

**LAPORAN PRAKTIKUM**  
**Pertemuan Ke : 11**  
**PEMROGRAMAN BASIS DATA**



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NIM : 4342401061  
KELAS : TRPL 2C PAGI

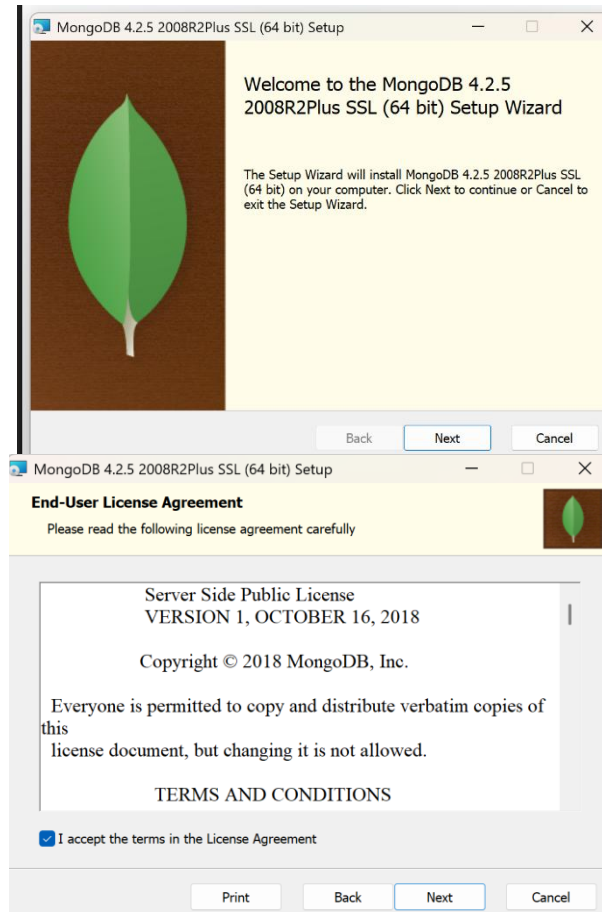
KOORDINATOR MATA KULIAH : Ahmadi Irmansyah Lubis  
PENGAMPU PRAKTIKUM : Muhamad Sahrul Nizan

**PROGRAM STUDI TEKNOLOGI REKAYASA PERANGKAT LUNAK**  
**JURUSAN TEKNIK INFORMATIKA**  
**POLITEKNIK NEGERI BATAM**  
**2025**

