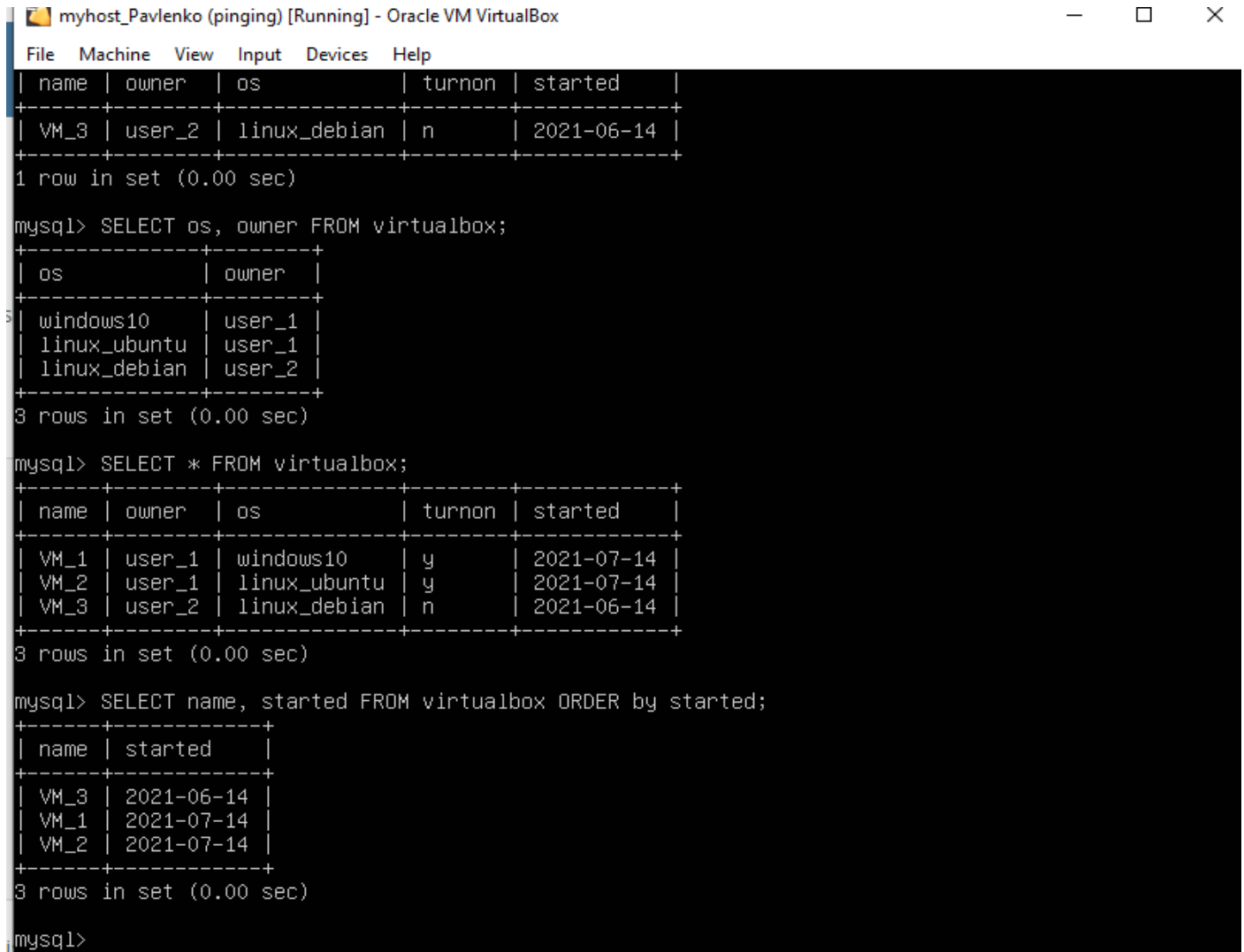


MYSQL database administration

PART 1



```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
+-----+-----+-----+-----+
| name | owner | os | turnon | started |
+-----+-----+-----+-----+
| VM_3 | user_2 | linux_debian | n | 2021-06-14 |
+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> SELECT os, owner FROM virtualbox;
+-----+-----+
| os | owner |
+-----+-----+
| windows10 | user_1 |
| linux_ubuntu | user_1 |
| linux_debian | user_2 |
+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT * FROM virtualbox;
+-----+-----+-----+-----+
| name | owner | os | turnon | started |
+-----+-----+-----+-----+
| VM_1 | user_1 | windows10 | y | 2021-07-14 |
| VM_2 | user_1 | linux_ubuntu | y | 2021-07-14 |
| VM_3 | user_2 | linux_debian | n | 2021-06-14 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT name, started FROM virtualbox ORDER by started;
+-----+-----+
| name | started |
+-----+-----+
| VM_3 | 2021-06-14 |
| VM_1 | 2021-07-14 |
| VM_2 | 2021-07-14 |
+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

Screenshot 1 - SELECT по имени с сортировкой по дате создания

```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
| linux_ubuntu | user_1 |
| linux_debian | user_2 |
+-----+
3 rows in set (0.00 sec)

mysql> SELECT * FROM virtualbox;
+-----+-----+-----+-----+
| name | owner | os | turnon | started |
+-----+-----+-----+-----+
| VM_1 | user_1 | windows10 | y | 2021-07-14 |
| VM_2 | user_1 | linux_ubuntu | y | 2021-07-14 |
| VM_3 | user_2 | linux_debian | n | 2021-06-14 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT name, started FROM virtualbox ORDER by started;
