Experiment 9

Shashwat Shah
60004220126
TYBtech Comps B

Aim: Perform crud operations using mongo DB

Theory: MongoDB is an open source document-oriented databa
The term 'NoSQL' means non-relational.
MongoDB isnt based on the table-like relational database structure but provides an altogether different mechanism for storage and retrieval of data.
This format of storage is called BSON.
CRUD operations create, read, update and delete documents.
Create operations → add new documents to a collection.

```
db. users. insertOne (
{
    name : "sue"
    age : 26
    status : "pending'
}
)
```

Read operations : retrieve documents from a collection

```
db.users.find (
  { age : { $gt : 18 }}
   { name : 1   address : 1 }
   ) ; limit (5)
```

update operations → Modify existing documents in a collecton.

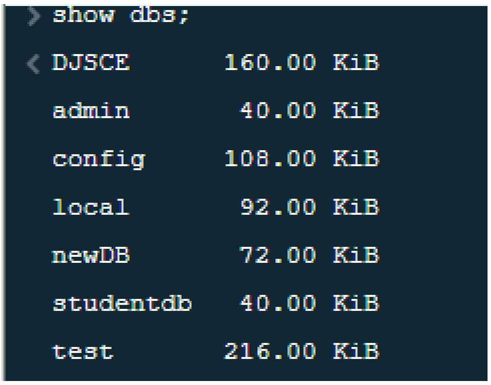
```
db. users. updatemany (
    { age : { $lt : 18}}
    { set : { status : 'reject"}}
```

Delete operatory → remove documents from a collection

```
    db. users . deleteMany (
        {status ; 'rejed }
  ).
```

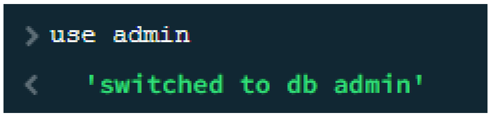
<u>Conclusion</u>: Thus we performd CRUD operations using MongoDB

1. Show existing databases.



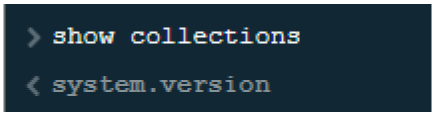
```
> show dbs;
< DJSCE       160.00 KiB
  admin        40.00 KiB
  config      108.00 KiB
  local        92.00 KiB
  newDB        72.00 KiB
  studentdb    40.00 KiB
  test        216.00 KiB
```

2. Use one the database.



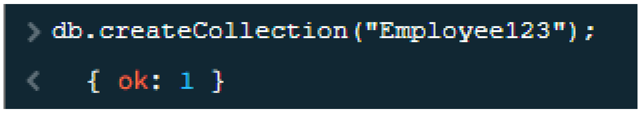
```
> use admin
<   'switched to db admin'
```

3. Show collections in the above database, say example: admin



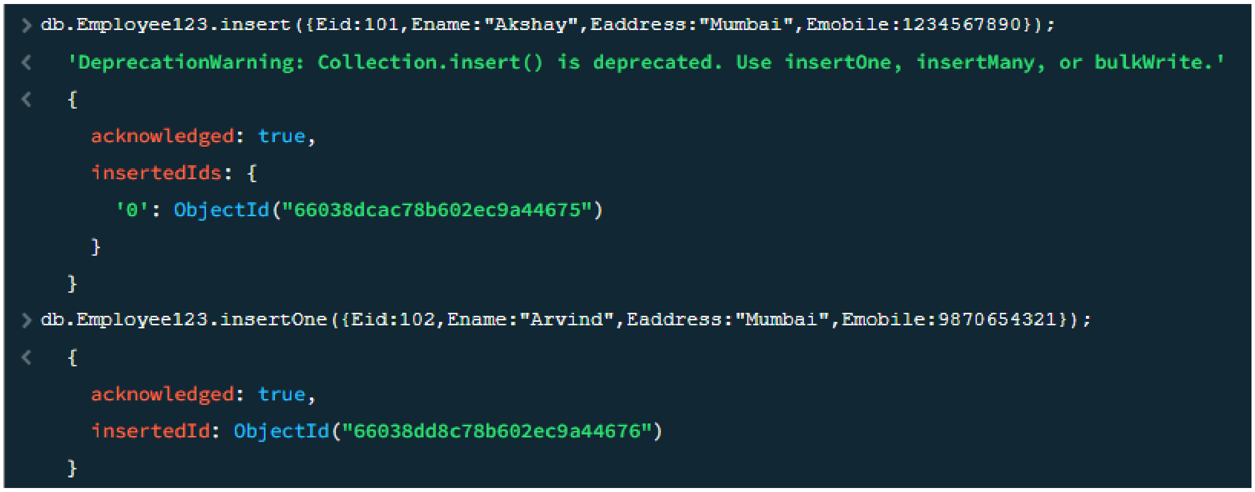
```
> show collections
< system.version
```

