

Welcome

Introduction to MongoDB





MongoDB, the most popular NoSQL database, is an open-source document-oriented database.

Features of MongoDB

Features	Description
Document Oriented	MongoDB stores the main subject in the minimal number of documents and not by breaking it up into multiple relational structures like RDBMS.
Indexing	Without indexing, a database would have to scan every document of a collection to select those that match the query which would be inefficient
Scalability	MongoDB scales horizontally using sharding (partitioning data across various servers)
Replication and High Availability	MongoDB increases the data availability with multiple copies of data on different servers.
Aggregation	Aggregation operations process data records and return the computed results

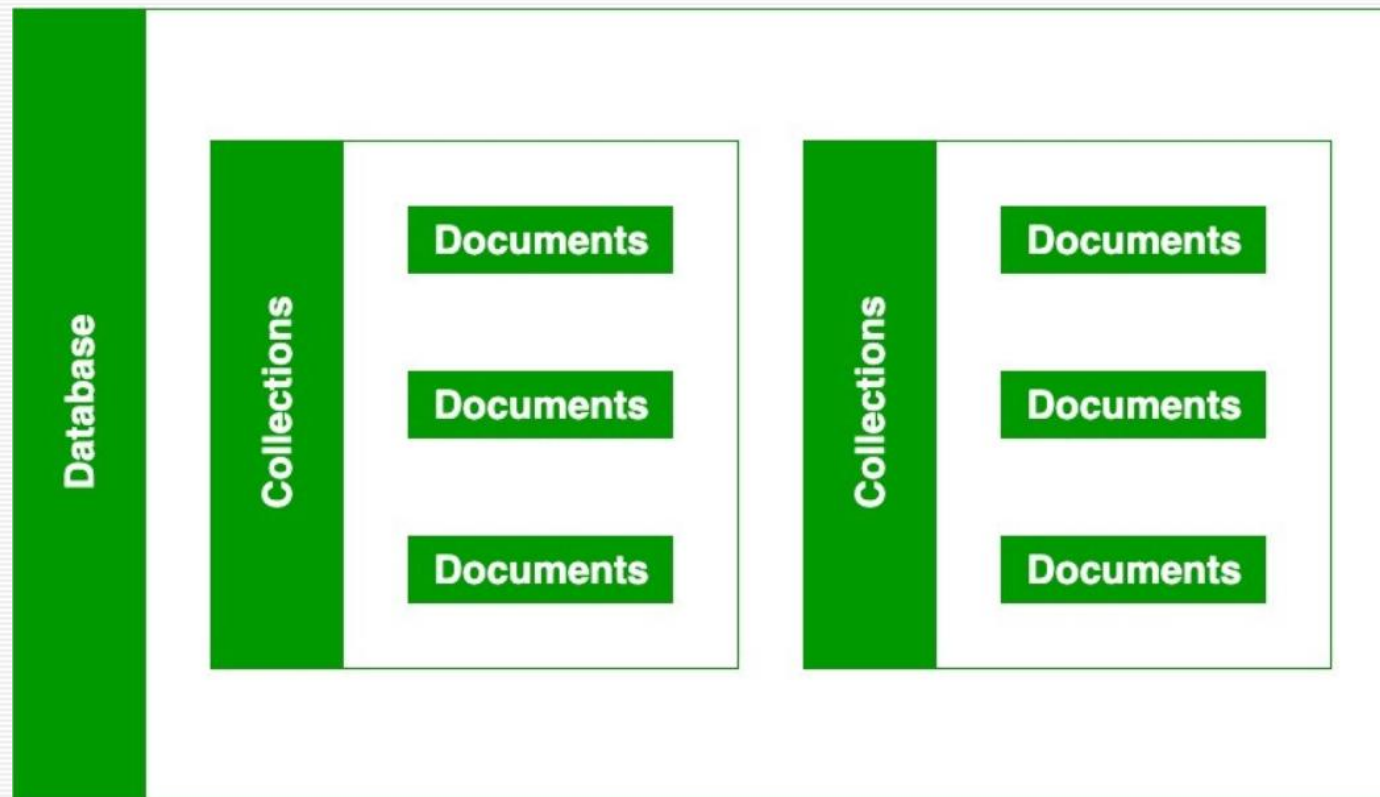
Where do we use MongoDB?

