

LAPORAN PRAKTIKUM
MATA KULIAH KEAMANAN PERANGKAT LUNAK



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**PROGRAM STUDI D4 MANAJEMEN INFORMATIKA
FAKULTAS VOKASI
UNIVERSITAS NEGERI SURABAYA
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A. Section 1. Start, Stop, and Restart MySQL Server

1. Start MySQL Server

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.22000.1219]
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C:\Users\Novita>cd ..\..

C:\>cd Program Files\MySQL\MySQL Server 8.0\bin

C:\Program Files\MySQL\MySQL Server 8.0\bin>mysqld
2022-11-21T04:23:14.674678Z 0 [System] [MY-010116] [Server] C:\Program Files\MySQL\MySQL Server 8.0\bin\mysqld.exe (mysq
ld 8.0.31) starting as process 22412
2022-11-21T04:23:14.679432Z 0 [Warning] [MY-010091] [Server] Can't create test file C:\Program Files\MySQL\MySQL Server
8.0\data\mysqld_tmp_file_case_insensitive_test.lower-test
2022-11-21T04:23:14.679539Z 0 [Warning] [MY-010091] [Server] Can't create test file C:\Program Files\MySQL\MySQL Server
8.0\data\mysqld_tmp_file_case_insensitive_test.lower-test
2022-11-21T04:23:14.681660Z 0 [ERROR] [MY-013276] [Server] Failed to set datadir to 'C:\Program Files\MySQL\MySQL Server
8.0\data\' (OS errno: 2 - No such file or directory)
2022-11-21T04:23:14.682624Z 0 [ERROR] [MY-010119] [Server] Aborting
2022-11-21T04:23:14.682777Z 0 [System] [MY-010910] [Server] C:\Program Files\MySQL\MySQL Server 8.0\bin\mysqld.exe: Shut
down complete (mysqld 8.0.31) MySQL Community Server - GPL.

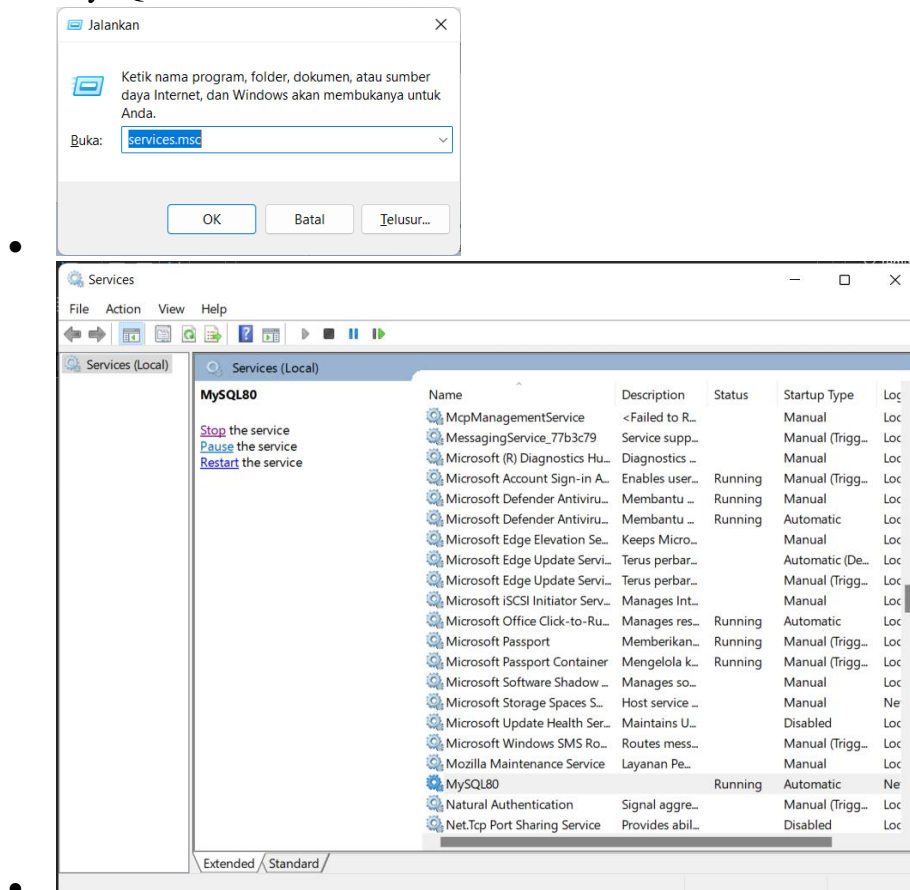
C:\Program Files\MySQL\MySQL Server 8.0\bin>
```

2. Stop MySQL Server

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysqladmin -u root -p shutdown
Enter password: *****

C:\Program Files\MySQL\MySQL Server 8.0\bin>
```

3. Restart MySQL Server



B. Section 2. Users, Roles, and Privileges

1. Create Users

```
C:\Windows\system32\cmd.exe - mysql -u root -p
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u root -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.31 MySQL Community Server - GPL

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owners.

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

mysql> select user from mysql.user;
+-----+
| user |
+-----+
| novitacode |
| mysql.infoschema |
| mysql.session |
| mysql.sys |
| root |
+-----+
5 rows in set (0.00 sec)

mysql> create user bob@localhost identified by 'Secure!pass!';
Query OK, 0 rows affected (0.03 sec)

mysql> select user from mysql.user;
```

```
C:\Windows\system32\cmd.exe - mysql -u root -p

mysql> select user from mysql.user;
+-----+
| user |
+-----+
| novitacode |
| bob |
| mysql.infoschema |
| mysql.session |
| mysql.sys |
| root |
+-----+
6 rows in set (0.00 sec)
```

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u bob -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 8.0.31 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 databases;
+-----+
| Database |
+-----+
| information_schema |
| performance_schema |
+-----+
2 rows in set (0.02 sec)
```

