MongoDB Cheat Sheet

By Web Dev Simplified   https://courses.webdevsimplified.com

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.