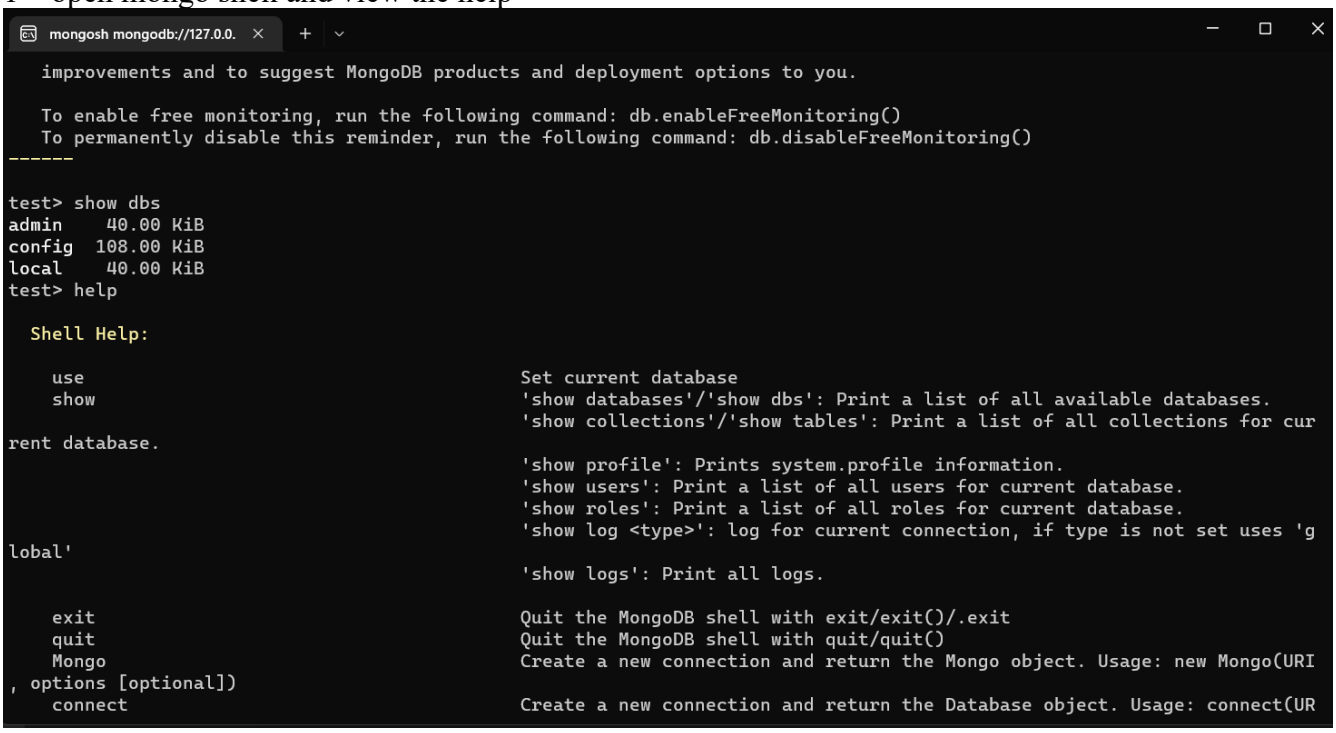
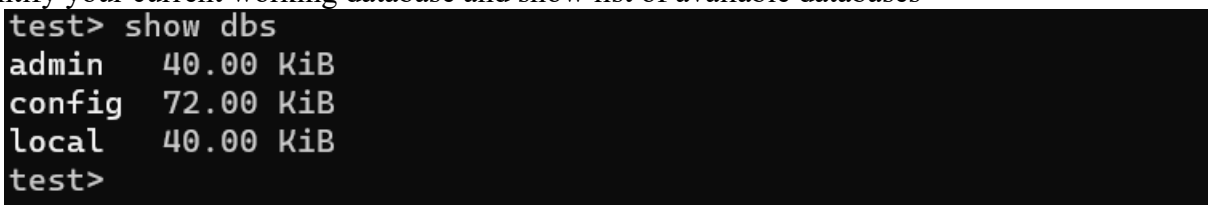
MongoDB_Lab1

