

1 – open mongo shell and view the help

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

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).

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

```
test> show dbs
ITI      184.00 KiB
admin    40.00 KiB
config   60.00 KiB
iti1     48.00 KiB
local    72.00 KiB
test> use iti1
switched to db iti1
```

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).

```
iti1> db.friends.insertMany([ { "name": "John", "age": 25, "interests": ["sp
...
...   "job": {
...     "title": "software engineer",
...     "company": "XYZ Corp"
...   },
...   "location": {
...     "city": "New York",
...     "state": "NY",
...     "country": "USA"
...   }
... },
... {
...   "name": "Emily",
...   "age": 28,
...   "interests": ["travel", "photography"],
...   "job": {
...     "title": "marketing manager",
...     "company": "ABC Corp"
...   },
... },
... ])
```

6 – Search for your object by name.

```
ti1> db.student.find({ name: "Rougina" })
{
  _id: ObjectId("6439586a8dae5ada1b60a997"),
  name: 'Rougina',
  age: 25
}
```

7– Search for your friend(s) by age.

```
ti1> db.friends.find({ age: 25 })
{
  _id: ObjectId("6439728c4fce4d7627c985d5"),
  name: 'John',
  age: 25,
  interests: [ 'sports', 'music' ],
  job: { title: 'software engineer', company: 'XYZ Corp' },
  location: { city: 'New York', state: 'NY', country: 'USA' }
}
```

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

```
it11> db.friends.find({ age: { $gt: 25 } })
[
  {
    _id: ObjectId("6439728c4fce4d7627c985d6"),
    name: 'Emily',
    age: 28,
    interests: [ 'travel', 'photography' ],
    job: { title: 'marketing manager', company: 'ABC Corp' },
    location: { city: 'London', country: 'UK' }
  },
  {
    _id: ObjectId("6439728c4fce4d7627c985d7"),
    name: 'Michael',
    age: 30,
    interests: [ 'reading', 'hiking' ],
    job: {
      title: 'teacher',
      school: { name: 'XYZ School', location: 'Chicago' }
    },
    location: { city: 'Chicago', state: 'IL', country: 'USA' }
  },
  {
    _id: ObjectId("6439728c4fce4d7627c985d8"),
    name: 'Sarah',
    age: 27,
    interests: [ 'cooking', 'yoga' ],
    job: { title: 'sales representative', company: 'ABC Corp' },
    location: { city: 'Los Angeles', state: 'CA', country: 'USA' }
  },
]
```

9 – delete any of your friends by id.

```
it11> db.friends.deleteOne({ _id: ObjectId("6439728c4fce4d7627c985d9") })
{ acknowledged: true, deletedCount: 1 }
```

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

```
it11> db.student.find().pretty()
[
  {
    _id: ObjectId("6439586a8dae5ada1b60a997"),
    name: 'Rougina',
    age: 25
  }
]
```

11 – count all documents in students' collection.

```
iti1> db.student.countDocuments()  
1  
iti1> db.friends.countDocuments()  
4
```

part 2

1- Create database with name 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" }
```

```

ems> 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("6439884d4fce4d7627c985da"),
    '1': ObjectId("6439884d4fce4d7627c985db"),
    '2': ObjectId("6439884d4fce4d7627c985dc"),
ems>
    '4': ObjectId("6439884d4fce4d7627c985de"),
    '5': ObjectId("6439884d4fce4d7627c985df"),
    '6': ObjectId("6439884d4fce4d7627c985e0"),
    '7': ObjectId("6439884d4fce4d7627c985e1"),
    '8': ObjectId("6439884d4fce4d7627c985e2"),
    '9': ObjectId("6439884d4fce4d7627c985e3")
  }
}

```

1. Get the details of all the faculty.

```

ems> db.faculty.find().pretty()
[
  {
    _id: ObjectId("6439884d4fce4d7627c985da"),
    name: 'Krish',
    age: 35,
    gender: 'M',
    exp: 10,
    subjects: [ 'DS', 'C', 'OS' ],
    type: 'Full Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985db"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985dc"),
    name: 'Anush',
    age: 32,

```

2. Get the count of all faculty members.