```

C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> create database bobdb;
Query OK, 1 row affected (0.01 sec)

mysql> use bobdb;
Database changed
mysql> create table lists(
    -> id int auto_increment primary key,
    -> todo varchar(100) not null,
    -> completed bool default false);
Query OK, 0 rows affected (0.06 sec)

mysql> grant all privileges on bobdb.* to bob@localhost;
Query OK, 0 rows affected (0.02 sec)

mysql> show databases;
+-----+
| Database |
+-----+
| bobdb    |
| information_schema |
| mysql    |
| performance_schema |
| sakila   |
| sys      |
| world    |
+-----+
7 rows in set (0.00 sec)

mysql> use bobdb;
Database changed
mysql> show tables;
+-----+
| Tables_in_bobdb |
+-----+
| lists            |
+-----+
1 row in set (0.03 sec)

mysql> insert into lists(todo) values('Learn MySQL');
Query OK, 1 row affected (0.03 sec)

mysql> select * from lists;
+-----+-----+-----+
| id | todo      | completed |
+-----+-----+-----+
| 1  | Learn MySQL | 0         |
+-----+-----+-----+
1 row in set (0.00 sec)

mysql> exit
Bye

C:\Program Files\MySQL\MySQL Server 8.0\bin>

```

2. Grant Privileges

```
C:\Windows\system32\cmd.exe - mysql -u root -p

mysql> CREATE USER super@localhost
    -> IDENTIFIED BY 'Secure1pass!';
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR super@localhost;
+-----+
| Grants for super@localhost |
+-----+
| GRANT USAGE ON *.* TO `super`@`localhost` |
+-----+
1 row in set (0.00 sec)

mysql> GRANT ALL
    -> ON classicmodels.*
    -> TO super@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql> SHOW GRANTS FOR super@localhost;
+-----+
| Grants for super@localhost |
+-----+
| GRANT USAGE ON *.* TO `super`@`localhost` |
| GRANT ALL PRIVILEGES ON `classicmodels`.* TO `super`@`localhost` |
+-----+
2 rows in set (0.00 sec)

mysql> _
```

3. Revoke Privileges

- a. Using mysql revoke to revoke some privileges from a user account

```
C:\Windows\system32\cmd.exe - mysql -u root -p

mysql> CREATE USER rfc@localhost
    -> IDENTIFIED BY 'Secure1pass!';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT SELECT, UPDATE, INSERT
    -> ON classicmodels.*
    -> TO rfc@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR rfc@localhost;
+-----+
| Grants for rfc@localhost |
+-----+
| GRANT USAGE ON *.* TO `rfc`@`localhost` |
| GRANT SELECT, INSERT, UPDATE ON `classicmodels`.* TO `rfc`@`localhost` |
+-----+
2 rows in set (0.00 sec)

mysql> REVOKE INSERT, UPDATE
    -> ON classicmodels.*
    -> FROM rfc@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR rfc@localhost;
+-----+
| Grants for rfc@localhost |
+-----+
| GRANT USAGE ON *.* TO `rfc`@`localhost` |
| GRANT SELECT ON `classicmodels`.* TO `rfc`@`localhost` |
+-----+
```

- b. Using mysql revoke to revoke all privileges from a user account

```
C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> GRANT EXECUTE
  -> ON classicmodels.*
  -> TO rfc@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR rfc@localhost;
+-----+
| Grants for rfc@localhost |
+-----+
| GRANT USAGE ON *.* TO `rfc`@`localhost` |
| GRANT SELECT, EXECUTE ON `classicmodels`.* TO `rfc`@`localhost` |
+-----+
2 rows in set (0.00 sec)

mysql> REVOKE ALL, GRANT OPTION
  -> FROM rfc@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR rfc@localhost;
+-----+
| Grants for rfc@localhost |
+-----+
| GRANT USAGE ON *.* TO `rfc`@`localhost` |
+-----+
1 row in set (0.00 sec)
```

- c. Using mysql revoke to revoke proxy privilege

```
C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> GRANT PROXY
  -> ON root
  -> TO rfc@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR rfc@localhost;
+-----+
| Grants for rfc@localhost |
+-----+
| GRANT USAGE ON *.* TO `rfc`@`localhost` |
| GRANT PROXY ON `root`@`%` TO `rfc`@`localhost` |
+-----+
2 rows in set (0.00 sec)

mysql> REVOKE PROXY
  -> ON root
  -> FROM rfc@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR rfc@localhost;
+-----+
| Grants for rfc@localhost |
+-----+
| GRANT USAGE ON *.* TO `rfc`@`localhost` |
+-----+
1 row in set (0.00 sec)

mysql> _
```

4. Manage Roles

- a. Mysql role

```
C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> CREATE DATABASE crm;
Query OK, 1 row affected (0.01 sec)

mysql> use crm;
Database changed
mysql> create table customers(
  -> id INT PRIMARY KEY AUTO_INCREMENT,
  -> first_name VARCHAR(255) NOT NULL,
  -> last_name VARCHAR(255) NOT NULL,
  -> phone VARCHAR(15) NOT NULL,
  -> email VARCHAR(255)
  -> );
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> INSERT INTO customers(first_name,last_name,phone,email) VALUES('John','Doe','(408)-987-7654','john.doe@mysqletutorial.org'), ('Lily','Bush','(408)-987-7985','lily.bush@mysqletutorial.org');
Query OK, 2 rows affected (0.01 sec)
Records: 2 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM customers;
+-----+-----+-----+-----+-----+
| id | first_name | last_name | phone | email |
+-----+-----+-----+-----+-----+
| 1 | John | Doe | (408)-987-7654 | john.doe@mysqletutorial.org |
| 2 | Lily | Bush | (408)-987-7985 | lily.bush@mysqletutorial.org |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

