

})

**6.Find the number of users who are absent and task is not submitted between 15 oct-2020 and 31-oct-2020**

db.attendance.aggregate([

{

$match: {

date: {

$gte: ISODate("2020-10-15"),

$lte: ISODate("2020-10-31")

},

status: "absent"

}

},

{

$lookup: {

from: "tasks",

localField: "user\_id",

foreignField: "user\_id",

as: "task"

}

},

{

$match: {

"task": { $eq: [] }

}

},

{

$group: {

\_id: null,

count: { $sum: 1 }

}

}

])