



Introduction to Database Systems: CS312

Compass, MongoDB's DB Interface

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Getting started with Mongo

Start
MongoDB

Operators

Start
MongoDB
and Compass

Setup a data directory (if you have not already done so)

```
mkdir ~/mongodbData
```

Start the Mongo server with data directory as a parameter

Note: Control-C to exit.

```
mongod --dbpath ~/mongodbData/
```

With new another terminal, start the Mongo client

```
mongo
```

Find databases or collections, from Mongo's client

```
show dbs
```

```
show collections
```

Begin a new database, from Mongo's client

```
use myDB
```

How Do I Compare Values?

Start
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Operation	MongoDB	RDBMS
Equality	<code>db.employees.find({"salary":"5000"})</code>	<code>where 'salary' = '5000'</code>
Less Than	<code>db.employees.find({"age":{"\$lt":30}})</code>	<code>where age < 30</code>
Less Than Equals	<code>db.employees.find({"age":{"\$lte":30}})</code>	<code>where age <= 30</code>
Greater Than	<code>db.employees.find({"age":{"\$gt":30}})</code>	<code>where age > 30</code>
Greater Than Equals	<code>db.employees.find({"age":{"\$gte":30}})</code>	<code>where age >= 30</code>
Not Equals	<code>db.employees.find({"age":{"\$ne":30}})</code>	<code>where age != 30</code>

Details where age less than 30

```
db.employee.find({"age":{"$lt":30}},{"email":1}).pretty()
```

```
> db.employee.find({"age":{"$lt":30}},{"email":1}).pretty()
{
  "_id" : "5c89c73ec4863a49668b3784",
  "email" : "belinda.guzman@beadzza.org"
}
{ "_id" : "5c89c73e5e7b4f23f0a32660", "email" : "cora.keith@combogen.io" }
```

How Do I Compare Values?

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Details where age greater than 30

```
db.employee.find({"age":{"$gt":30}},{"email":1}).pretty()
```

```
> db.employee.find({"age":{"$gt":30}},{"email":1}).pretty()
{
  "_id" : "5c89c73ea91e2b221611b950",
  "email" : "pennington.moss@radiantix.tv"
}
{
  "_id" : "5c89c73ea080dbf02bd40f0e",
  "email" : "rosemary.french@prosure.co.uk"
}
```

Details where age not equal to 30

```
db.employee.find({"age":{"$gt":30}},{"email":1}).pretty()
```

```
> db.employee.find({"age":{"$ne":27}},{"email":1}).pretty()
{
  "_id" : "5c89c73ea91e2b221611b950",
  "email" : "pennington.moss@radiantix.tv"
}
{
  "_id" : "5c89c73ea080dbf02bd40f0e",
  "email" : "rosemary.french@prosure.co.uk"
}
{ "_id" : "5c89c73e5e7b4f23f0a32660", "email" : "cora.keith@combogen.io" }
```

Cool! Let's See That in Action!

Start
MongoDB

Operators

Start
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and Compass



BTW: This graphic found as a result of image searching, "The Coolest Thing." Apologies.

Getting started with Compass

Start
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Setup a data directory (if you have not already done so)

```
mkdir ~/mongodbData
```

Start the Mongo server with data directory as a parameter

Note: Control-C to exit.

```
mongod --dbpath ~/mongodbData/
```

With new another terminal, start the Compass client

```
compass
```

Find databases or collections, from Mongo's client

```
show dbs
```

```
show collections
```

Begin a new database, from Mongo's client

```
use myDB
```

Compass Main screen

Connect to the server

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Operators

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Connect to Host

Hostname localhost

Port 27017

SRV Record



Authentication None

Replica Set Name

Read Preference Primary

SSL None

SSH Tunnel None

Favorite Name Local

CREATE FAVORITE

CONNECT

Compass Databases Menu

What DBs (database groups) are on my server?

Start
MongoDB

Operators

Start
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MongoDB Compass Community - localhost27017

Connect View Help

My Cluster localhost27017 STANDALONE MongoDB 3.6.3 Community

4 DBS 3 COLLECTIONS

filter

- > admin
- > config
- > local
- > myDB

Databases

CREATE DATABASE

Database Name	Storage Size	Collections	Indexes
admin	16.0KB	0	1
config	4.0KB	0	2
local	16.0KB	1	1
myDB	32.0KB	2	2

Click *myDB*

Note: We have already established this DB during another class but, you could create a new DB by typing, use `myOtherDB`.

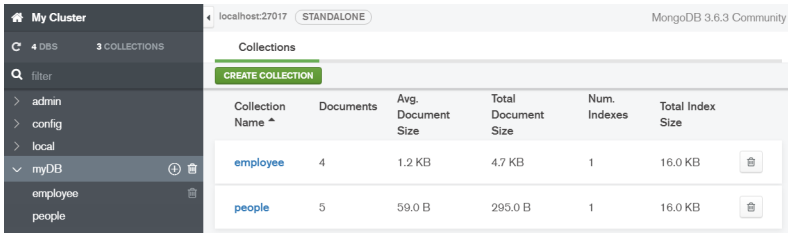
Compass Collections Menu

What Collections are on my server?

