

LAPORAN SISTEM MANAJEMEN BASIS DATA



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D3 MANAJEMEN INFORMATIKA

PSDKU POLITEKNIK NEGERI MALANG DI KOTA KEDIRI

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Latihan Materi 2

Instalasi dan konfigurasi server database

Tujuan:

1. Memahami proses instalasi
2. Memahami Langkah-langkah dalam konfigurasi server database mysql
3. Memahami perbedaan database relational dan database unrelational
4. Memahami perbedaan Mysql dan MariaDB

Tugas praktikum

1. Jelaskan tentang database relational, database unrelational dan berikan contoh produknya masing-masing 3.

a. Database Relational

Database relasional adalah model database yang menggambarkan relasi atau hubungan antar tabel dalam sebuah database. Jenis database ini terdiri dari kumpulan data yang memiliki hubungan atau relasi yang telah ditentukan sebelumnya.

Contoh produk database relational:

- MySQL
- PostgreSQL
- MariaDB

b. Database Unrelational (NoSQL)

Database unrelational, juga dikenal sebagai database NoSQL, tidak menggunakan struktur tabel yang kaku. Data disimpan dalam format yang lebih fleksibel seperti dokumen, graf, atau pasangan kunci-nilai.

Contoh produk database unrelational:

- MongoDB (document-based)
- Redis (key-value store)
- Cassandra (column-family store)

2. Jelaskan kapan harus menggunakan database relational dan kapan harus menggunakan database unrelational

Gunakan **database relational** jika:

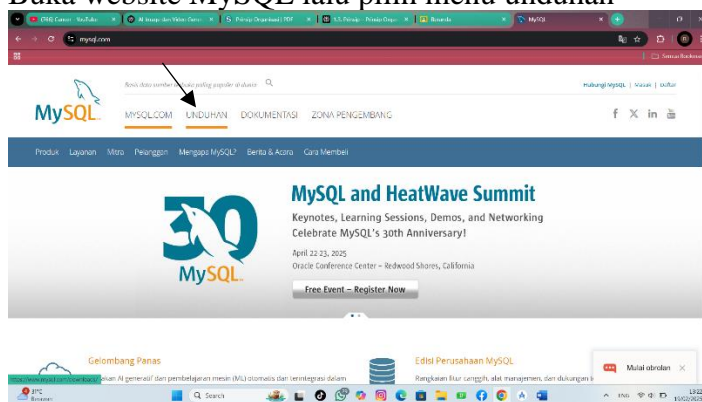
- Mengembangkan aplikasi bisnis yang membutuhkan data terstruktur, seperti sistem keuangan atau sistem kepegawaian.

- Ketika integritas data dan konsistensi transaksi adalah prioritas utama.

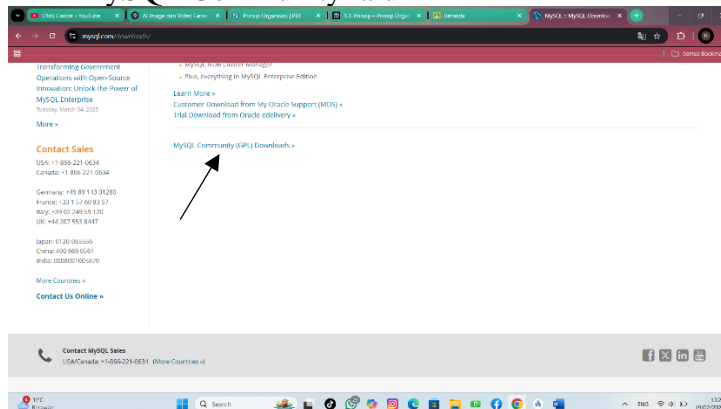
Gunakan **database unrelational** jika:

- Apabila memiliki aplikasi dengan data yang terus berkembang tanpa format jelas, seperti media sosial atau e-commerce.
 - Ketika memerlukan performa tinggi untuk menangani data dalam jumlah besar.
 - Jika fleksibilitas dalam menyimpan jenis data yang beragam menjadi kebutuhan utama.
3. Lakukan instalasi database mysql dari awal sampai akhir.
 4. Pastikan dalam setiap tahapan instalasi, didokumentasikan dalam bentuk screenshot untuk bahan Menyusun laporan

1. Buka website MySQL lalu pilih menu unduhan



2. Pilih MySQL Community lalu klik



3. Pilih MySQL Installer for Windows

MySQL Community Downloads

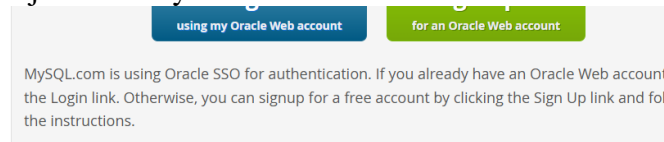
- MySQL Yum Repository
- MySQL APT Repository
- MySQL SUSE Repository
- MySQL Community Server
- MySQL NDB Cluster
- MySQL Router
- MySQL Shell
- MySQL Operator
- MySQL NDB Operator
- MySQL Workbench
- MySQL Installer for Windows
- C API (libmysqlclient)
- Connector/C++
- Connector/J
- Connector/NET
- Connector/Node.js
- Connector/ODBC
- Connector/Python
- MySQL Native Driver for PHP
- MySQL Benchmark Tool
- Time zone description tables
- Download Archives



4. Pilih yang paling bawah lalu klik download



5. Klik just start my download

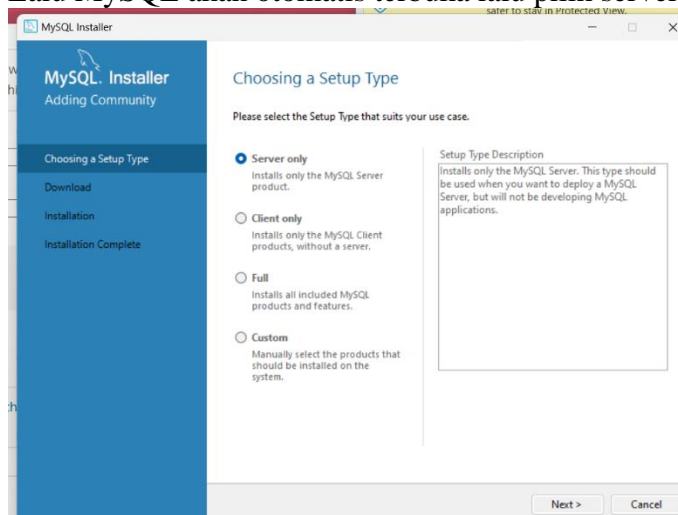


[No thanks, just start my download.](#)

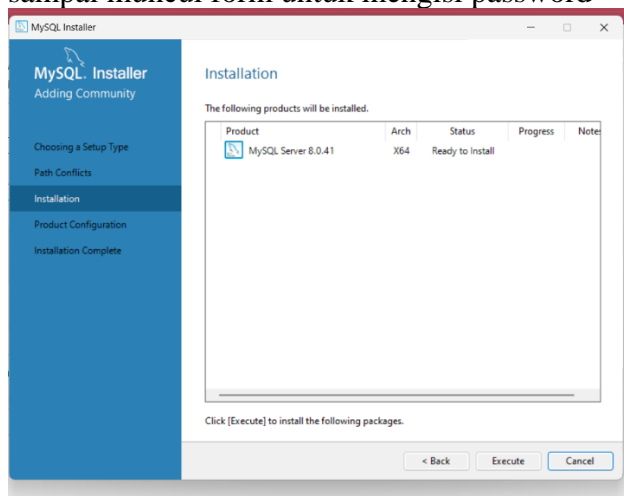
6. Setelah terdownload akan muncul pada file download