```

ems> db.faculty.countDocuments()
10

```

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

```
ems> db.faculty.find({ qualification: "Ph.D" })
[
  {
    _id: ObjectId("6439884d4fce4d7627c985db"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985dd"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985df"),
    name: 'Mani',
    age: 38,
    gender: 'F',
    exp: 10,
    subjects: [ 'JAVA', 'DBMS', 'OS' ],
    type: 'Part Time',
    qualification: 'Ph.D'
  }
]
```

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

```
ems> db.faculty.find({ exp: { $gte: 8, $lte: 12 } })
[
  {
    _id: ObjectId("6439884d4fce4d7627c985da"),
    name: 'Krish',
    age: 35,
    gender: 'M',
    exp: 10,
    subjects: [ 'DS', 'C', 'OS' ],
    type: 'Full Time',
    qualification: 'M.Tech'
  }
]
```

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

```
ems> db.faculty.find({ subjects: { $in: ["MATHS", "NETWORKING"] } })
[
  {
    _id: ObjectId("6439884d4fce4d7627c985dd"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
]
```

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("6439884d4fce4d7627c985e3"),
    name: 'Latha',
    age: 40,
    gender: 'F',
    exp: 13,
    subjects: [ 'MATHS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  }
]
```

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("6439884d4fce4d7627c985db"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985dc"),
    name: 'Anush',
    age: 32,
    gender: 'F',
    exp: 8,
    subjects: [ 'C', 'CPP' ],
    type: 'Part Time',
    qualification: 'M.Tech'
  },
  {

```

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("64398feb4fce4d7627c985e4")
}

```

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}})

```


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  
}
```

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: 4,  
  modifiedCount: 4,  
  upsertedCount: 0  
}
```

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

```
ems> db.faculty.deleteMany({ age: { $gt: 55 } })
{ acknowledged: true, deletedCount: 2 }
```

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

```
ems> db.faculty.find({}, {_id:0, name:1, qualification:1})
[
  { name: 'Krish', qualification: 'M.Tech' },
  { name: 'Manoj', qualification: 'Ph.D' },
  { name: 'Anush', qualification: 'M.Tech' },
  { name: 'Suresh', qualification: 'Ph.D' },
  { name: 'Rajesh', qualification: 'M.Tech' },
  { name: 'Mani', qualification: 'Ph.D' },
  { name: 'Sivani', qualification: 'Ph.D' },
  { name: 'Nagesh', qualification: 'Ph.D' },
  { name: 'Nagesh', qualification: 'Ph.D' },
  { name: 'Latha', qualification: 'Ph.D' }
]
```

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, exp: 1, _id: 0}).sort({exp: 1})
[
  { name: 'Rajesh', exp: 8, qualification: 'M.Tech' },
  { name: 'Anush', exp: 9, qualification: 'M.Tech' },
  { name: 'Sivani', exp: 9, qualification: 'Ph.D' },
  { name: 'Suresh', exp: 10, qualification: 'Ph.D' },
  { name: 'Nagesh', exp: 10, qualification: 'Ph.D' },
  { name: 'Krish', exp: 11, qualification: 'M.Tech' },
  { name: 'Mani', exp: 11, qualification: 'Ph.D' },
  { name: 'Nagesh', exp: 12, qualification: 'Ph.D' },
  { name: 'Manoj', exp: 13, qualification: 'Ph.D' },
  { name: 'Latha', exp: 14, 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).projection({name: 1, age: 1, qualification: 1})
[
  {
    _id: ObjectId("6439884d4fce4d7627c985e3"),
    name: 'Latha',
    age: 41,
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985dd"),
    name: 'Suresh',
    age: 41,
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985e1"),
    name: 'Nagesh',
    age: 40,
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985df"),
    name: 'Mani',
    age: 39,
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("6439884d4fce4d7627c985db"),
    name: 'Manoj',
    age: 39,
    qualification: 'Ph.D'
  }
]
```