

MongoDB Lab2

1- run following queries:

a- Display all documents in instructors collection

```
test> use iti
switched to db iti
iti> db.instructors.find({})
```

```
test> use iti
switched to db iti
iti> db.instructors.find({})
[ {
  _id: 6,
  firstName: 'noha',
  lastName: 'hesham',
  age: 21,
```

b- Display all instructors with salaries greater than 4000
(only show firstName and salary)

```
iti> db.instructors.find({salary:{$gt: 4000} },{firstName:1,lastName:1})
```

```
iti> db.instructors.find({salary:{$gt: 4000} },{firstName:1,lastName:1})
[
  { _id: 8, firstName: 'mazen', lastName: 'mohammed' },
  { _id: 9, firstName: 'ebtesam', lastName: 'hesham' },
  { _id: 10, firstName: 'badr', lastName: 'ahmed' },
  { _id: 3, firstName: 'mazen', lastName: 'ali' },
  { _id: 4, firstName: 'ebtesam', lastName: 'ahmed' },
  { _id: 99, firstName: 'Ebrahim', lastName: 'Mostafa' },
  { _id: 90 }
```

c- Display all instructors with ages less than or equal 25.

```
iti> db.instructors.find({age:{$lte:25} } )
```

```
iti> db.instructors.find({age:{$lte:25} } )
[
  {
    _id: 6,
    firstName: 'noha',
    lastName: 'hesham',
    age: 21,
    salary: 3500,
    address: { city: 'cairo', street: 10, building: 8 },
    courses: [ 'js', 'mvc', 'signalR', 'expressjs' ]
  }
```

d- Display all instructors with city mansoura and street number 10 or 14 only display (firstname,address,salary).

```
db.instructors.find({$and:[{"address.city": "mansoura"}, {"address.street": {$in: [10, 14]} }]}, {firstName: 1, address: 1, salary: 1})
```

```

]
iti> db.instructors.find({$and:[{"address.city": "mansoura"}, {"address.street": {$in: [10, 14]}]}, {"firstName: 1, address: 1, salary: 1})
[
  {
    _id: 9,
    firstName: 'ebtesam',
    salary: 7500,
    address: { city: 'mansoura', street: 14, building: 3 }
  },
  {
    _id: 4,
    firstName: 'ebtesam',
    salary: 6200,
    address: { city: 'mansoura', street: 14, building: 7 }
  }
]
iti> █

```

e- Display all instructors that have js and jquery in their courses(both of them not one of them).

```
db.instructors.find({courses:{ $all:['jquery', 'js']}}, {})
```

```

]
iti> db.instructors.find({courses:{ $all:['jquery', 'js']}}, {})
iti> █

```

f- Display number of courses for each instructor and display first name with number of courses.

```
iti> db.instructors.find({}, {firstName:1, numberOfCourses:{$size:"$courses"} } )
```

```

iti> db.instructors.find({}, {firstName:1, numberOfCourses:{$size:"$courses"} } )
[
  { _id: 6, firstName: 'noha', numberOfCourses: 4 },
  { _id: 7, firstName: 'mona', numberOfCourses: 4 },
  { _id: 8, firstName: 'mazen', numberOfCourses: 3 },
  { _id: 9, firstName: 'ebtesam', numberOfCourses: 5 },
  { _id: 10, firstName: 'badr', numberOfCourses: 4 },
  { _id: 2, firstName: 'mona', numberOfCourses: 4 },
  { _id: 3, firstName: 'mazen', numberOfCourses: 3 },
  { _id: 4, firstName: 'ebtesam', numberOfCourses: 6 },
  { _id: 99, firstName: 'Ebrahim', numberOfCourses: 4 },
  { _id: 90, numberOfCourses: 4 }
]
iti> █

```

g- Write mongodb query to get all instructors that have firstName and lastName properties , sort them by firstName ascending then by lastName descending and finally display their data FullName and age

Note: use mongoDB sort function

```
db.instructors.find(
  {
    firstName: { $exists: true },
    lastName: { $exists: true }
  },
  {
    fullName: { $concat: ["$firstName", " ", "$lastName"] },
    age: { $subtract: [{$year: new Date()}, {$year: "$dateOfBirth"}] }
  }
)
```

```

        age: 1
    }
).sort(
{
    firstName: 1,
    lastName: -1
}
)