4. Create a new collection say, Employee. (Create as Employee with last 3 digits of SAPID, eg. Employee123)



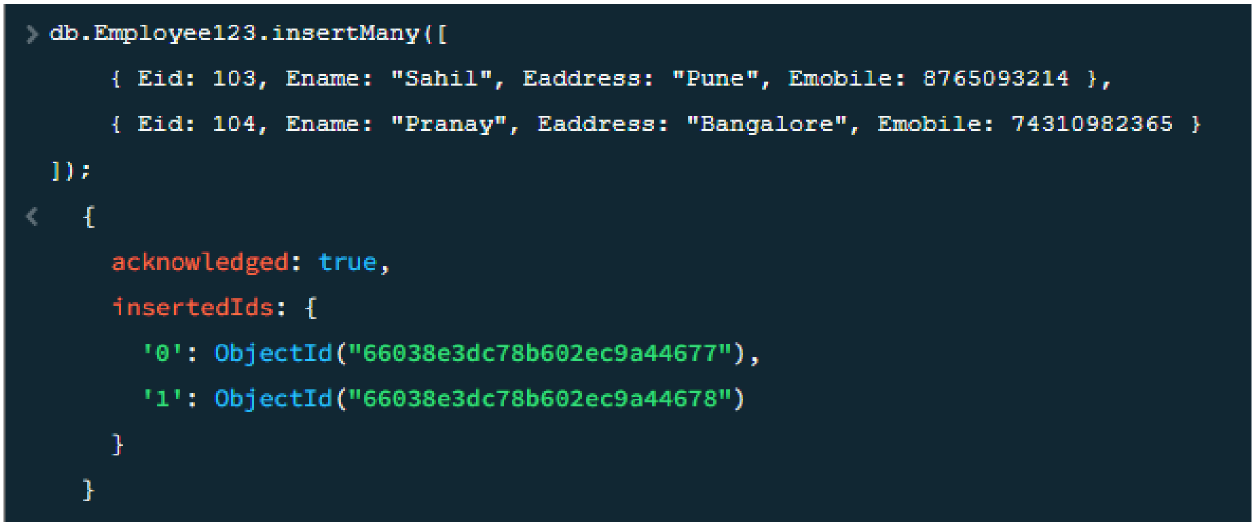
```
> db.createCollection("Employee123");
<   { ok: 1 }
```