b. Creating roles

```
mysql> CREATE ROLE
  -> crm_dev,
  -> crm_read,
  -> crm_write;
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL
  -> ON crm.*
  -> TO crm_dev;
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT SELECT
  -> ON crm.*
  -> TO crm_read;
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT INSERT, UPDATE, DELETE
  -> ON crm.*
  -> TO crm_write;
Query OK, 0 rows affected (0.01 sec)
```

c. Assigning roles to user accounts

```
C:\Windows\system32\cmd.exe - mysql -u root -p

mysql> CREATE USER crm_dev1@localhost IDENTIFIED BY 'Secure$1782';
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE USER crm_read1@localhost IDENTIFIED BY 'Secure$5432';
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE USER crm_write1@localhost IDENTIFIED BY 'Secure$9075';
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE USER crm_write2@localhost IDENTIFIED BY 'Secure$3452';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT crm_dev
  -> TO crm_dev1@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT crm_read
  -> TO crm_read1@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT crm_read,
  -> crm_write
  -> TO crm_write1@localhost,
  -> crm_write2@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql> SHOW GRANTS FOR crm_dev1@localhost;
+-----+-----+-----+-----+-----+
| Grants for crm_dev1@localhost |
+-----+-----+-----+-----+-----+
| GRANT USAGE ON * * TO `crm_dev1`@`localhost` |
| GRANT `crm_dev`@`%` TO `crm_dev1`@`localhost` |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql> SHOW GRANTS
      -> FOR crm_write1@localhost
      -> USING crm_write;
+-----+
| Grants for crm_write1@localhost |
+-----+
| GRANT USAGE ON *.* TO `crm_write1`@`localhost` |
| GRANT INSERT, UPDATE, DELETE ON `crm`.* TO `crm_write1`@`localhost` |
| GRANT `crm_read`@`%`,`crm_write`@`%` TO `crm_write1`@`localhost` |
+-----+
3 rows in set (0.00 sec)

mysql>
```

d. Setting default roles

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u crm_read1 -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 16
Server version: 8.0.31 MySQL Community Server - GPL

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

mysql> USE crm;
ERROR 1044 (42000): Access denied for user 'crm_read1'@'localhost' to database 'crm'
mysql> SELECT current_role();
+-----+
| current_role() |
+-----+
| NONE           |
+-----+
1 row in set (0.00 sec)

mysql> SET DEFAULT ROLE ALL TO crm_read1@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql>
```

```
C:\Windows\system32\cmd.exe - mysql -u crm_read1 -p
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u crm_read1 -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 18
Server version: 8.0.31 MySQL Community Server - GPL

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

mysql> select current_role();
+-----+
| current_role() |
+-----+
| `crm_read`@`%` |
+-----+
1 row in set (0.00 sec)

mysql> use crm;
Database changed
mysql> SELECT COUNT(*) FROM customers;
+-----+
| COUNT(*) |
+-----+
|         2 |
+-----+
1 row in set (0.02 sec)

mysql> DELETE FROM customers;
ERROR 1142 (42000): DELETE command denied to user 'crm_read1'@'localhost' for table 'customers'
mysql>
```


e. Setting active roles

```
mysql> SET ROLE NONE;
Query OK, 0 rows affected (0.00 sec)

mysql> SET ROLE ALL;
Query OK, 0 rows affected (0.00 sec)

mysql> SET ROLE DEFAULT;
Query OK, 0 rows affected (0.00 sec)
```

f. Revoking privileges from roles

```
mysql> REVOKE INSERT, UPDATE, DELETE
-> ON crm.*
-> FROM crm_write;
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT INSERT, UPDATE, DELETE
-> ON crm.*
-> FOR crm_write;
```

g. Removing roles

```
mysql> DROP ROLE crm_read, crm_write;
Query OK, 0 rows affected (0.03 sec)

mysql>
```

h. Copying privileges from a user account to another

```
mysql> CREATE USER crm_dev2@localhost
-> IDENTIFIED BY 'Secure$6275';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT crm_dev1@localhost
-> TO crm_dev2@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql>
```

5. Show Granted Privileges

a. Using mysql show grants to display the privileges granted for the current user

```
C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> SHOW GRANTS;
+-----+
| Grants for root@localhost |
+-----+
| GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, RELOAD, SHUTDOWN, PROCESS, FILE, REFERENCES, INDEX, ALTER, SHOW DA
TABASES, SUPER, CREATE TEMPORARY TABLES, LOCK TABLES, EXECUTE, REPLICATION SLAVE, REPLICATION CLIENT, CREATE VIEW, SHOW
VIEW, CREATE ROUTINE, ALTER ROUTINE, CREATE USER, EVENT, TRIGGER, CREATE TABLESPACE, CREATE ROLE, DROP ROLE ON *.* TO `r
oot`@`localhost` WITH GRANT OPTION
```

```
GRANT APPLICATION_PASSWORD_ADMIN,AUDIT_ABORT_EXEMPT,AUDIT_ADMIN,AUTHENTICATION_POLICY_ADMIN,BACKUP_ADMIN,BINLOG_ADMIN,
BINLOG_ENCRYPTION_ADMIN,CLONE_ADMIN,CONNECTION_ADMIN,ENCRYPTION_KEY_ADMIN,FIREWALL_EXEMPT,FLUSH_OPTIMIZER_COSTS,FLUSH_ST
ATUS,FLUSH_TABLES,FLUSH_USER_RESOURCES,GROUP_REPLICATION_ADMIN,GROUP_REPLICATION_STREAM,INNODB_REDO_LOG_ARCHIVE,INNODB_R
EDO_LOG_ENABLE,PASSWORDLESS_USER_ADMIN,PERSIST_RO_VARIABLES_ADMIN,REPLICATION_APPLIER,REPLICATION_SLAVE_ADMIN,RESOURCE_G
ROUP_ADMIN,RESOURCE_GROUP_USER,ROLE_ADMIN,SENSITIVE_VARIABLES_OBSERVER,SERVICE_CONNECTION_ADMIN,SESSION_VARIABLES_ADMIN,
SET_USER_ID,SHOW_ROUTINE,SYSTEM_USER,SYSTEM_VARIABLES_ADMIN,TABLE_ENCRYPTION_ADMIN,XA_RECOVER_ADMIN ON *.* TO 'root'@'lo
calhost' WITH GRANT OPTION |
GRANT PROXY ON ''@'' TO 'root'@'localhost' WITH GRANT OPTION
```

 Select C:\Windows\system32\cmd.exe - mysql -u root -p

