MongoDB_Lab1

1 – open mongo shell and view the help
mongosh
help

2 – identify your current working database and show list of available databases
show tables
show dbs
3 – create a new database called iti and create a collection named “students”. Insert whatever data you want about yourself (include name and age in your details).
Use iti

db.students.insert({
... "name" : "shehab",
... "gender" : "male",
... "age" : "25"
... })
4– show list of available databases. What did you notice ?
Show dbs

5 – Insert un-structured or semi-structured data for 10 of your friends (include name and age in your details. The documents should have different types of data i.e. arrays, strings, documents, integers).

```
db.students.insertMany(
    [
        {
            name: "Ahmed",
            age: 23,
            gender: "male",
            hobbies: ["Playstaion","football","design"]
        },
        {
            name: "omar",
            age: 24,
            gender: "male",
            hobbies: ["drawing","swimming","design"]
        },        {
            name: "mostafa",
            age: 23,
            gender: "male",
            hobbies: ["Playstaion","swimming","design"]
        },        {
            name: "mariam",
            age: 22,
```

```
            gender: "female",
            hobbies: ["drawing","anime","programming"]
        },          {
            name: "wafaa",
            age: 22,
            gender: "female",
            hobbies: ["movies","music","design"]
        },          {
            name: "malek",
            age: 25,
            gender: "male",
            hobbies: ["Playstaion","football","estimation"]
        },          {
            name: "ziad",
            age: 23,
            gender: "male",
            hobbies: ["Playstaion","football","gaming"]
        },          {
            name: "Akram",
            age: 26,
            gender: "male",
            hobbies: ["movies","gaming","cars"]
        },          {
            name: "Ayman",
            age: 24,
            gender: "male",
            hobbies: ["Playstaion","football","travelling"]
        },          {
            name: "youssef",
            age: 25,
            gender: "male",
            hobbies: ["coding","anime","design"]
        },
    ])
```

6 – Search for your object by name.

```
      db.students.findOne({name: "shehab"})
```

7– Search for your friend(s) by age.

```
db.students.findOne({age: 25});
```

8 – Search for all of your friends whose age is older than yours.

```
db.students.findOne({age: {$gt: 25}});
```

9 – delete any of your friends by id.

```
db.students.deleteOne({"_id": ObjectId("63f4dc8fc3c4a21002589894")});
```

10 – view all documents in students collection in a prettified format.

```
db.students.find().pretty()
```

11 – count all documents in students collection.

```
var cursor = db.students.find()
cursor.count()
```

---

part 2

1- Create database with name ems

```
test> use ems
switched to db ems
ems>
```

2- Insert the following data into "faculty" collection

{ "name":"Krish", "age":35,"gender":"M","exp":10,subjects:["DS","C","OS"],"type":"Full Time","qualification":"M.Tech" },

{ "name":"Manoj", "age":38,"gender":"M","exp":12,subjects:["JAVA","DBMS"],"type":"Full Time", "qualification":"Ph.D"},

{ "name":"Anush", "age":32,"gender":"F","exp":8,subjects:["C","CPP"],"type":"Part Time","qualification":"M.Tech" },

{ "name":"Suresh", "age":40,"gender":"M","exp":9,subjects:["JAVA","DBMS","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},

{ "name":"Rajesh", "age":35,"gender":"M","exp":7,subjects:["DS","C","OS"],"type":"Full Time","qualification":"M.Tech" },

{ "name":"Mani", "age":38,"gender":"F","exp":10,subjects:["JAVA","DBMS","OS"],"type":"Part Time", "qualification":"Ph.D"},

{ "name":"Sivani", "age":32,"gender":"F","exp":8,subjects:["C","CPP","MATHS"],"type":"Part Time","qualification":"M.Tech" },

{ "name":"Nagesh", "age":39,"gender":"M","exp":11,subjects:["JAVA","DBMS","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},

{ "name":"Nagesh", "age":35,"gender":"M","exp":9,subjects:["JAVA",".Net","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},

