

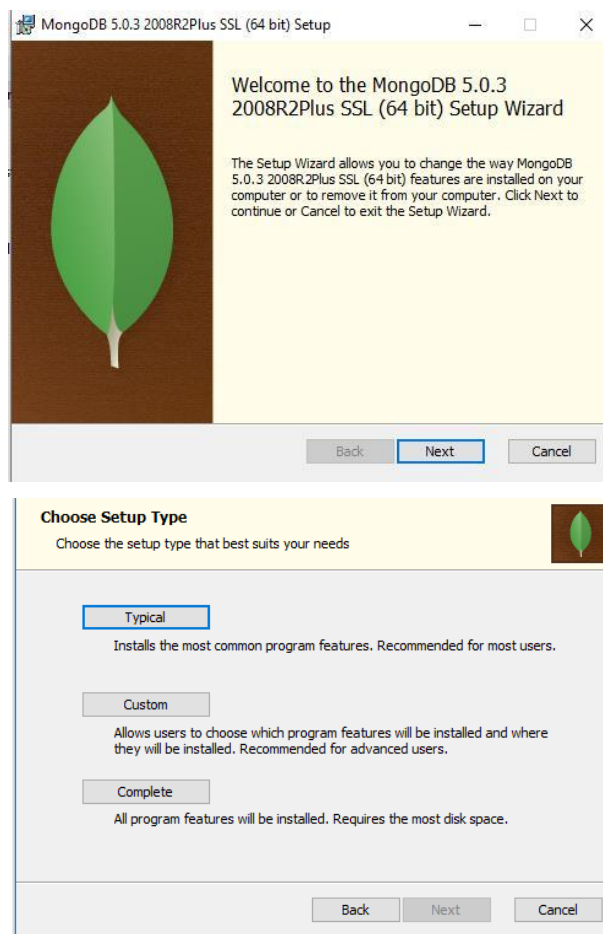


Pada modul kali ini kita akan mencoba melakukan instalasi mongodb dengan menggunakan Windows, apabila kalian menggunakan sistem operasi yang berbeda dapat disesuaikan masing-masing melalui link berikut :

<https://docs.mongodb.com/manual/installation/>

### A. Instalasi MongoDB

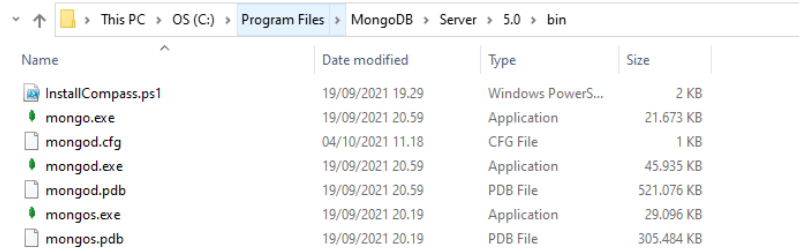
1. Download aplikasi sesuai link di atas untuk mendapatkan mongoDB versi 5.0. Selesai proses download silahkan double click pada file installer dan ikuti proses instalasi sebagai berikut :



### Modul Praktikum 5 : NoSQL-Instalasi MongoDB

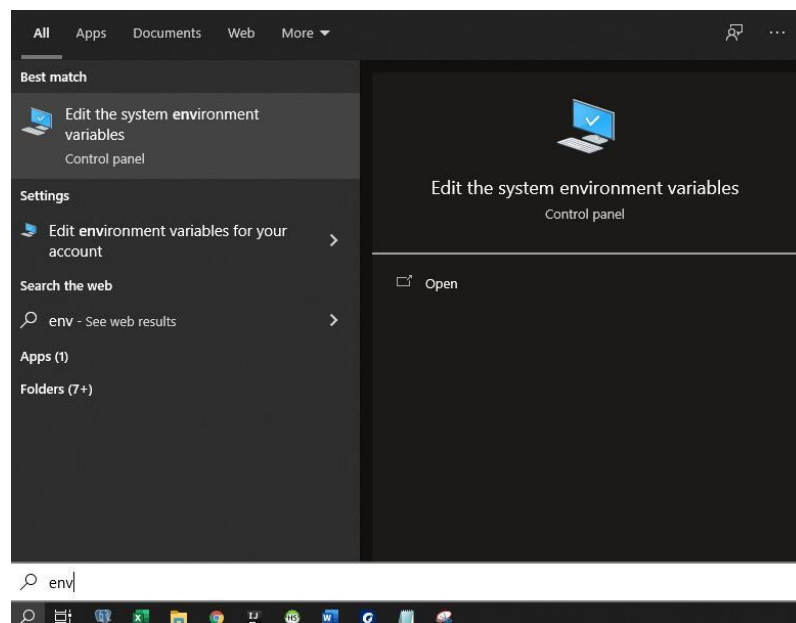
Silahkan Tunggu sejenak sampai proses instalasi mongoDB selesai.