+-----+-----+
| name | started |
+-----+-----+
| VM_3 | 2021-06-14 |
| VM_1 | 2021-07-14 |
| VM_2 | 2021-07-14 |
+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT name, started, CURDATE(),TIMESTAMPDIFF(YEAR,started,CURDATE()) AS age FROM virtualbox;
+-----+-----+-----+-----+
| name | started | CURDATE() | age |
+-----+-----+-----+-----+
| VM_1 | 2021-07-14 | 2021-07-14 | 0 |
| VM_2 | 2021-07-14 | 2021-07-14 | 0 |
| VM_3 | 2021-06-14 | 2021-07-14 | 0 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

Screenshot 2 – SELECT с вычислением возраста по дате создания

File Machine View Input Devices Help

```
mysql> SELECT * FROM virtualbox WHERE owner LIKE '%er%';
```

name	owner	os	turnon	started
VM_1	user_1	windows10	y	2021-07-14
VM_2	user_1	linux_ubuntu	y	2021-07-14
VM_3	user_2	linux_debian	n	2021-06-14

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

```
mysql> SELECT COUNT(*) FROM virtualbox;
```

COUNT(*)
3

```
1 row in set (0.00 sec)
```

```
mysql> SELECT COUNT(*) FROM virtualbox GROUP BY owner;
```

COUNT(*)
2
1

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

```
mysql> SELECT owner,COUNT(*) FROM virtualbox GROUP BY owner;
```

owner	COUNT(*)
user_1	2
user_2	1

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

```
mysql>
```

Screenshot 3 – SELECT с подсчётом количества совпадений владельцев

myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
mysql> SELECT * FROM virtualbox WHERE owner LIKE '_er%';
Empty set (0.00 sec)

mysql> SELECT * FROM virtualbox WHERE owner LIKE 'er%';
Empty set (0.00 sec)