{ "name":"Latha", "age":40,"gender":"F","exp":13,subjects:["MATHS"],"type":"Full Time", "qualification":"Ph.D"}

```
students  72.00 KiB
test> db.faculty.insertMany([{ "name":"Krish", "age":35,"gender":"M","exp":10,subjects:["DS","C","OS"],"type":"Full Time","qualification":"M.Tech" },
... { "name":"Manoj", "age":38,"gender":"M","exp":12,subjects:["JAVA","DBMS"],"type":"Full Time", "qualification":"Ph.D"},
... { "name":"Anush", "age":32,"gender":"F","exp":8,subjects:["C","CPP"],"type":"Part Time","qualification":"M.Tech" },
... { "name":"Suresh", "age":40,"gender":"M","exp":9,subjects:["JAVA","DBMS","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},
... { "name":"Rajesh", "age":35,"gender":"M","exp":7,subjects:["DS","C","OS"],"type":"Full Time","qualification":"M.Tech" },
... { "name":"Mani", "age":38,"gender":"F","exp":10,subjects:["JAVA","DBMS","OS"],"type":"Part Time", "qualification":"Ph.D"},
... { "name":"Sivani", "age":32,"gender":"F","exp":8,subjects:["C","CPP","MATHS"],"type":"Part Time","qualification":"M.Tech" },
... { "name":"Nagesh", "age":39,"gender":"M","exp":11,subjects:["JAVA","DBMS","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},
... { "name":"Nagesh", "age":35,"gender":"M","exp":9,subjects:["JAVA",".Net","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},
... { "name":"Latha", "age":40,"gender":"F","exp":13,subjects:["MATHS"],"type":"Full Time", "qualification":"Ph.D"}])
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("63f615cf3249f2221daa3d10"),
    '1': ObjectId("63f615cf3249f2221daa3d11"),
    '2': ObjectId("63f615cf3249f2221daa3d12"),
    '3': ObjectId("63f615cf3249f2221daa3d13"),
    '4': ObjectId("63f615cf3249f2221daa3d14"),
    '5': ObjectId("63f615cf3249f2221daa3d15"),
    '6': ObjectId("63f615cf3249f2221daa3d16"),
    '7': ObjectId("63f615cf3249f2221daa3d17"),
    '8': ObjectId("63f615cf3249f2221daa3d18"),
    '9': ObjectId("63f615cf3249f2221daa3d19")
  }
}
test>
```

1. Get the details of all the faculty.

```
ems> db.faculty.find()
[
  {
    _id: ObjectId("63f6166c3249f2221daa3d1a"),
    name: 'Krish',
    age: 35,
    gender: 'M',
    exp: 10,
    subjects: [ 'DS', 'C', 'OS' ],
    type: 'Full Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1b"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1c"),
    name: 'Anush',
    age: 32,
    gender: 'F',
    exp: 8,
    subjects: [ 'C', 'CPP' ],
    type: 'Part Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1d"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1e"),
    name: 'Rajesh',
    age: 35,
    gender: 'M',
    exp: 7,
    subjects: [ 'DS', 'C', 'OS' ],
    type: 'Full Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1f"),
    name: 'Mani',
o
```

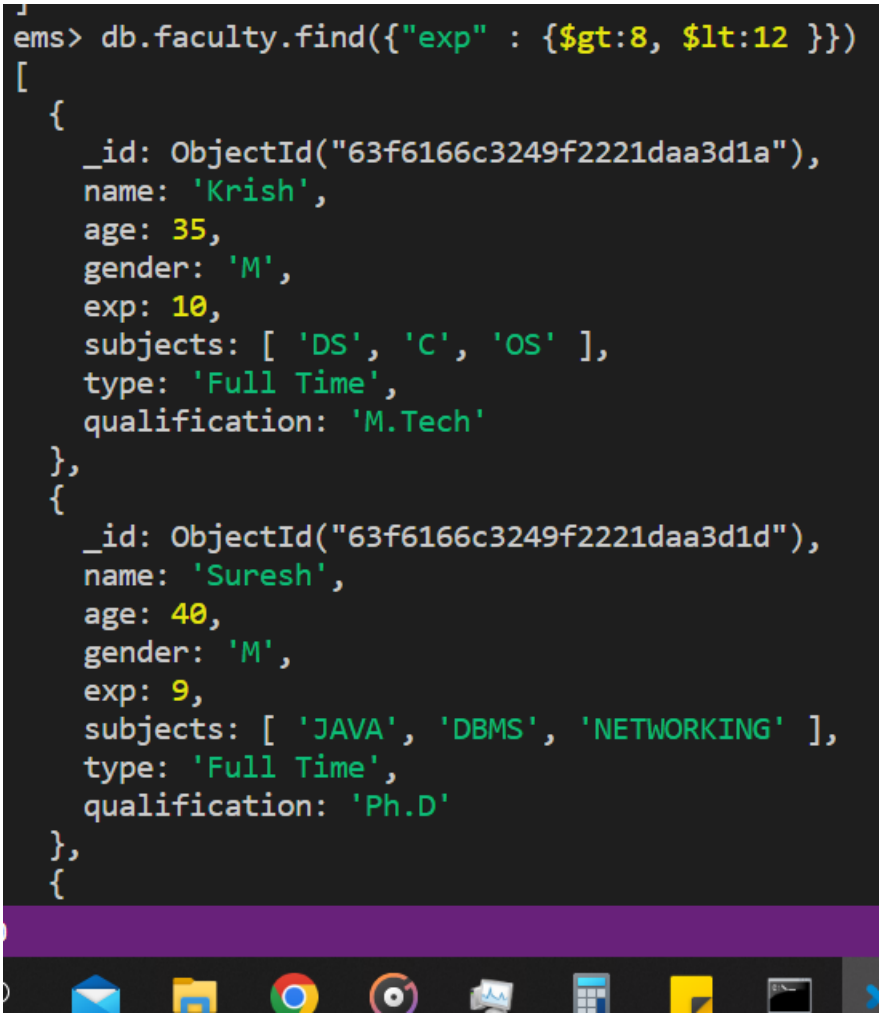
2. Get the count of all faculty members.

```
ems> db.faculty.find().count()
10
ems>
```