5. Insert one tuple in the collection as:



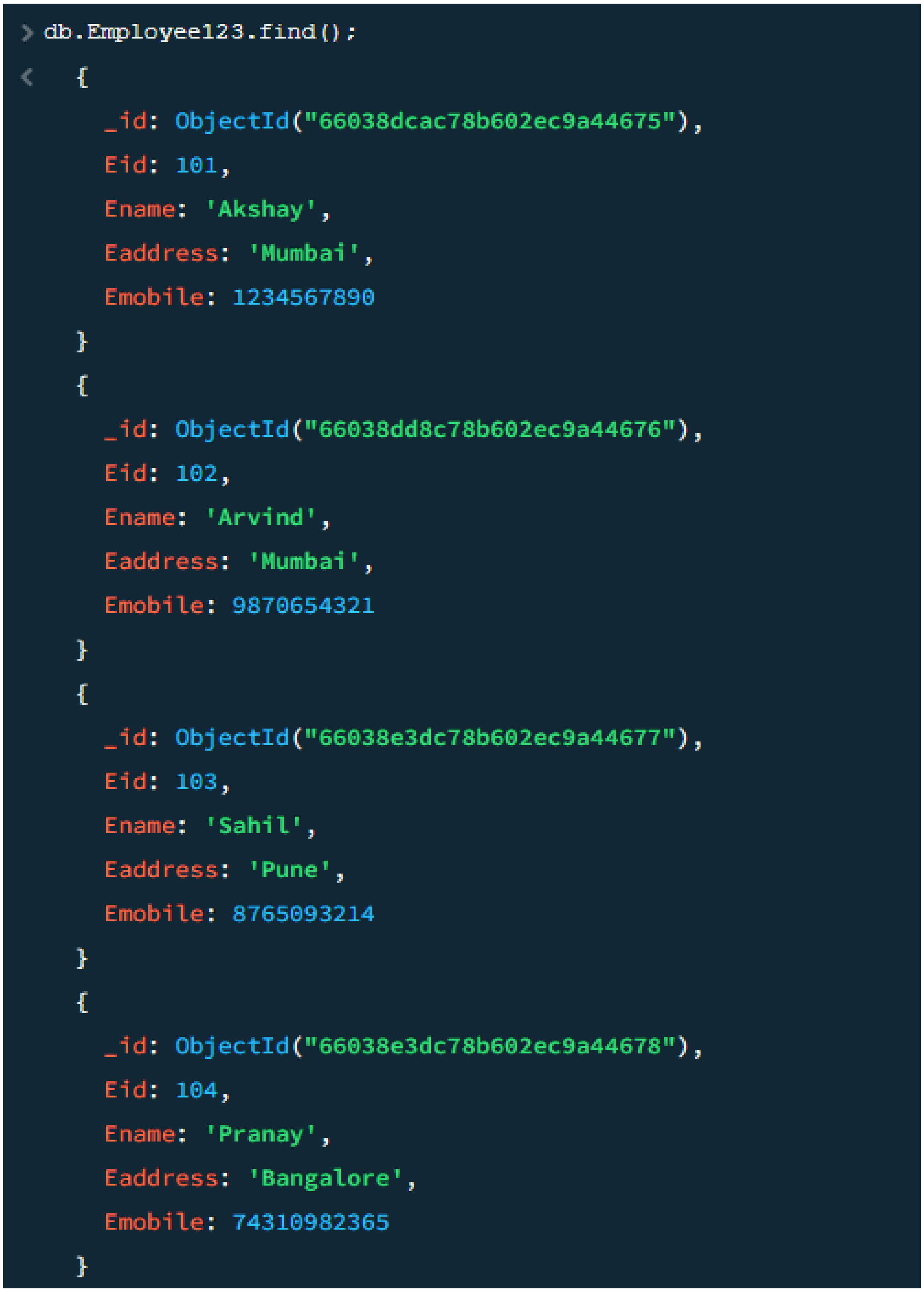
```
> db.Employee123.insert({Eid:101,Ename:"Akshay",Eaddress:"Mumbai",Emobile:1234567890});
<  'DeprecationWarning: Collection.insert() is deprecated. Use insertOne, insertMany, or bulkWrite.'
<  {
     acknowledged: true,
     insertedIds: {
       '0': ObjectId("66038dcac78b602ec9a44675")
     }
   }
> db.Employee123.insertOne({Eid:102,Ename:"Arvind",Eaddress:"Mumbai",Emobile:9870654321});
<  {
     acknowledged: true,
     insertedId: ObjectId("66038dd8c78b602ec9a44676")
   }
```

6. Insert multiple tuples in the collection as:



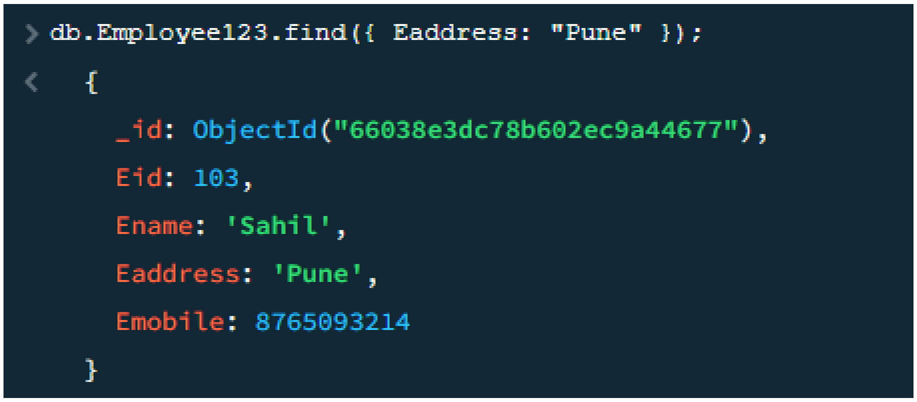
```
> db.Employee123.insertMany([
      { Eid: 103, Ename: "Sahil", Eaddress: "Pune", Emobile: 8765093214 },
      { Eid: 104, Ename: "Pranay", Eaddress: "Bangalore", Emobile: 74310982365 }
  ]);
<  {
     acknowledged: true,
     insertedIds: {
       '0': ObjectId("66038e3dc78b602ec9a44677"),
       '1': ObjectId("66038e3dc78b602ec9a44678")
     }
   }
```

