ITIM

PRACTICAL - 12

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Batch : 61(CBA)

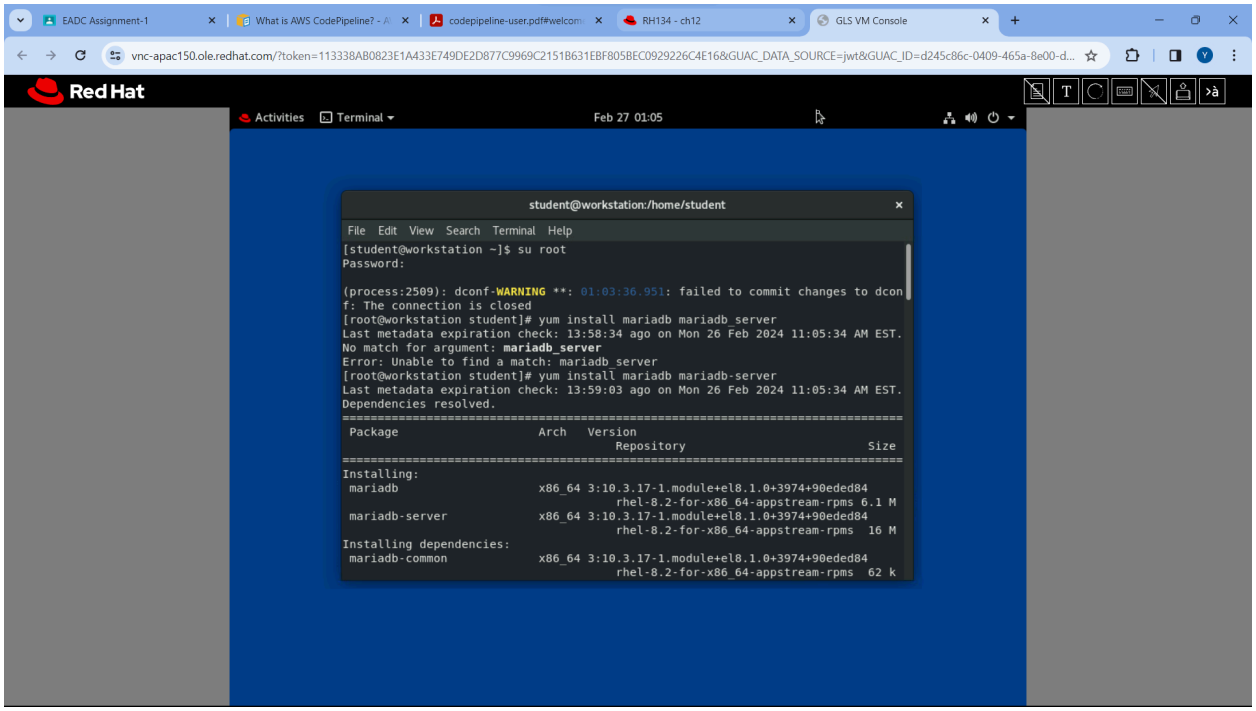
Tasks :

1) Configure MariaDB server on server.example.com with below conditions:

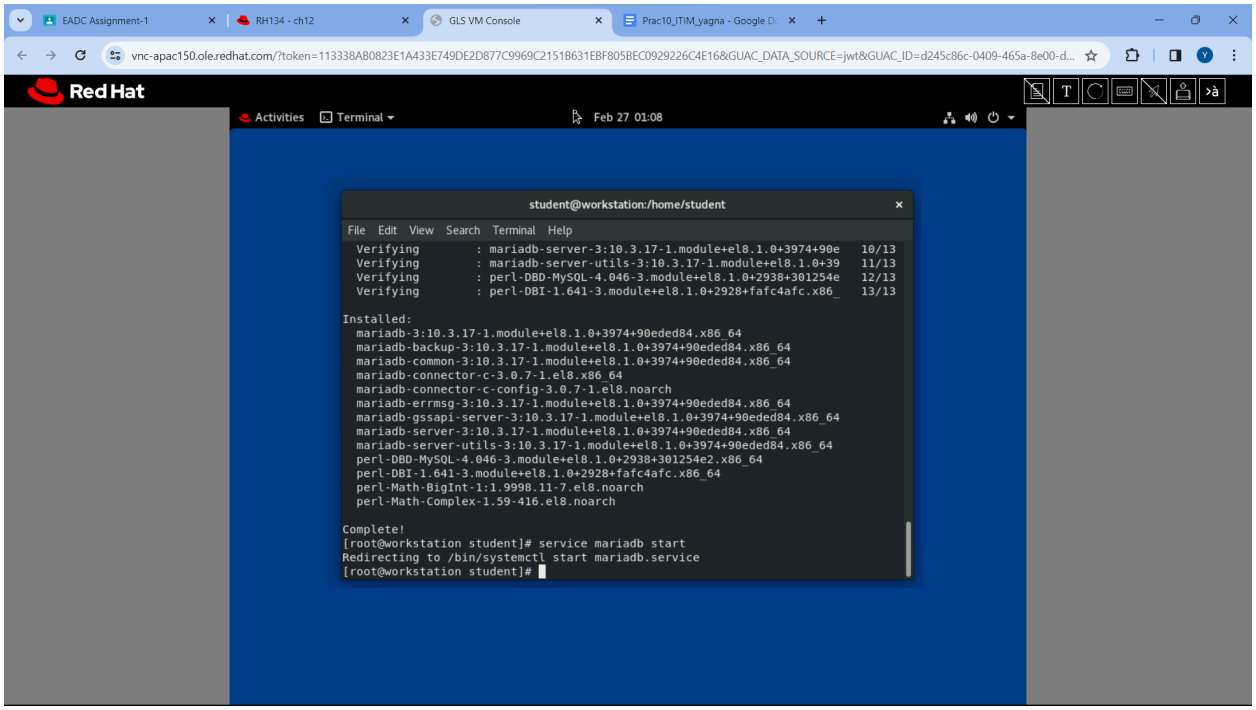
a)Set the root password as "access" and block root access from remote hosts.