3. Get all the faculty members whose qualification is “Ph.D”.

```
ems> db.faculty.find({"qualification" : "Ph.D"})
[
  {
    _id: ObjectId("63f6166c3249f2221daa3d1b"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1d"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
```

4. Get all the faculty members whose experience is between 8 to 12 years.



5. Get all the faculty members who teach “MATHS” or “NETWORKING”.

```
ems> db.faculty.find({$or: [{"subjects": "MATHS"},{"subjects": "NETWORKING"}]})
[
  {
    _id: ObjectId("63f6166c3249f2221daa3d1d"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d20"),
    name: 'Sivani',
    age: 32,
    gender: 'F',
    exp: 8,
    subjects: [ 'C', 'CPP', 'MATHS' ],
    type: 'Part Time',
    qualification: 'M.Tech'
  },
  {
```

6. Get all the faculty members who teach “MATHS” and whose age is more than 30 years and qualification must be “Ph.D”.

```
ems> db.faculty.find({$and : [{"subjects": "MATHS"}, {"age": {$gt:30}}, {"qualification" : "Ph.D"}]})
[
  {
    _id: ObjectId("63f6166c3249f2221daa3d23"),
    name: 'Latha',
    age: 40,
    gender: 'F',
    exp: 13,
    subjects: [ 'MATHS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  }
]
ems>
```

7. Get all the faculty members who are working part-time or who teach “JAVA”.

```
ems> db.faculty.find({$or:[{"type":"Part Time"}, {"subjects" : "JAVA"}]})
[
  {
    _id: ObjectId("63f6166c3249f2221daa3d1b"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1c"),
    name: 'Anush',
    age: 32,
```

⚠ 0

8. Add the following new faculty members:
   { "name":"Suresh Babu", "age":55,"gender":"M","exp":25,subjects: ["MATHS","DE"],"type":"Full Time", "qualification":"Ph.D"}

```
ems> db.faculty.insertOne({ "name":"Suresh Babu", "age":55,"gender":"M","exp":25,"subjects":
... ["MATHS","DE"],"type":"Full Time", "qualification":"Ph.D"})
{
  acknowledged: true,
  insertedId: ObjectId("63f61b923249f2221daa3d24")
}
ems>
```

9. Update the data of all faculty members by incrementing their age and exp by one year.

```
ems> db.faculty.updateMany({},{$inc:{age:1, exp:1}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 11,
  modifiedCount: 11,
  upsertedCount: 0
}
ems>
```

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10. Update the faculty “Sivani” with the following data: update qualification to “Ph.D” and type to “Full Time”.

```
ems> db.faculty.updateOne({name:'Sivani'},{$set:{qualification:'Ph.D',type:'Full Time'}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
ems>
```

11. Update all faculty members who are teaching “MATHS” such that they should now also teach “PSK”.

```
ems> db.faculty.updateMany({subjects:'MATHS'},{$push:{subjects:'PSK'}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 3,
  modifiedCount: 3,
  upsertedCount: 0
}
ems>
```

12. Delete all faculty members whose age is more than 55 years.

```
ems> db.faculty.deleteMany({age:{$gt:55}})
{ acknowledged: true, deletedCount: 1 }
ems>
```

13. Get only the name and qualification of all faculty members.

```
ems> db.faculty.find({},{name:1,qualification:1})
[
  {
    _id: ObjectId("63f6166c3249f2221daa3d1a"),
    name: 'Krish',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1b"),
    name: 'Manoj',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1c"),
    name: 'Anush',
    qualification: 'M.Tech'
  },
```

14. Get the name, qualification and exp of all faculty members and display the same in ascending order of exp.

```
ems> db.faculty.find({},{name:1,qualification:1}).sort({exp:1})
[
  {
    _id: ObjectId("63f6166c3249f2221daa3d1e"),
    name: 'Rajesh',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1c"),
    name: 'Anush',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d20"),
    name: 'Sivani',
    qualification: 'Ph.D'
```

15. Sort the faculty details by their age (descending order) and get the details of the first five faculty members only.

```
ems> db.faculty.find({}).sort({age:-1}).limit(5)
[
  {
    _id: ObjectId("63f6166c3249f2221daa3d23"),
    name: 'Latha',
    age: 41,
    gender: 'F',
    exp: 14,
    subjects: [ 'MATHS', 'PSK' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f6166c3249f2221daa3d1d"),
    name: 'Suresh',
    age: 41,
    gender: 'M',
    exp: 10,
```