```
| GRANT PROXY ON ``@`` TO `root`@`localhost` WITH GRANT OPTION
```

```
3 rows in set (0.00 sec)
```

```
mysql> SHOW GRANTS FOR CURRENT_USER();
```

```
| Grants for root@localhost
```

```
C:\Windows\system32\cmd.exe - mysql -u root -p
```

```
| GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, RELOAD, SHUTDOWN, PROCESS, FILE, REFERENCES, INDEX, ALTER, SHOW DA  
TABASES, SUPER, CREATE TEMPORARY TABLES, LOCK TABLES, EXECUTE, REPLICATION SLAVE, REPLICATION CLIENT, CREATE VIEW, SHOW  
VIEW, CREATE ROUTINE, ALTER ROUTINE, CREATE USER, EVENT, TRIGGER, CREATE TABLESPACE, CREATE ROLE, DROP ROLE ON *.* TO `r  
oot`@`localhost` WITH GRANT OPTION
```

```
| GRANT APPLICATION_PASSWORD_ADMIN,AUDIT_ABORT_EXEMPT,AUDIT_ADMIN,AUTHENTICATION_POLICY_ADMIN,BACKUP_ADMIN,BINLOG_ADMIN,  
BINLOG_ENCRYPTION_ADMIN,CLONE_ADMIN,CONNECTION_ADMIN,ENCRYPTION_KEY_ADMIN,FIREWALL_EXEMPT,FLUSH_OPTIMIZER_COSTS,FLUSH_ST  
ATUS,FLUSH_TABLES,FLUSH_USER_RESOURCES,GROUP_REPLICATION_ADMIN,GROUP_REPLICATION_STREAM,INNODB_REDO_LOG_ARCHIVE,INNODB_R  
EDO_LOG_ENABLE,PASSWORDLESS_USER_ADMIN,PERSIST_RO_VARIABLES_ADMIN,REPLICATION_APPLIER,REPLICATION_SLAVE_ADMIN,RESOURCE_G  
ROUP_ADMIN,RESOURCE_GROUP_USER,ROLE_ADMIN,SENSITIVE_VARIABLES_OBSERVER,SERVICE_CONNECTION_ADMIN,SESSION_VARIABLES_ADMIN,  
SET_USER_ID,SHOW_ROUTINE,SYSTEM_USER,SYSTEM_VARIABLES_ADMIN,TABLE_ENCRYPTION_ADMIN,XA_RECOVER_ADMIN ON *.* TO `root`@`lo  
calhost` WITH GRANT OPTION |  
| GRANT PROXY ON ``@`` TO `root`@`localhost` WITH GRANT OPTION
```

```
3 rows in set (0.00 sec)
```

- b. Using mysql show grants to display the privileges granted for a user

```
C:\Windows\system32\cmd.exe - mysql -u root -p

mysql> CREATE DATABASE vehicles;
Query OK, 1 row affected (0.01 sec)

mysql> USE vehicles;
Database changed

mysql> CREATE TABLE cars(
  -> id INT AUTO_INCREMENT,
  -> make VARCHAR(100) NOT NULL,
  -> model VARCHAR(100) NOT NULL,
  -> PRIMARY KEY (id)
  -> );
Query OK, 0 rows affected (0.03 sec)

mysql> CREATE USER musk@localhost
  -> IDENTIFIED BY 'Super1Pass!';
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS
  -> FOR musk@localhost;
+-----+
| Grants for musk@localhost |
+-----+
| GRANT USAGE ON *.* TO `musk`@`localhost` |
+-----+
1 row in set (0.00 sec)

mysql> GRANT ALL
  -> ON vehicles.*
  -> TO musk@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS
  -> FOR musk@localhost;
+-----+
| Grants for musk@localhost |
+-----+
| GRANT USAGE ON *.* TO `musk`@`localhost` |
| GRANT ALL PRIVILEGES ON `vehicles`.* TO `musk`@`localhost` |
+-----+
2 rows in set (0.00 sec)

mysql>
```

- c. Using mysql show grants to display the privileges granted for a role

```
C:\Windows\system32\cmd.exe - mysql -u root -p

mysql> CREATE ROLE writer@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql> SHOW GRANTS
  -> FOR writer@localhost;
+-----+
| Grants for writer@localhost |
+-----+
| GRANT USAGE ON *.* TO `writer`@`localhost` |
+-----+
1 row in set (0.00 sec)

mysql> GRANT
  -> SELECT,
  -> INSERT,
  -> UPDATE,
  -> DELETE
  -> ON vehicles.*
  -> TO writer@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS
  -> FOR writer@localhost;
+-----+
| Grants for writer@localhost |
+-----+
| GRANT USAGE ON *.* TO `writer`@`localhost` |
| GRANT SELECT, INSERT, UPDATE, DELETE ON `vehicles`.* TO `writer`@`localhost` |
+-----+
2 rows in set (0.00 sec)
```

d. Using mysql show grants with using clause example

