

# MongoDB installation

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# MongoDB

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- MongoDB is a non-relational database
- Mongo stores data in flexible, JSON-like documents
- Non-relational databases are schemaless, meaning that fields can vary from document to document and data structure can be changed over time

# Install MongoDB

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- In this week's lab, we will install and test MongoDB
- Over the next few weeks, we will explore the CRUD (Create, Read, Update, Delete) functions in MongoDB

File Explorer window showing the contents of the MongoDB Server 4.0 bin directory.

Address bar: Computer > Default (C:) > Program Files > MongoDB > Server > 4.0 > bin

Search bin

Organize Include in library Share with Burn New folder

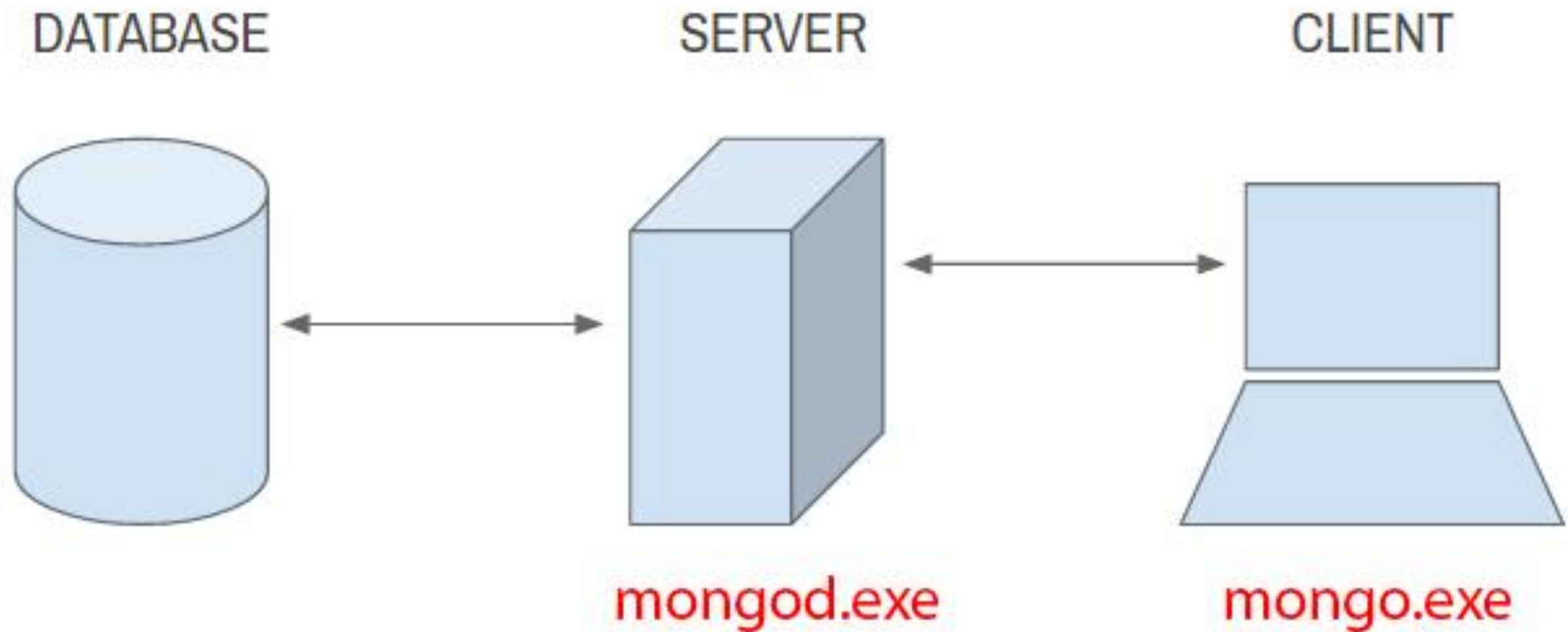
Left sidebar: Favorites (Desktop, Recent Places, Dropbox, Downloads, Google Drive, Creative Cloud Files), Libraries (Documents, Music, Pictures, Videos), Computer (Default (C:), Staff H Drive (H:), Student P Drive (P:), Staff Q Drive (Q:), My WIT OneDrive)