7. Display the contents of the collection.



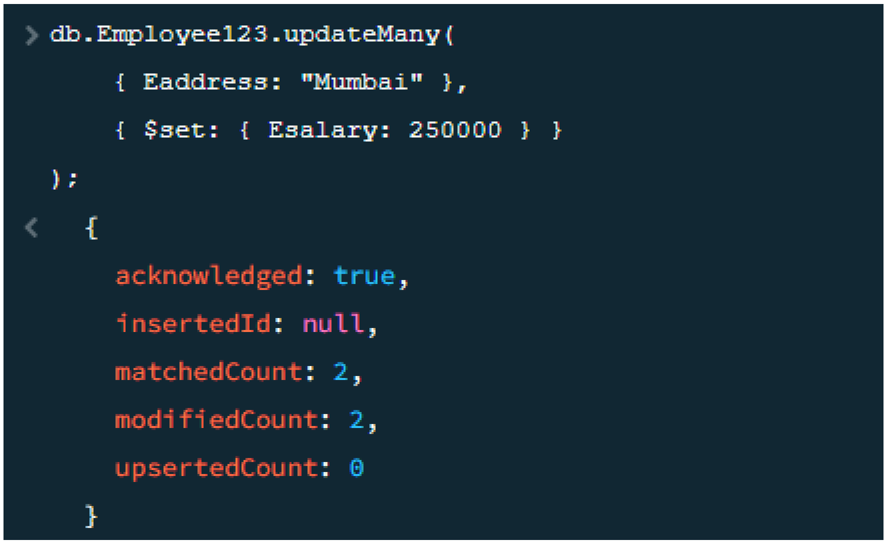
```
> db.Employee123.find();
<   {
      _id: ObjectId("66038dcac78b602ec9a44675"),
      Eid: 101,
      Ename: 'Akshay',
      Eaddress: 'Mumbai',
      Emobile: 1234567890
    }
    {
      _id: ObjectId("66038dd8c78b602ec9a44676"),
      Eid: 102,
      Ename: 'Arvind',
      Eaddress: 'Mumbai',
      Emobile: 9870654321
    }
    {
      _id: ObjectId("66038e3dc78b602ec9a44677"),
      Eid: 103,
      Ename: 'Sahil',
      Eaddress: 'Pune',
      Emobile: 8765093214
    }
    {
      _id: ObjectId("66038e3dc78b602ec9a44678"),
      Eid: 104,
      Ename: 'Pranay',
      Eaddress: 'Bangalore',
      Emobile: 74310982365
    }
```

8. Display the contents of the collection with address Pune.



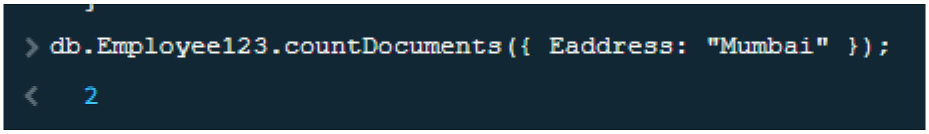
```
> db.Employee123.find({ Eaddress: "Pune" });
<   {
      _id: ObjectId("66038e3dc78b602ec9a44677"),
      Eid: 103,
      Ename: 'Sahil',
      Eaddress: 'Pune',
      Emobile: 8765093214
    }
```