Big Data:	If you have huge amount of data to be stored in tables, think of MongoDB before RDBMS databases.
Unstable Schema:	Adding a new column in RDBMS is hard whereas MongoDB is schema-less. Adding a new field, does not effect old documents and will be very easy.
Distributed data:	Since multiple copies of data are stored across different servers, recovery of data is instant and safe even if there is a hardware failure.

- Database
- Document
- Collection

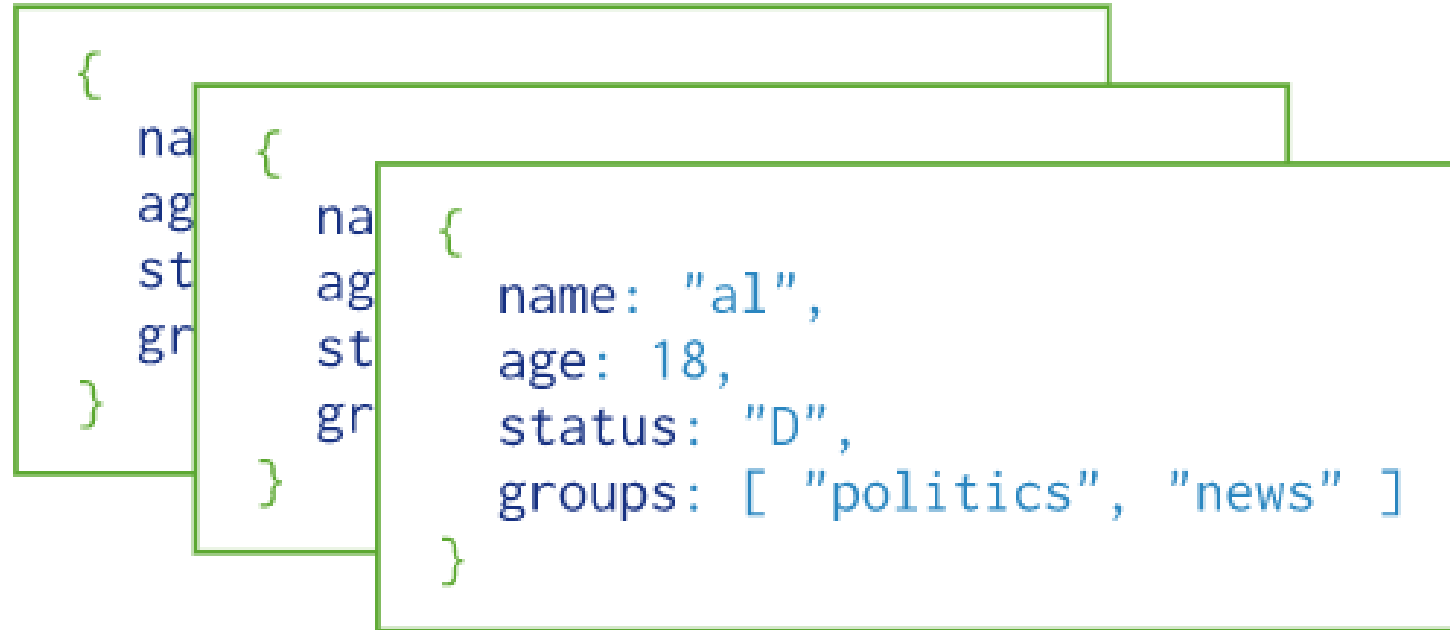


In MongoDB, a database contains the collections of documents. One can create multiple databases on the MongoDB server.



Collections are just like tables in relational databases, they also store data, but in the form of documents.