| Name               | Date modified    | Type                  | Size       |
|--------------------|------------------|-----------------------|------------|
| bsondump.exe       | 27/08/2018 23:02 | Application           | 8,608 KB   |
| grades.json        | 20/09/2018 15:39 | JSON File             | 92 KB      |
| InstallCompass.ps1 | 27/08/2018 23:26 | PS1 File              | 2 KB       |
| libeay32.dll       | 03/04/2018 18:58 | Application extens... | 2,405 KB   |
| mongo.exe          | 27/08/2018 23:18 | Application           | 17,934 KB  |
| mongod.cfg         | 11/09/2018 08:40 | CFG File              | 1 KB       |
| mongod.exe         | 27/08/2018 23:28 | Application           | 31,601 KB  |
| mongod.pdb         | 27/08/2018 23:28 | Source Browser D...   | 346,052 KB |
| mongodump.exe      | 27/08/2018 23:06 | Application           | 10,674 KB  |
| mongoexport.exe    | 27/08/2018 23:04 | Application           | 8,862 KB   |
| mongofiles.exe     | 27/08/2018 23:03 | Application           | 8,793 KB   |
| mongoimport.exe    | 27/08/2018 23:04 | Application           | 8,961 KB   |
| mongorestore.exe   | 27/08/2018 23:05 | Application           | 11,760 KB  |
| mongos.exe         | 27/08/2018 23:19 | Application           | 16,385 KB  |
| mongos.pdb         | 27/08/2018 23:19 | Source Browser D...   | 180,804 KB |
| mongostat.exe      | 27/08/2018 23:03 | Application           | 8,950 KB   |
| mongotop.exe       | 27/08/2018 23:06 | Application           | 8,758 KB   |
| ssleay32.dll       | 03/04/2018 18:58 | Application extens... | 350 KB     |

