// Step 1: Connect to MongoDB (this is usually done outside of the script in the shell)

// Step 2: Create database and use it

use Assignment4;

// Step 3: Create collections

db.createCollection("Teachers");

db.createCollection("Students");

// Step 4: Insert sample data into Teachers collection

db.Teachers.insertMany([

{ Tname: "Praveen", dno: 1, dname: "Computer", experience: 5, salary: 60000, date\_of\_joining: new Date("2018-06-15") },

{ Tname: "Alice", dno: 2, dname: "IT", experience: 7, salary: 70000, date\_of\_joining: new Date("2016-08-20") },

{ Tname: "Bob", dno: 3, dname: "E&TC", experience: 4, salary: 55000, date\_of\_joining: new Date("2019-01-10") },

{ Tname: "Charlie", dno: 4, dname: "Computer", experience: 6, salary: 80000, date\_of\_joining: new Date("2017-02-12") },

{ Tname: "David", dno: 5, dname: "IT", experience: 8, salary: 90000, date\_of\_joining: new Date("2015-03-25") }

]);

// Step 5: Insert sample data into Students collection

db.Students.insertMany([

{ Sname: "John", roll\_no: 1, class: "10th" },

{ Sname: "Sarah", roll\_no: 2, class: "10th" },

{ Sname: "Mike", roll\_no: 3, class: "11th" },

{ Sname: "Anna", roll\_no: 4, class: "12th" },

{ Sname: "xyz", roll\_no: 5, class: "12th" }

]);

// Step 6: Perform CRUD operations

// 1. Find all teachers alphabetically

print("1. All Teachers Alphabetically:");

db.Teachers.find().sort({ Tname: 1 }).pretty();

// 2. Find all teachers of the Computer department

print("2. Teachers of Computer Department:");

db.Teachers.find({ dname: "Computer" }).pretty();

// 3. Find teachers of Computer, IT, and E&TC departments

print("3. Teachers of Computer, IT, and E&TC Departments:");

db.Teachers.find({ dname: { $in: ["Computer", "IT", "E&TC"] } }).pretty();

// 4. Find teachers of Computer, IT, and E&TC with salary >= 10000

print("4. Teachers of Computer, IT, and E&TC with Salary >= 10000");

db.Teachers.find({

dname: { $in: ["Computer", "IT", "E&TC"] },

salary: { $gte: 10000 }

}).pretty();

// 5. Find student information with roll\_no = 2 or Sname = 'xyz'

print("5. Student with roll\_no = 2 or Sname = 'xyz':");

db.Students.find({ $or: [{ roll\_no: 2 }, { Sname: "xyz" }] }).pretty();

// 6. Update the experience of teacher Praveen to 10 years, or insert if not exists

print("6. Updating experience of teacher Praveen to 10 years:");

db.Teachers.updateOne(

{ Tname: "Praveen" },

{ $set: { experience: 10 } },

{ upsert: true }

);

// 7. Update department of all teachers in IT department to COMP

print("7. Updating department of all teachers in IT department to COMP:");

db.Teachers.updateMany(

{ dname: "IT" },

{ $set: { dname: "COMP" } }

);

// 8. Find teacher names and their experience

print("8. Teacher Names and Their Experience:");

db.Teachers.find({}, { Tname: 1, experience: 1 }).pretty();

// 9. Delete all documents from Teachers collection having IT department

print("9. Deleting all teachers from IT department:");

db.Teachers.deleteMany({ dname: "IT" });

// 10. Display the first 3 documents in ascending order using pretty()

print("10. First 3 documents in Teachers collection:");

db.Teachers.find().sort({ Tname: 1 }).limit(3).pretty();