```
C:\Windows\system32\cmd.exe - mysql -u root -p

mysql> CREATE USER jame@localhost
    -> IDENTIFIED BY 'Secret@Pass1';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT EXECUTE
    -> ON vehicles.*
    -> TO jame@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT writer@localhost
    -> TO jame@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS
    -> FOR jame@localhost;
+-----+
| Grants for jame@localhost |
+-----+
| GRANT USAGE ON *.* TO `jame`@`localhost` |
| GRANT EXECUTE ON `vehicles`.* TO `jame`@`localhost` |
| GRANT `writer`@`localhost` TO `jame`@`localhost` |
+-----+
3 rows in set (0.00 sec)

mysql> SHOW GRANTS
    -> FOR jame@localhost
    -> USING writer@localhost;
+-----+
| Grants for jame@localhost |
+-----+
| GRANT USAGE ON *.* TO `jame`@`localhost` |
| GRANT SELECT, INSERT, UPDATE, DELETE, EXECUTE ON `vehicles`.* TO `jame`@`localhost` |
| GRANT `writer`@`localhost` TO `jame`@`localhost` |
+-----+
3 rows in set (0.00 sec)
```

6. Drop Users

a. Using mysql drop user statement to drop a user example

```
C:\Windows\system32\cmd.exe - mysql -u root -p

C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u root -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 26
Server version: 8.0.31 MySQL Community Server - GPL

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owners.

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

mysql> create user api@localhost, remote, dbadmin@localhost, alice@localhost identified by 'Secure1Pass!';
Query OK, 0 rows affected (0.02 sec)
```

```

C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> select user, host from mysql.user;
+-----+-----+
| user      | host      |
+-----+-----+
| crm_dev    | %         |
| novitacode | %         |
| remote    | %         |
| alice      | localhost |
| api        | localhost |
| bob        | localhost |
| crm_dev1   | localhost |
| crm_dev2   | localhost |
| crm_read1  | localhost |
| crm_write1 | localhost |
| crm_write2 | localhost |
| dbadmin    | localhost |
| jame       | localhost |
| musk       | localhost |
| mysql.infoschema | localhost |
| mysql.session | localhost |
| mysql.sys  | localhost |
| rfc        | localhost |
| root       | localhost |
| super      | localhost |
| writer     | localhost |
+-----+-----+
21 rows in set (0.00 sec)

```

```

C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> drop user dbadmin@localhost
-> ;
Query OK, 0 rows affected (0.01 sec)

mysql> select user, host from mysql.user;
+-----+-----+
| user      | host      |
+-----+-----+
| crm_dev    | %         |
| novitacode | %         |
| remote    | %         |
| alice      | localhost |
| api        | localhost |
| bob        | localhost |
| crm_dev1   | localhost |
| crm_dev2   | localhost |
| crm_read1  | localhost |
| crm_write1 | localhost |
| crm_write2 | localhost |
| jame       | localhost |
| musk       | localhost |
| mysql.infoschema | localhost |
| mysql.session | localhost |
| mysql.sys  | localhost |
| rfc        | localhost |
| root       | localhost |
| super      | localhost |
| writer     | localhost |
+-----+-----+
20 rows in set (0.00 sec)

```

- b. Using mysql drop user to drop multiple user accounts at once

```
C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> drop user api@localhost, remote;
Query OK, 0 rows affected (0.01 sec)

mysql> select user, host from mysql.user;
+-----+-----+
| user          | host          |
+-----+-----+
| crm_dev       | %             |
| novitacode    | %             |
| alice        | localhost     |
| bob          | localhost     |
| crm_dev1      | localhost     |
| crm_dev2      | localhost     |
| crm_read1     | localhost     |
| crm_write1    | localhost     |
| crm_write2    | localhost     |
| jame         | localhost     |
| musk         | localhost     |
| mysql.infoschema | localhost     |
| mysql.session | localhost     |
| mysql.sys     | localhost     |
| rfc          | localhost     |
| root         | localhost     |
| super        | localhost     |
| writer       | localhost     |
+-----+-----+
18 rows in set (0.00 sec)

mysql>
```

- c. Using mysql drop user to drop a connected user

```
C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> create database people;
Query OK, 1 row affected (0.01 sec)

mysql> use people;
Database changed
mysql> create table persons(
  -> id int auto_increment,
  -> firstName varchar(100) not null,
  -> lastName varchar(100) not null,
  -> primary key (id));
Query OK, 0 rows affected (0.02 sec)

mysql> grant all privileges on people.* to alice@localhost;
Query OK, 0 rows affected (0.01 sec)

C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u alice -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 27
Server version: 8.0.31 MySQL Community Server - GPL

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owners.

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

mysql> use people;
Database changed
mysql> insert into persons(firstName, lastName) values('John', 'Doe');
Query OK, 1 row affected (0.01 sec)

mysql> SHOW PROCESSLIST;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Id | User | Host          | db    | Command | Time | State | Info          |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 27 | alice | localhost:50445 | people | Query   | 0    | init  | SHOW PROCESSLIST |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> KILL 21;
ERROR 1094 (HY000): Unknown thread id: 21
mysql> DROP USER alice@localhost;
ERROR 1227 (42000): Access denied; you need (at least one of) the CREATE USER privilege(s) for this operation
```

7. Change Password

a. Change mysql user password using update statement

```
mysql> USE mysql;
Database changed
mysql> UPDATE user
  -> SET password = PASSWORD('dolphin')
  -> WHERE user = 'dbadmin' AND
  -> host = 'localhost';
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near '('dolphin')
WHERE user = 'dbadmin' AND
host = 'localhost'' at line 2
mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.02 sec)

mysql> USE mysql;
Database changed
mysql> UPDATE user
  -> SET authentication_string = PASSWORD('dolphin')
  -> WHERE user = 'dbadmin' AND
  -> host = 'localhost';
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near '('dolphin')
WHERE user = 'dbadmin' AND
host = 'localhost'' at line 2
mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)
```

b. Change mysql user password using the set password statement

```
mysql> SET PASSWORD FOR 'dbadmin'@'localhost' = PASSWORD('bigshark');
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near 'PASSWORD('bigshark')' at line 1
mysql> SET PASSWORD FOR 'dbadmin'@'localhost' = bigshark;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near 'bigshark' at line 1
mysql>
```

c. Change mysql user password using alter user statement