9. Update the collection to add new attribute as Esalary in all the tuples.



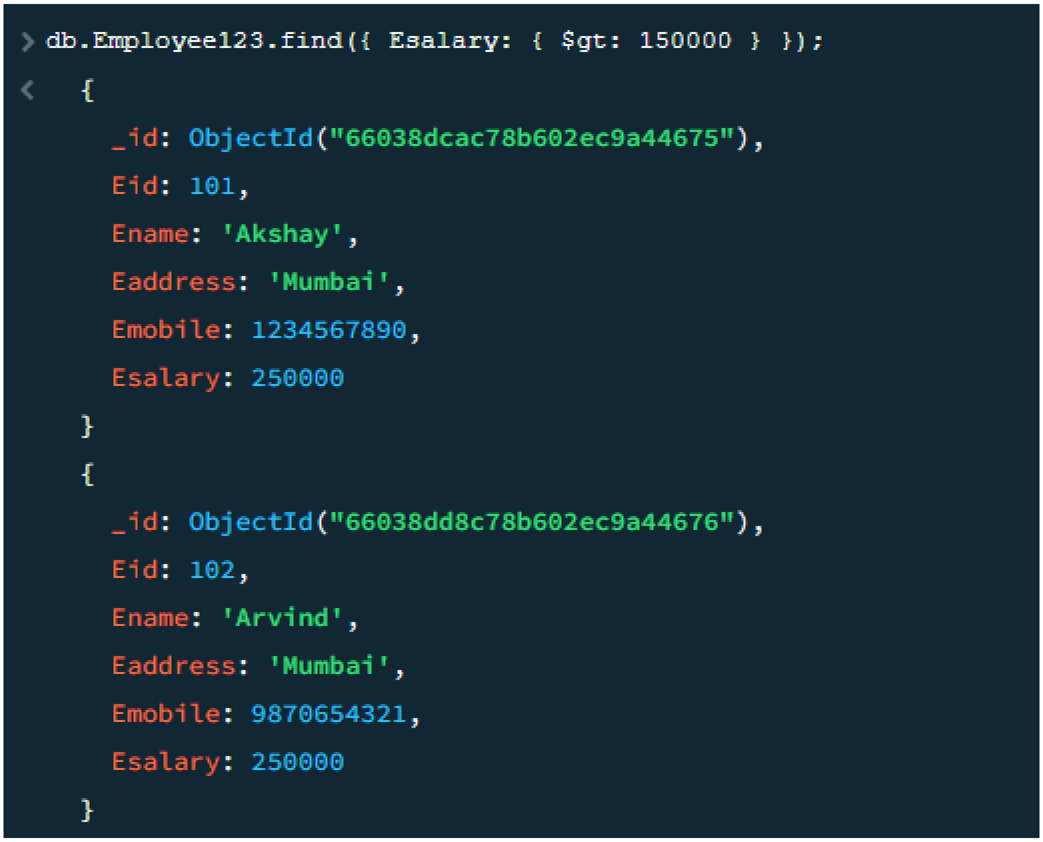
```
> db.Employee123.updateMany(
      { Eaddress: "Mumbai" },
      { $set: { Esalary: 250000 } }
  );
<   {
      acknowledged: true,
      insertedId: null,
      matchedCount: 2,
      modifiedCount: 2,
      upsertedCount: 0
    }
```

10. Count the entries with Eaddress as Mumbai.



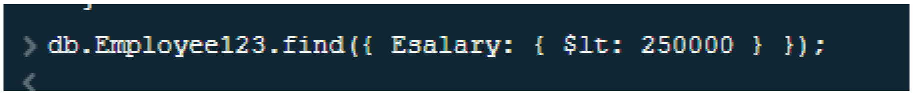
```
> db.Employee123.countDocuments({ Eaddress: "Mumbai" });
<   2
```

11. Display the details with Esalary greater than 150000.



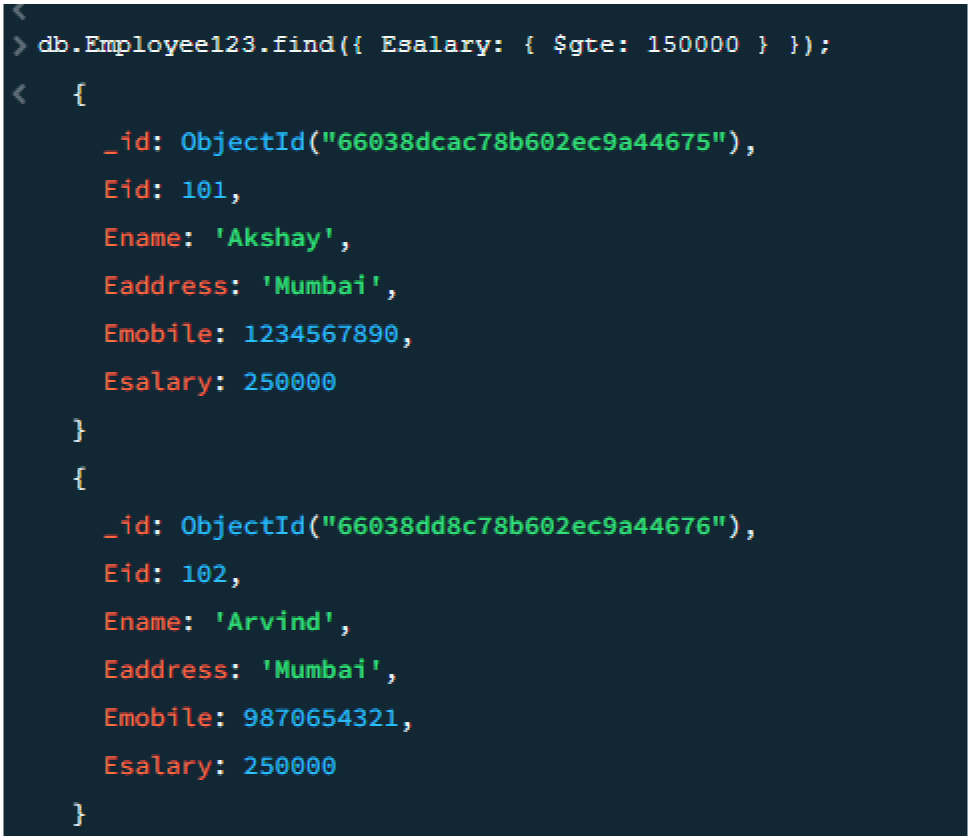
```
> db.Employee123.find({ Esalary: { $gt: 150000 } });
<   {
      _id: ObjectId("66038dcac78b602ec9a44675"),
      Eid: 101,
      Ename: 'Akshay',
      Eaddress: 'Mumbai',
      Emobile: 1234567890,
      Esalary: 250000
    }
    {
      _id: ObjectId("66038dd8c78b602ec9a44676"),
      Eid: 102,
      Ename: 'Arvind',
      Eaddress: 'Mumbai',
      Emobile: 9870654321,
      Esalary: 250000
    }
```