2. Cari folder mongoDB yang terinstall di komputer Anda.
3. Lalu cari folder bin seperti ini :



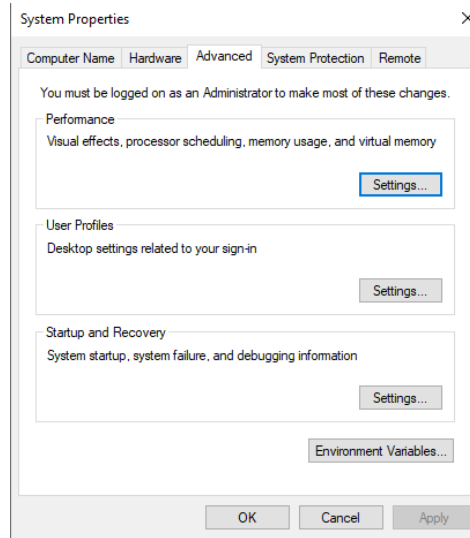
Name	Date modified	Type	Size
InstallCompass.ps1	19/09/2021 19:29	Windows PowerS...	2 KB
mongo.exe	19/09/2021 20:59	Application	21.673 KB
mongod.cfg	04/10/2021 11:18	CFG File	1 KB
mongod.exe	19/09/2021 20:59	Application	45.935 KB
mongod.pdb	19/09/2021 20:59	PDB File	521.076 KB
mongos.exe	19/09/2021 20:19	Application	29.096 KB
mongos.pdb	19/09/2021 20:19	PDB File	305.484 KB