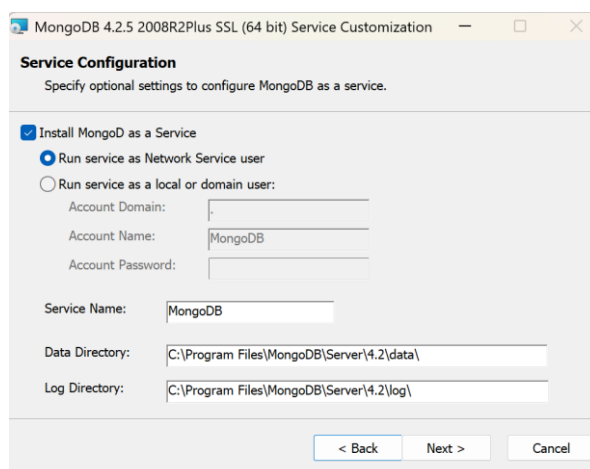
## 1. MONGODB SERVICE

### Setting Environment dan Instalasi

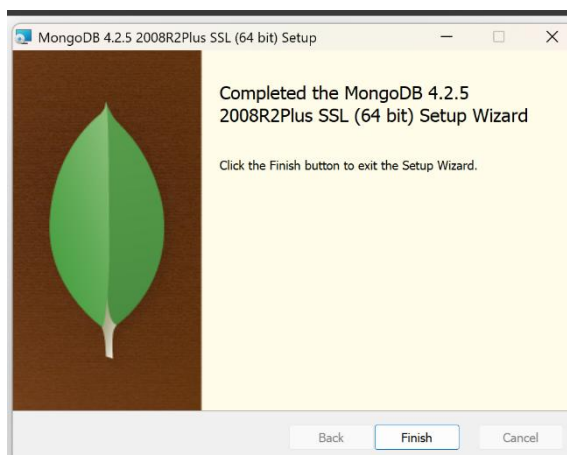
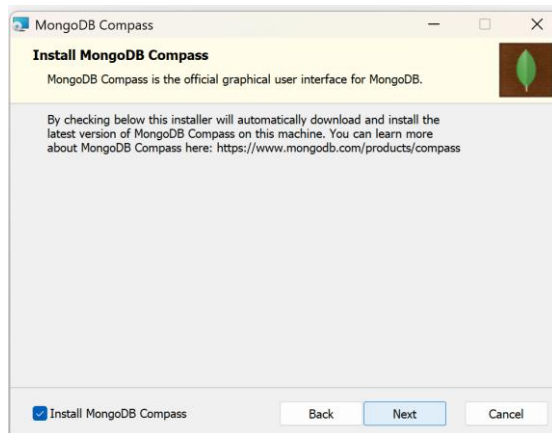
- a. Jalankan file installer, Accept License Agreement



- b. Pilih Metode Instalasi Complete



- c. Centang Install MongoDB As Service (ini penting agar service mongoDB selalu jalan saat windows start dan dapat langsung terhubung ke mongoDB)
- d. MongoDB membutuhkan folder data untuk menyimpan database, buatlah folder dengan nama dan lokasi **D:\PraktmongoNIM\db** Arahkan **Data Directory** di Folder ini
- e. Install MongoDB Compass : Bisa dipilih untuk diinstall bisa juga tidak



## 2. KONEKSI MONGODB

Untuk Terhubung ke database mongodb, Buka command prompt sebagai administrator dan ketikkan perintah: **C:\Program Files\MongoDB\Server\4.2\bin>mongo.exe**

```
C:\Program Files\MongoDB\Server\4.2\bin>mongo.exe
MongoDB shell version v4.2.5
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("0690dc9e-13b0-480c-86d6-bcd3dddc9e4") }
MongoDB server version: 4.2.5
Welcome to the MongoDB shell.
For interactive help, type "help".
For more comprehensive documentation, see
  http://docs.mongodb.org/
Questions? Try the support group
  http://groups.google.com/group/mongodb-user
Server has startup warnings:
2025-06-16T10:57:28.091+0700 I CONTROL [initandlisten]
2025-06-16T10:57:28.091+0700 I CONTROL [initandlisten] ** WARNING: Access control is not enabled for the database.
2025-06-16T10:57:28.091+0700 I CONTROL [initandlisten] **           Read and write access to data and configuration is unrestricted.
2025-06-16T10:57:28.091+0700 I CONTROL [initandlisten]
---
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()
---
>
```

## 3. BEKERJA DENGAN MONGODB

A. Melihat semua database

```
> show databases
admin      0.000GB
config     0.000GB
local      0.000GB
> db
test
```

B. Melihat database yang sedang digunakan

```
> use database43424010xx
switched to db database43424010xx
> █
```

## C. Perintah Insert

- `db.products.insertOne()` – untuk menambahkan 1 dokumen

```
> use database43424010xx
switched to db database43424010xx
> db.products.insertOne({item: "bicycle", qty:20})
{
  "acknowledged" : true,
  "insertedId" : ObjectId("68568591da713df634b7301f")
}
```

- `db.products.insert()` - untuk menambahkan 1 atau banyak dokumen

```
> db.products.insert([
...   { _id: 20, item: "lamp", qty: 50, type: "desk" },
...   { _id: 21, item: "lamp", qty: 20, type: "floor" },
...   { _id: 22, item: "bulk", qty: 100 }
... ])
BulkWriteResult({
  "writeErrors" : [ ],
  "writeConcernErrors" : [ ],
  "nInserted" : 3,
  "nUpserted" : 0,
  "nMatched" : 0,
  "nModified" : 0,
  "nRemoved" : 0,
  "upserted" : [ ]
})
```