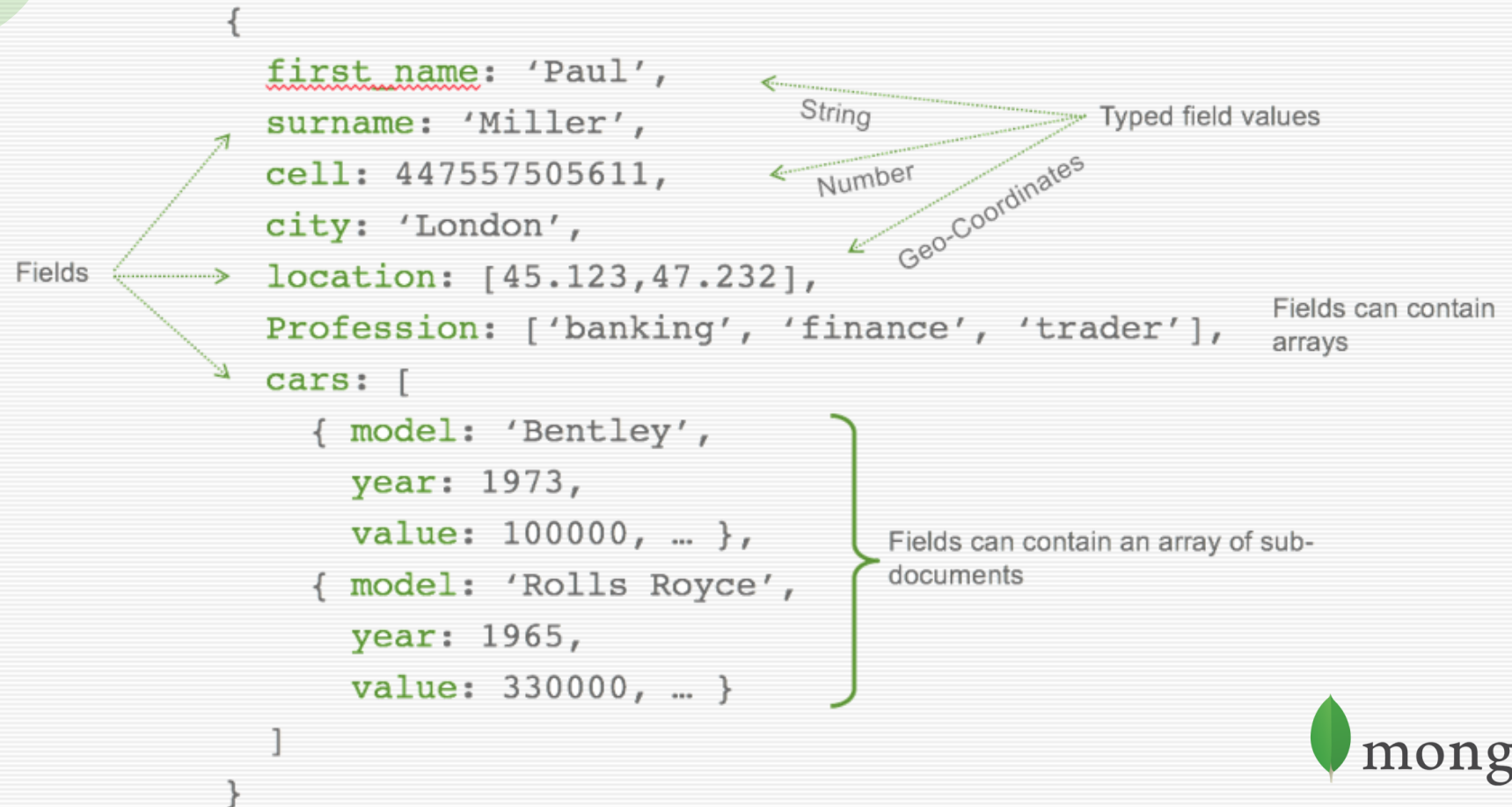
A single database is allowed to store multiple collections.



```
{
  name: "al",
  age: 18,
  status: "D",
  groups: [ "politics", "news" ]
}
```

Collection

In MongoDB, the data records are stored as BSON documents.