mysql> SELECT * FROM virtualbox WHERE owner LIKE 'u%';
+-----+-----+-----+-----+-----+
| name | owner | os       | turnon | started |
+-----+-----+-----+-----+-----+
| VM_1 | user_1 | windows10 | y      | 2021-07-14 |
| VM_2 | user_1 | linux_ubuntu | y      | 2021-07-14 |
| VM_3 | user_2 | linux_debian | n      | 2021-06-14 |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT * FROM virtualbox WHERE owner LIKE '%_1';
+-----+-----+-----+-----+-----+
| name | owner | os       | turnon | started |
+-----+-----+-----+-----+-----+
| VM_1 | user_1 | windows10 | y      | 2021-07-14 |
| VM_2 | user_1 | linux_ubuntu | y      | 2021-07-14 |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> SELECT * FROM virtualbox WHERE owner LIKE '%er%';
+-----+-----+-----+-----+-----+
| name | owner | os       | turnon | started |
+-----+-----+-----+-----+-----+
| VM_1 | user_1 | windows10 | y      | 2021-07-14 |
| VM_2 | user_1 | linux_ubuntu | y      | 2021-07-14 |
| VM_3 | user_2 | linux_debian | n      | 2021-06-14 |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

Screenshot 4 – SELECT с поиском совпадений по символам

```

| VM_1 | user_1 | windows10 | y | 2021-07-14 |
| VM_2 | user_1 | linux_ubuntu | y | 2021-07-14 |
+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> SELECT * FROM virtualbox WHERE owner = 'user_1' AND turnon = 'y';
+-----+-----+-----+-----+-----+
| name | owner | os | turnon | started |
+-----+-----+-----+-----+-----+
| VM_1 | user_1 | windows10 | y | 2021-07-14 |
| VM_2 | user_1 | linux_ubuntu | y | 2021-07-14 |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> INSERT INTO virtualbox
-> VALUES( 'VM_3', 'user_2', 'linux_debian','n','2021-06-14');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM virtualbox WHERE owner = 'user_2' AND turnon = 'n';
+-----+-----+-----+-----+-----+
| name | owner | os | turnon | started |
+-----+-----+-----+-----+-----+
| VM_3 | user_2 | linux_debian | n | 2021-06-14 |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> SELECT os, owner FROM virtualbox;
+-----+-----+
| os | owner |
+-----+-----+
| windows10 | user_1 |
| linux_ubuntu | user_1 |
| linux_debian | user_2 |
+-----+-----+
3 rows in set (0.00 sec)

mysql> _

```

Screenshot 5 – SELECT с сортировкой по нескольким значениям и по владельцу

```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+
| name  | varchar(20) | YES  |     | NULL    |       |
| year  | char(4)   | YES  |     | NULL    |       |
| price | char(10)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT name, MAX(pice) AS price FROM ssd GROUP BY name ORDER BY name;
ERROR 1054 (42S22): Unknown column 'pice' in 'field list'
mysql> SELECT name, MAX(price) AS price FROM ssd GROUP BY name ORDER BY name;
+-----+-----+
| name      | price |
+-----+-----+
| KINGSTON 500 | 1500  |
| Samsung 128  | 1610  |
| Team 256    | 1499  |
+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT MAX(price) AS price FROM ssd;
+-----+
| price |
+-----+
| 1610  |
+-----+
1 row in set (0.00 sec)

mysql> SELECT name,year,price FROM ssd WHERE price=(SELECT MAX(price) FROM ssd);
+-----+-----+-----+
| name      | year | price |
+-----+-----+-----+
| Samsung 128 | 2019 | 1610  |
+-----+-----+-----+
1 row in set (0.02 sec)

mysql>
```

