

LAB – 13

LAB EXERCISE:

COMPARISON OPERATOR

IN MONGOSH

1. THE NOT EQUAL != COMPARISON OPERATOR

```
school> db.student.find({name:{$ne:"Mariam"}})
[
  {
    _id: ObjectId('668a4dd5fef1eab46860f818'),
    name: 'Ayesha',
    age: 50,
    gpa: 3.5
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f819'),
    name: 'Arshad',
    age: 57,
    gpa: 3.9
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f81a'),
    name: 'Maham',
    age: 22,
    gpa: 3.8
  },
  {
    _id: ObjectId('668a4e4ffef1eab46860f81c'),
    name: 'Tooba',
    age: 32,
    gpa: 2.8,
    fullTime: false,
    graduationdate: null,
    courses: [ 'datastructures', 'oop', 'calculus' ],
    address: { street: '123 ned university', city: 'karachi', zip: 23456 }
  }
]
```

2. LESS THAN OPERATOR

```
school> db.student.find({age:{$lt:40}})
[
  {
    _id: ObjectId('668a4ce6fef1eab46860f816'),
    name: 'Mariam',
    age: 20,
    gpa: 3.7,
    fullTime: true
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f81a'),
    name: 'Maham',
    age: 22,
    gpa: 3.8
  },
  {
    _id: ObjectId('668a4e4ffef1eab46860f81c'),
    name: 'Tooba',
    age: 32,
    gpa: 2.8,
    fullTime: false,
    graduationdate: null,
    courses: [ 'datastructures', 'oop', 'calculus' ],
    address: { street: '123 ned university', city: 'karachi', zip: 23456 }
  }
]
```

3. LESS THAN EQUAL TO OPERATOR

```
school> db.student.find({age:{$lte:22}})
[
  {
    _id: ObjectId('668a4ce6fef1eab46860f816'),
    name: 'Mariam',
    age: 20,
    gpa: '3.7',
    fullTime: 'true'
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f81a'),
    name: 'Maham',
    age: 22,
    gpa: 3.8
  }
]
```

4. GREATER THAN OPERATOR

```
school> db.student.find({age:{$gt:20}})
[
  {
    _id: ObjectId('668a4dd5fef1eab46860f818'),
    name: 'Ayesha',
    age: 50,
    gpa: 3.5
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f819'),
    name: 'Arshad',
    age: 57,
    gpa: 3.9
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f81a'),
    name: 'Maham',
    age: 22,
    gpa: 3.8
  },
  {
    _id: ObjectId('668a4e4ffef1eab46860f81c'),
    name: 'Tooba',
    age: 32,
    gpa: 2.8,
    fullTime: false,
    graduationdate: null,
    courses: [ 'datastructures', 'oop', 'calculus' ],
    address: { street: '123 ned university', city: 'karachi', zip: 23456 }
  }
]
```

5. GREATER THAN EQUAL TO OPERATOR

```
school> db.student.find({age:{$gte:32}})
[
  {
    _id: ObjectId('668a4dd5fef1eab46860f818'),
    name: 'Ayesha',
    age: 50,
    gpa: 3.5
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f819'),
    name: 'Arshad',
    age: 57,
    gpa: 3.9
  },
  {
    _id: ObjectId('668a4e4ffef1eab46860f81c'),
    name: 'Tooba',
    age: 32,
    gpa: 2.8,
    fullTime: false,
    graduationdate: null,
    courses: [ 'datastructures', 'oop', 'calculus' ],
    address: { street: '123 ned university', city: 'karachi', zip: 23456 }
  }
]
```

6. IN BETWEEN OPERATOR

```
school> db.student.find({gpa:{$gte:3,$lte:4}})
[
  {
    _id: ObjectId('668a4dd5fef1eab46860f818'),
    name: 'Ayesha',
    age: 50,
    gpa: 3.5
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f819'),
    name: 'Arshad',
    age: 57,
    gpa: 3.9
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f81a'),
    name: 'Maham',
    age: 22,
    gpa: 3.8
  }
]
```

