



# MongoDB Operators


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# MongoDB Operators

- Comparison Operator
- Logical Operator
- Element Operator
- Evaluation Operator
- Geospatial Operator
- Array Operator

# Comparison Operators



Name	Description
<u>\$eq</u>	Matches values that are equal to a specified value.
<u>\$gt</u>	Matches values that are greater than a specified value.
<u>\$gte</u>	Matches values that are greater than or equal to a specified value.
<u>\$in</u>	Matches any of the values specified in an array.
<u>\$lt</u>	Matches values that are less than a specified value.
<u>\$lte</u>	Matches values that are less than or equal to a specified value.
<u>\$ne</u>	Matches all values that are not equal to a specified value.
<u>\$nin</u>	Matches none of the values specified in an array.

# \$gt and \$gte

```
> db.movies.find({runtime: {$gt :42}}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2683"),
  "id" : 1,
  "url" : "http://www.tvmaze.com/shows/1/under-the-dome",
  "name" : "Under the Dome",
  "type" : "Scripted",
  "language" : "English",
  "genres" : [
    "Drama",
    "Science-Fiction",
    "Thriller"
  ],
  "status" : "Ended",
  "runtime" : 60,
  "premiered" : "2013-06-24",
  "officialSite" : "http://www.cbs.com/shows/under-the-dome/",
  "schedule" : {
    "time" : "22:00",
    "days" : [
      "Thursday"
    ]
  },
  "rating" : {
    "average" : 6.5
  },
  "weight" : 91,
  "network" : {
    "id" : 2,
    "name" : "CBS",
    "country" : {
      "name" : "United States",
      "code" : "US",
      "timezone" : "America/New_York"
    }
  }
}
```

```
> db.movies.find({runtime: {$gte :42}}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2683"),
  "id" : 1,
  "url" : "http://www.tvmaze.com/shows/1/under-the-dome",
  "name" : "Under the Dome",
  "type" : "Scripted",
  "language" : "English",
  "genres" : [
    "Drama",
    "Science-Fiction",
    "Thriller"
  ],
  "status" : "Ended",
  "runtime" : 60,
  "premiered" : "2013-06-24",
  "officialSite" : "http://www.cbs.com/shows/under-the-dome/",
  "schedule" : {
    "time" : "22:00",
    "days" : [
      "Thursday"
    ]
  },
  "rating" : {
    "average" : 6.5
  },
  "weight" : 91,
  "network" : {
    "id" : 2,
    "name" : "CBS",
    "country" : {
      "name" : "United States",
      "code" : "US",
      "timezone" : "America/New_York"
    }
  }
}
```

# \$lt and \$lte

```
> db.movies.find({runtime: {$lt :60}}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2699"),
  "id" : 25,
  "url" : "http://www.tvmaze.com/shows/25/hellsing",
  "name" : "Hellsing",
  "type" : "Animation",
  "language" : "Japanese",
  "genres" : [
    "Anime",
    "Horror",
    "Supernatural"
  ],
  "status" : "Ended",
  "runtime" : 30,
  "premiered" : "2001-10-10",
  "officialSite" : null,
  "schedule" : {
    "time" : "",
    "days" : [
      "Wednesday"
    ]
  },
  "rating" : {
    "average" : 8.3
  },
  "weight" : 22,
  "network" : {
    "id" : 131,
    "name" : "Fuji TV",
    "country" : {
      "name" : "Japan",
      "code" : "JP",
      "timezone" : "Asia/Tokyo"
    }
  }
}
```

```
> db.movies.find({runtime: {$lte :60}}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2683"),
  "id" : 1,
  "url" : "http://www.tvmaze.com/shows/1/under-the-dome",
  "name" : "Under the Dome",
  "type" : "Scripted",
  "language" : "English",
  "genres" : [
    "Drama",
    "Science-Fiction",
    "Thriller"
  ],
  "status" : "Ended",
  "runtime" : 60,
  "premiered" : "2013-06-24",
  "officialSite" : "http://www.cbs.com/shows/under-the-dome/",
  "schedule" : {
    "time" : "22:00",
    "days" : [
      "Thursday"
    ]
  },
  "rating" : {
    "average" : 6.5
  },
  "weight" : 91,
  "network" : {
    "id" : 2,
    "name" : "CBS",
    "country" : {
      "name" : "United States",
      "code" : "US",
      "timezone" : "America/New_York"
    }
  }
}
```