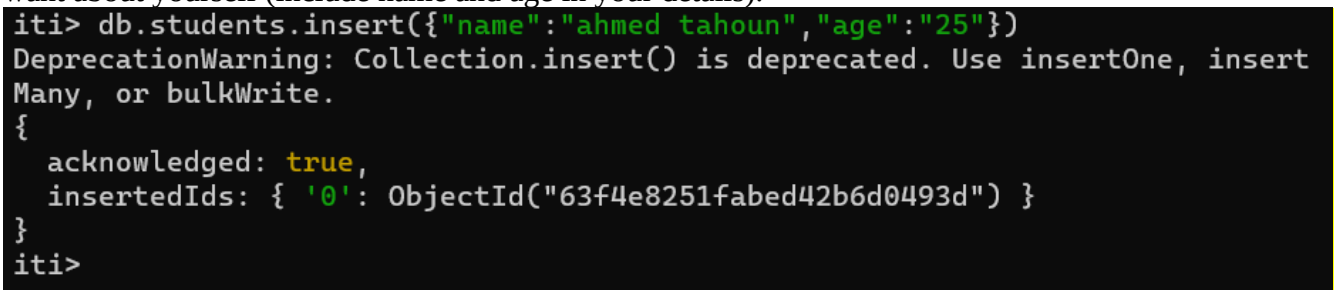
1 – open mongo shell and view the help



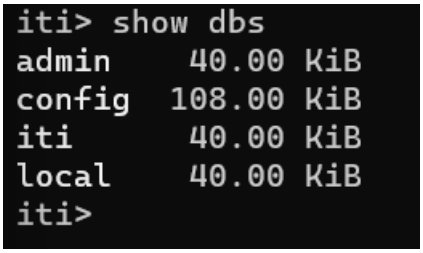
2 – identify your current working database and show list of available databases



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 ?



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).

```
iti> db.students.find()
[
  {
    _id: ObjectId("63f4e8251fabed42b6d0493d"),
    name: 'ahmed tahoun',
    age: '25'
  },
  {
    _id: 1,
    firstName: 'ahmed',
    lastName: 'mohamed',
    age: 30,
    email: [ 'ahme@gmail.com', 'ahdsj@yahoo.com' ]
  },
  {
    _id: 2,
    firstName: 'Sachin',
    lastName: 'T',
    age: 25,
    email: [ 'sachin.t@abc.com', 'sha@yahoo.com' ]
  },
  {
    _id: 3,
    firstName: 'mazen',
    lastName: 'ahmed',
    age: 30,
    email: [ 'mazen@gmail.com', 'ma@yahoo.com' ]
  },
  {
    _id: 4,
    firstName: 'abdullah',
    lastName: 'tahoun',
    age: 21,
    email: [ 'ahmesdfd@gmail.com', 'said@yahoo.com' ]
  },
  {
    _id: 5,
```

```
{
  _id: 5,
  firstName: 'zayed',
  lastName: 'mohammed',
  age: 22,
  email: [ 'zayed@gmail.com', 'zayed@yahoo.com' ]
},
{
  _id: 6,
  firstName: 'abdulrahman',
  lastName: 'said',
  age: 23,
  email: [ 'abdo@gmail.com', 'abdo@yahoo.com' ]
},
{
  _id: 7,
  firstName: 'khaled',
  lastName: 'abdullah',
  age: 23,
  email: [ 'khaled@gmail.com', 'khaled@yahoo.com' ]
},
{
  _id: 8,
  firstName: 'hisham',
  lastName: 'said',
  age: 24,
  email: [ 'hisham@gmail.com', 'hisham@yahoo.com' ]
},
{
  _id: 9,
  firstName: 'yasser',
  lastName: 'abdo',
  age: 20,
  email: [ 'yasser@gmail.com', 'yasser@yahoo.com' ]
},
{
  _id: 10,
  firstName: 'zain',
```

6 – Search for your object by name.

```
iti> db.students.findOne({firstName:"zain"})
{
  _id: 10,
  firstName: 'zain',
  lastName: 'ahmed',
  age: 25,
  email: [ 'zain@gmail.com', 'zain@yahoo.com' ]
}
```

7– Search for your friend(s) by age.

```
iti> db.students.find({age:30})
[
  {
    _id: 1,
    firstName: 'ahmed',
    lastName: 'mohamed',
    age: 30,
    email: [ 'ahme@gmail.com', 'ahdsj@yahoo.com' ]
  },
  {
    _id: 3,
    firstName: 'mazen',
    lastName: 'ahmed',
    age: 30,
    email: [ 'mazen@gmail.com', 'ma@yahoo.com' ]
  }
]
```

