MongoDB_Lab1

1 – open mongo shell and view the help

2 – identify your current working database and show list of available databases

```
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
```

4– show list of available databases. What did you notice?

```
   m_iti> show dbs
Nursery_DB          68.00 KiB
Nursery_Project    372.00 KiB
_ITI                72.00 KiB
admin               40.00 KiB
config             108.00 KiB
local               80.00 KiB
m_iti               40.00 KiB
```

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: "Tasbeeh", age: 20, hobbies: ["reading", "writing"] },
    { name: "Nade", age: 25, address: { street: "123 Main St", city: "New
York", state: "NY" } },
    { name: "Menna", age: 22, interests: { music: "rock", sports:
"basketball" } },
    { name: "Claudine", age: 19, grades: [80, 85, 90] },
    { name: "Jessica", age: 27, pet: { name: "Fluffy", type: "cat" } },
    { name: "Yazen", age: 24, siblings: { brother: "John", sister: "Lisa" }
},
    { name: "Shrouk", age: 21, books: [{ title: "Harry Potter", author:
"J.K. Rowling" }, { title: "The Great Gatsby", author: "F. Scott
Fitzgerald" }] },
    { name: "Arwa", age: 23, phone: 1234567890 },
```

```
    { name: "Loka", age: 26, job: { title: "Software Engineer", company:
"Google" } },
    { name: "Khadija", age: 18, hobbies: ["drawing", "painting"],
interests: { music: "pop", sports: "volleyball" } }
  ])
```

6 – Search for your object by name.

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

7– Search for your friend(s) by age.

```
db.students.find({ age: 25 })
```

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

```
    db.students.find({ age: { $gt: "Your Age" } })
```

9 – delete any of your friends by id.

```
db.students.deleteOne({ _id: ObjectId("6437fbc18a4893c92f7af638")})
```

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

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

11 – count all documents in students' collection.

```
db.students.count()
```

----

part 2

1- Create database with name ems

2- use 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"}

```
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"}
  ]);
```

1. Get the details of all the faculty.
2.
```
db.faculty.find()
```

3. Get the count of all faculty members.

```
d b.faculty.count()
```

4. Get all the faculty members whose qualification is "Ph.D".
5.
```
db.faculty.find({qualification: "Ph.D"})
```

4. Get all the faculty members whose experience is between 8 to 12 years.
```
db.faculty.find({exp: {$gte: 8, $lte: 12}})
```

6. Get all the faculty members who teach "MATHS" or "NETWORKING".
7.
```
db.faculty.find({subjects: {$in: ["MATHS", "NETWORKING"]}})
```

6. Get all the faculty members who teach "MATHS" and whose age is more than 30 years and qualification must be "Ph.D".
```
db.faculty.find({$and:[{subjects:'MATHS'},{age:{$gt:30}},{qualification:'P
h.D'}]})
```

7. Get all the faculty members who are working part-time or who teach "JAVA".
```
db.faculty.find( { $or: [ { type: "Part Time" }, { subjects: "JAVA" } ] } )
```

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

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

```
db.faculty.updateMany({}, {$inc: {age: 1, exp: 1}})
```

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

```
db.faculty.updateOne({name: "Sivani"}, {$set: {qualification: "Ph.D", type: "Full Time"}})
```

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

```
db.faculty.updateMany({subjects: "MATHS"}, {$addToSet: {subjects: "PSK"}})
```

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

```
db.faculty.deleteMany({age: {$gt: 55}})
```

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

```
db.faculty.find({}, {name: 1, qualification: 1})
```

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

```
db.faculty.find({}, {name: 1, qualification: 1, exp: 1}).sort({exp: 1})
```

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