7. IN OPERATOR

```
school> db.student.find({name:{$in:["Mariam","Ayesha","Arshad"]}})
[
  {
    _id: ObjectId('668a4ce6fef1eab46860f816'),
    name: 'Mariam',
    age: 20,
    gpa: '3.7',
    fullTime: 'true'
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f818'),
    name: 'Ayesha',
    age: 50,
    gpa: 3.5
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f819'),
    name: 'Arshad',
    age: 57,
    gpa: 3.9
  }
]
```

8. NOT IN OPERATOR

```
school> db.student.find({name:{$nin:["Mariam","Ayesha","Arshad"]}})
[
  {
    _id: ObjectId('668a4dd5fef1eab46860f81a'),
    name: 'Maham',
    age: 22,
    gpa: 3.8
  },
  {
    _id: ObjectId('668a4e4ffef1eab46860f81c'),
    name: 'Tooba',
    age: 32,
    gpa: 2.8,
    fullTime: false,
    graduationdate: null,
    courses: [ 'datastructures', 'oop', 'calculus' ],
    address: { street: '123 ned university', city: 'karachi', zip: 23456 }
  }
]
```

LOGICAL OPERATORS

1. AND OPERATOR

```
school> db.student.find({$and:[{name:"Mariam"},{age:{$lte:20}}]})
[
  {
    _id: ObjectId('668a4ce6fef1eab46860f816'),
    name: 'Mariam',
    age: 20,
    gpa: '3.7',
    fullTime: 'true'
  }
]
```

2. OR OPERATOR

```
school> db.student.find({$or:[{name:true},{age:{$lte:20}}]})
[
  {
    _id: ObjectId('668a4ce6fef1eab46860f816'),
    name: 'Mariam',
    age: 20,
    gpa: '3.7',
    fullTime: 'true'
  }
]
```

3. NOR OPERATOR

```
school> db.student.find({$nor:[{name:true},{age:{$lte:20}}]})
[
  {
    _id: ObjectId('668a4dd5fef1eab46860f818'),
    name: 'Ayesha',
    age: 50,
    gpa: 3.5
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f819'),
    name: 'Arshad',
    age: 57,
    gpa: 3.9
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f81a'),
    name: 'Maham',
    age: 22,
    gpa: 3.8
  },
  {
    _id: ObjectId('668a4e4ffef1eab46860f81c'),
    name: 'Tooba',
    age: 32,
    gpa: 2.8,
    fullTime: false,
    graduationdate: null,
    courses: [ 'datastructures', 'oop', 'calculus' ],
    address: { street: '123 ned university', city: 'karachi', zip: 23456 }
  }
]
```

4. NOT OPERATOR

```
school> db.student.find({$nor:[{name:true},{age:{$lte:20}}]})
[
  {
    _id: ObjectId('668a4dd5fef1eab46860f818'),
    name: 'Ayesha',
    age: 50,
    gpa: 3.5
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f819'),
    name: 'Arshad',
    age: 57,
    gpa: 3.9
  },
  {
    _id: ObjectId('668a4dd5fef1eab46860f81a'),
    name: 'Maham',
    age: 22,
    gpa: 3.8
  },
  {
    _id: ObjectId('668a4e4ffef1eab46860f81c'),
    name: 'Tooba',
    age: 32,
    gpa: 2.8,
    fullTime: false,
    graduationdate: null,
    courses: [ 'datastructures', 'oop', 'calculus' ],
    address: { street: '123 ned university', city: 'karachi', zip: 23456 }
  }
]
```

INDEXES

1. TO CREATE AN INDEX

```
school> db.student.createIndex({name:1})
name_1
```

2. TO GET ALL INDEXES IN THE DATABASE:

```
school> db.student.getIndexes()
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  { v: 2, key: { name: 1 }, name: 'name_1' }
]
```