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The screenshot shows the MongoDB Compass interface. On the left, the 'My Cluster' sidebar is expanded, showing a list of databases: 'admin', 'config', 'local', and 'myDB'. The 'myDB' database is selected, and its collections are listed: 'employee', 'employee', and 'people'. The main panel displays the 'Collections' view for the 'myDB' database. It shows a table with columns: 'Collection Name', 'Documents', 'Avg. Document Size', 'Total Document Size', 'Num. Indexes', and 'Total Index Size'. The table lists two collections: 'employee' (4 documents, 1.2 KB avg size, 4.7 KB total size, 1 index) and 'people' (5 documents, 59.0 B avg size, 295.0 B total size, 1 index). A 'CREATE COLLECTION' button is visible above the table.

Collection Name	Documents	Avg. Document Size	Total Document Size	Num. Indexes	Total Index Size
employee	4	1.2 KB	4.7 KB	1	16.0 KB
people	5	59.0 B	295.0 B	1	16.0 KB

Click *employee*

Note: We have already established this collection during another class.

Schema

How do I see how my data is organized?

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myDB.employee

DOCUMENTS 4 TOTAL SIZE 4.8KB AVG. SIZE 1.2KB INDEXES 1 TOTAL SIZE 16.0KB AVG. SIZE 16.0KB

Documents Aggregations **Schema** Explain Plan Indexes Validation

FILTER {} **OPTIONS** **ANALYZE** **RESET** ...

PROJECT {eyeColor:1,company:1,"name.first":1,"name.last":1,_id:0,frinds:1} **LIMIT** 0

The schema content is outdated and no longer in sync with the documents view. Press "Analyze" again to see the schema for the current query.

Field	Type	Value
_id	string	5c89c73ea088dbf62bd40f0e
		5c89c73e5e7b4f23f0a32660
		5c89c73ec4863a49668b3784
		5c89c73ea91e2b221611b950
about	string	Quis do laborum non aliquip laboris pariatur ipsum eiusmod. Veniam sint deserunt Lorem ut veniam excepteur Lorem velit. Cupidatat proident aliqua laborum ullamco.
		Qui aliqua magna eiusmod fugiat irure dolor tempor magna amet tempor labore sint. Incididunt qui fugiat proident laborum adipisicing culpa labore mollit

We get a look at how MongoDB organizes its data in this tab.
Good for debugging.

Query!!

How do I run a query?

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myDB.employee

Documents

Aggregations

Schema

Explain Plan

FILTER {}

PROJECT {eyeColor:1,company:1,"name.first":1,"name.last":1}

SORT

VIEW

LIST

TABLE

```
_id: "5c89c73ea91e2b221611b950"
eyeColor: "brown"
name: Object
company: "RADIANTIX"
```

```
_id: "5c89c73ec4863a49668b3784"
eyeColor: "green"
name: Object
company: "BEADZZA"
```

We have already established this collection from the file `syntheticData_small.json` during another class.

Query!!

Awesome! How do I run another query?

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myDB.employee

Documents

Aggregations

Schema

Expla

FILTER {}

PROJECT {eyeColor:1,company:1,"name.first":1,"name.last":1,_id:0,friends:1}

SORT

VIEW

LIST

TABLE

```
eyeColor: "brown"
  name: Object
    company: "RADIANTIX"
  friends: Array
```

```
eyeColor: "green"
  name: Object
    company: "BEADZZA"
  friends: Array
    0: Object
      id: 0
      name: "Bryan Frederick"
    1: Object
      id: 1
      name: "Navarro Rutledge"
    2: Object
      id: 2
      name: "Jacklyn Eaton"
```

Query!!

Cool! How do I run yet another query?

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myDB.employee

Documents

Explain Plan

Indexes

FILTER {}

OPTIONS

FIND

RESET

↺

PROJECT {"email":1,"balance":1,"_id":0}

SORT { field: -1 }

SKIP 0

LIMIT 0

VIEW

LIST

TABLE

Displaying documents 1 - 4 of 4

<

>

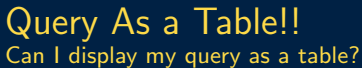
↺

balance: "\$3,294.70"
email: "pennington.moss@radiantix.tv"

balance: "\$1,949.33"
email: "belinda.guzman@beadzza.org"

balance: "\$2,532.27"
email: "rosemary.french@prosure.co.uk"

balance: "\$2,359.76"
email: "cora.keith@combogen.io"



Start MongoDB and Compass

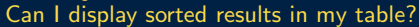
Indexes

9

● LIMIT 0

C

"cora.keith@combogen.io"



Indexes

"pennington.moss@radiantix.tv"



THINK

- Can you create and populate a completely new MongoDB database?
- Can you write sophisticated queries in your database to isolate meaningful information from the data?