4. Salin path folder bin, C:\Program Files\MongoDB\Server\5.0\bin
5. Cari Environment variables pada komputer anda

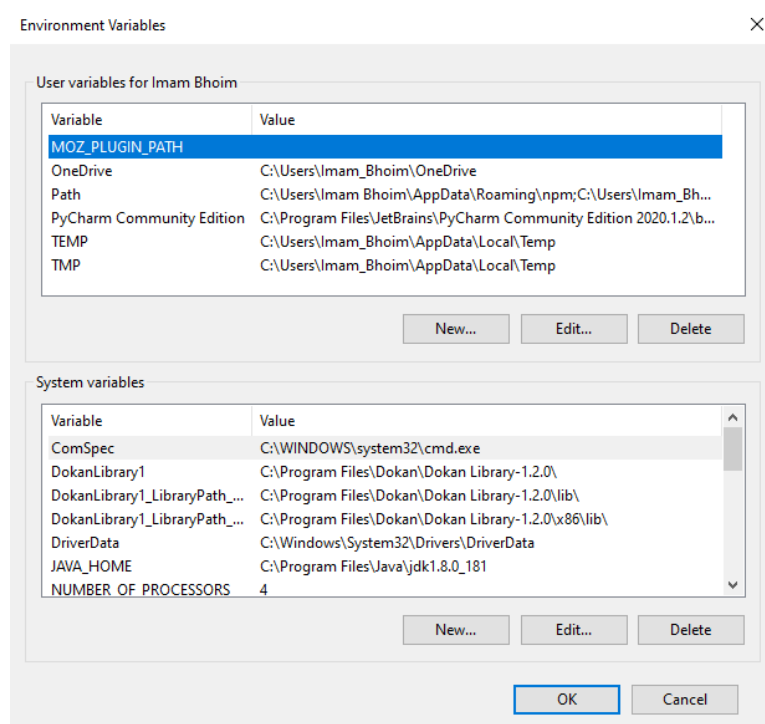


6. Double klik environment tersebut

## Modul Praktikum 5 : NoSQL-Instalasi MongoDB

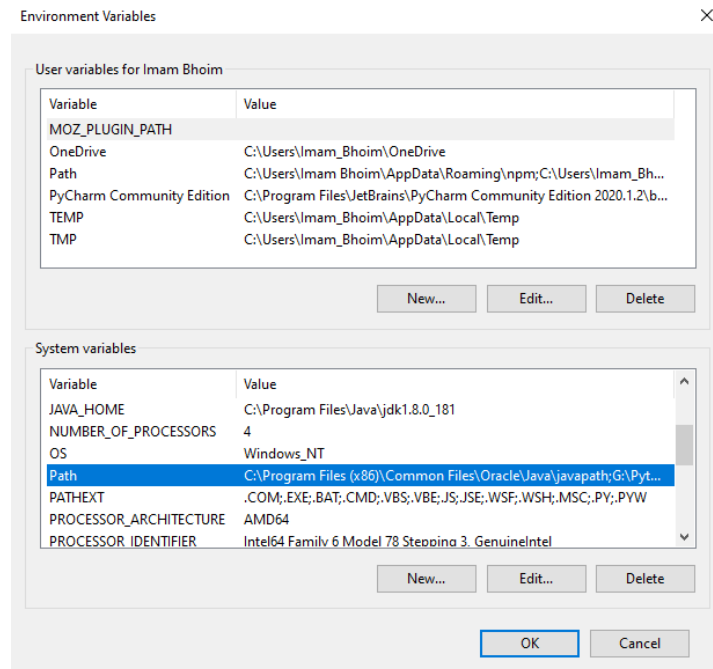


7. Klik tombol environment variables

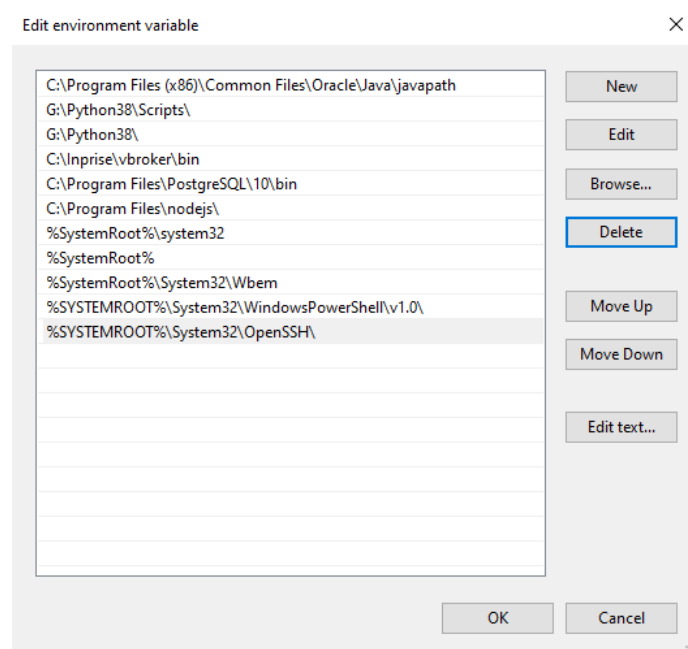


8. Pilih Path pada System Variables lalu klik tombol Edit

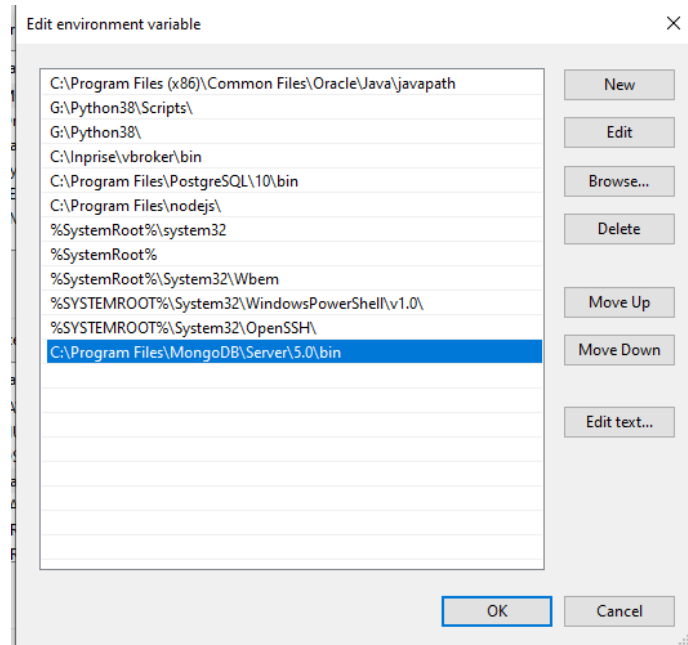
## Modul Praktikum 5 : NoSQL-Instalasi MongoDB



