

# Logical Operators in MongoDB:

Name	Description
<code>\$and</code>	Joins query clauses with a logical AND returns all documents that match the conditions of both clauses.
<code>\$not</code>	Inverts the effect of a query expression and returns documents that do <i>not</i> match the query expression.
<code>\$nor</code>	Joins query clauses with a logical NOR returns all documents that fail to match both clauses.
<code>\$or</code>	Joins query clauses with a logical OR returns all documents that match the conditions of either clause.

Finding students with fullTime as false and age greater than equal to 38:

```
school> db.students.find({$and: [{fullTime: false}, {age: {$gte: 38}}] })
[
  {
    _id: ObjectId('698075a0c41c5afdcf628ca0'),
    name: 'patrick',
    age: 38,
    gpa: 1.5,
    fullTime: false
  },
  {
    _id: ObjectId('69807a96aa017ce650cd809b'),
    name: 'Name3',
    age: 42,
    gpa: 6.2,
    fullTime: false
  }
]
```

Using Or Operator: fullTime: true or age: {\$gte: 38}

```
school> db.students.find({$or: [{fullTime: true}, {age: {$gte: 38}}] })
[
  {
    _id: ObjectId('698075a0c41c5afdcf628ca0'),
    name: 'patrick',
    age: 38,
    gpa: 1.5,
    fullTime: false
  },
  {
    _id: ObjectId('69807a96aa017ce650cd8099'),
    name: 'Name3',
    age: 42,
    gpa: 6.2,
    fullTime: false
  }
]
```

```

    name: 'Name1',
    age: 12,
    gpa: 1.2,
    fullTime: true
  },
  {
    _id: ObjectId('69807a96aa017ce650cd809a'),
    name: 'Name2',
    age: 22,
    gpa: 2.4,
    fullTime: true
  },
  {
    _id: ObjectId('69807a96aa017ce650cd809b'),
    name: 'Name3',
    age: 42,
    gpa: 6.2,
    fullTime: false
  }
]

```

**Using nor operator: Both the condition to be false like fullTime: false, age < 38**

school> db.students.find({\$nor: [{fullTime: true}, {age: {\$gte: 38}}] })

```

[
  {
    _id: ObjectId('69808144c41c5afdcf628ca4'),
    name: 'Larry',
    age: 32,
    gpa: 3.2,
    fullTime: false,
    registerDate: ISODate('2026-02-02T10:49:40.654Z'),
    graduationDate: null,
    courses: [ 'Biology', 'Chemistry', 'Calculus' ],
    address: { street: '123 Fake St.', city: 'Bik Bottom', zip: 12345 }
  },
  {
    _id: ObjectId('69804ab8864a660af4628ca0'),
    name: 'spongebob',
    age: 30,
    gpa: 3.2,
    fullTime: false
  },
  {
    _id: ObjectId('698075a0c41c5afdcf628ca1'),
    name: 'sandy',

```

```

    age: 27,
    gpa: 4,
    fullTime: false
  },
  {
    _id: ObjectId('698075a0c41c5afdcf628ca2'),
    name: 'gary',
    age: 18,
    gpa: 2.5,
    fullTime: false
  },
  {
    _id: ObjectId('69807998aa017ce650cd8097'),
    name: 'mongo',
    age: 32,
    gpa: 3.2,
    fullTime: false
  }
]

```

---

**For age less than or equal to 18:**

```
school> db.students.find({age: {$lte: 18}})
```

```

[
  {
    _id: ObjectId('698075a0c41c5afdcf628ca2'),
    name: 'gary',
    age: 18,
    gpa: 2.5,
    fullTime: false
  },
  {
    _id: ObjectId('69807a96aa017ce650cd8099'),
    name: 'Name1',
    age: 12,
    gpa: 1.2,
    fullTime: true
  }
]

```

**If in compass, making age: null where name is Name1:**

Query: `{age: {$lte: 18}}`

Buttons: **DATA** (dropdown), **UPDATE**, **DELETE**, **EXPORT DATA** (dropdown), **EXPORT CODE** (dropdown), **25** (dropdown), **1 - 2 of 2**, **Find** (green), **Reset**, **Explain**

Document 1:

```

_id: ObjectId('698075a0c41c5afdcf628ca2')
name: "gary"
age: 18
gpa: 2.5
fullTime: false

```

Document 2:

```

_id: ObjectId('69807a96aa017ce650cd8099')
name: "Name1"
age: null
gpa: 1.2

```

Document 3:

```

name: "Name1"
age: null
gpa: 1.2
fullTime: true

```

Message: document modified.

Buttons: **CANCEL**, **UPDATE**

Right sidebar (Type Stack): Int64, MaxKe, MinKe, Null, Objec, Objec, BSONR, Strin, BSONS, Times, Undef, Int32, Doubl

Bottom dropdown menu: String, Null, Double, Boolean

```

_id: ObjectId('69807a96aa017ce650cd8099')
name: "Name1"
age: null
gpa: 1.2
fullTime: true

```

Now if Check again, Document with name: Name1 is not available:  
 school> db.students.find({age: {\$lte: 18}})

```

[
  {
    _id: ObjectId('698075a0c41c5afdcf628ca2'),
    name: 'gary',
    age: 18,
    gpa: 2.5,
    fullTime: false
  }
]

```

Lets use Not operator(where null value for age is included):

school> db.students.find({age: {\$not: {\$lte: 18}}})

```

[
  {
    _id: ObjectId('69808144c41c5afdcf628ca4'),
    name: 'Larry',
    age: 32,
    gpa: 3.2,
    fullTime: false,
    registerDate: ISODate('2026-02-02T10:49:40.654Z'),
    graduationDate: null,
  }
]

```

```
courses: [ 'Biology', 'Chemistry', 'Calculus' ],
address: { street: '123 Fake St.', city: 'Bik Bottom', zip: 12345 }
},
{
  _id: ObjectId('69804ab8864a660af4628ca0'),
  name: 'spongebob',
  age: 30,
  gpa: 3.2,
  fullTime: false
},
{
  _id: ObjectId('698075a0c41c5afdcf628ca0'),
  name: 'patrick',
  age: 38,
  gpa: 1.5,
  fullTime: false
},
{
  _id: ObjectId('698075a0c41c5afdcf628ca1'),
  name: 'sandy',
  age: 27,
  gpa: 4,
  fullTime: false
},
{
  _id: ObjectId('69807998aa017ce650cd8097'),
  name: 'mongo',
  age: 32,
  gpa: 3.2,
  fullTime: false
},
{
  _id: ObjectId('69807a96aa017ce650cd8099'),
  name: 'Name1',
  age: null,
  gpa: 1.2,
  fullTime: true
},
{
  _id: ObjectId('69807a96aa017ce650cd809a'),
  name: 'Name2',
  age: 22,
  gpa: 2.4,
  fullTime: true
}
```

```
},  
{  
  _id: ObjectId('69807a96aa017ce650cd809b'),  
  name: 'Name3',  
  age: 42,  
  gpa: 6.2,  
  fullTime: false  
}  
]
```