```
mysql> ALTER USER dbadmin@localhost IDENTIFIED BY 'littlewhale';
ERROR 1396 (HY000): Operation ALTER USER failed for 'dbadmin'@'localhost'
mysql>
```

8. Show Users

a. List all users

```
mysql> SELECT user FROM mysql.user;
+-----+
| user |
+-----+
| crm_dev |
| novitacode |
| alice |
| bob |
| crm_dev1 |
| crm_dev2 |
| crm_read1 |
| crm_write1 |
| crm_write2 |
| jame |
| musk |
| mysql.infoschema |
| mysql.session |
| mysql.sys |
| rfc |
| root |
| super |
| writer |
+-----+
18 rows in set (0.00 sec)
```

To execute this query, you must log in to the MySQL database server as an administrator:


```
C:\Windows\system32\cmd.exe - mysql -u root -p
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u root -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 29
Server version: 8.0.31 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> use mysql;
Database changed
mysql> SELECT user FROM user;
+-----+
| user |
+-----+
| crm_dev |
| novitacode |
| alice |
| bob |
| crm_dev1 |
| crm_dev2 |
| crm_read1 |
| crm_write1 |
| crm_write2 |
| jame |
| musk |
| mysql.infoschema |
| mysql.session |
| mysql.sys |
| rfc |
| root |
| super |
| writer |
+-----+
18 rows in set (0.00 sec)
```

```
C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> Desc user;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Host | char(255) | NO | PRI | | |
| User | char(32) | NO | PRI | | |
| Select_priv | enum('N','Y') | NO | | N | |
| Insert_priv | enum('N','Y') | NO | | N | |
| Update_priv | enum('N','Y') | NO | | N | |
| Delete_priv | enum('N','Y') | NO | | N | |
| Create_priv | enum('N','Y') | NO | | N | |
| Drop_priv | enum('N','Y') | NO | | N | |
| Reload_priv | enum('N','Y') | NO | | N | |
| Shutdown_priv | enum('N','Y') | NO | | N | |
| Process_priv | enum('N','Y') | NO | | N | |
| File_priv | enum('N','Y') | NO | | N | |
| Grant_priv | enum('N','Y') | NO | | N | |
| References_priv | enum('N','Y') | NO | | N | |
| Index_priv | enum('N','Y') | NO | | N | |
| Alter_priv | enum('N','Y') | NO | | N | |
| Show_db_priv | enum('N','Y') | NO | | N | |
| Super_priv | enum('N','Y') | NO | | N | |
| Create_tmp_table_priv | enum('N','Y') | NO | | N | |
| Lock_tables_priv | enum('N','Y') | NO | | N | |
| Execute_priv | enum('N','Y') | NO | | N | |
| Repl_slave_priv | enum('N','Y') | NO | | N | |
| Repl_client_priv | enum('N','Y') | NO | | N | |
| Create_view_priv | enum('N','Y') | NO | | N | |
| Show_view_priv | enum('N','Y') | NO | | N | |
| Create_routine_priv | enum('N','Y') | NO | | N | |
```

```

+-----+-----+-----+-----+
| Alter_routine_priv | enum('N','Y') | NO | N |
| Create_user_priv   | enum('N','Y') | NO | N |
| Event_priv         | enum('N','Y') | NO | N |
| Trigger_priv       | enum('N','Y') | NO | N |
| Create_tablespace_priv | enum('N','Y') | NO | N |
| ssl_type           | enum('', 'ANY', 'X509', 'SPECIFIED') | NO | N |
| ssl_cipher         | blob          | NO | NULL |
| x509_issuer        | blob          | NO | NULL |
| x509_subject       | blob          | NO | NULL |
| max_questions      | int unsigned  | NO | 0 |
| max_updates        | int unsigned  | NO | 0 |
| max_connections    | int unsigned  | NO | 0 |
| max_user_connections | int unsigned  | NO | 0 |
| plugin             | char(64)      | NO | caching_sha2_password |
| authentication_string | text          | YES | NULL |
| password_expired    | enum('N','Y') | NO | N |
| password_last_changed | timestamp     | YES | NULL |
| password_lifetime   | smallint unsigned | YES | NULL |
| account_locked      | enum('N','Y') | NO | N |
| Create_role_priv    | enum('N','Y') | NO | N |
| Drop_role_priv      | enum('N','Y') | NO | N |
| Password_reuse_history | smallint unsigned | YES | NULL |
| Password_reuse_time  | smallint unsigned | YES | NULL |
| Password_require_current | enum('N','Y') | YES | NULL |
| User_attributes     | json          | YES | NULL |
+-----+-----+-----+-----+
51 rows in set (0.05 sec)

mysql>

```

```

C:\Windows\system32\cmd.exe - mysql -u root -p
mysql> SELECT
  -> user,
  -> host,
  -> account_locked,
  -> password_expired
  -> FROM
  -> user;
+-----+-----+-----+-----+
| user          | host      | account_locked | password_expired |
+-----+-----+-----+-----+
| crm_dev       | %         | Y              | Y                |
| novitacode    | %         | N              | N                |
| alice        | localhost | N              | N                |
| bob           | localhost | N              | N                |
| crm_dev1      | localhost | N              | N                |
| crm_dev2      | localhost | N              | N                |
| crm_read1     | localhost | N              | N                |
| crm_write1    | localhost | N              | N                |
| crm_write2    | localhost | N              | N                |
| jame          | localhost | N              | N                |
| musk          | localhost | N              | N                |
| mysql.infoschema | localhost | Y              | N                |
| mysql.session | localhost | Y              | N                |
| mysql.sys     | localhost | Y              | N                |
| rfc           | localhost | N              | N                |
| root          | localhost | N              | N                |
| super         | localhost | N              | N                |
| writer        | localhost | Y              | Y                |
+-----+-----+-----+-----+
18 rows in set (0.00 sec)

```

b. Show current user