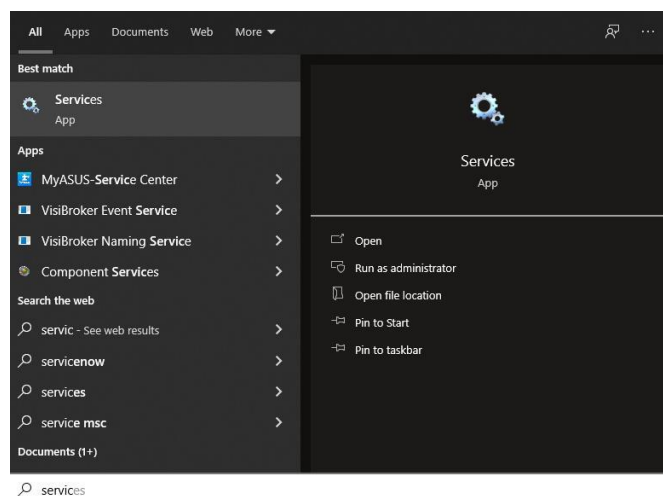
9. Kopikan alamat bin tempat terinstall mongoDB pada path tersebut



Pilih new, kemudian kopikan path tersebut kemudian klik OK

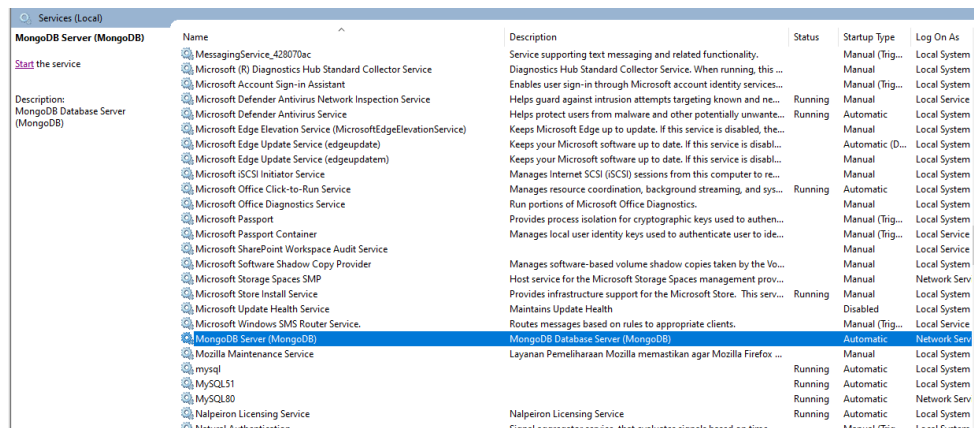


10. Sebelum menjalankan perintah mongoDB, pastikan service mongoDB sudah berjalan dengan mengetik services pada kolom windows



Klik services, kemudian cari MongoDB Server (MongoDB)

## Modul Praktikum 5 : NoSQL-Instalasi MongoDB



Klik Start untuk menjalankan service mongoDB, jika sudah berjalan service nya langsung lanjutkan ke langkah selanjutnya.

11. Buka command prompt untuk mengecek apakah perintah mongoDB sudah berjalan

```
Command Prompt
Microsoft Windows [Version 10.0.19042.1288]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Imam_Bhoim>mongo --version
```

Ketikan perintah mongo --version, untuk mengecek versi mongoDB

```
Command Prompt
Microsoft Windows [Version 10.0.19042.1288]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Imam_Bhoim>mongo --version
MongoDB shell version v5.0.3
Build Info: {
  "version": "5.0.3",
  "gitVersion": "657Fea5a61a74d7a79df7aff8e4bcf0bc742b748",
  "modules": [],
  "allocator": "tcmalloc",
  "environment": {
    "distmod": "windows",
    "distarch": "x86_64",
    "target_arch": "x86_64"
  }
}
```