18 items

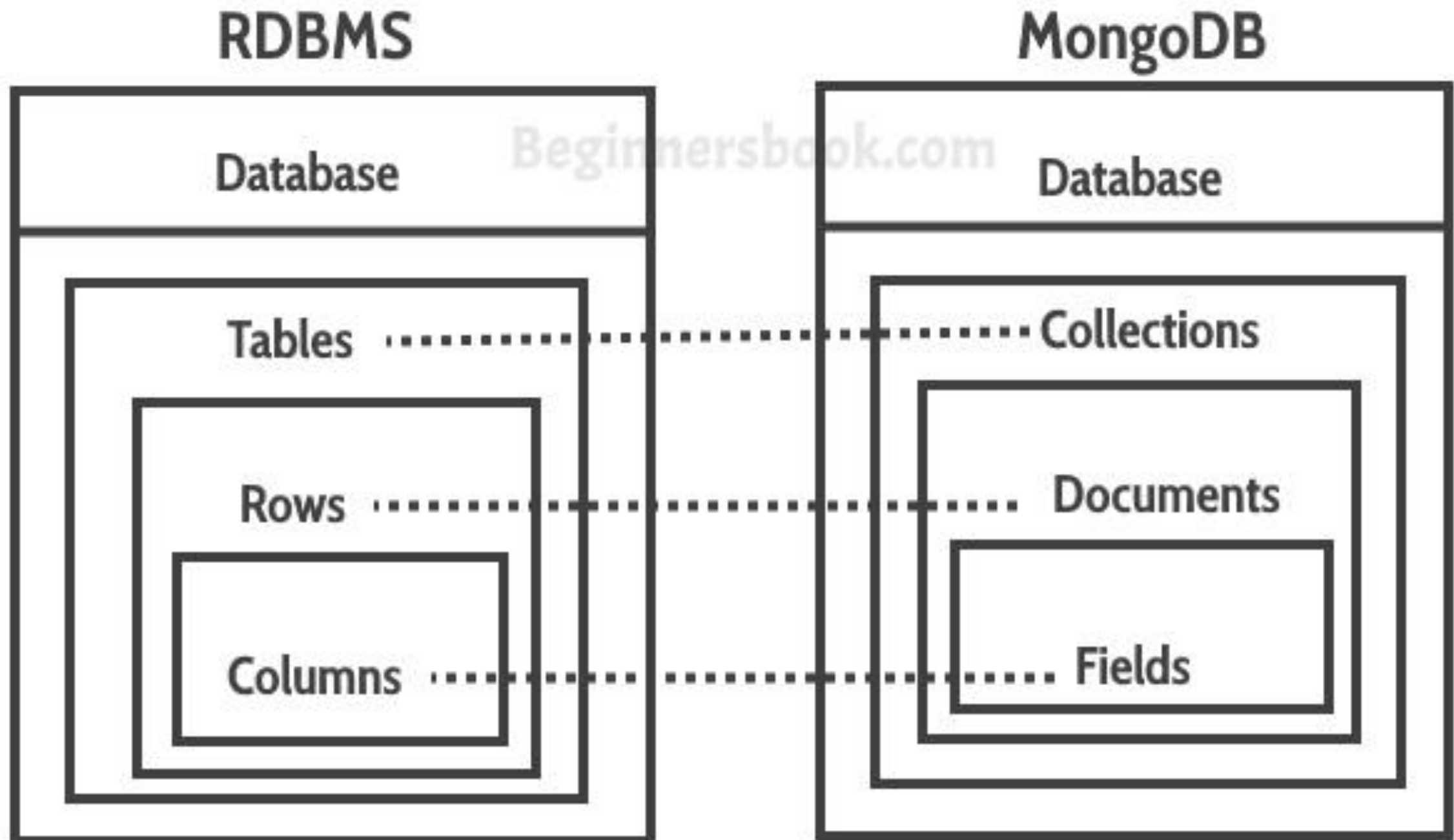
# MongoDB Client and Server

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# Collections and documents

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# MongoDB Commands

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- Some useful commands:

| Command          | What it does  |
|------------------|---|
| show dbs         | Shows all databases   |
| show db          | Shows which database you are currently using  |
| use dbname       | Switches to the database specified; also creates the database if it doesn't exist yet |
| show collections | Lists the collections in the current database   |

# Document syntax

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- Curly brackets are used to specify documents
- Fields consist of properties and values (with a : colon in between)
- When specifying multiple fields, use commas to separate them

```
{  
  item: "box",  
  qty: 20  
}
```



# Document syntax

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- As well as strings and integers, there are boolean, double and date datatypes

```
{  
  item: "box",  
  qty: 20,  
  price: 14.99,  
  available: true,  
  timestamp: new Date()  
}
```

# Document syntax

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- Documents can also contain arrays (indicated by square brackets) and nested documents (more curly brackets)

```
{  
  item: "box",  
  qty: 20,  
  price: 14.99,  
  available: true,  
  timestamp: new Date(),  
  itemcodes: [1002, 1003, 1004],  
  supplierinfo: { name: "Boxes Inc.", location: "Ireland" }  
}
```