```

mysql> SELECT user();
+-----+
| user() |
+-----+
| root@localhost |
+-----+
1 row in set (0.00 sec)

mysql> SELECT current_user();
+-----+
| current_user() |
+-----+
| root@localhost |
+-----+
1 row in set (0.00 sec)

```

c. Show current logged users

```
mysql> SELECT
  -> user,
  -> host,
  -> db,
  -> command
  -> FROM
  -> information_schema.processlist;
+-----+-----+-----+-----+
| user          | host          | db    | command |
+-----+-----+-----+-----+
| event_scheduler | localhost     | NULL  | Daemon  |
| root           | localhost:52071 | mysql | Query   |
+-----+-----+-----+-----+
2 rows in set (0.01 sec)
```

9. Rename Users

a. Using mysql rename user to rename one user example

```
mysql> CREATE USER john@localhost
  -> IDENTIFIED BY 'Super!pass1';
Query OK, 0 rows affected (0.02 sec)

mysql> RENAME USER john@localhost
  -> TO doe@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SELECT host, user
  -> FROM mysql.user
  -> WHERE user = 'doe' and host = 'localhost';
+-----+-----+
| host    | user |
+-----+-----+
| localhost | doe  |
+-----+-----+
1 row in set (0.00 sec)
```

b. Using mysql rename user to rename multiple user accounts example

```
mysql> CREATE USER jill@localhost
  -> IDENTIFIED BY 'Super!pass1';
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE USER hill@localhost
  -> IDENTIFIED BY 'Super!pass1';
Query OK, 0 rows affected (0.01 sec)

mysql> RENAME USER
  -> jill@localhost TO jin@localhost,
  -> hill@localhost TO hank@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql> SELECT host, user
  -> FROM mysql.user
  -> WHERE user IN ('jin','hank');
+-----+-----+
| host    | user |
+-----+-----+
| localhost | hank |
| localhost | jin  |
+-----+-----+
2 rows in set (0.00 sec)
```

- c. Using mysql rename user to rename a user account associated with a stored procedure

```
mysql> CREATE USER fx
  -> IDENTIFIED BY 'Super!pass2';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON *.*
  -> TO fx;
Query OK, 0 rows affected (0.01 sec)

mysql> DELIMITER $$
mysql> CREATE DEFINER=fx PROCEDURE GetPayments()
  -> SQL SECURITY DEFINER
  -> BEGIN
  -> SELECT * FROM payments;
  -> END$$
Query OK, 0 rows affected (0.02 sec)

mysql> DELIMITER ;
mysql> CALL GetPayments();
ERROR 1146 (42S02): Table 'mysql.payments' doesn't exist
mysql> RENAME USER fx TO fc;
Query OK, 0 rows affected, 1 warning (0.01 sec)

mysql> CALL GetPayments();
ERROR 1449 (HY000): The user specified as a definer ('fx'@'%') does not exist
mysql>
```

10. Lock User Accounts

- a. Using account lock to lock a new account example

```
mysql> CREATE USER david@localhost
  -> IDENTIFIED BY 'Secret!Pass1'
  -> ACCOUNT LOCK;
Query OK, 0 rows affected (0.01 sec)

mysql> SELECT
  -> user, host, account_locked
  -> FROM
  -> mysql.user
  -> WHERE
  -> user = 'david' AND
  -> host='localhost';
+-----+-----+-----+
| user  | host      | account_locked |
+-----+-----+-----+
| david | localhost | Y              |
+-----+-----+-----+
1 row in set (0.00 sec)

C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u david -p
Enter password: *****
ERROR 3118 (HY000): Access denied for user 'david'@'localhost'. Account is locked.
```

- b. Using account lock to lock an existing user account example

```
mysql> CREATE USER dolphin@localhost
  -> IDENTIFIED BY 'Secret!pass1';
Query OK, 0 rows affected (0.01 sec)

C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u dolphin -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 32
Server version: 8.0.31 MySQL Community Server - GPL

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owners.

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

```
mysql> ALTER USER dolphin@localhost
-> ACCOUNT LOCK;
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> SELECT
-> user, host, account_locked
-> FROM
-> mysql.user
-> WHERE
-> user = 'dolphin';
+-----+-----+-----+
| user  | host    | account_locked |
+-----+-----+-----+
| dolphin | localhost | Y              |
+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> SHOW GLOBAL STATUS
-> LIKE 'Locked_connects';
+-----+-----+
| Variable_name | Value |
+-----+-----+
| Locked_connects | 2     |
+-----+-----+
1 row in set (0.03 sec)
```

11. Unlock User Accounts

```
mysql> CREATE USER brad@localhost
-> IDENTIFIED BY 'Secret!pass1'
-> ACCOUNT LOCK;
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> SELECT
-> user,
-> host,
-> account_locked
-> FROM
-> mysql.user
-> WHERE
-> user = 'brad' AND
-> host = 'localhost';
+-----+-----+-----+
| user | host    | account_locked |
+-----+-----+-----+
| brad | localhost | Y              |
+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> ALTER USER 'brad'@localhost ACCOUNT UNLOCK;
->
```

C. Section 3. Show Commands

1. Show Databases

```
C:\Windows\System32\cmd.exe - mysql -u root -p
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -u root -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 36
Server version: 8.0.31 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| bobdb    |
| crm      |
| information_schema |
| mysql    |
| people   |
| performance_schema |
| sakila   |
| sys      |
| vehicles |
| world    |
+-----+
10 rows in set (0.00 sec)

mysql> SHOW SCHEMAS;
+-----+
| Database |
+-----+
| bobdb    |
| crm      |
| information_schema |
| mysql    |
| people   |
| performance_schema |
| sakila   |
| sys      |
| vehicles |
| world    |
+-----+
10 rows in set (0.00 sec)

mysql> SHOW DATABASES LIKE pattern;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near 'pattern' at line 1
mysql> SHOW DATABASES LIKE '%schema';
+-----+
| Database (%schema) |
+-----+
| information_schema |
| performance_schema |
+-----+
2 rows in set (0.00 sec)
```