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

```
iti> db.students.find({age:{$gt:24}})
[
  {
    _id: 1,
    firstName: 'ahmed',
    lastName: 'mohamed',
    age: 30,
    email: [ 'ahme@gmail.com', 'ahdsj@yahoo.com' ]
  },
  {
    _id: 2,
    firstName: 'Sachin',
    lastName: 'T',
    age: 25,
    email: [ 'sachin.t@abc.com', 'sha@yahoo.com' ]
  },
  {
    _id: 3,
    firstName: 'mazen',
    lastName: 'ahmed',
    age: 30,
    email: [ 'mazen@gmail.com', 'ma@yahoo.com' ]
  },
  {
    _id: 10,
    firstName: 'zain',
    lastName: 'ahmed',
    age: 25,
    email: [ 'zain@gmail.com', 'zain@yahoo.com' ]
  }
]
```

9 – delete any of your friends by id.

```
iti> db.students.deleteOne({_id:10})
{ acknowledged: true, deletedCount: 1 }
```

```
    firstName: 'hisham',
    lastName: 'said',
    age: 24,
    email: [ 'hisham@gmail.com', 'hisham@yahoo.com' ]
  },
  {
    _id: 9,
    firstName: 'yasser',
    lastName: 'abdo',
    age: 20,
    email: [ 'yasser@gmail.com', 'yasser@yahoo.com' ]
  }
]
iti>
```

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

```
iti> db.students.find().pretty()
[
  {
    _id: ObjectId("63f4e8251fabed42b6d0493d"),
    name: 'ahmed tahoun',
    age: '25'
  },
  {
    _id: 1,
    firstName: 'ahmed',
    lastName: 'mohamed',
    age: 30,
    email: [ 'ahme@gmail.com', 'ahdsj@yahoo.com' ]
  },
  {
    _id: 2,
    firstName: 'Sachin',
    lastName: 'T',
    age: 25,
    email: [ 'sachin.t@abc.com', 'sha@yahoo.com' ]
  },
  {
    _id: 3,
    firstName: 'mazen',
    lastName: 'ahmed',
    age: 30,
    email: [ 'mazen@gmail.com', 'ma@yahoo.com' ]
  },
  {
    _id: 4,
```

11 – count all documents in students collection.

```
iti> db.students.count()
DeprecationWarning: Collection.count() is deprecated. Use countDocuments or
estimatedDocumentCount.
10
iti>
```

---

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"},

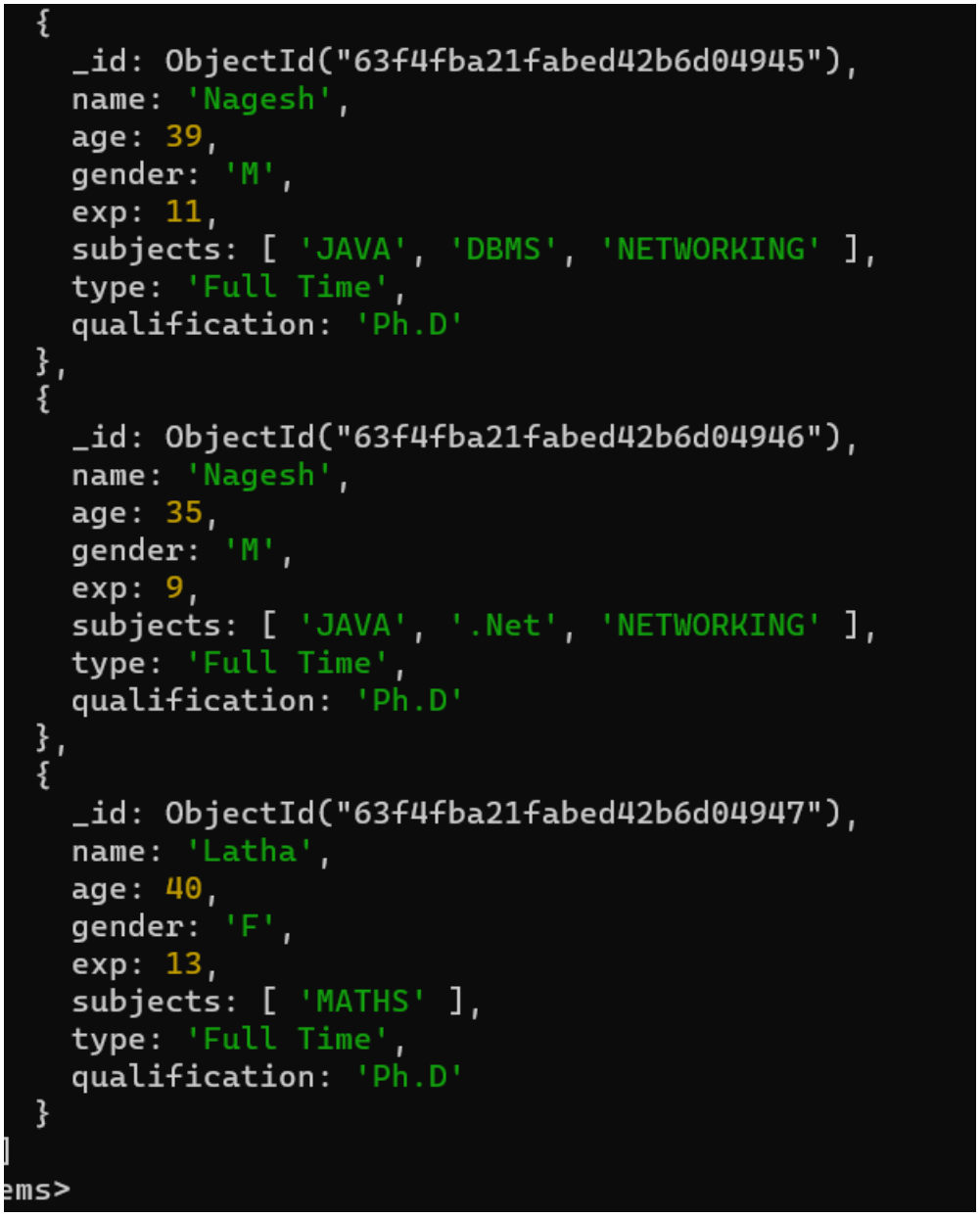
{ "name":"Nagesh", "age":35,"gender":"M","exp":9,subjects:["JAVA",".Net","NETWORKING"],"type":"Full Time", "qualification":"Ph.D"},