- `db.products.insertMany()` – untuk menambahkan banyak dokumen

```
> db.products.insertMany([
...   { _id: 15, item: "large box", qty: 20 },
...   { _id: 16, item: "small box", qty: 55 },
...   { _id: 17, item: "medium box", qty: 30 }
... ])
{ "acknowledged" : true, "insertedIds" : [ 15, 16, 17 ] }
```

## D. READ/SELECT/FIND

- `db.products.find()` : Untuk Menampilkan semua record yang ada di collection `products`.

```
> db.products.find()
{ "_id" : ObjectId("68568591da713df634b7301f"), "item" : "bycicle", "qty" : 20 }
{ "_id" : 20, "item" : "lamp", "qty" : 50, "type" : "desk" }
{ "_id" : 21, "item" : "lamp", "qty" : 20, "type" : "floor" }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 15, "item" : "large box", "qty" : 20 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
{ "_id" : 17, "item" : "medium box", "qty" : 30 }
> db.products.find({"item":"large box"})
{ "_id" : 15, "item" : "large box", "qty" : 20 }
> db.products.find({"qty":{"$gt":20}})
{ "_id" : 20, "item" : "lamp", "qty" : 50, "type" : "desk" }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
{ "_id" : 17, "item" : "medium box", "qty" : 30 }
> db.products.find({}, {item: 1, qty: 1})
{ "_id" : ObjectId("68568591da713df634b7301f"), "item" : "bycicle", "qty" : 20 }
{ "_id" : 20, "item" : "lamp", "qty" : 50 }
{ "_id" : 21, "item" : "lamp", "qty" : 20 }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 15, "item" : "large box", "qty" : 20 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
{ "_id" : 17, "item" : "medium box", "qty" : 30 }
>
```

- Query collection yang sama, tapi hanya menampilkan products dengan nama "large box"

```
> db.products.find({"item":"large box"})
{ "_id" : 15, "item" : "large box", "qty" : 20 }
```

- Query menampilkan products yang punya qty lebih besar dari 20, menggunakan `$gt` berarti "greater than"

```
> db.products.find({"qty":{"$gt":20}})
{ "_id" : 20, "item" : "lamp", "qty" : 50, "type" : "desk" }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
{ "_id" : 17, "item" : "medium box", "qty" : 30 }
```

### E. Projection

Collection product memiliki beberapa atribut data, yaitu `_id`, `item`, dan `qty`. Dengan projection, kita bisa memilih atribut apa saja yang ditampilkan.

```
> db.products.find({}, {item: 1, qty: 1})
{ "_id" : ObjectId("68568591da713df634b7301f"), "item" : "bicycle", "qty" : 20 }
{ "_id" : 20, "item" : "lamp", "qty" : 50 }
{ "_id" : 21, "item" : "lamp", "qty" : 20 }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 15, "item" : "large box", "qty" : 20 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
{ "_id" : 17, "item" : "medium box", "qty" : 30 }
> db.products.find({}, {item: 1,})
{ "_id" : ObjectId("68568591da713df634b7301f"), "item" : "bicycle" }
{ "_id" : 20, "item" : "lamp" }
{ "_id" : 21, "item" : "lamp" }
{ "_id" : 22, "item" : "bulk" }
{ "_id" : 15, "item" : "large box" }
{ "_id" : 16, "item" : "small box" }
{ "_id" : 17, "item" : "medium box" }
> db.products.find({}, {id:0})
{ "_id" : ObjectId("68568591da713df634b7301f"), "item" : "bicycle", "qty" : 20 }
{ "_id" : 20, "item" : "lamp", "qty" : 50, "type" : "desk" }
{ "_id" : 21, "item" : "lamp", "qty" : 20, "type" : "floor" }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 15, "item" : "large box", "qty" : 20 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
{ "_id" : 17, "item" : "medium box", "qty" : 30 }
```

