

Intro to MongoDB

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What is MongoDB?



mongoDB®

- NoSQL database
- Stores collections of documents rather than tables with rows

Table of movies in relational database

Title	Director	Year
Star Wars: Episode IV - A New Hope	George Lucas	1977
The Lion King	Rob Minkoff	1994

MongoDB collection of movie documents

```
{
  title: 'Star Wars: Episode IV - A New Hope',
  director: 'George Lucas',
  year: 1977
}

{
  title: 'The Lion King',
  director: 'Rob Minkoff',
  year: 1994
}
```

Documents

- Basic unit of data (like row in relational database)
- Ordered set of keys with associated values, similar to Javascript object

```
{ key : value }
```

```
{ "greeting" : "Hello, world!" }
```

- Type and case sensitive
- Cannot contain duplicate keys
- Every document has a key “_id” that is unique within collection

Collections

- Group of documents (table in relational database)
- Dynamic schemas: documents within a single collection can have different “shapes”:

```
{ “greeting” : “Hello, world!” , “views” : 3 }
```

```
{ “signoff” : “Good night” }
```

- Documents with different keys, different numbers of keys, values of different types within one collection

Databases

- MongoDB groups collections into databases
- One instance of MongoDB can host several databases
- Store all data for a single application in same database

Data Types

Type	Examples
Null	{ "x" : null }
Boolean	{ "x" : true }
Number	{ "x" : 3 } { "x" : 3.14 } { "x" : NumberInt("3") }
String	{ "x" : "foobar" }
Date	{ "x" : new Date() }
Regular Expression	{ "x" : /foobar/i }
Array	{ "x" : ["a", "b", "c"] }
Embedded document	{ "x" : { "foo" : "bar" } }
Object ID	{ "x" : ObjectID() }

Starting MongoDB

- After installing MongoDB, start the server by running the *mongod* executable in command-line
- *mongod* will use default data directory */data/db/* or you can add argument `--dbpath [path to existing directory to store data]`

Running the MongoDB shell

- After starting *mongod*, start the MongoDB shell by running the *mongosh* executable
- Shell is JavaScript interpreter and MongoDB client

MongoDB client

- `show db` - show database names
- `Show collections` - show collections in current database
- `db` - shows which database is currently assigned
- `use [name of database]` - select database

- `insertOne()` - save document to collection
- `findOne()` - returns single document
- `find()` - returns all documents that match query
- `updateOne()` - modify document
- `deleteOne()` - remove one document
- `deleteMany()` - remove all documents matching filter

References

MongoDB: The definitive guide by Bradshaw, Brazil and Chodorow