Firstly, Install mariadb and mariadb-server using

yum install mariadb mariadb-server

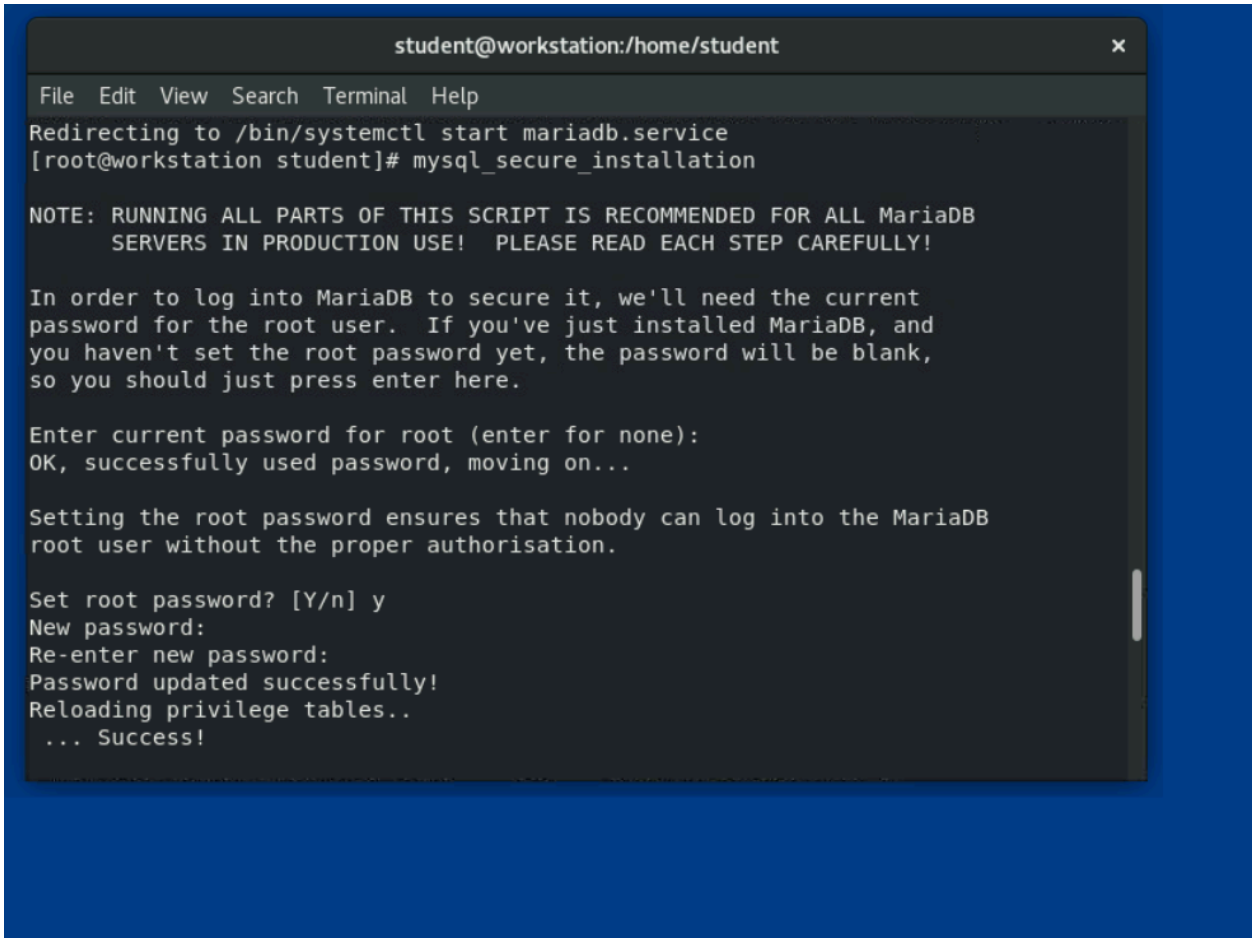


Start the mariadb service using service mariadb start



RUN mysql_secure _installation to configure mariadb

Further configuration is in d)



b) Create a user "yourname" by password "password"

Login into mariadb using

mysql -u root -p // -u to give username -p to give password

```
[root@workstation student]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 17
Server version: 10.3.17-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]>
```

Create user using create user ‘yagna’@’localhost’ identified by ‘password’;

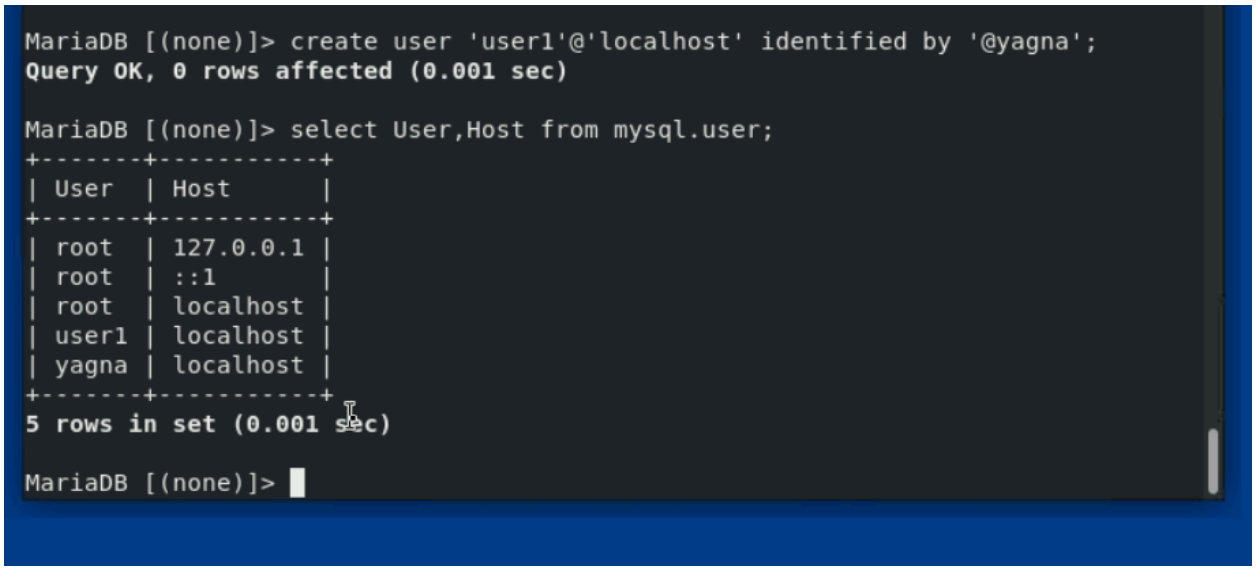
Here username is yagna password is password and host is localhost

```
MariaDB [(none)]> create user 'yagna'@'localhost' identified by 'password';
Query OK, 0 rows affected (0.001 sec)
```

```
Type 'help;' or '\h' for help. Type '\c' to clear the cur

MariaDB [(none)]> select User,Host from mysql.user;
+-------+-----------+
| User  | Host      |
+-------+-----------+
| root  | 127.0.0.1 |
| root  | ::1       |
| root  | localhost |
| yagna | localhost |
+-------+-----------+
4 rows in set (0.000 sec)

MariaDB [(none)]>
```