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

1. Get the details of all the faculty.

```
ems> db.faculty.find()
[
  {
    _id: ObjectId("63f4fba21fabed42b6d0493e"),
    name: 'Krish',
    age: 35,
    gender: 'M',
    exp: 10,
    subjects: [ 'DS', 'C', 'OS' ],
    type: 'Full Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d0493f"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04940"),
    name: 'Anush',
    age: 32,
    gender: 'F',
    exp: 8,
    subjects: [ 'C', 'CPP' ],
    type: 'Part Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04941"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
```

```
  exp: 9,
  subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
  type: 'Full Time',
  qualification: 'Ph.D'
},
{
  _id: ObjectId("63f4fba21fabed42b6d04942"),
  name: 'Rajesh',
  age: 35,
  gender: 'M',
  exp: 7,
  subjects: [ 'DS', 'C', 'OS' ],
  type: 'Full Time',
  qualification: 'M.Tech'
},
{
  _id: ObjectId("63f4fba21fabed42b6d04943"),
  name: 'Mani',
  age: 38,
  gender: 'F',
  exp: 10,
  subjects: [ 'JAVA', 'DBMS', 'OS' ],
  type: 'Part Time',
  qualification: 'Ph.D'
},
{
  _id: ObjectId("63f4fba21fabed42b6d04944"),
  name: 'Sivani',
  age: 32,
  gender: 'F',
  exp: 8,
  subjects: [ 'C', 'CPP', 'MATHS' ],
  type: 'Part Time',
  qualification: 'M.Tech'
},
{
  _id: ObjectId("63f4fba21fabed42b6d04945"),
```



2. Get the count of all faculty members

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

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

```
ems> db.faculty.find({qualification:"Ph.D"})
[
  {
    _id: ObjectId("63f4fba21fabed42b6d0493f"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04941"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04943"),
    name: 'Mani',
    age: 38,
    gender: 'F',
    exp: 10,
    subjects: [ 'JAVA', 'DBMS', 'OS' ],
    type: 'Part Time',
    qualification: 'Ph.D'
  },
```

```
  {
    _id: ObjectId("63f4fba21fabed42b6d04945"),
    name: 'Nagesh',
    age: 39,
    gender: 'M',
    exp: 11,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04946"),
    name: 'Nagesh',
    age: 35,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', '.Net', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04947"),
    name: 'Latha',
    age: 40,
    gender: 'F',
    exp: 13,
    subjects: [ 'MATHS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  }
]
ems>
```