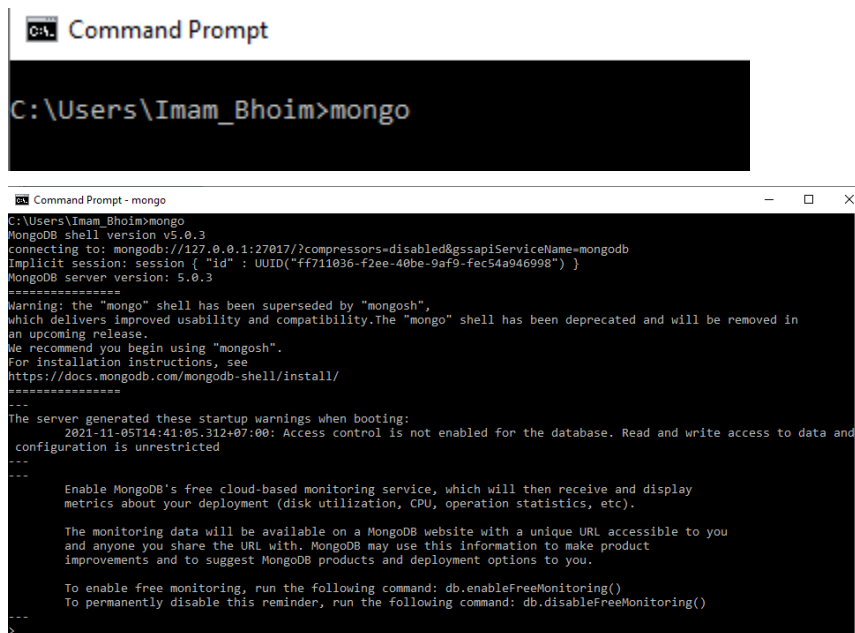
Jika tampil seperti diatas berarti mongoDB sudah berhasil terinstall.

### B. Menjalankan MongoDB

1. Buka command prompt, kemudian ketikan perintah mongo

---

Modul Praktikum 5 : NoSQL-Instalasi MongoDB



```
CA: Command Prompt

C:\Users\Imam_Bhoim>mongo

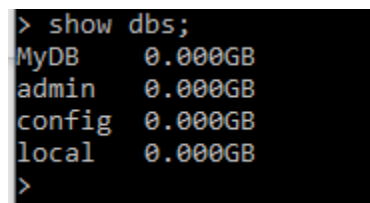
C:\Users\Imam_Bhoim>mongo
MongoDB shell version v5.0.3
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("ff711036-f2ee-40be-9af9-fec54a946998") }
MongoDB server version: 5.0.3
=====
Warning: the "mongo" shell has been superseded by "mongosh",
which delivers improved usability and compatibility. The "mongo" shell has been deprecated and will be removed in
an upcoming release.
We recommend you begin using "mongosh".
For installation instructions, see
https://docs.mongodb.com/mongodb-shell/install/
=====
---
The server generated these startup warnings when booting:
  2021-11-05T14:41:05.312+07:00: Access control is not enabled for the database. Read and write access to data and
configuration is unrestricted
---
---
  Enable MongoDB's free cloud-based monitoring service, which will then receive and display
metrics about your deployment (disk utilization, CPU, operation statistics, etc).

  The monitoring data will be available on a MongoDB website with a unique URL accessible to you
and anyone you share the URL with. MongoDB may use this information to make product
improvements and to suggest MongoDB products and deployment options to you.

  To enable free monitoring, run the following command: db.enableFreeMonitoring()
  To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
---
```

2. Lihat database yang ada dengan perintah

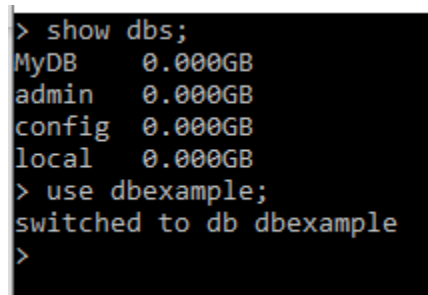
> show dbs;



```
> show dbs;
MyDB      0.000GB
admin     0.000GB
config    0.000GB
local     0.000GB
>
```