12. Display the details with Esalary lesser than 250000.



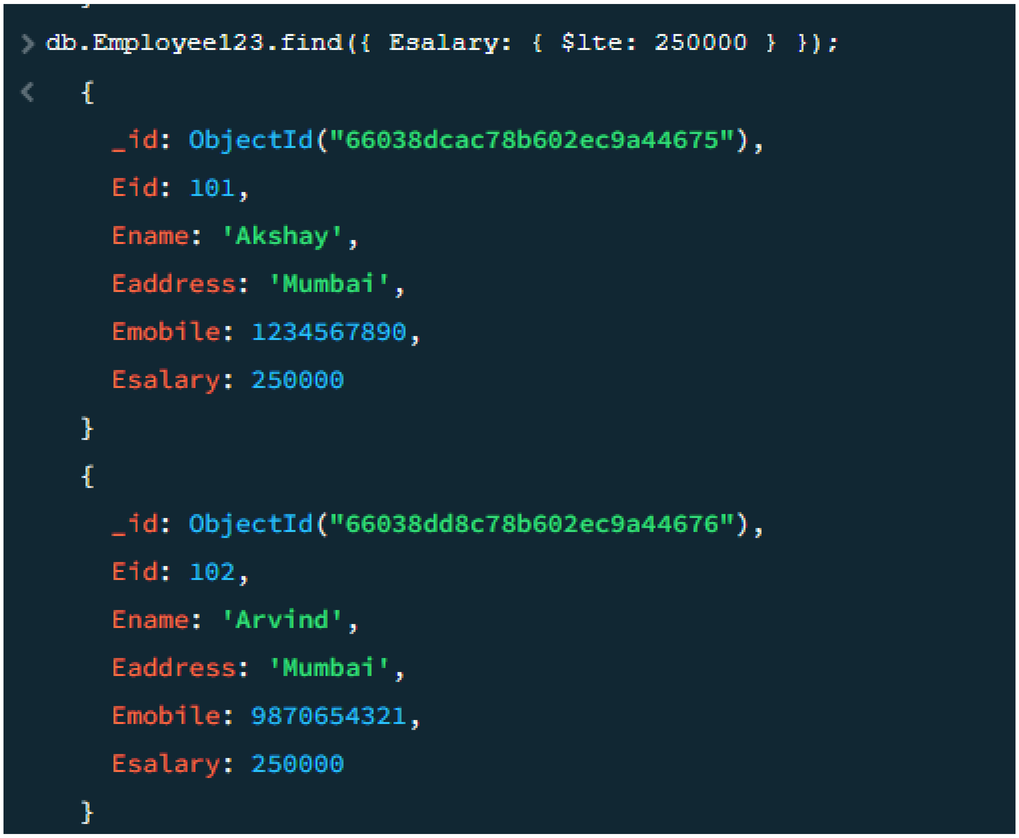
```
> db.Employee123.find({ Esalary: { $lt: 250000 } });
<
```