7. Buka file nya

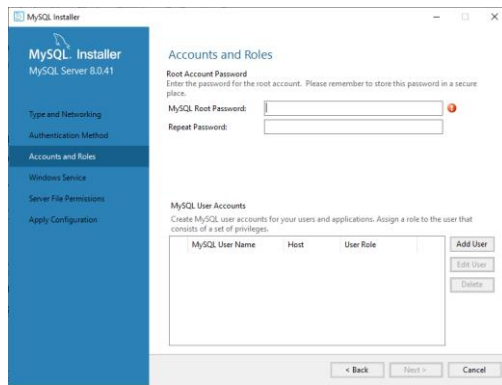
8. Lalu MySQL akan otomatis terbuka lalu pilih server only dan klik next



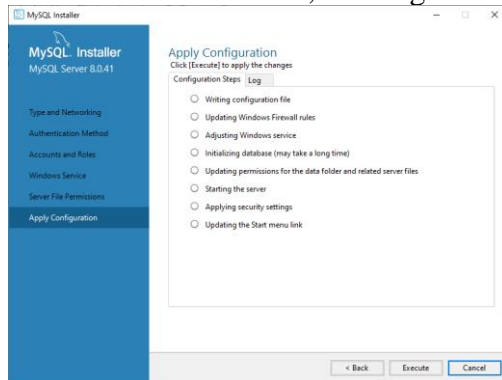
9. Klik execute maka product akan terdownload setelah itu klik next terus sampai muncul form untuk mengisi password



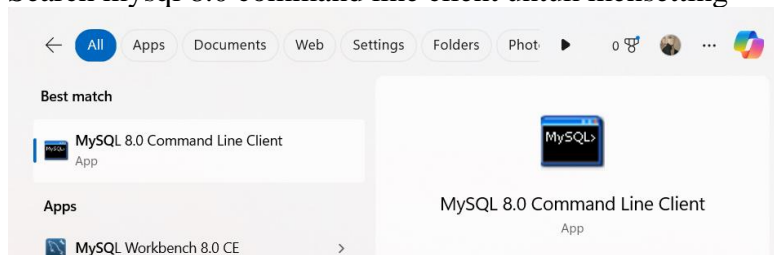
10. Masukkan password lalu next terus



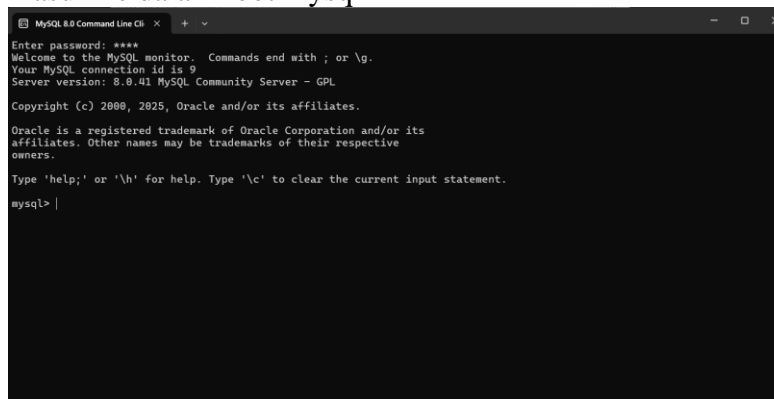
11. Klik execute lalu finish, next lagi lalu finish lagi maka mysql sudah terinstall



12. Search mysql 8.0 command line client untuk mensetting



13. Masukkan password yang sudah dimasukkan tadi setelah itu kita sudah masuk ke dalam root mysql



5. Lakukan perubahan perubahan pada variable berikut (dokumentasikan before dan after nya)

- Membuka MySQL Command Line Client, kemudian login dengan password "your_password".

```
Select MySQL 8.0 Command Line Client
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.36 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

- Cek default port dan innodb_buffer_pool_size
“SHOW VARIABLES WHERE Variable_name IN ('port', 'innodb_buffer_pool_size');”

```
mysql> SHOW VARIABLES WHERE Variable_name IN ('port', 'innodb_buffer_pool_size')
+-----+-----+
| Variable_name | Value |
+-----+-----+
| innodb_buffer_pool_size | 134217728 |
| port | 3306 |
+-----+-----+
2 rows in set (0.01 sec)

mysql>
```

- notepad "C:\ProgramData\MySQL\MySQL Server 8.0\my.ini"