# \$ne and \$nin

```
> db.movies.find({runtime: {$ne :60}}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2699"),
  "id" : 25,
  "url" : "http://www.tvmaze.com/shows/25/hellsing",
  "name" : "Hellsing",
  "type" : "Animation",
  "language" : "Japanese",
  "genres" : [
    "Anime",
    "Horror",
    "Supernatural"
  ],
  "status" : "Ended",
  "runtime" : 30,
  "premiered" : "2001-10-10",
  "officialSite" : null,
  "schedule" : {
    "time" : "",
    "days" : [
      "Wednesday"
    ]
  },
  "rating" : {
    "average" : 8.3
  },
  "weight" : 22,
  "network" : {
    "id" : 131,
    "name" : "Fuji TV",
    "country" : {
      "name" : "Japan",
      "code" : "JP",
      "timezone" : "Asia/Tokyo"
    }
  }
}
```

```
> db.movies.find({runtime: {$nin: [30,40]}}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2683"),
  "id" : 1,
  "url" : "http://www.tvmaze.com/shows/1/under-the-dome",
  "name" : "Under the Dome",
  "type" : "Scripted",
  "language" : "English",
  "genres" : [
    "Drama",
    "Science-Fiction",
    "Thriller"
  ],
  "status" : "Ended",
  "runtime" : 60,
  "premiered" : "2013-06-24",
  "officialSite" : "http://www.cbs.com/shows/under-the-dome/",
  "schedule" : {
    "time" : "22:00",
    "days" : [
      "Thursday"
    ]
  },
  "rating" : {
    "average" : 6.5
  },
  "weight" : 91,
  "network" : {
    "id" : 2,
    "name" : "CBS",
    "country" : {
      "name" : "United States",
      "code" : "US",
      "timezone" : "America/New_York"
    }
  }
}
```

# Logical Operators



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

# \$and & \$or

```
> db.movies.find({$and: [{"rating.average": {$gt: 9}}, {genres: "Drama"}]}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc26d2"),
  "id" : 82,
  "url" : "http://www.tvmaze.com/shows/82/game-of-thrones",
  "name" : "Game of Thrones",
  "type" : "Scripted",
  "language" : "English",
  "genres" : [
    "Drama",
    "Adventure",
    "Fantasy"
  ],
  "status" : "Running",
  "runtime" : 60,
  "premiered" : "2011-04-17",
  "officialSite" : "http://www.hbo.com/game-of-thrones",
  "schedule" : {
    "time" : "21:00",
    "days" : [
      "Sunday"
    ]
  },
  "rating" : {
    "average" : 9.4
  },
  "weight" : 99,
  "network" : {
    "id" : 8,
    "name" : "HBO",
    "country" : {
      "name" : "United States",
      "code" : "US",
      "timezone" : "America/New_York"
    }
  }
}
```

```
> db.movies.find({$or: [{"rating.average": {$lt:5}}, {"rating.average": {$gt:9.3}}]}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc26c4"),
  "id" : 71,
  "url" : "http://www.tvmaze.com/shows/71/dancing-with-the-stars",
  "name" : "Dancing with the Stars",
  "type" : "Reality",
  "language" : "English",
  "genres" : [
    "Music"
  ],
  "status" : "Running",
  "runtime" : 120,
  "premiered" : "2005-06-01",
  "officialSite" : "http://abc.go.com/shows/dancing-with-the-stars",
  "schedule" : {
    "time" : "20:00",
    "days" : [
      "Monday"
    ]
  },
  "rating" : {
    "average" : 4.7
  },
  "weight" : 84,
  "network" : {
    "id" : 3,
    "name" : "ABC",
    "country" : {
      "name" : "United States",
      "code" : "US",
      "timezone" : "America/New_York"
    }
  }
}
```