```

```

iti> db.instructors.find(
...     {
...         firstName: { $exists: true },
...         lastName: { $exists: true }
...     },
...     {
...         fullName: { $concat: ["$firstName", " ", "$lastName"] },
...         age: 1
...     }
... ).sort(
...     {
...         firstName: 1,
...         lastName: -1
...     }
... )
[
    { _id: 99, age: 23, fullName: 'Ebrahim Mostafa' },
    { _id: 10, age: 22, fullName: 'badr ahmed' },
    { _id: 9, age: 21, fullName: 'ebtesam hesham' },
]

```

h- Delete instructor with first name “ebtesam” and has only 5 courses in courses array

```

db.instructors.deleteOne({
    firstName: "ebtesam",
    courses: { $size: 5 }
})

```

```

iti> db.instructors.deleteOne({
...     firstName: "ebtesam",
...     courses: { $size: 5 }
... })
{ acknowledged: true, deletedCount: 1 }
iti> █

```

i- Add active property to all instructors and set its value to true.

```

db.instructors.updateMany(
    {},
    { $set: { active: true } }
)

```

```
iti> db.instructors.updateMany(  
...   {},  
...   { $set: { active: true } }  
... )  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 9,  
  modifiedCount: 9,  
  upsertedCount: 0  
}  
iti> █
```

j- Change “EF” course to “jquery” for “mazen mohammed” instructor (without knowing EF Index in courses array)

```
db.instructors.updateOne(  
  { firstName: "mazen", lastName: "mohammed", courses: "EF" },  
  { $set: { "courses.$": "jquery" } }  
)  
iti> db.instructors.updateOne(  
...   { firstName: "mazen", lastName: "mohammed", courses: "EF" },  
...   { $set: { "courses.$": "jquery" } }  
... )  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0  
}  
iti> █
```

k- Add jquery course for “noha hesham”.

```
db.instructors.updateOne(  
  { firstName: "noha", lastName: "hesham" },  
  { $addToSet: { courses: "jquery" } }  
)
```

```
iti> db.instructors.updateOne(  
...   { firstName: "noha", lastName: "hesham" },  
...   { $addToSet: { courses: "jquery" } }  
... )  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0  
}  
iti> █
```

l- Remove courses property for “ahmed mohammed ” instructor

```
db.instructors.updateOne(  
  { firstName: "ahmed", lastName: "mohammed" },  
  { $unset: { courses: "" } }  
)
```

```
iti> db.instructors.updateOne(  
...   { firstName: "ahmed", lastName: "mohammed" },  
...   { $unset: { courses: "" } }  
... )  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 0,  
  modifiedCount: 0,  
  upsertedCount: 0  
}  
iti> [REDACTED]
```

m- Decrease salary by 500 for all instructors that has only 3 courses in their list (\$inc)

```
db.instructors.updateMany(  
  { courses: { $size: 3 } },  
  { $inc: { salary: -500 } }  
)
```

```
iti> db.instructors.updateMany(  
...   { courses: { $size: 3 } },  
...   { $inc: { salary: -500 } }  
... )  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 2,  
  modifiedCount: 2,  
  upsertedCount: 0  
}  
iti> [REDACTED]
```

n- Rename address field for all instructors to fullAddress.

```
db.instructors.updateMany(  
  {},  
  { $rename: { address: "fullAddress" } }  
)
```

```
iti> db.instructors.updateMany(  
...   {},  
...   { $rename: { address: "fullAddress" } }  
... )  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 9,  
  modifiedCount: 9,  
  upsertedCount: 0  
}  
iti> █
```

o- Change street number for noha hesham to 20

```
db.instructors.updateOne(  
  { firstName: "noha", lastName: "hesham" },  
  { $set: { "fullAddress.street": 20 } }  
)  
iti> db.instructors.updateOne(  
...   { firstName: "noha", lastName: "hesham" },  
...   { $set: { "fullAddress.street": 20 } }  
... )  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0  
}  
iti> █
```