```
C:\Windows\System32>notepad "C:\ProgramData\MySQL\MySQL Server 8.0\my.ini"
C:\Windows\System32>
```

- Dari 3306 ke 3309

```
*my - Notepad
File Edit View
# The
# sock

# The access control granted to cl
# named-pipe-full-access-group=

# The TCP/IP Port the MySQL Server
port=3309
log-bin=C:/ProgramData/MySQL/MySQL
binlog-do-db=mhs
server-id=1
# Path to installation directory.
# basedir="C:/Program Files/MySQL/i

# Path to the database root

Ln 92, Col 10 100% Windows (CRLF) UTF-8
```

- Ubah dari 128M ke 4096M

```
# The size in bytes of the buffer pool, the memory area where InnoDB caches table
# and index data. The default value is 134217728 bytes (128MB). The maximum value
# depends on the CPU architecture; the maximum is 4294967295 (232-1) on 32-bit systems
# and 18446744073709551615 (264-1) on 64-bit systems. On 32-bit systems, the CPU
# architecture and operating system may impose a lower practical maximum size than the
# stated maximum. When the size of the buffer pool is greater than 1GB, setting
# innodb_buffer_pool_instances to a value greater than 1 can improve the scalability on
# a busy server.
innodb_buffer_pool_size=4096M
```

- net stop MySQL80

```
C:\Windows\System32>net stop MySQL80
The MySQL80 service is stopping.
The MySQL80 service was stopped successfully.
```

- net start MySQL80

```
C:\Windows\System32>net start MySQL80
The MySQL80 service is starting...
The MySQL80 service was started successfully.
```

- mysql -u root -p --port=3309
“SHOW VARIABLES LIKE 'innodb_buffer_pool_size';”

```
C:\Windows\System32>mysql -u root -p --port=3309
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.36 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW VARIABLES LIKE 'innodb_buffer_pool_size';
+-----+-----+
| Variable_name | Value |
+-----+-----+
| innodb_buffer_pool_size | 4294967296 |
+-----+-----+
1 row in set (0.01 sec)
```

6. lakukan perubahan terhadap password root.

Mengganti Password

- SELECT user, host, authentication_string FROM mysql.user WHERE user = 'root';

```
mysql> SELECT user, host, authentication_string FROM mysql.user WHERE user = 'root';
+-----+-----+-----+
| user | host | authentication_string |
+-----+-----+-----+
| root | localhost | *9E72259BA9214F692A85B240647C4D95B0F2E08B |
+-----+-----+-----+
1 row in set (0.02 sec)
```

- ALTER USER 'root'@'localhost' IDENTIFIED BY 'root';
FLUSH PRIVILEGES;

```
mysql> ALTER USER 'root'@'localhost' IDENTIFIED BY 'root';
Query OK, 0 rows affected (0.04 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)

mysql>
```

- Password sudah menjadi “root”

```

C:\Windows\System32>mysql -u root -p --port=3309
Enter password: ****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.36 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>

```

7. Buat database dengan nama: kelompok_AB_nama_mhs

- Create database dan cek hasil database

```

C:\Windows\System32>mysql -u root -p --port=3309
Enter password: ****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.36 MySQL Community Server - GPL

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>

```

48 rows in set (0.03 sec)

```

mysql> create database 06_A_Veri_mhs;
Query OK, 1 row affected (0.02 sec)

mysql> show databases;
+-----+
| Database |
+-----+
| 06_a_veri_mhs |
| data |
| db_alwakue |
| db_bank |
+-----+

```


DAFTAR PUSTAKA

1. <https://haloedukasi.com/database-relasional>
2. <https://glints.com/id/lowongan/relational-database-adalah/>
3. <https://blog.enterspasi.com/memahami-database-relasional-vs-non-relasional-kapan-harus-menggunakan/>