Screenshot 6 – SELECT с группировкой по названию, вычислением максимальной цены

```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
+-----+
| VM_1 | 2021-07-14 | 2021-07-14 | 0 |
| VM_2 | 2021-07-14 | 2021-07-14 | 0 |
| VM_3 | 2021-06-14 | 2021-07-14 | 0 |
+-----+
3 rows in set (0.00 sec)

mysql> SELECT name, started, CURDATE(),TIMESTAMPDIFF(DAY,started,CURDATE()) AS age FROM virtualbox;
+-----+-----+-----+-----+
| name | started | CURDATE() | age |
+-----+-----+-----+-----+
| VM_1 | 2021-07-14 | 2021-07-14 | 0 |
| VM_2 | 2021-07-14 | 2021-07-14 | 0 |
| VM_3 | 2021-06-14 | 2021-07-14 | 30 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT name, started, DAY(started) FROM virtualbox;
+-----+-----+-----+
| name | started | DAY(started) |
+-----+-----+-----+
| VM_1 | 2021-07-14 | 14 |
| VM_2 | 2021-07-14 | 14 |
| VM_3 | 2021-06-14 | 14 |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> SELECT name, started, MONTH(started) FROM virtualbox;
+-----+-----+-----+
| name | started | MONTH(started) |
+-----+-----+-----+
| VM_1 | 2021-07-14 | 7 |
| VM_2 | 2021-07-14 | 7 |
| VM_3 | 2021-06-14 | 6 |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

Screenshot 7- SELECT с вычисление дней работы, вывод дня и месяца создания

```
mysql> CREATE USER 'admin'@'localhost' identified by '54321';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT RELOAD,PROCESS on *.* to 'admin'@'localhost';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT SELECT ON *.* to 'QA'@'localhost' WITH GRANT OPTION;
ERROR 1410 (42000): You are not allowed to create a user with GRANT
mysql> CREATE USER 'QA'@'localhost' identified by '1234';
Query OK, 0 rows affected (0.02 sec)

mysql> GRANT SELECT ON *.* to 'QA'@'localhost' WITH GRANT OPTION;
Query OK, 0 rows affected (0.00 sec)

mysql> SHOW GRANTS FOR 'admin'@'localhost';
+-----+
| Grants for admin@localhost |
+-----+
| GRANT RELOAD, PROCESS ON *.* TO `admin`@`localhost` |
+-----+
1 row in set (0.00 sec)

mysql>
```

Screenshot 8- Создание пользователей и выдача прав доступа

```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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