3. Buat database dbexample

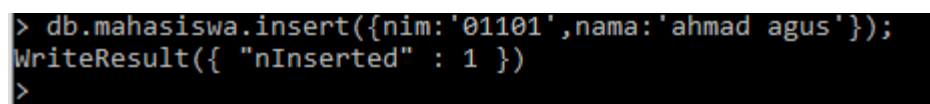
> use dbexample;



```
> show dbs;
MyDB      0.000GB
admin     0.000GB
config    0.000GB
local     0.000GB
> use dbexample;
switched to db dbexample
>
```

4. Buat collection mahasiswa

> db.mahasiswa.insert({nim:'01101',nama:'ahmad agus'});



```
> db.mahasiswa.insert({nim:'01101',nama:'ahmad agus'});
WriteResult({ "nInserted" : 1 })
>
```

5. Lihat collection yang ada

> show collections;

```
> show collections;
mahasiswa
>
```

6. Query ke collection

```
> db.mahasiswa.find();
```

```
mahasiswa
> db.mahasiswa.find();
{ "_id" : ObjectId("6184e1184ed0aae800b0098c"), "nim" : "01101", "nama" : "ahmad agus" }
>
```

7. > db.mahasiswa.find().pretty();

```
> db.mahasiswa.find().pretty();
{
  "_id" : ObjectId("6184e1184ed0aae800b0098c"),
  "nim" : "01101",
  "nama" : "ahmad agus"
}
>
```

### C. Implementasi Query NoSQL dan CSV

1. Selanjutnya kita akan mencoba bagaimana implementasi query nosql menggunakan mongodb. Kita mulai dengan mendownload data yang akan digunakan, contohnya data tentang covid-19 dari link berikut

<https://covid.ourworldindata.org/data/owid-covid-data.csv>

2. Download package berikut

[https://fastdl.mongodb.org/tools/db/mongodb-database-tools-windows-x86\\_64-100.5.1.zip](https://fastdl.mongodb.org/tools/db/mongodb-database-tools-windows-x86_64-100.5.1.zip)

Setelah selesai ekstrak file zip tersebut

3. Kopikan file berikut ke dalam folder instalasi mongoDB

File Explorer view showing the contents of the MongoDB database tools folder:

Name	Date modified	Type	Size
bsondump.exe	12/10/2021 11:23	Application	18,707 KB
mongodump.exe	12/10/2021 11:23	Application	22,375 KB
mongoexport.exe	12/10/2021 11:23	Application	21,941 KB
mongofiles.exe	12/10/2021 11:24	Application	23,123 KB
mongoimport.exe	12/10/2021 11:23	Application	22,283 KB
mongorestore.exe	12/10/2021 11:23	Application	22,830 KB
mongostat.exe	12/10/2021 11:23	Application	21,603 KB
mongotop.exe	12/10/2021 11:23	Application	21,216 KB



File Explorer view of the MongoDB bin directory:

This PC > OS (C:) > Program Files > MongoDB > Server > 5.0 > bin

Name	Date modified	Type	Size
bsondump.exe	12/10/2021 11.23	Application	18.707 KB
InstallCompass.ps1	19/09/2021 19.29	Windows PowerS...	2 KB
mongo.exe	19/09/2021 20.59	Application	21.673 KB
mongod.cfg	04/10/2021 11.18	CFG File	1 KB
mongod.exe	19/09/2021 20.59	Application	45.935 KB
mongod.pdb	19/09/2021 20.59	PDB File	521.076 KB
mongodump.exe	12/10/2021 11.23	Application	22.375 KB
mongoexport.exe	12/10/2021 11.23	Application	21.941 KB
mongofiles.exe	12/10/2021 11.24	Application	23.123 KB
mongoimport.exe	12/10/2021 11.23	Application	22.283 KB
mongorestore.exe	12/10/2021 11.23	Application	22.830 KB
mongos.exe	19/09/2021 20.19	Application	29.096 KB
mongos.pdb	19/09/2021 20.19	PDB File	305.484 KB
mongostat.exe	12/10/2021 11.23	Application	21.603 KB
mongotop.exe	12/10/2021 11.23	Application	21.216 KB

- Supaya dapat menggunakan data yang telah kita download, kita perlu melakukan import ke dalam database mongodb. Sebelum itu pastikan file tersebut dalam direktori yang sama ketika melakukan import seperti berikut (path disesuaikan dengan komputer masing-masing)

File Explorer view of the MongoDB bin directory:

This PC > New Volume 2 (G:) > mongodb

Name	Date modified	Type	Size
owid-covid-data.csv	05/11/2021 14.39	Microsoft Excel C...	35.045 KB