3. TO DROP AN INDEX



```
school> db.student.dropIndex("name_1")
{ nIndexesWas: 2, ok: 1 }
```



IN MongoDB COMPASS


COMPARISION OPERATORS


1. THE NOT EQUAL != COMPARISON OPERATOR

  {name:{\$ne:"Mariam"}}

 ADD DATA 

 EXPORT DATA 

 UPDATE

 DELETE


```
_id: ObjectId('668a4dd5fef1eab46860f818')
name : "Ayesha"
age : 50
gpa : 3.5
```


```
_id: ObjectId('668a4dd5fef1eab46860f819')
name : "Arshad"
age : 57
gpa : 3.9
```


```
_id: ObjectId('668a4dd5fef1eab46860f81a')
name : "Maham"
age : 22
gpa : 3.8
```


```
_id: ObjectId('668a4e4ffef1eab46860f81c')
name : "Tooba"
age : 32
gpa : 2.8
fullTime : false
graduationdate : null
▸ courses : Array (3)
▸ address : Object
```



2. LESS THAN OPERATOR

 {age:{\$lt:40}}

 ADD DATA ▾

 EXPORT DATA ▾

 UPDATE


 DELETE


```
_id: ObjectId('668a4ce6fef1eab46860f816')
name: "Mariam"
age: 20
gpa: "3.7"
fullTime: "true"
```


```
_id: ObjectId('668a4dd5fef1eab46860f81a')
name: "Maham"
age: 22
gpa: 3.8
```


```
_id: ObjectId('668a4e4ffef1eab46860f81c')
name: "Tooba"
age: 32
gpa: 2.8
fullTime: false
graduationdate: null
▸ courses: Array (3)
▸ address: Object
```


3. LESS THAN EQUAL TO OPERATOR

 {age:{\$lte:22}}

 ADD DATA ▾

 EXPORT DATA ▾


 UPDATE


 DELETE


```
_id: ObjectId('668a4ce6fef1eab46860f816')
name: "Mariam"
age: 20
gpa: "3.7"
fullTime: "true"
```


```
_id: ObjectId('668a4dd5fef1eab46860f81a')
name: "Maham"
age: 22
gpa: 3.8
```


4. GREATER THAN OPERATOR

 {age:{\$gt:20}}

 ADD DATA

 EXPORT DATA

 UPDATE

 DELETE


```
_id: ObjectId('668a4dd5fef1eab46860f818')
name: "Ayesha"
age: 50
gpa: 3.5
```


```
_id: ObjectId('668a4dd5fef1eab46860f819')
name: "Arshad"
age: 57
gpa: 3.9
```


```
_id: ObjectId('668a4dd5fef1eab46860f81a')
name: "Maham"
age: 22
gpa: 3.8
```


```
_id: ObjectId('668a4e4ffef1eab46860f81c')
name: "Tooba"
age: 32
gpa: 2.8
fullTime: false
graduationdate: null
▶ courses: Array (3)
▶ address: Object
```


5. GREATER THAN EQUAL TO OPERATOR

 {age:{\$gte:32}}

 ADD DATA

 EXPORT DATA

 UPDATE


 DELETE


```
_id: ObjectId('668a4dd5fef1eab46860f818')
name: "Ayesha"
age: 50
gpa: 3.5
```


```
_id: ObjectId('668a4dd5fef1eab46860f819')
name: "Arshad"
age: 57
gpa: 3.9
```


```
_id: ObjectId('668a4e4ffef1eab46860f81c')
name: "Tooba"
age: 32
gpa: 2.8
fullTime: false
graduationdate: null
▶ courses: Array (3)
▶ address: Object
```


6. IN BETWEEN OPERATOR

 {gpa:{\$gte:3,\$lte:4}}

 ADD DATA

 EXPORT DATA

 UPDATE


 DELETE


```
_id: ObjectId('668a4dd5fef1eab46860f818')
name : "Ayesha"
age : 50
gpa : 3.5
```


```
_id: ObjectId('668a4dd5fef1eab46860f819')
name : "Arshad"
age : 57
gpa : 3.9
```


```
_id: ObjectId('668a4dd5fef1eab46860f81a')
name : "Maham"
age : 22
gpa : 3.8
```