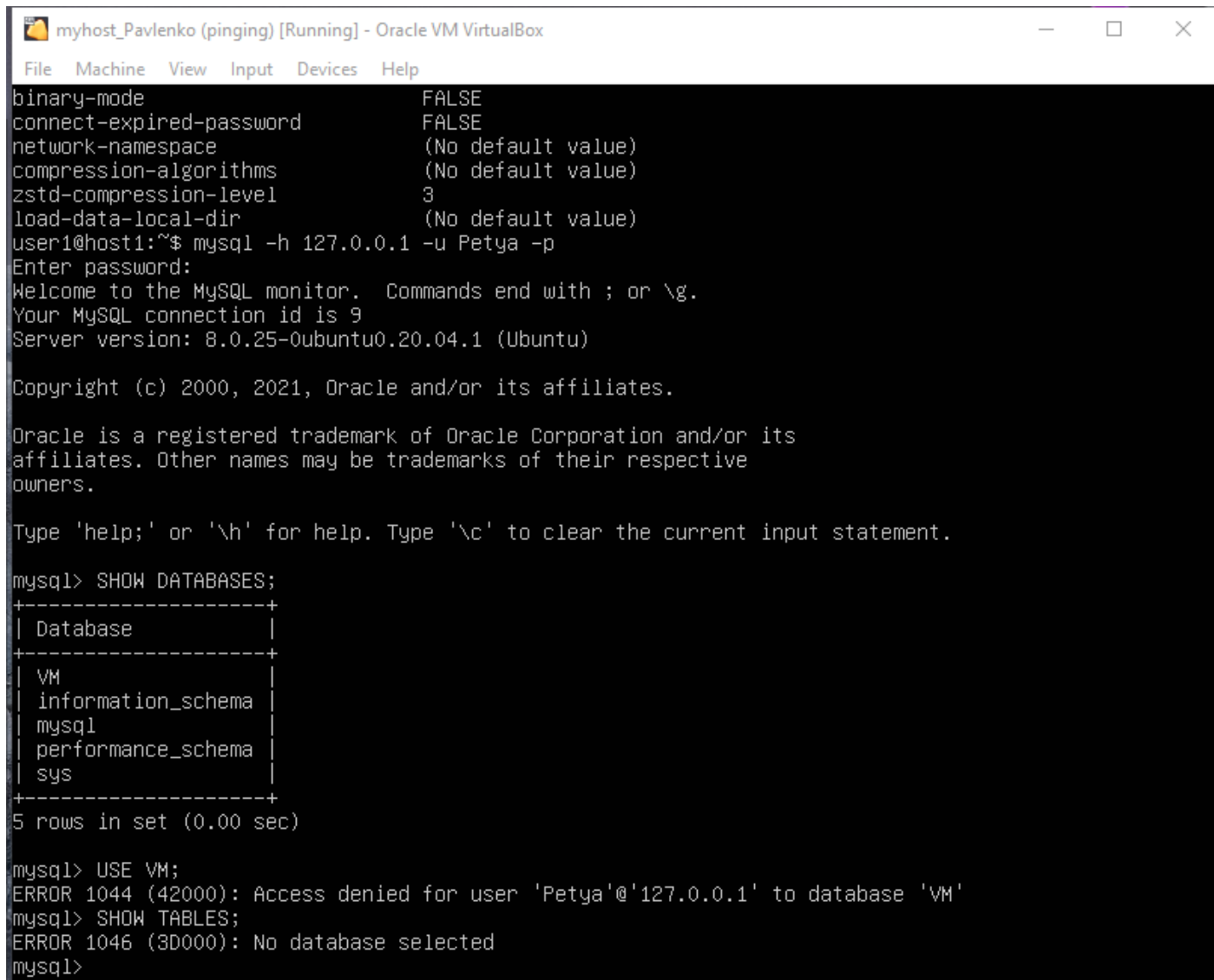
mysql> PROCESS
->

^C
mysql> PROCESS;
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 'PROCESS' at line 1
mysql> SHOW PROCESSLIST;
+-----+-----+-----+-----+-----+-----+-----+
| Id | User          | Host          | db  | Command | Time | State          | Info          |
+-----+-----+-----+-----+-----+-----+-----+
| 5  | event_scheduler | localhost    | NULL | Daemon  | 5768 | Waiting on empty queue | NULL         |
| 13 | admin          | localhost:47180 | NULL | Query   | 0    | init           | SHOW PROCESSLIST |
+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
+-----+
1 row in set (0.00 sec)

mysql>
```

Screenshot 9 - Вход с правами доступа администратора для просмотра процессов внутри базы данных



```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
binary-mode FALSE
connect-expired-password FALSE
network-namespace (No default value)
compression-algorithms (No default value)
zstd-compression-level 3
load-data-local-dir (No default value)
user1@host1:~$ mysql -h 127.0.0.1 -u Petya -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.25-0ubuntu0.20.04.1 (Ubuntu)

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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 |
+-----+
| VM       |
| information_schema |
| mysql    |
| performance_schema |
| sys      |
+-----+
5 rows in set (0.00 sec)

mysql> USE VM;
ERROR 1044 (42000): Access denied for user 'Petya'@'127.0.0.1' to database 'VM'
mysql> SHOW TABLES;
ERROR 1046 (3D000): No database selected
mysql>
```

Screenshot 10 – Вход пользователя с правами доступа только на просмотр названий баз данных