# \$not and \$nor

```
> db.movies.find({runtime: { $not: { $eq: 60 } }}).count()
70
> db.movies.find({runtime: { $not: { $eq: 60 } }}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2699"),
  "id" : 25,
  "url" : "http://www.tvmaze.com/shows/25/hellsing",
  "name" : "Hellsing",
  "type" : "Animation",
  "language" : "Japanese",
  "genres" : [
    "Anime",
    "Horror",
    "Supernatural"
  ],
  "status" : "Ended",
  "runtime" : 30,
  "premiered" : "2001-10-10",
  "officialSite" : null,
  "schedule" : {
    "time" : "",
    "days" : [
      "Wednesday"
    ]
  },
  "rating" : {
    "average" : 8.3
  },
  "weight" : 22,
  "network" : {
    "id" : 131,
    "name" : "Fuji TV",
    "country" : {
      "name" : "Japan",
      "code" : "JP",
      "timezone" : "Asia/Tokyo"
    }
  }
}
```

```
> db.movies.find({$nor: [{"rating.average": {$lt:5}}, {"rating.average": {$gt:9.3}}]}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2683"),
  "id" : 1,
  "url" : "http://www.tvmaze.com/shows/1/under-the-dome",
  "name" : "Under the Dome",
  "type" : "Scripted",
  "language" : "English",
  "genres" : [
    "Drama",
    "Science-Fiction",
    "Thriller"
  ],
  "status" : "Ended",
  "runtime" : 60,
  "premiered" : "2013-06-24",
  "officialSite" : "http://www.cbs.com/shows/under-the-dome/",
  "schedule" : {
    "time" : "22:00",
    "days" : [
      "Thursday"
    ]
  },
  "rating" : {
    "average" : 6.5
  },
  "weight" : 91,
  "network" : {
    "id" : 2,
    "name" : "CBS",
    "country" : {
      "name" : "United States",
      "code" : "US",
      "timezone" : "America/New_York"
    }
  }
}
```

# Element Operators




Name	Description
<u>\$exists</u>	Matches documents that have the specified field.
<u>\$type</u>	Selects documents if a field is of the specified type.

# \$exixts

```
> db.users.find ( {"hobbies.frequency": {$exists: true, $gt:2} } ).pretty()
{
  "_id" : ObjectId("5fd30d72db69bb72defd1d80"),
  "name" : "Akhil",
  "hobbies" : [
    {
      "title" : "Sports",
      "frequency" : 3
    },
    {
      "title" : "Sports",
      "frequency" : 5
    }
  ]
},
{
  "_id" : ObjectId("5fd30d72db69bb72defd1d81"),
  "name" : "Arjun",
  "hobbies" : [
    {
      "title" : "Gaming",
      "frequency" : 3
    },
    {
      "title" : "Sports",
      "frequency" : 3
    }
  ]
},
{
  "_id" : ObjectId("5fd30d72db69bb72defd1d82"),
  "name" : "Akshay",
  "hobbies" : [
    {
      "title" : "Reading",
      "frequency" : 2
    },
    {

```

# Evaluation Operators



Name	Description
<u>\$expr</u>	Allows use of aggregation expressions within the query language.
<u>\$jsonSchema</u>	Validate documents against the given JSON Schema.
<u>\$mod</u>	Performs a modulo operation on the value of a field and selects documents with a specified result.
<u>\$regex</u>	Selects documents where values match a specified regular expression.
<u>\$text</u>	Performs text search.
<u>\$where</u>	Matches documents that satisfy a JavaScript expression.