c) Create another user with password as "@yourname"

Create user ‘user1’@’localhost’ identified by ‘@yagna’;



d) Only local hosts should have access to MariaDB server.

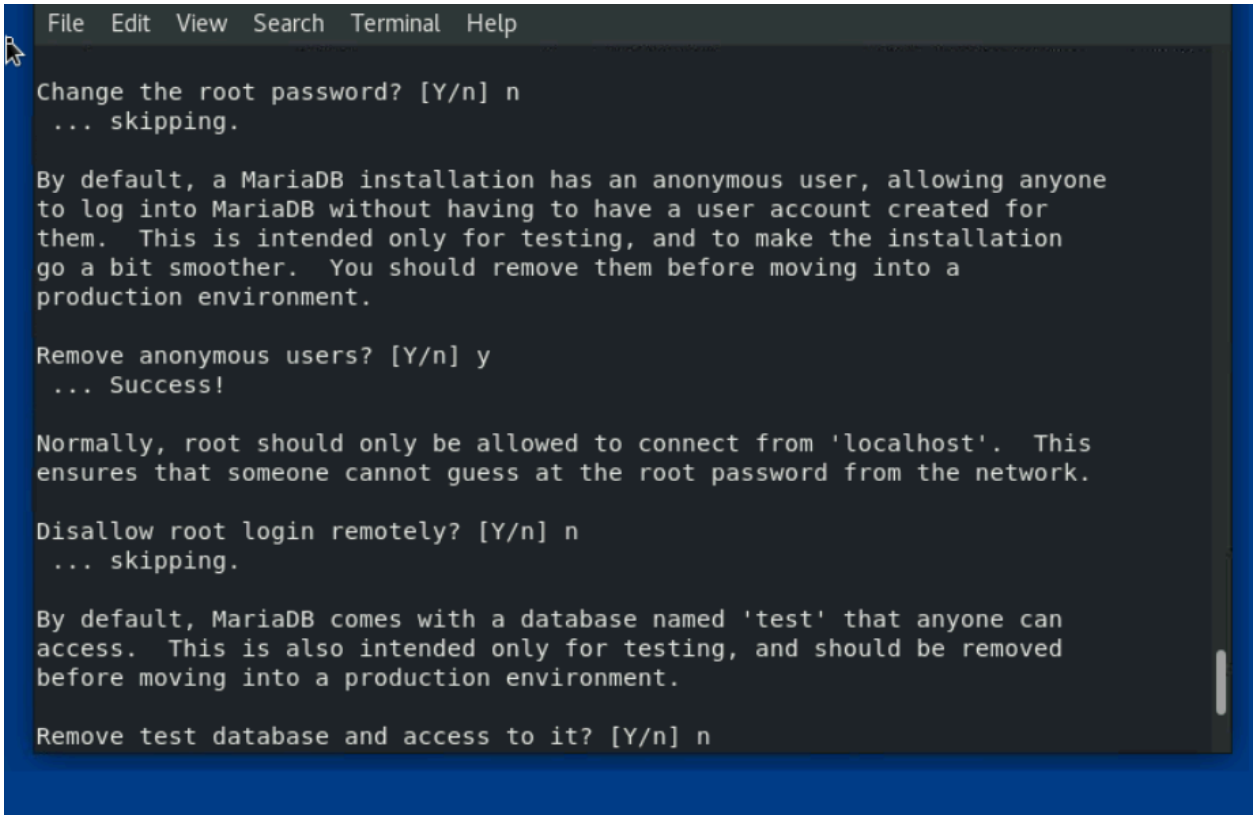
Use mysql_secure_installation to enter configuration for mariadb