### F. UPDATE

Mengupdate `db.products.update`. Misal mengupdate item "large box", qty menjadi 100.

```
> db.products.update(
...   { _id:10},
...   { "item": "large box", "qty":100}
... )
WriteResult({ "nMatched" : 0, "nUpserted" : 0, "nModified" : 0 })
> db.products.update( { _id:10}, { "item": "large box", "qty":100} )
WriteResult({ "nMatched" : 0, "nUpserted" : 0, "nModified" : 0 })
> db.products.find()
2025-06-21T17:23:21.130+0700 E QUERY [js] uncaught exception: TypeError: db.products.find is not a function :
@ (shell):1:1
> db.products.find()
{ "_id" : ObjectId("68568591da713df634b7301f"), "item" : "bicycle", "qty" : 20 }
{ "_id" : 20, "item" : "lamp", "qty" : 50, "type" : "desk" }
{ "_id" : 21, "item" : "lamp", "qty" : 20, "type" : "floor" }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 15, "item" : "large box", "qty" : 20 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
{ "_id" : 17, "item" : "medium box", "qty" : 30 }
```

### G. Delete

- `Db.products.deleteOne` : Untuk menghapus satu dokumen pada collection. Misalnya kita menghapus satu dokumen dengan `id=15`.

- `Db.products.deleteMany` : Untuk menghapus semua dokumen pada collection. Misalnya, kita menghapus dokumen item "medium box".

```
... db.products.deleteOne({"_id" : 15})
2025-06-21T17:26:23.611+0700 E QUERY [js] uncaught exception: SyntaxError: missing ) after argument list :
@(shell):3:0
> db.products.deleteOne({"_id" : 15})
{ "acknowledged" : true, "deletedCount" : 1 }
> db.products.find()
{ "_id" : ObjectId("68568591da713df634b7301f"), "item" : "bycicle", "qty" : 20 }
{ "_id" : 20, "item" : "lamp", "qty" : 50, "type" : "desk" }
{ "_id" : 21, "item" : "lamp", "qty" : 20, "type" : "floor" }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
{ "_id" : 17, "item" : "medium box", "qty" : 30 }
> db.products.deleteMany({"item" : "medium box"})
{ "acknowledged" : true, "deletedCount" : 1 }
> db.products.find()
{ "_id" : ObjectId("68568591da713df634b7301f"), "item" : "bycicle", "qty" : 20 }
{ "_id" : 20, "item" : "lamp", "qty" : 50, "type" : "desk" }
{ "_id" : 21, "item" : "lamp", "qty" : 20, "type" : "floor" }
{ "_id" : 22, "item" : "bulk", "qty" : 100 }
{ "_id" : 16, "item" : "small box", "qty" : 55 }
>
```

#### H. TUGAS

- Buat db anda sendiri dengan nama NIM

```
> use Fajar_Mirza_Hanif_4342401061
switched to db Fajar_Mirza_Hanif_4342401061
```

- Buat collection anda sendiri dengan nama depan anda

```
> db.createCollection("fajar")
{ "ok" : 1 }
```