# \$expr and \$regex

```
> db.sales.find({ $expr: { $gt: ["$volume", "$target"] } }).pretty()
{
  "_id" : ObjectId("5fd313efdb69bb72defd1d86"),
  "volume" : 89,
  "target" : 80
}
{
  "_id" : ObjectId("5fd313efdb69bb72defd1d87"),
  "volume" : 200,
  "target" : 177
}
```

```
> db.movies.find({summary: {$regex: /former/}}).count()
19
> db.movies.find({summary: {$regex: /former/}}).pretty()
{
  "_id" : ObjectId("5fd2f3da65ca41b863bc2686"),
  "id" : 4,
  "url" : "http://www.tvmaze.com/shows/4/arrow",
  "name" : "Arrow",
  "type" : "Scripted",
  "language" : "English",
  "genres" : [
    "Drama",
    "Action",
    "Science-Fiction"
  ],
  "status" : "Running",
  "runtime" : 60,
  "premiered" : "2012-10-10",
  "officialSite" : "http://www.cwtv.com/shows/arrow",
  "schedule" : {
    "time" : "20:00",
    "days" : [
      "Monday"
    ]
  },
  "rating" : {
    "average" : 7.6
  },
  "weight" : 99,
  "network" : {
    "id" : 5,
    "name" : "The CW",
    "country" : {
      "name" : "United States",
      "code" : "US",
      "timezone" : "America/New_York"
    }
  }
}
```

# Geospatial Operators



Name	Description
<u><a href="#">\$geoIntersects</a></u>	Selects geometries that intersect with a <u><a href="#">GeoJSON</a></u> geometry. The <u><a href="#">2dsphere</a></u> index supports <u><a href="#">\$geoIntersects</a></u> .
<u><a href="#">\$geoWithin</a></u>	Selects geometries within a bounding <u><a href="#">GeoJSON</a></u> geometry. The <u><a href="#">2dsphere</a></u> and <u><a href="#">2d</a></u> indexes support <u><a href="#">\$geoWithin</a></u> .
<u><a href="#">\$near</a></u>	Returns geospatial objects in proximity to a point. Requires a geospatial index. The <u><a href="#">2dsphere</a></u> and <u><a href="#">2d</a></u> indexes support <u><a href="#">\$near</a></u> .
<u><a href="#">\$nearSphere</a></u>	Returns geospatial objects in proximity to a point on a sphere. Requires a geospatial index. The <u><a href="#">2dsphere</a></u> and <u><a href="#">2d</a></u> indexes support <u><a href="#">\$nearSphere</a></u> .

# Array Operators



\$all

Matches arrays that contain all elements specified in the query.

---

\$elemMatch

Selects documents if element in the array field matches all the specified \$elemMatch conditions.

---

\$size

Selects documents if the array field is a specified size.

---

# \$elemMatch

```
> db.users.find({hobbies: {$elemMatch: {title: "Sports", frequency: {$gte: 2}}}}).pretty()
{
  "_id" : ObjectId("5fd30d72db69bb72defd1d80"),
  "name" : "Akhil",
  "hobbies" : [
    {
      "title" : "Sports",
      "frequency" : 3
    },
    {
      "title" : "Sports",
      "frequency" : 5
    }
  ]
}
{
  "_id" : ObjectId("5fd30d72db69bb72defd1d81"),
  "name" : "Arjun",
  "hobbies" : [
    {
      "title" : "Gaming",
      "frequency" : 3
    },
    {
      "title" : "Sports",
      "frequency" : 3
    }
  ]
}
{
  "_id" : ObjectId("5fd30d72db69bb72defd1d82"),
  "name" : "Akshay",
  "hobbies" : [
    {
      "title" : "Reading",
      "frequency" : 2
    },
    {
      "title" : "Sports",
      "frequency" : 3
    }
  ]
}
```



# Bitwise Operators



Name	Description
<u><code>\$bitsAllClear</code></u>	Matches numeric or binary values in which a set of bit positions <i>all</i> have a value of 0.
<u><code>\$bitsAllSet</code></u>	Matches numeric or binary values in which a set of bit positions <i>all</i> have a value of 1.
<u><code>\$bitsAnyClear</code></u>	Matches numeric or binary values in which <i>any</i> bit from a set of bit positions has a value of 0.
<u><code>\$bitsAnySet</code></u>	Matches numeric or binary values in which <i>any</i> bit from a set of bit positions has a value of 1.

# Projection Operators



Name	Description
<u>\$</u>	Projects the first element in an array that matches the query condition.
<u>\$elemMatch</u>	Projects the first element in an array that matches the specified <u>\$elemMatch</u> condition.
<u>\$meta</u>	Projects the document's score assigned during <u>\$text</u> operation.
<u>\$slice</u>	Limits the number of elements projected from an array. Supports skip and limit slices.



**Thank You!**