# Document syntax

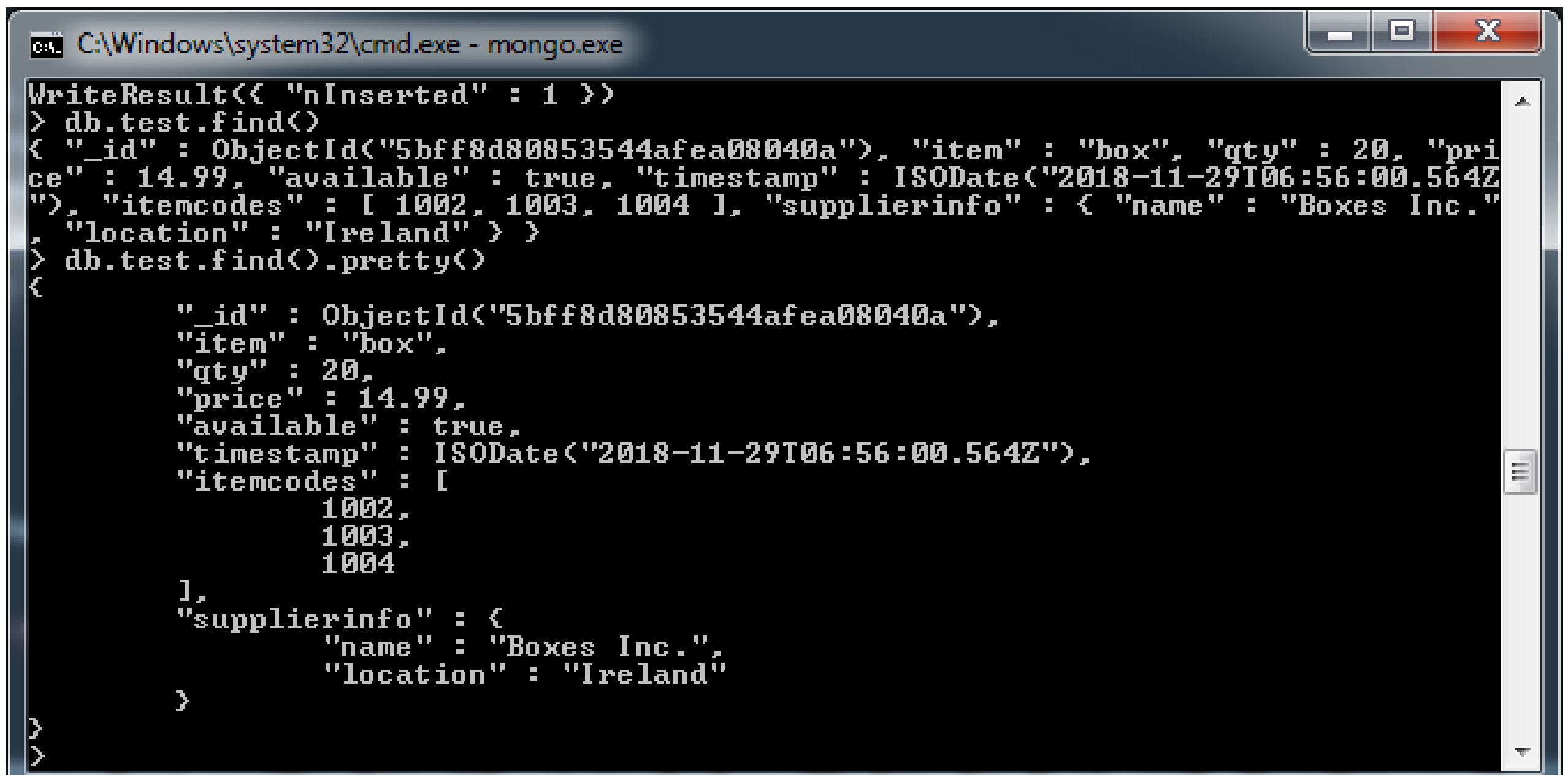
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- To add this to the test database:

```
db.test.insert(  
  {  
    item: "box",  
    qty: 20,  
    price: 14.99,  
    available: true,  
    timestamp: new Date(),  
    itemcodes: [1002, 1003, 1004],  
    supplierinfo: { name: "Boxes Inc.", location: "Ireland" }  
  }  
)
```

# Document syntax

- MongoDB will add an ObjectId to each document you create (unless you add your own id)



```
C:\Windows\system32\cmd.exe - mongo.exe
WriteResult(<< "nInserted" : 1 >>)
> db.test.find()
{ "_id" : ObjectId("5bfff8d80853544afea08040a"), "item" : "box", "qty" : 20, "price" : 14.99, "available" : true, "timestamp" : ISODate("2018-11-29T06:56:00.564Z"), "itemcodes" : [ 1002, 1003, 1004 ], "supplierinfo" : { "name" : "Boxes Inc.", "location" : "Ireland" } }
> db.test.find().pretty()
{
  "_id" : ObjectId("5bfff8d80853544afea08040a"),
  "item" : "box",
  "qty" : 20,
  "price" : 14.99,
  "available" : true,
  "timestamp" : ISODate("2018-11-29T06:56:00.564Z"),
  "itemcodes" : [
    1002,
    1003,
    1004
  ],
  "supplierinfo" : {
    "name" : "Boxes Inc.",
    "location" : "Ireland"
  }
}
```