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

```
ems> db.faculty.find({exp:{$gt:7,$lt:13}})
[
  {
    _id: ObjectId("63f4fba21fabed42b6d0493e"),
    name: 'Krish',
    age: 35,
    gender: 'M',
    exp: 10,
    subjects: [ 'DS', 'C', 'OS' ],
    type: 'Full Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d0493f"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04940"),
    name: 'Anush',
    age: 32,
    gender: 'F',
    exp: 8,
    subjects: [ 'C', 'CPP' ],
    type: 'Part Time',
    qualification: 'M.Tech'
  },
```

```
{
  _id: ObjectId("63f4fba21fabed42b6d04941"),
  name: 'Suresh',
  age: 40,
  gender: 'M',
  exp: 9,
  subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
  type: 'Full Time',
  qualification: 'Ph.D'
},
{
  _id: ObjectId("63f4fba21fabed42b6d04943"),
  name: 'Mani',
  age: 38,
  gender: 'F',
  exp: 10,
  subjects: [ 'JAVA', 'DBMS', 'OS' ],
  type: 'Part Time',
  qualification: 'Ph.D'
},
{
  _id: ObjectId("63f4fba21fabed42b6d04944"),
  name: 'Sivani',
  age: 32,
  gender: 'F',
  exp: 8,
  subjects: [ 'C', 'CPP', 'MATHS' ],
  type: 'Part Time',
  qualification: 'M.Tech'
},
{
  _id: ObjectId("63f4fba21fabed42b6d04945"),
  name: 'Nagesh',
  age: 39,
  gender: 'M',
  exp: 11,
  subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
```

```
{
  _id: ObjectId("63f4fba21fabed42b6d04946"),
  name: 'Nagesh',
  age: 35,
  gender: 'M',
  exp: 9,
  subjects: [ 'JAVA', '.Net', 'NETWORKING' ],
  type: 'Full Time',
  qualification: 'Ph.D'
}

ms>
```

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

```
ems> db.faculty.find({subjects:{$in:["MATHS","NETWORKING"]}})
[
  {
    _id: ObjectId("63f4fba21fabed42b6d04941"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04944"),
    name: 'Sivani',
    age: 32,
    gender: 'F',
    exp: 8,
    subjects: [ 'C', 'CPP', 'MATHS' ],
    type: 'Part Time',
    qualification: 'M.Tech'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04945"),
    name: 'Nagesh',
    age: 39,
    gender: 'M',
    exp: 11,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
```

```
  {
    _id: ObjectId("63f4fba21fabed42b6d04946"),
    name: 'Nagesh',
    age: 35,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', '.Net', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04947"),
    name: 'Latha',
    age: 40,
    gender: 'F',
    exp: 13,
    subjects: [ 'MATHS' ],
    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({subjects:"MATHS",age:{$gt:30},qualification:"Ph.D"})
[
  {
    _id: ObjectId("63f4fba21fabed42b6d04947"),
    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:[{subjects:"JAVA"},{type:"Part time"}]})
[
  {
    _id: ObjectId("63f4fba21fabed42b6d0493f"),
    name: 'Manoj',
    age: 38,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04941"),
    name: 'Suresh',
    age: 40,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04943"),
    name: 'Mani',
    age: 38,
    gender: 'F',
    exp: 10,
    subjects: [ 'JAVA', 'DBMS', 'OS' ],
    type: 'Part Time',
    qualification: 'Ph.D'
  },
```

```
  {
    _id: ObjectId("63f4fba21fabed42b6d04945"),
    name: 'Nagesh',
    age: 39,
    gender: 'M',
    exp: 11,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04946"),
    name: 'Nagesh',
    age: 35,
    gender: 'M',
    exp: 9,
    subjects: [ 'JAVA', '.Net', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  }
]
```

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.insert({ "name":"Suresh Babu", "age":55,"gender":"M","exp":2
5,subjects: ["MATHS","DE"],"type":"Full Time", "qualification":"Ph.
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("63f5370c133228dcd714ad82")
}
```

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>
```

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,
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({},{_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' }
]
ems>
```

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

```
ems> db.faculty.find({},{ _id: 0,name:1 ,qualification: 1, exp: 1 }).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' }
]
ems>
```

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("63f4fba21fabed42b6d04947"),
    name: 'Latha',
    age: 41,
    gender: 'F',
    exp: 14,
    subjects: [ 'MATHS', 'PSK' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04941"),
    name: 'Suresh',
    age: 41,
    gender: 'M',
    exp: 10,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d04945"),
    name: 'Nagesh',
    age: 40,
    gender: 'M',
    exp: 12,
    subjects: [ 'JAVA', 'DBMS', 'NETWORKING' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  },
```

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    _id: ObjectId("63f4fba21fabed42b6d04943"),
    name: 'Mani',
    age: 39,
    gender: 'F',
    exp: 11,
    subjects: [ 'JAVA', 'DBMS', 'OS' ],
    type: 'Part Time',
    qualification: 'Ph.D'
  },
  {
    _id: ObjectId("63f4fba21fabed42b6d0493f"),
    name: 'Manoj',
    age: 39,
    gender: 'M',
    exp: 13,
    subjects: [ 'JAVA', 'DBMS' ],
    type: 'Full Time',
    qualification: 'Ph.D'
  }
]
ems>
```