```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
5 rows in set (0.00 sec)

mysql> USE VM;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> SHOW TABLES;
+-----+
| Tables_in_VM |
+-----+
| ssd           |
| students     |
| virtualbox    |
+-----+
3 rows in set (0.00 sec)

mysql> SELECT * FROM virtualbox;
+-----+-----+-----+-----+-----+
| name | owner | os       | turnon | started |
+-----+-----+-----+-----+-----+
| VM_1 | user_1 | windows10 | y      | 2021-07-14 |
| VM_2 | user_1 | linux_ubuntu | y      | 2021-07-14 |
| VM_3 | user_2 | linux_debian | n      | 2021-06-14 |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> INSERT INTO virtualbox
-> 123
-> VALUES( 'VM_5','user_2','windows11','n','2021-07-15');
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 '123
VALUES( 'VM_5','user_2','windows11','n','2021-07-15')' at line 2
mysql> INSERT INTO virtualbox
-> VALUES( 'VM_5','user_2','windows11','n','2021-07-15');
ERROR 1142 (42000): INSERT command denied to user 'QA'@'localhost' for table 'virtualbox'
mysql> _
```

Screenshot 11 -Вход пользователя с правами доступа только SELECT

PART 2

```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
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 |
+-----+
| VM       |
| information_schema |
| mysql    |
| performance_schema |
| sys      |
+-----+
5 rows in set (0.01 sec)

mysql> exit
Bye
root@host1:~# mysqldump -all-databases --master-data --single-transaction>backup1.sql
mysqldump: [ERROR] mysqldump: unknown option '--'.
root@host1:~# mysqldump --all-databases --master-data --single-transaction>backup1.sql
root@host1:~# mysqldump -u root -p VM>VM_rec1.sql
Enter password:
root@host1:~# mysql -uroot -e 'show table' VM && echo done
ERROR 1064 (42000) at line 1: 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 '' at line 1
root@host1:~# mysql -uroot -e 'show tables' VM && echo done
+-----+
| Tables_in_VM |
+-----+
| ssd           |
| students     |
| virtualbox    |
+-----+
done
root@host1:~#
```

Screenshot 12 – Создание backup mysql БД

```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
Oracle is a registered trademark of Oracle Corporation and/or its
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 |
+-----+
| VM       |
| information_schema |
| mysql    |
| performance_schema |
| sys      |
+-----+
5 rows in set (0.00 sec)

mysql> DROPDATABASE VM;
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 'DROPDATABASE VM' at line 1
mysql> DROP DATABASE VM;
Query OK, 3 rows affected (0.10 sec)

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql           |
| performance_schema |
| sys             |
+-----+
4 rows in set (0.00 sec)

mysql> _
```

Screenshot 13 – Удаление БД

```
myhost_Pavlenko (pinging) [Running] - Oracle VM VirtualBox
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 |
+-----+
| VM2      |
| information_schema |
| mysql    |
| performance_schema |
| sys      |
+-----+
5 rows in set (0.01 sec)

mysql> USE VM2
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> SELECT * FROM VM2;
ERROR 1146 (42S02): Table 'VM2.VM2' doesn't exist
mysql> DESCRIBE VM2;
ERROR 1146 (42S02): Table 'VM2.VM2' doesn't exist
mysql> SHOW TABLES;
+-----+
| Tables_in_VM2 |
+-----+
| ssd            |
| students       |
| virtualbox     |
+-----+
3 rows in set (0.00 sec)

mysql> _
```

Screenshot 14 -Восстановление БД из backup dump

PART 3

The screenshot shows the AWS Management Console interface for a DynamoDB table named 'Virtual1'. The 'Items' tab is selected, and the 'Scan' operation is being performed. The scan filter is set to 'Name' with a value of 'VM1'. The results table shows one item with the following details:

Name	Days	Owner	Working
VM1	1	user1	true

Screenshot 15- Scan DynamoDB (nouck)

The screenshot shows the AWS Management Console interface for a DynamoDB table named 'Virtual1'. The 'Items' tab is selected, and the 'Query' operation is being performed. The query filter is set to 'Name' with a value of 'VM1'. The results table shows one item with the following details:

Name	Days	Owner	Working
VM1	1	user1	true

Screenshot 16 – Query DynamoDB (запрос)