2. Show Tables

```
C:\Windows\System32\cmd.exe - mysql -u root -p

mysql> use crm
Database changed
mysql> show tables;
+-----+
| Tables_in_crm |
+-----+
| customers      |
+-----+
1 row in set (0.00 sec)

mysql> select * from customers;
+-----+-----+-----+-----+-----+
| id | first_name | last_name | phone          | email                               |
+-----+-----+-----+-----+-----+
| 1  | John       | Doe       | (408)-987-7654 | john.doe@mysqлтutorial.org        |
| 2  | Lily       | Bush      | (408)-987-7985 | lily.bush@mysqлтutorial.org        |
+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> show full tables
-> ;
+-----+-----+
| Tables_in_crm | Table_type |
+-----+-----+
| customers      | BASE TABLE |
+-----+-----+
1 row in set (0.00 sec)

mysql>
```

3. Show Columns

```
mysql> use crm
Database changed
mysql> show tables;
+-----+
| Tables_in_crm |
+-----+
| customers      |
+-----+
1 row in set (0.00 sec)

C:\Windows\System32\cmd.exe - mysql -u root -p

mysql> describe customers;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra      |
+-----+-----+-----+-----+-----+-----+
| id         | int       | NO   | PRI | NULL    | auto_increment |
| first_name | varchar(255) | NO   |     | NULL    |              |
| last_name  | varchar(255) | NO   |     | NULL    |              |
| phone      | varchar(15) | NO   |     | NULL    |              |
| email      | varchar(255) | YES  |     | NULL    |              |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.01 sec)

mysql> show full columns from customers \G;
***** 1. row *****
      Field: id
      Type: int
  Collation: NULL
      Null: NO
        Key: PRI
      Default: NULL
      Extra: auto_increment
Privileges: select,insert,update,references
  Comment:
***** 2. row *****
      Field: first_name
      Type: varchar(255)
  Collation: utf8mb4_0900_ai_ci
      Null: NO
        Key:
      Default: NULL
```

```

C:\Windows\System32\cmd.exe - mysql -u root -p
Extra:
Privileges: select,insert,update,references
Comment:
***** 3. row *****
Field: last_name
Type: varchar(255)
Collation: utf8mb4_0900_ai_ci
Null: NO
Key:
Default: NULL
Extra:
Privileges: select,insert,update,references
Comment:
***** 4. row *****
Field: phone
Type: varchar(15)
Collation: utf8mb4_0900_ai_ci
Null: NO
Key:
Default: NULL
Extra:
Privileges: select,insert,update,references
Comment:
***** 5. row *****
Field: email
Type: varchar(255)
Collation: utf8mb4_0900_ai_ci
Null: YES
Key:
Default: NULL
Extra:
Privileges: select,insert,update,references
Comment:
5 rows in set (0.01 sec)

ERROR:
No query specified

```

4. Show Processlist

```

mysql> show processlist;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Id | User | Host | db | Command | Time | State | Info |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 5 | event_scheduler | localhost | NULL | Daemon | 18198 | Waiting on empty queue | NULL |
| 37 | root | localhost:51309 | crm | Query | 0 | init | show processlist |
+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>

```

D. Section 4. Backup and Restore

1. Backup

```

mysql> mysqldump --user=root --password=novita118., --result-file=c:\backup\all_databases.sql --all-databases
ERROR:
Unknown command '\b'.
ERROR:
Unknown command '\a'.
-> mysqldump --user=root --password=SupelrPass1 --result-file=c:\backup\classicmodels.sql --databases classicmodels
ERROR:
Unknown command '\b'.

```

2. Restore

```

mysql> create database mydb;
Query OK, 1 row affected (0.01 sec)

mysql> use mydb;
Database changed
mysql> create table tests(
-> id int primary key
-> );
Query OK, 0 rows affected (0.06 sec)

mysql> insert into tests(id) values(1),(2),(3);
Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0

```



```

-> mysqldump --user=root --password=Novita118., --result-file=c:\backup\mydb.sql --databases mydb
ERROR:
Unknown command '\b'.
ERROR:
Unknown command '\m'.
-> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near 'mysqldump --user=root --password=Supe!rPass1 --result-file=c:\backup\mydb.sql --' at
line 1
mysql> drop database mydb;
Query OK, 1 row affected (0.04 sec)

mysql> source c:\backup\mydb.sql
ERROR:
Failed to open file 'c:\backup\mydb.sql', error: 2
mysql>

```

E. Section 5. Database Maintenance

1. Maintain Tables

a. Analyze table statement

```

mysql> analyze table customers;
+-----+-----+-----+-----+
| Table      | Op      | Msg_type | Msg_text |
+-----+-----+-----+-----+
| crm.customers | analyze | status   | OK       |
+-----+-----+-----+-----+
1 row in set (0.01 sec)

```

b. Optimize table statement

```

mysql> optimize table customers;
+-----+-----+-----+-----+
| Table      | Op      | Msg_type | Msg_text |
+-----+-----+-----+-----+
| crm.customers | optimize | note     | Table does not support optimize, doing recreate + analyze instead |
| crm.customers | optimize | status   | OK       |
+-----+-----+-----+-----+
2 rows in set (0.12 sec)

```

c. Check table statement

```

mysql> check table customers;
+-----+-----+-----+-----+
| Table      | Op      | Msg_type | Msg_text |
+-----+-----+-----+-----+
| crm.customers | check   | status   | OK       |
+-----+-----+-----+-----+
1 row in set (0.01 sec)

```

d. Repair table statement

```

mysql> repair table customers;
+-----+-----+-----+-----+
| Table      | Op      | Msg_type | Msg_text |
+-----+-----+-----+-----+
| crm.customers | repair  | note     | The storage engine for the table doesn't support repair |
+-----+-----+-----+-----+
1 row in set (0.01 sec)

```