- Buka kembali command prompt, lalu arahkan ke path dimana file tersebut berada

```
Microsoft Windows [Version 10.0.19042.1288]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Imam_Bhoim>cd..
C:\Users>cd..
C:\>G:
G:\>cd mongodb
G:\mongodb>
```

- Ketikan perintah berikut

```
mongoimport --type csv -d dbcorona -c corona --headerline --drop owid-covid-data.csv
```

```
G:\mongodb>mongoimport --type csv -d dbcorona -c corona --headerline --drop owid-covid-data.csv
```

```
Command Prompt
G:\mongodb>mongoimport --type csv -d dbcorona -c corona --headerline --drop ovid-covid-data.csv
2021-11-05T15:06:41.867+0700 connected to: mongodb://localhost/
2021-11-05T15:06:41.868+0700 dropping: dbcorona.corona
2021-11-05T15:06:44.876+0700 [#####.....] dbcorona.corona 6.43MB/34.2MB (18.8%)
2021-11-05T15:06:47.880+0700 [#####.....] dbcorona.corona 13.7MB/34.2MB (39.9%)
2021-11-05T15:06:50.867+0700 [#####.....] dbcorona.corona 20.3MB/34.2MB (59.3%)
2021-11-05T15:06:53.867+0700 [#####.....] dbcorona.corona 27.1MB/34.2MB (79.3%)
2021-11-05T15:06:56.868+0700 [#####.....] dbcorona.corona 31.6MB/34.2MB (92.2%)
2021-11-05T15:06:58.052+0700 [#####.....] dbcorona.corona 34.2MB/34.2MB (100.0%)
2021-11-05T15:06:58.062+0700 131020 document(s) imported successfully. 0 document(s) failed to import.
G:\mongodb>
```

Jika mengalami error tersebut pastikan kembali bahwa file data tersebut dalam direktori yang sama

7. Jika sudah berhasil masuk kembali ke mongodb dan lihat apakah data berhasil diimport atau tidak dengan perintah berikut

```
mongo
show dbs

> show dbs;
MyDB      0.000GB
admin     0.000GB
config    0.000GB
dbcorona  0.034GB
dbexample 0.000GB
local     0.000GB
>
```

8. Untuk menggunakan database dbcorona gunakan perintah berikut

```
> use dbcorona;

> use dbcorona;
switched to db dbcorona
>
```

9. Selanjutnya kita akan melihat isi tabel atau collections

```
> show collections;
corona
>
```

10. Setelah mengetahui database dan collection yang ada, saatnya untuk menampilkan data yang ada didalamnya dengan kode berikut

```
> db.corona.find();
```

```

> db.corona.find();
{ "_id" : ObjectId("6184e611136537e1a3cfb257"), "iso_code" : "AFG", "continent" : "Asia", "location" : "Afghanistan",
"date" : "2020-02-25", "total_cases" : 5, "new_cases" : 0, "new_cases_smoothed" : "", "total_deaths" : "", "new_deaths" : "",
"new_deaths_smoothed" : "", "total_cases_per_million" : 0.126, "new_cases_per_million" : 0, "new_cases_smoothed_per_million" : "",
"total_deaths_per_million" : "", "new_deaths_per_million" : "", "new_deaths_smoothed_per_million" : "",
"reproduction_rate" : "", "icu_patients" : "", "icu_patients_per_million" : "", "hosp_patients" : "", "hosp_patients_per_million" : "",
"weekly_icu_admissions" : "", "weekly_icu_admissions_per_million" : "", "weekly_hosp_admissions" : "",
"weekly_hosp_admissions_per_million" : "", "new_tests" : "", "total_tests" : "", "total_tests_per_thousand" : "", "new_tests_per_thousand" : "",
"new_tests_smoothed" : "", "new_tests_smoothed_per_thousand" : "", "positive_rate" : "", "tests_per_case" : "", "tests_units" : "",
"total_vaccinations" : "", "people_vaccinated" : "", "people_fully_vaccinated" : "", "total_vaccinations_smoothed" : "",
"total_vaccinations_smoothed_per_million" : "", "new_vaccinations" : "", "new_vaccinations_smoothed" : "", "total_vaccinations_smoothed_per_million" : "",
"people_vaccinated_per_hundred" : "", "people_fully_vaccinated_per_hundred" : "", "total_boosters_per_hundred" : "",
"new_vaccinations_smoothed_per_million" : "", "stringency_index" : 8.33, "population" : 39835428, "population_density" : 4.422,
"median_age" : 18.6, "aged_65_older" : 2.581, "aged_70_older" : 1.337, "gdp_per_capita" : 1803.987, "extreme_poverty" : "",
"cardiovasc_death_rate" : 597.029, "diabetes_prevalence" : 9.59, "female_smokers" : "", "male_smokers" : "", "handwashing_facilities" : 37.746,
"hospital_beds_per_thousand" : 0.5, "life_expectancy" : 64.83, "human_development_index" : 0.511, "excess_mortality_cumulative_absolute" : "",
"excess_mortality_cumulative" : "", "excess_mortality" : "", "excess_mortality_cumulative_per_million" : "" }
{ "_id" : ObjectId("6184e611136537e1a3cfb258"), "iso_code" : "AFG", "continent" : "Asia", "location" : "Afghanistan",
"date" : "2020-02-24", "total_cases" : 5, "new_cases" : 5, "new_cases_smoothed" : "", "total_deaths" : "", "new_deaths" : "",
"new_deaths_smoothed" : "", "total_cases_per_million" : 0.126, "new_cases_per_million" : 0.126, "new_cases_smoothed_per_million" : "",
"total_deaths_per_million" : "", "new_deaths_per_million" : "", "new_deaths_smoothed_per_million" : "" }