BSON Types

Type	Number	Alias	Notes
Double	1	"double"	
String	2	"string"	
Object	3	"object"	
Array	4	"array"	
Binary data	5	"binData"	
Undefined	6	"undefined"	Deprecated.
ObjectId	7	"objectId"	
Boolean	8	"bool"	
Date	9	"date"	
Null	10	"null"	
Regular Expression	11	"regex"	

Type	Number	Alias	Notes
DBPointer	12	"dbPointer"	Deprecated.
JavaScript	13	"javascript"	
Symbol	14	"symbol"	Deprecated.
JavaScript (with scope)	15	"javascriptWithScope"	
32-bit integer	16	"int"	
Timestamp	17	"timestamp"	
64-bit integer	18	"long"	
Decimal128	19	"decimal"	New in version 3.4.
Min key	-1	"minKey"	
Max key	127	"maxKey"	

Language Support by MongoDB

Python

C

C++

C#

Java

Node.js

Perl

PHP

Ruby

Scala

Go

Erlang



Installing MongoDB



[MongoDB Community Edition on Windows](#)



[MongoDB Community Edition on Linux](#)



[MongoDB Community Edition on macOS](#)

▼ Installing MongoDB on Windows with Python



Step 1

Install the community Edition

[Installation Link](#)

Step 2

Run the installed MongoDB windows installer package that you just downloaded

MongoDB get installed here →

C:\Program Files\MongoDB\Server\5.0\

Step 3

Let's set MongoDB environment

- (a) Create data directory where all data is stored

On C: drive create a folder data inside it create a folder db
or

Run

```
md C:\data\db
```

Step 3

Let's set MongoDB environment

- (b) To start MongoDB

Run

```
"C:\Program Files\MongoDB\Server\5.0\bin\mongod.exe"
```

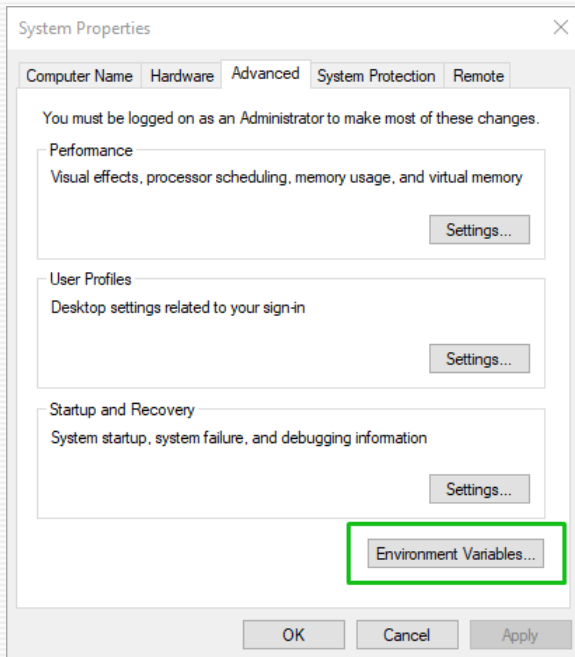
Wait till the connection message appears

Step 3

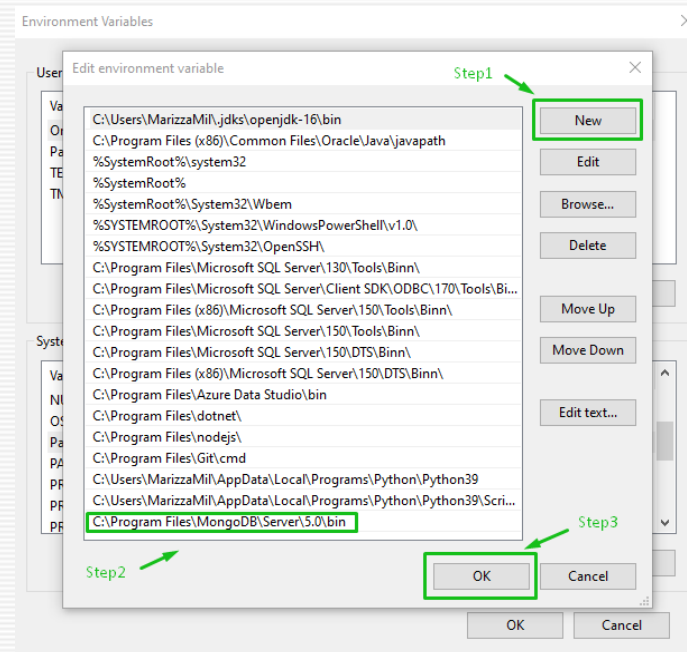
Let's set MongoDB environment

- (c) Verify Environment Path or set path if not correctly set

Open environment variables, you can search this by windows search



Open Environment Variable under the System variables section open Path. This would look like this.