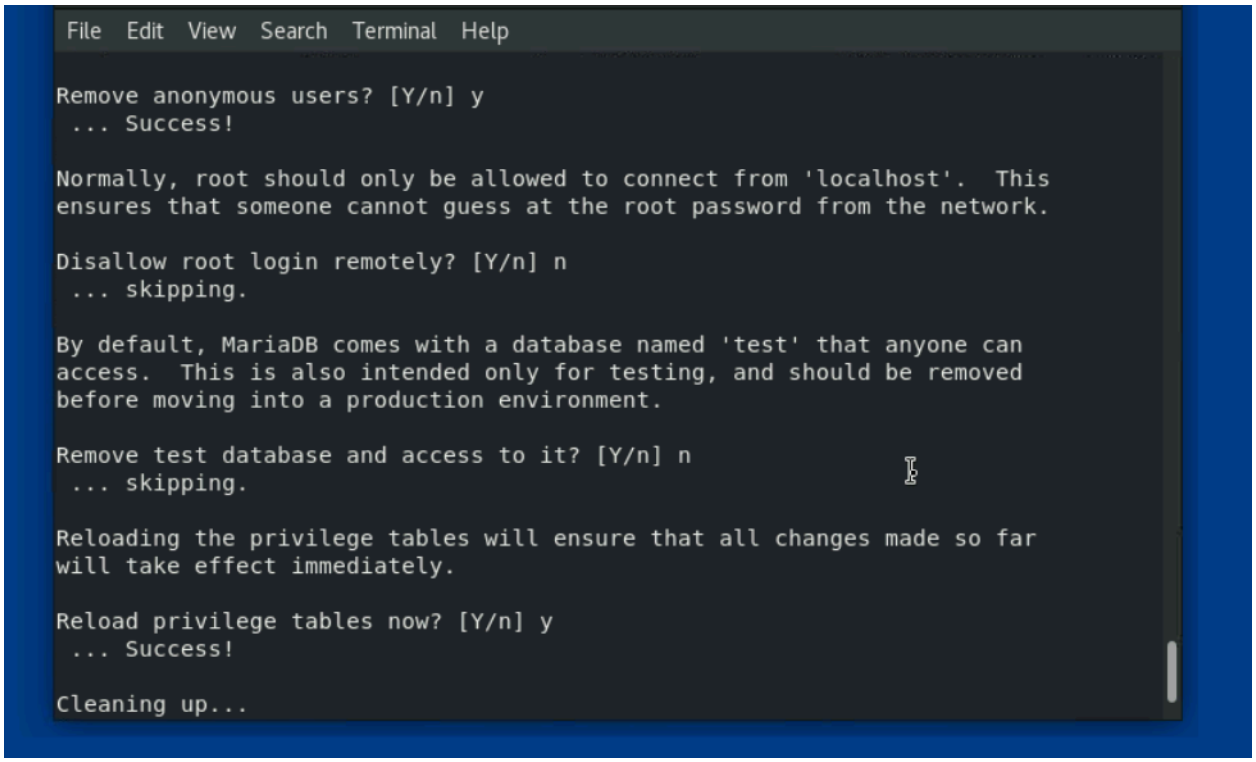
```
By default, a MariaDB installation has an anonymous user, allowing anyone
to log into MariaDB without having to have a user account created for
them.  This is intended only for testing, and to make the installation
go a bit smoother.  You should remove them before moving into a
production environment.

Remove anonymous users? [Y/n] y
 ... Success!

Normally, root should only be allowed to connect from 'localhost'.  This
ensures that someone cannot guess at the root password from the network.

Disallow root login remotely? [Y/n] y
 ... Success!

By default, MariaDB comes with a database named 'test' that anyone can
access.  This is also intended only for testing, and should be removed
before moving into a production environment.

Remove test database and access to it? [Y/n] y
 - Dropping test database...
 ... Success!
 - Removing privileges on test database...
```

```
By default, MariaDB comes with a database named 'test' that anyone can
access.  This is also intended only for testing, and should be removed
before moving into a production environment.

Remove test database and access to it? [Y/n] y
 - Dropping test database...
 ... Success!
 - Removing privileges on test database...
 ... Success!

Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.

Reload privilege tables now? [Y/n] y
 ... Success!

Cleaning up...

All done!  If you've completed all of the above steps, your MariaDB
installation should now be secure.

Thanks for using MariaDB!
[root@workstation student]#
```

