**Day 1 Lab Assignments**

**Use MongoDB to do the following assignments:**

1. Create database named: FacultySystemDB.

use FacultySystemDB.

1. Create collection (student) that has:
   * FirstName: string
   * LastName: string
   * Age: Number
   * Faculty: An object that has Name and Address
   * Grades: An array of objects, each object has: CourseName, Grade, Pass (Boolean).
   * IsFired: Boolean

db.createCollection(“student”)

1. Insert 3 (at least) documents in Student collection with different values.
   * Try inserting one record each time

db.student.insertOne({

"fristname":"yossr",

"lastname":"mohamed",

"age":22,

"faculty":{name:"science",

address:"ain shams,abassia"

},

"grades":[

{courseName:"C++", grade:"C",pass:true},

{courseName:"cryptography", grade:"D",pass:true},

],

isFired:true

})

* + Try inserting collection using on insert statement.

db.student.insertMany([{

"fristname":"salma",

"lastname":"ahmed",

"age":23,

"faculty":{name:"science",

address:"ain shams,abassia"

},

"grades":[

{courseName:"electronics", grade:"C",pass:true},

{courseName:"cryptography", grade:"F",pass:false},

],

isFired:false

},

{

"fristname":"ahmed",

"lastname":"mohamed",

"age":20,

"faculty":{name:"computer science",

address:"ain shams,abassia"

},

"grades":[

{courseName:"math", grade:"B",pass:true},

{courseName:"programming", grade:"F",pass:false},

],

isFired:false

},

{

"fristname":"mohamed",

"lastname":"abdelhalim",

"age":24,

"faculty":{name:"engineering",

address:"ain shams,abassia"

},

"grades":[

{courseName:"math", grade:"F",pass:false},

{courseName:"programming", grade:"F",pass:false},

],

isFired:false

}

]

)

1. Retrieve the following data:
   * All Students.

db.student.find({}).pretty()

* + Student with specific First Name.

db.student.find({"fristname":"salma"}).pretty()

* + Students who his First Name=Ahmed, or Last Name= Ahmed.

db.student.find({$or:[{"fristname":"ahmed"},{"lastname":"ahmed"}]}).pretty()

* + Students that their First name isn't "Ahmed".

db.student.find({"fristname":{$ne:"ahmed"}}).pretty()

* + Students with Age less than 21.

db.student.find({age:{$lt:21}}).pretty()

* + All fired students.

db.student.find({isFired:true}).pretty()

* + Students with Age more than or equal to 21, and their faculty isn't NULL.

db.student.find({$and:[{age:{$lte:20}},{"faculty":{$ne:null}}]}).pretty()

* + Display student with specific First Name, and display his First Name, Last name, IsFired fields only.

db.student.find({"fristname":"mohamed"},{"fristname":1,"lastname":1,"isFired":true,\_id:0}).pretty()

1. Update the student with specific FirstName, and change his LastName.
   * Try Update() statement.

db.student.update({"fristname":"yossr"},

{$set:{

"isFired":false

}

})

* + Try Update() with Mulit option.

db.student.updateMany({age:{$gt:22}},

{

$set:{

"isFired":true,

}

}

)

* + Try Save().

db.student.save({"fristname":"salma","faculty.name":"Law"})

db.student.save({\_id:ObjectId("62e08ae1ad108b64b4c5122d"), "faculty.name":"engineering"})

1. Delete Fired students.

db.student.deleteMany({"isFired":true})

1. Delete all students collection.

db.student.drop()

1. Delete the whole DB.

db.dropDatabase()

1. Create new database named: FacultySystemV2.

use FacultySystemV2.

* + Create student collection that has (FirstName, lastName, IsFired, FacultyID, array of objects, each object has CourseID, grade).

db.student.insert({

"fristname":"rania",

"lastname":"mohamed",

isFired:false,

"facultyID":[

{courseID:402, grade:"C"},

{courseID:404, grade:"D"},

],

})

* + Create Faculty collection that has (Faculty Name, Address).

db.faculty.insert({

"name":"science",

"address":null

})

* + Create Course collection, which has (Course Name, Final Mark).

db.course.insert({

"courseName":"math",

"finalMark":100

})

* + Insert some data in previous collections.

db.student.insertMany([{

"fristname":"ahmed",

"lastname":"said",

isFired:true,

"facultyID":[

{courseID:305, grade:"F"},

{courseID:404, grade:"D"},

],

},

{

"fristname":"ziad",

"lastname":"adel",

isFired:false,

"facultyID":[

{courseID:395, grade:"A"},

{courseID:404, grade:"D"},

],

},

])

db.faculty.insertMany([{

"name":"science",

"address":null

},

{

"name":"law",

"address":"helwan"

},

{

"name":"computer science",

"address":"ain shams, abassia"

},

{

"name":"art",

"address":"cairo, giza"

},

])

db.course.insertMany([{

"courseName":"physics",

"finalMark":50

},

{

"courseName":"electronics",

"finalMark":150

},

{

"courseName":"English literature",

"finalMark":100

}

])

**<Script>document.write(“Thank YOU”) </Script>**