```

11. Terlihat bahwa data yang dimunculkan berantakan, oleh karena itu kita dapat menambahkan perintah berikut

```
> db.corona.find().pretty();
```

```

> db.corona.find().pretty();
{
  "_id" : ObjectId("6184e611136537e1a3cfb257"),
  "iso_code" : "AFG",
  "continent" : "Asia",
  "location" : "Afghanistan",
  "date" : "2020-02-25",
  "total_cases" : 5,
  "new_cases" : 0,
  "new_cases_smoothed" : "",
  "total_deaths" : "",
  "new_deaths" : "",
  "new_deaths_smoothed" : "",
  "total_cases_per_million" : 0.126,
  "new_cases_per_million" : 0,
  "new_cases_smoothed_per_million" : "",
  "total_deaths_per_million" : "",
  "new_deaths_per_million" : "",
  "new_deaths_smoothed_per_million" : "",
  "reproduction_rate" : "",
  "icu_patients" : "",
  "icu_patients_per_million" : "",
  "hosp_patients" : ""
}

```

12. Dikarenakan datanya sangat banyak akan sulit untuk mencari informasi yang dibutuhkan, untuk itu kita dapat menggunakan query nosql supaya mempermudah pencarian, berikut salah satu contohnya

- Menampilkan data khusus negara Indonesia

```
db.corona.aggregate([ { $match : { location : "Indonesia" } } ]).pretty()
```

- Menampilkan data jumlah kasus dan jumlah kematian

```

db.corona.aggregate([
  { $group : {
    _id : null,
    total_cases : { $sum : "$total_cases" },
    total_deaths : { $sum : "$total_deaths" },
  }}
])

```

- Menampilkan data jumlah kasus dan jumlah kematian pada tanggal 1 April 2021

```
db.corona.aggregate([
  { $match : { date : "2021-04-01" } },
  { $group : {
    _id : null,
    total_cases : { $sum : "$total_cases" },
    total_deaths : { $sum : "$total_deaths" },
  }}
])
```

- Menampilkan data negara dengan jumlah kasus di atas 1.000.000

```
db.corona.aggregate([
  { $match : { total_cases : { $gt : 1000000 } } },
  { $group : {
    _id : "$location",
  }}
])
```

- Menampilkan data negara dengan jumlah kasus yang diurutkan dari terbesar

```
db.corona.aggregate([
  { $group : {
    _id : "$location",
    total_cases : { $sum : "$total_cases" },
  }},
  { $sort : { total_cases : -1 }}
])
```

----- Sekian Terima Kasih -----

- <https://docs.mongodb.com/manual/installation/>
- <https://www.mongodb.com/try/download/database-tools>
- Mata Kuliah Big Data 20202 Modul Praktikum 4: Instalasi MongoDB dan Implementasi Query NoSQL