```
db.faculty.find().sort({age: -1}).limit(5)
```

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("6437fbc18a4893c92f7af637"),
    '1': ObjectId("6437fbc18a4893c92f7af638"),
    '2': ObjectId("6437fbc18a4893c92f7af639"),
    '3': ObjectId("6437fbc18a4893c92f7af63a"),
    '4': ObjectId("6437fbc18a4893c92f7af63b"),
    '5': ObjectId("6437fbc18a4893c92f7af63c"),
    '6': ObjectId("6437fbc18a4893c92f7af63d"),
    '7': ObjectId("6437fbc18a4893c92f7af63e"),
    '8': ObjectId("6437fbc18a4893c92f7af63f"),
    '9': ObjectId("6437fbc18a4893c92f7af640")
  }
```

```
...      { "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("6437fe808a4893c92f7af642"),
    '1': ObjectId("6437fe808a4893c92f7af643"),
    '2': ObjectId("6437fe808a4893c92f7af644"),
    '3': ObjectId("6437fe808a4893c92f7af645"),
    '4': ObjectId("6437fe808a4893c92f7af646"),
    '5': ObjectId("6437fe808a4893c92f7af647"),
    '6': ObjectId("6437fe808a4893c92f7af648"),
    '7': ObjectId("6437fe808a4893c92f7af649"),
    '8': ObjectId("6437fe808a4893c92f7af64a"),
    '9': ObjectId("6437fe808a4893c92f7af64b")
  }
}
```

```
ems> db.faculty.find();
```

```
ems> db.faculty.find({$and:[{subjects:'MATHS'},{age:{$gt:30}},{qualification:'Ph.D'}]})
[
  {
    _id: ObjectId("6437fe808a4893c92f7af64b"),
    name: 'Latha',
    age: 40,
    gender: 'F',
    exp: 13,
    subjects: [ 'MATHS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  }
]
ems> db.faculty.find({$or:[{type:'Part Time'},{subjects:'JAVA'}]});
[
  {
    _id: ObjectId("6437fe808a4893c92f7af643"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af644"),
    name: 'Anush',
    age: 32,
    gender: 'F',
    exp: 8,
    subjects: [ 'C', 'CPP' ],
    type: 'Part Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af645"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af647"),
    name: 'Mani',
    age: 38,
    gender: 'F',
```

```
ems> db.faculty.updateMany({},{$inc:{age:1,exp:1}});
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 11,
  modifiedCount: 11,
  upsertedCount: 0
}
ems> db.faculty.updateOne({name:'Sivani'},{$set:{qualification:'Ph.D',type:"Full Time"}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
ems> db.faculty.updateMany({subjects:"MATHS"},{$addToSet:{'PSK'}})
Uncaught:
SyntaxError: Unexpected token (1:58)

> 1 | db.faculty.updateMany({subjects:"MATHS"},{$addToSet:{'PSK'}})
    |                                                          ^
  2 |

ems> db.faculty.deleteMany({age: {$gt: 55}})
{ acknowledged: true, deletedCount: 1 }
ems> db.faculty.find({},{name:1,qualification:1})
[
  {
    _id: ObjectId("6437fe808a4893c92f7af642"),
    name: 'Krish',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af643"),
    name: 'Manoj',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af644"),
    name: 'Anush',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af645"),
    name: 'Suresh',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af646"),
```

```
ems> db.faculty.find({}, {name: 1, qualification: 1, exp: 1}).sort({exp: 1})
[
  {
    _id: ObjectId("6437fe808a4893c92f7af646"),
    name: 'Rajesh',
    exp: 8,
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af644"),
    name: 'Anush',
    exp: 9,
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af648"),
    name: 'Sivani',
    exp: 9,
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af645"),
    name: 'Suresh',
    exp: 10,
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af64a"),
    name: 'Nagesh',
    exp: 10,
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af642"),
    name: 'Krish',
    exp: 11,
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af647"),
    name: 'Mani',
    exp: 11,
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af649"),
    name: 'Nagesh',
    exp: 12,
    qualification: 'Ph.D'
```

```
  }
]
ems> db.faculty.find().sort({age:-1}).limit(5)
[
  {
    _id: ObjectId("6437fe808a4893c92f7af64b"),
    name: 'Latha',
    age: 41,
    gender: 'F',
    exp: 14,
    subjects: [ 'MATHS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af645"),
    name: 'Suresh',
    age: 41,
    gender: 'M',
    exp: 10,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af649"),
    name: 'Nagesh',
    age: 40,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af647"),
    name: 'Mani',
    age: 39,
    gender: 'F',
    exp: 11,
    subjects: [ 'JAVA', 'DBMS', 'OS' ],
    type: 'Part Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6437fe808a4893c92f7af643"),
    name: 'Manoj',
    age: 39,
    gender: 'M',
    exp: 13,
```

|← ← → →| | 50 ⌄ | Documents 1 to 10 | 🔒 📄 📄 📄 ☑ ❌ 📄 | 📌 Pin Result {⟨⟩} Query Code 💡 Explain Query | Table View ⌄ | ⚙

students › name

_id	name	age	hobbies	address	interests	grades	pet	siblings
6437fb30778440...	Tasbeeh	20	[2 elements]					
6437fb30778440...	Nade	25		{ 3 fields }				
6437fb30778440...	Menna	22			{ 2 fields }			
6437fb30778440...	Claudine	19				[3 elements]		
6437fb30778440...	Jessica	27					{ 2 fields }	
6437fb30778440...	Yazen	24						{ 2 fields }
6437fb30778440...	Shrouk	21						
6437fb30778440...	Arwa	23						
6437fb30778440...	Loka	26						
6437fb30778440...	Khadija	18	[2 elements]		{ 2 fields }			

faculty › name

_id	name	age	gender	exp	subjects	type	qualification
6437fe808a4893...	Krish	36	M	11	[3 elements]	Full Time	M.Tech
6437fe808a4893...	Manoj	39	M	13	[2 elements]	Full Time	Ph.D
6437fe808a4893...	Anush	33	F	9	[2 elements]	Part Time	M.Tech
6437fe808a4893...	Suresh	41	M	10	[3 elements]	Full Time	Ph.D
6437fe808a4893...	Rajesh	36	M	8	[3 elements]	Full Time	M.Tech
6437fe808a4893...	Mani	39	F	11	[3 elements]	Part Time	Ph.D
6437fe808a4893...	Sivani	33	F	9	[3 elements]	Full Time	Ph.D
6437fe808a4893...	Nagesh	40	M	12	[3 elements]	Full Time	Ph.D
6437fe808a4893...	Nagesh	36	M	10	[3 elements]	Full Time	Ph.D
6437fe808a4893...	Latha	41	F	14	[1 elements]	Full Time	Ph.D