

نکته: از MongoDB روی داکر استفاده شده پس قابلیت‌های Compass موجود نیست.

الف)

یک.

دو.

```
> use School
switched to db School
> show dbs
admin    0.000GB
config  0.000GB
local    0.000GB
> db
School
> db.createCollection("Student")
{ "ok" : 1 }
> db.createCollection("Courses")
{ "ok" : 1 }
> show dbs
School  0.000GB
admin    0.000GB
config  0.000GB
local    0.000GB
> |
```

سه.

```
> db.Student.insert( { name: "mamad", "last_name": "mamad", age: 12, degree: [ { university: "mamad", major: "mamad", gpa: 12 } ], address: { country: "mamad", city: "mamad", street: "mamad" } })
WriteResult({ "nInserted" : 1 })
> db.Student.insert( { name: "reza", "last_name": "reza", age: 11, degree: [ { university: "reza", major: "reza", minor: "reza", gpa : 11 } ], address: { country: "reza", city: "reza", street: "reza" } })
WriteResult({ "nInserted" : 1 })
```

چهار.

```
> db.Courses.drop()
true
```

پنج.

```
> db.Student.find().pretty()
{
  "_id" : ObjectId("60cbb07e82cbdb8990eb583c"),
  "name" : "mamad",
  "last_name" : "mamad",
  "age" : 12,
  "degree" : [
    {
      "university" : "mamad",
      "major" : "mamad",
      "gpa" : 12
    }
  ],
  "address" : {
    "country" : "mamad",
    "city" : "mamad",
    "street" : "mamad"
  }
}
{
  "_id" : ObjectId("60cbb0d782cbdb8990eb583d"),
  "name" : "reza",
  "last_name" : "reza",
  "age" : 11,
  "degree" : [
    {
      "university" : "reza",
      "major" : "reza",
      "minor" : "reza",
      "gpa" : 11
    }
  ],
  "address" : {
    "country" : "reza",
    "city" : "reza",
    "street" : "reza"
  }
}
```

```

> db.Student.update(
... {name: "mamad"},
... {$inc: {age: 3}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.Student.update(
... {name: "reza"},
... {$unset: {age: ""}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.Student.find().pretty()
{
  "_id" : ObjectId("60cbb07e82cbdb8990eb583c"),
  "name" : "mamad",
  "last_name" : "mamad",
  "age" : 15,
  "degree" : [
    {
      "university" : "mamad",
      "major" : "mamad",
      "gpa" : 12
    }
  ],
  "address" : {
    "country" : "mamad",
    "city" : "mamad",
    "street" : "mamad"
  }
}
{
  "_id" : ObjectId("60cbb0d782cbdb8990eb583d"),
  "name" : "reza",
  "last_name" : "reza",
  "degree" : [
    {
      "university" : "reza",
      "major" : "reza",
      "minor" : "reza",
      "gpa" : 11
    }
  ],
  "address" : {
    "country" : "reza",
    "city" : "reza",
    "street" : "reza"
  }
}

```

(ب)

```

root@60809d9163dc:/# mongoimport --db son --collection zips --jsonArray --file /home/zips.json
2021-06-18T06:02:50.843+0000    connected to: mongod://localhost/
2021-06-18T06:02:51.507+0000    29470 document(s) imported successfully. 0 document(s) failed to import.

```

شش.

```
> use son
switched to db son
> db.zips.find({city:"SHELTON"})
{ "_id" : ObjectId("5c8eccc1caa187d17ca6fba6"), "city" : "SHELTON", "zip" : "06484", "loc" : { "y" : 41.304689, "x" : 73.129439 }, "pop" : 35447, "state" : "CT" }
{ "_id" : ObjectId("5c8eccc1caa187d17ca72a6e"), "city" : "SHELTON", "zip" : "68876", "loc" : { "y" : 40.771703, "x" : 98.743453 }, "pop" : 1256, "state" : "NE" }
{ "_id" : ObjectId("5c8eccc1caa187d17ca75972"), "city" : "SHELTON", "zip" : "98584", "loc" : { "y" : 47.20863, "x" : 123.072862 }, "pop" : 19074, "state" : "WA" }
```

هفت.

```
> db.zips.find({city:"SHELTON"}).sort({pop: -1})
{ "_id" : ObjectId("5c8eccc1caa187d17ca6fba6"), "city" : "SHELTON", "zip" : "06484", "loc" : { "y" : 41.304689, "x" : 73.129439 }, "pop" : 35447, "state" : "CT" }
{ "_id" : ObjectId("5c8eccc1caa187d17ca75972"), "city" : "SHELTON", "zip" : "98584", "loc" : { "y" : 47.20863, "x" : 123.072862 }, "pop" : 19074, "state" : "WA" }
{ "_id" : ObjectId("5c8eccc1caa187d17ca72a6e"), "city" : "SHELTON", "zip" : "68876", "loc" : { "y" : 40.771703, "x" : 98.743453 }, "pop" : 1256, "state" : "NE" }
```

هشت.

```
> db.zips.find({city:"SHELTON"}, {state: 1, _id: 0}).sort({pop: -1}).limit(1)
{ "state" : "CT" }
```

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```
> db.zips.find({}, {city: 1, _id: 0}).sort({pop: -1}).limit(10)
{ "city" : "CHICAGO" }
{ "city" : "BROOKLYN" }
{ "city" : "NEW YORK" }
{ "city" : "NEW YORK" }
{ "city" : "BELL GARDENS" }
{ "city" : "CHICAGO" }
{ "city" : "LOS ANGELES" }
{ "city" : "CHICAGO" }
{ "city" : "CHICAGO" }
{ "city" : "NORWALK" }
```

ده.

```
> db.zips.find({$or: [{pop: {$lt: 100}}, {pop: {$gt:100000}}]}, {city: 1, _id: 0}).count()
720
```

یازده.

```
> db.zips.distinct("city", {state: "NY"}).length
1371
```

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دوازده.

```
> db.zips.find({state: "HI"}).sort({pop: -1}).limit(1).skip(1)
{ "_id" : ObjectId("5c8eccc1caa187d17ca7021d"), "city" : "KANE OHE", "zip" : "96744", "loc" : { "y" : 21.422819, "x" : 157.811543 }, "pop" : 55236, "state" : "HI" }
```

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سیزده.

```
> db.zips.aggregate([
... {
...   $group: { _id: { state: '$state' }, cities: { $addToSet: '$city' } }
... },
... {
...   $unwind: "$cities"
... },
... {
...   $group: { _id: "$_id", cityCount: { $sum: 1 } }
... },
... {
...   $sort: { cityCount: -1 }
... },
... {
...   $limit: 3
... }
... ]);
{ "_id" : { "state" : "NY" }, "cityCount" : 1371 }
{ "_id" : { "state" : "PA" }, "cityCount" : 1369 }
{ "_id" : { "state" : "TX" }, "cityCount" : 1238 }
```

چهارده.

```
> db.zips.aggregate([
... {
...   $group: { _id: { state: '$state' }, population: { $sum: '$pop' } }
... },
... {
...   $sort: { population: -1 }
... },
... {
...   $limit: 10
... },
... {
...   $sample: { size: 3 }
... }
... ]);
{ "_id" : { "state" : "OH" }, "population" : 10847115 }
{ "_id" : { "state" : "NJ" }, "population" : 7730188 }
{ "_id" : { "state" : "NY" }, "population" : 17990455 }
```