Step 3

Let's set MongoDB environment

- (d) To Connect to MongoDB

Open other command prompt and run

```
C:\Program Files\MongoDB\Server\5.0\bin\mongo.exe
```

Step 4

Ready MongoDB

Open Command Prompt(Admin mode) type and run:

```
mongod
```



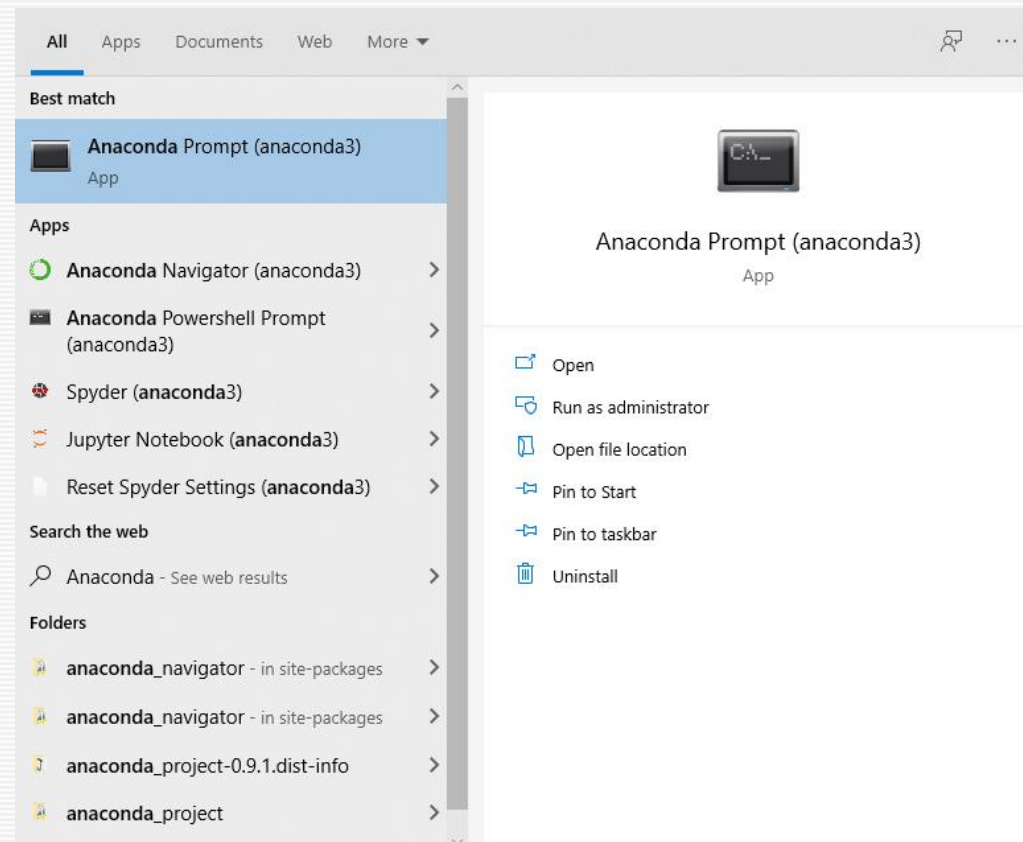
Step 5

Let's download Anaconda

[Download site](#)

Step 6

Open Anaconda Command Prompt as shown in the image



Step 7

Install package to use MongoDB

To install this package with conda run:

```
conda install -c anaconda pymongo
```



Congratulations!!
Installation completed

Pymongo works only when MongoDB is started, use `net start MongoDB` to start it and then work on spyder