7. IN OPERATOR

 {name:{\$in:["Mariam","Ayesha","Arshad"]}}

 ADD DATA

 EXPORT DATA

 UPDATE



 DELETE



```
_id: ObjectId('668a4ce6fef1eab46860f816')
name : "Mariam"
age : 20
gpa : "3.7"
fullTime : "true"
```



```
_id: ObjectId('668a4dd5fef1eab46860f818')
name : "Ayesha"
age : 50
gpa : 3.5
```


```
_id: ObjectId('668a4dd5fef1eab46860f819')
name : "Arshad"
age : 57
gpa : 3.9
```


8. NOT IN OPERATOR

  {name:{\$nin:["Mariam","Ayesha","Arshad"]}}

 ADD DATA 

 EXPORT DATA 

 UPDATE

 DELETE

```
_id: ObjectId('668a4dd5fef1eab46860f81a')
name : "Maham"
age : 22
gpa : 3.8
```

```
_id: ObjectId('668a4e4ffef1eab46860f81c')
name : "Tooba"
age : 32
gpa : 2.8
fullTime : false
graduationdate : null
▸ courses : Array (3)
▸ address : Object
```

LOGICAL OPERATORS

1. AND OPERATOR

  {\$and:[{name:"Mariam"},{age:{\$lte:20}}]}

 ADD DATA 



 EXPORT DATA 



 UPDATE



 DELETE


```
_id: ObjectId('668a4ce6fef1eab46860f816')
name : "Mariam"
age : 20
gpa : "3.7"
fullTime : "true"
```


2. OR OPERATOR

  `{ $or: [{ name: "Mariam" }, { age: { $lte: 20 } }] }`

 **ADD DATA** 



 **EXPORT DATA** 



 **UPDATE**



 **DELETE**


```
_id: ObjectId('668a4ce6fef1eab46860f816')
name : "Mariam"
age : 20
gpa : "3.7"
fullTime : "true"
```


3. NOR OPERATOR

  `{ $nor: [{ name: "Mariam" }, { age: { $lte: 20 } }] }`

 **ADD DATA** 

 **EXPORT DATA** 

 **UPDATE**

 **DELETE**

```
_id: ObjectId('668a4dd5fef1eab46860f818')
name : "Ayesha"
age : 50
gpa : 3.5
```

```
_id: ObjectId('668a4dd5fef1eab46860f819')
name : "Arshad"
age : 57
gpa : 3.9
```

```
_id: ObjectId('668a4dd5fef1eab46860f81a')
name : "Maham"
age : 22
gpa : 3.8
```

```
_id: ObjectId('668a4e4ffef1eab46860f81c')
name : "Tooba"
age : 32
gpa : 2.8
fullTime : false
graduationdate : null
▶ courses : Array (3)
▶ address : Object
```

4. NOT OPERATOR

🕒 ▼ {age:{\$not:{\$gte:32}}}

➕ ADD DATA ▼

📄 EXPORT DATA ▼

✎ UPDATE

🗑 DELETE

```
_id: ObjectId('668a4ce6fef1eab46860f816')  
name : "Mariam"  
age : 20  
gpa : "3.7"  
fullTime : "true"
```

```
_id: ObjectId('668a4dd5fef1eab46860f81a')  
name : "Maham"  
age : 22  
gpa : 3.8
```

INDEXES

1. TO CREATE AN INDEX

Create Index

school.student

Index fields

name

1 (asc)

> Options

Cancel

Create Index

2. TO GET ALL INDEXES IN THE DATABASE

Documents 5

Aggregations

Schema

Indexes 1

Validation

Create Index

Refresh

VIEWING

Name and Definition	Type	Size	Usage	Properties
> _id_	REGULAR <i>i</i>	36.9 KB	15 (since Sun Jul 07 2024)	UNIQUE <i>i</i>
> name_1	REGULAR <i>i</i>	20.5 KB	0 (since Sun Jul 07 2024)	

3. TO DROP AN INDEX



Drop Index

Are you sure you want to drop index "name_1"?

Type "name_1" to confirm your action

name_1

Cancel

Drop