- Isikan 10 data pada collection anda dengan atribut: nim, nama, alamat, prodi, kelas, alamat. Gunakan data teman sekelas anda

```

> db.fajar.insertMany([
...   {
...     nim: "4342401062",
...     nama: "Putri",
...     alamat: "Bengkong indah swadebi",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401063",
...     nama: "Afifah Luthfi Fathonah",
...     alamat: "Perumahan Bumi Sakinah Blok Madinah 2 No. 28",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401064",
...     nama: "Navita Damayanti Syarif",
...     alamat: "Jalan Diponegoro KM 2 No 17 RT/RW 001/011 Kelurahan Tanjung Batu Kota, Kecamatan Kundur, Kabupaten Karimun, Provinsi Kepulauan Riau, Kode Pos 29662",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401065",
...     nama: "Muhammad Fadhil Osman",
...     alamat: "Legenda Malaka Blok E2 No. 8",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401066",
...     nama: "Thalita Aurelia Marsim",
...     alamat: "Griya Pelita Mas Blok E12 A",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401067",
...     nama: "Muhammad Tharig Syafruddin",
...     alamat: "Perumahan Mekar Sari Block C No 23 Kel Tiban Lama Kec Sekupang, Batam",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401068",
...     nama: "Steven Kumala",
...     alamat: "Perum QMA Blok C1 No 9",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401069",
...     nama: "Hafiz Atama Romadhoni",
...     alamat: "Dusun Sei Embacang, Rt 002 Rw 001, Kepenghuluan Balai Jaya, Kecamatan Balai Jaya, Kab. Rokan Hilir, Provinsi Riau",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401070",
...     nama: "Muhamad Ariffadhilullah",
...     alamat: "Batas, Sekupang, Tiban Lama",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   },
...   {
...     nim: "4342401071",
...     nama: "Ibra Marioka",
...     alamat: "Perumahan Citra Laguna 3 Blok E1 No 11 Kelurahan Tembesi, Kecamatan Sagulung",
...     prodi: "Teknologi Rekayasa Perangkat Lunak",
...     kelas: "TRPL 2C PAGI"
...   }
... ])
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("68578afe904e5c3d75872ab9"),
    ObjectId("68578afe904e5c3d75872aba"),
    ObjectId("68578afe904e5c3d75872abb"),
    ObjectId("68578afe904e5c3d75872abc"),
    ObjectId("68578afe904e5c3d75872abd"),
    ObjectId("68578afe904e5c3d75872abe"),
    ObjectId("68578afe904e5c3d75872abf"),
    ObjectId("68578afe904e5c3d75872ac0"),
    ObjectId("68578afe904e5c3d75872ac1"),
    ObjectId("68578afe904e5c3d75872ac2")
  ]
}

```

```

db.fajar.find().pretty()
{
  "_id" : ObjectId("68578afe904e5c3d75872ab9"),
  "nim" : "4342401062",
  "nama" : "Putri",
  "alamat" : "Bengkong indah swadebi",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872aba"),
  "nim" : "4342401063",
  "nama" : "Afifah Luthfi Fathonah",
  "alamat" : "Perumahan Bumi Sakinah Blok Madinah 2 No. 28",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872abb"),
  "nim" : "4342401064",
  "nama" : "Navita Damayanti Syarif",
  "alamat" : "Jalan Diponegoro KM 2 No 17 RT/RW 001/011 Kelurahan Tanjung Batu Kota, Kecamatan Kundur, Kabupaten Karimun, Provinsi Kepulauan Riau, Kode Pos 29662",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872abc"),
  "nim" : "4342401065",
  "nama" : "Muhammad Fadhil Osman",
  "alamat" : "Legenda Malaka Blok E2 No. 8",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872abd"),
  "nim" : "4342401066",
  "nama" : "Thalita Aurelia Marsim",
  "alamat" : "Griya Pelita Mas Blok E12 A",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872abe"),
  "nim" : "4342401067",
  "nama" : "Muhammad Thariq Syafruddin",
  "alamat" : "Perumahan Mekar Sari Block C No 23 Kel Tiban Lama Kec Sekupang, Batam",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872abf"),
  "nim" : "4342401068",
  "nama" : "Steven Kumala",
  "alamat" : "Perum OMA Blok C1 No 9",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872ac0"),
  "nim" : "4342401069",
  "nama" : "Hafiz Atama Romadhoni",
  "alamat" : "Dusun Sei Embacang, Rt 002 Rw 001, Kepenghuluan Balai Jaya, Kecamatan Balai Jaya, Kab. Rokan Hilir, Provinsi Riau",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872ac1"),
  "nim" : "4342401070",
  "nama" : "Muhamad Ariffadhullah",
  "alamat" : "Batam, Sekupang, Tiban Lama",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}

{
  "_id" : ObjectId("68578afe904e5c3d75872ac2"),
  "nim" : "4342401071",
  "nama" : "Ibra Marioka",
  "alamat" : "Perumahan Citra Laguna 3 Blok E1 No 11 Kelurahan Tembesi, Kecamatan Sagulung",
  "prodi" : "Teknologi Rekayasa Perangkat Lunak",
  "kelas" : "TRPL 2C PAGI"
}
}

```