13. Display the details with Esalary greater than or equal to 150000.



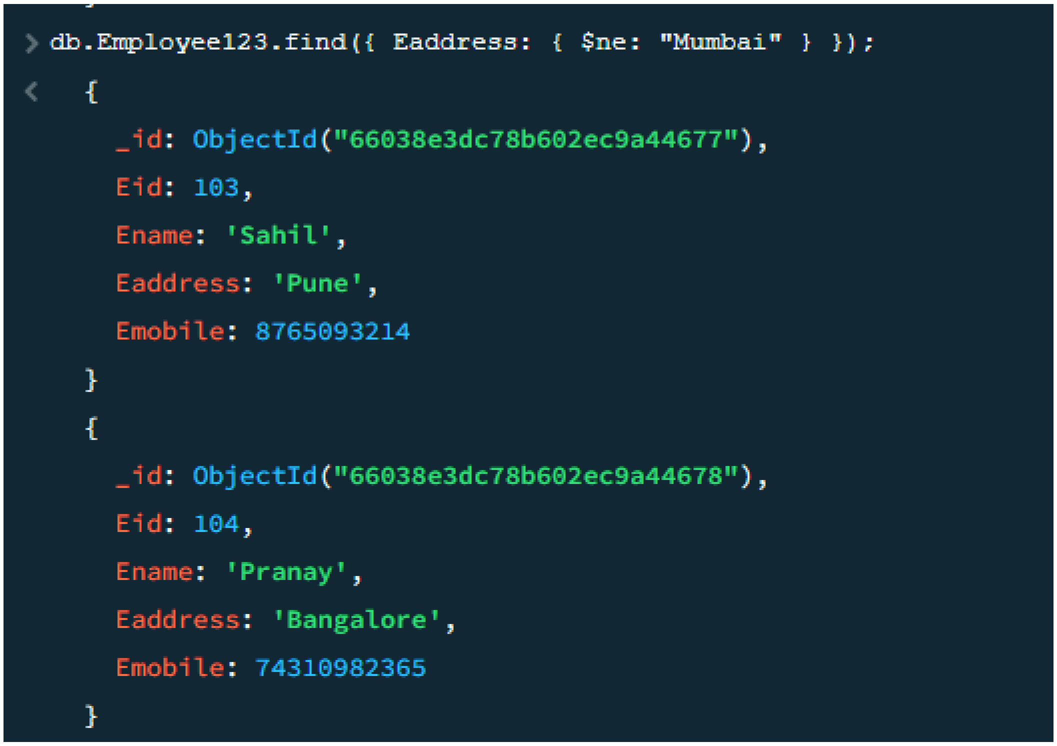
```
> db.Employee123.find({ Esalary: { $gte: 150000 } });
<   {
      _id: ObjectId("66038dcac78b602ec9a44675"),
      Eid: 101,
      Ename: 'Akshay',
      Eaddress: 'Mumbai',
      Emobile: 1234567890,
      Esalary: 250000
    }
    {
      _id: ObjectId("66038dd8c78b602ec9a44676"),
      Eid: 102,
      Ename: 'Arvind',
      Eaddress: 'Mumbai',
      Emobile: 9870654321,
      Esalary: 250000
    }
```

