

# MongoDB Cheat Sheet

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## Terminology

### Database

A container for collections. This is the same as a database in SQL and usually each project will have its own database full of different collections.

### Collection

A grouping of documents inside of a database. This is the same as a table in SQL and usually each type of data (users, posts, products) will have its own collection.

### Document

A record inside of a collection. This is the same as a row in SQL and usually there will be one document per object in the collection. A document is also essentially just a JSON object.

### Field

A key value pair within a document. This is the same as a column in SQL. Each document will have some number of fields that contain information such as name, address, hobbies, etc. An important difference between SQL and MongoDB is that a field can contain values such as JSON objects, and arrays instead of just strings, number, booleans, etc.

## Basic Commands

### mongosh

Open a connection to your local MongoDB instance. All other commands will be run within this mongosh connection.

### show dbs

Show all databases in the current MongoDB instance

### use <dbname>

use myDatabase

Switch to the database provided by dbname  
Switch to myDatabase

### db

Show current database name

### cls

Clear the terminal screen

### show collections

Show all collections in the current database

### db.dropDatabase()

Delete the current database

### exit

Exit the mongosh session

## Create

Each of these commands is run on a specific collection

`db.<collectionName>.<command>`

### insertOne

```
db.users.insertOne({ name: "Kyle" })
```

Create a new document inside the specified collection

Add a new document with the name of Kyle into the users collection

### insertMany

```
db.users.insertMany([ { age: 26 }, { age: 20 } ])
```

Create multi new documents inside a specific collection

Add two new documents with the age of 26 and 20 into the users collection

## Read

Each of these commands is run on a specific collection

`db.<collectionName>.<command>`

### find

```
db.users.find()
```

Get all documents

Get all users

### find(<filterObject>)

```
db.users.find({ name: "Kyle" })
db.users.find({ "address.street": "123 Main St" })
```

Find all documents that match the filter object

Get all users with the name Kyle

Get all users whose adress field has a street field with the value 123 Main St

### find(<filterObject>, <selectObject>)

```
db.users.find({ name: "Kyle" }, { name: 1, age: 1 })
db.users.find({}, { age: 0 })
```

Find all documents that match the filter object but only return the field specified in the select object

Get all users with the name Kyle but only return their name, age, and \_id

Get all users and return all columns except for age

### findOne

```
db.users.findOne({ name: "Kyle" })
```

The same as find, but only return the first document that matches the filter object

Get the first user with the name Kyle

### countDocuments

```
db.users.countDocuments({ name: "Kyle" })
```

Return the count of the documents that match the filter object passed to it

Get the number of users with the name Kyle

## Update

Each of these commands is run on a specific collection

`db.<collectionName>.<command>`

### updateOne

```
db.users.updateOne({ age: 20 }, { $set: { age: 21 } })
```

Update the first document that matches the filter object with the data passed into the second parameter which is the update object

Update the first user with an age of 20 to the age of 21

### updateMany

```
db.users.updateMany({ age: 12 }, { $inc: { age: 3 } })
```

Update all documents that matches the filter object with the data passed into the second parameter which is the update object

Update all users with an age of 12 by adding 3 to their age

### replaceOne

```
db.users.replaceOne({ age: 12 }, { age: 13 })
```

Replace the first document that matches the filter object with the exact object passed as the second parameter. This will completely overwrite the entire object and not just update individual fields.

Replace the first user with an age of 12 with an object that has the age of 13 as its only field

# Delete

Each of these commands is run on a specific collection

`db.<collectionName>.<command>`

## deleteOne

```
db.users.deleteOne({ age: 20 })
```

Delete the first document that matches the filter object

Delete the first user with an age of 20

## deleteMany

```
db.users.deleteMany({ age: 12 })
```

Delete all documents that matches the filter object

Delete all users with an age of 12

# Complex Filter Object

Any combination of the below can be use inside a filter object to make complex queries

## \$eq

```
db.users.find({ name: { $eq: "Kyle" } })
```

Check for equality

Get all users with the name Kyle

## \$ne

```
db.users.find({ name: { $ne: "Kyle" } })
```

Check for not equal

Get all users with a name other than Kyle

## \$gt / \$gte

```
db.users.find({ age: { $gt: 12 } })
db.users.find({ age: { $gte: 15 } })
```

Check for greater than and greater than or equal to

Get all users with an age greater than 12

Get all users with an age greater than or equal to 15

## \$lt / \$lte

```
db.users.find({ age: { $lt: 12 } })
db.users.find({ age: { $lte: 15 } })
```

Check for less than and less than or equal to

Get all users with an age less than 12

Get all users with an age less than or equal to 15

## \$in

```
db.users.find({ name: { $in: ["Kyle", "Mike"] } })
```

Check if a value is one of many values

Get all users with a name of Kyle or Mike

## \$nin

```
db.users.find({ name: { $nin: ["Kyle", "Mike"] } })
```

Check if a value is none of many values

Get all users that do not have the name Kyle or Mike

## \$and

```
db.users.find({ $and: [{ age: 12 }, { name: "Kyle" }] })
db.users.find({ age: 12, name: "Kyle" })
```

Check that multiple conditions are all true

Get all users that have an age of 12 and the name Kyle

This is an alternative way to do the same thing. Generally you do not need \$and.

## \$or

```
db.users.find({ $or: [{ age: 12 }, { name: "Kyle" }] })
```

Check that one of multiple conditions is true

Get all users with a name of Kyle or an age of 12

## \$not

```
db.users.find({ name: { $not: { $eq: "Kyle" } } })
```

Negate the filter inside of \$not

Get all users with a name other than Kyle

## \$exists

```
db.users.find({ name: { $exists: true } })
```

Check if a field exists

Get all users that have a name field

## \$expr

```
db.users.find({ $expr: { $gt: ["$balance", "$debt"] } })
```

Do comparisons between different fields

Get all users that have a balance that is greater than their debt

## Complex Update Object

Any combination of the below can be use inside an update object to make complex updates

### \$set

```
db.users.updateOne({ age: 12 }, { $set: { name: "Hi" } })
```

Update only the fields passed to \$set. This will not affect any fields not passed to \$set.

Update the name of the first user with the age of 12 to the value Hi

### \$inc

```
db.users.updateOne({ age: 12 }, { $inc: { age: 2 } })
```

Increment the value of the field by the amount given

Add 2 to the age of the first user with the age of 12

### \$rename

```
db.users.updateMany({}, { $rename: { age: "years" } })
```

Rename a field

Rename the field age to years for all users

### \$unset

```
db.users.updateOne({ age: 12 }, { $unset: { age: "" } })
```

Remove a field

Remove the age field from the first user with an age of 12

### \$push

```
db.users.updateMany({}, { $push: { friends: "John" } })
```

Add a value to an array field

Add John to the friends array for all users

### \$pull

```
db.users.updateMany({}, { $pull: { friends: "Mike" } })
```

Remove a value from an array field

Remove Mike from the friends array for all users

## Read Modifiers

Any combination of the below can be added to the end of any read operation

### sort

```
db.users.find().sort({ name: 1, age: -1 })
```

Sort the results of a find by the given fields

Get all users sorted by name in alphabetical order and then if any names are the same sort by age in reverse order

### limit

```
db.users.find().limit(2)
```

Only return a set number of documents

Only return the first 2 users

### skip

```
db.users.find().skip(4)
```

Skip a set number of documents from the beginning

Skip the first 4 users when returning results. This is great for pagination when combined with limit.