14. Display the details with Esalary lesser than or equal to 250000.



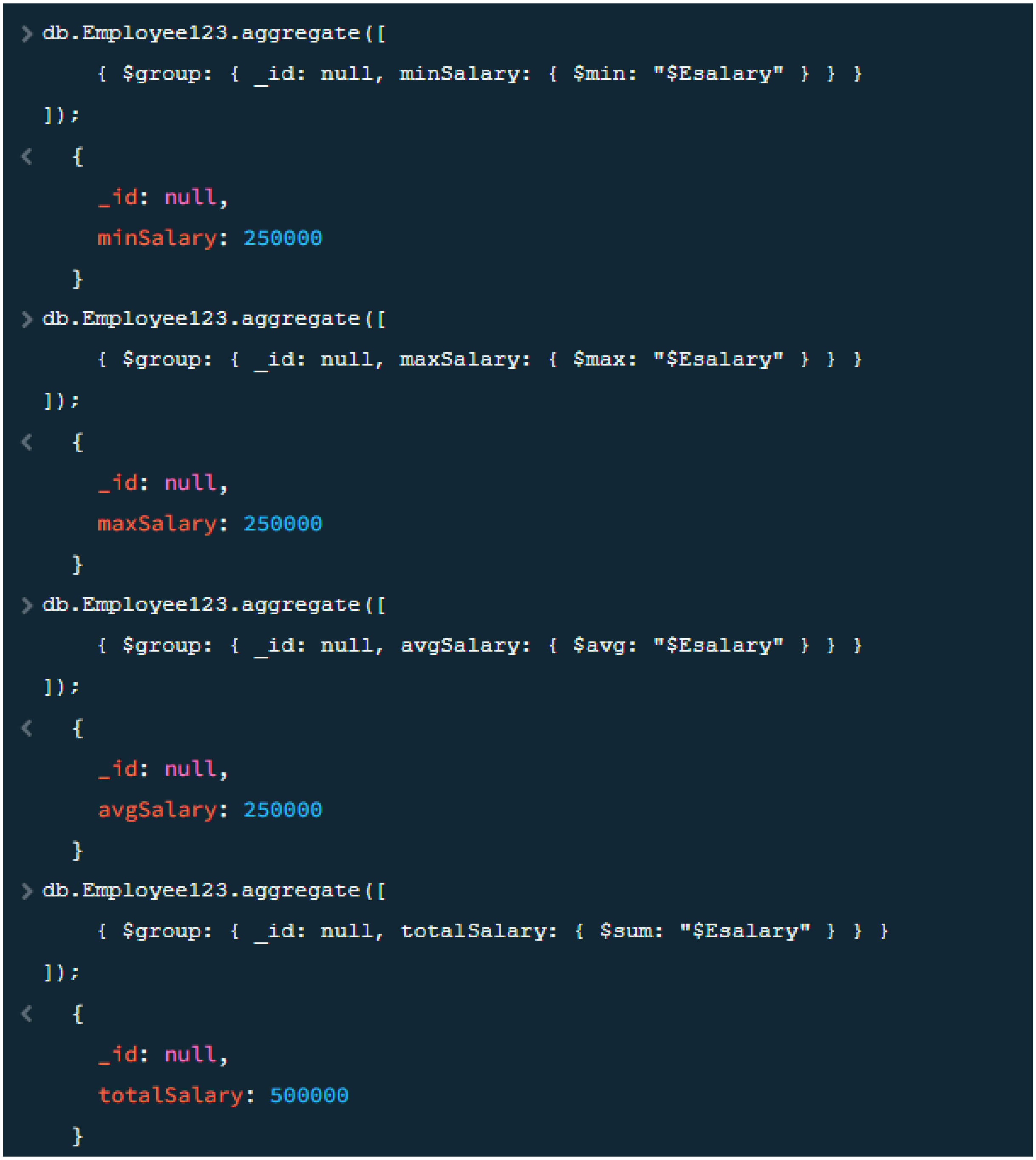
```
> db.Employee123.find({ Esalary: { $lte: 250000 } });
<   {
      _id: ObjectId("66038dcac78b602ec9a44675"),
      Eid: 101,
      Ename: 'Akshay',
      Eaddress: 'Mumbai',
      Emobile: 1234567890,
      Esalary: 250000
    }
    {
      _id: ObjectId("66038dd8c78b602ec9a44676"),
      Eid: 102,
      Ename: 'Arvind',
      Eaddress: 'Mumbai',
      Emobile: 9870654321,
      Esalary: 250000
    }
```

15. Display the details where Eaddress is not Mumbai.



```
> db.Employee123.find({ Eaddress: { $ne: "Mumbai" } });
<   {
      _id: ObjectId("66038e3dc78b602ec9a44677"),
      Eid: 103,
      Ename: 'Sahil',
      Eaddress: 'Pune',
      Emobile: 8765093214
    }
    {
      _id: ObjectId("66038e3dc78b602ec9a44678"),
      Eid: 104,
      Ename: 'Pranay',
      Eaddress: 'Bangalore',
      Emobile: 74310982365
    }
```

16. Perform aggregate functions like min(), max(), avg(), sum().



```
> db.Employee123.aggregate([
      { $group: { _id: null, minSalary: { $min: "$Esalary" } } }
  ]);
<   {
      _id: null,
      minSalary: 250000
    }
> db.Employee123.aggregate([
      { $group: { _id: null, maxSalary: { $max: "$Esalary" } } }
  ]);
<   {
      _id: null,
      maxSalary: 250000
    }
> db.Employee123.aggregate([
      { $group: { _id: null, avgSalary: { $avg: "$Esalary" } } }
  ]);
<   {
      _id: null,
      avgSalary: 250000
    }
> db.Employee123.aggregate([
      { $group: { _id: null, totalSalary: { $sum: "$Esalary" } } }
  ]);
<   {
      _id: null,
      totalSalary: 500000
    }
```