2) Do the Security setting of the Maria DB and ensure that remote access of the db is enabled and anonymous user access is denied.

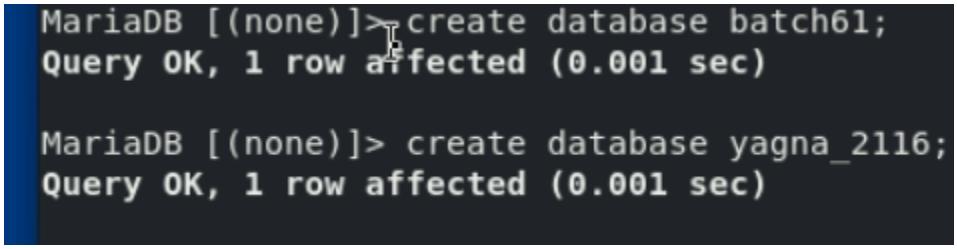
RUN mysql_secure _installation again to configure mariadb





3) Create 2 database named - Batch61 and yourname_first4digitofyourenrollemntno. Each database has 3 tables present in it and tables must have atleast 5 entries.

Create db using create database batch61;



Inserting data using INSERT INTO table1 VALUES(...),(...);

And we can read data using SELECT * FROM table1;

```
MariaDB [batch61]> create table table1 values(id INT,roll_no INT, name VARCHAR(50));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB ser
ver version for the right syntax to use near 'values(id INT,roll_no INT, name VARCHAR(50))' at line 1
MariaDB [batch61]> create table table1 (id INT,roll_no INT, name VARCHAR(50));
Query OK, 0 rows affected (0.023 sec)

MariaDB [batch61]> insert into table1 values(1,20,'yagna'),(2,34,'user1'),(3,12,'someguy'),(4,53,'someanothergu
y'),(5,89,'anotherone');
Query OK, 5 rows affected (0.013 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [batch61]> select * from table1;
+------+---------+----------------+
| id   | roll_no | name           |
+------+---------+----------------+
|    1 |      20 | yagna          |
|    2 |      34 | user1          |
|    3 |      12 | someguy        |
|    4 |      53 | someanotherguy |
|    5 |      89 | anotherone     |
+------+---------+----------------+
5 rows in set (0.001 sec)
```

```
MariaDB [batch61]> create table table2 (enroll_no INT,age INT, email VARCHAR(50));
Query OK, 0 rows affected (0.025 sec)

MariaDB [batch61]> insert into table2 values(20,21,'yagna'),(22,34,'user1'),(32,42,'someguy'),(41,53,'someanoth
erguy'),(54,89,'anotherone');
Query OK, 5 rows affected (0.006 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [batch61]> select * from table2;
+-----------+------+----------------+
| enroll_no | age  | email          |
+-----------+------+----------------+
|        20 |   21 | yagna          |
|        22 |   34 | user1          |
|        32 |   42 | someguy        |
|        41 |   53 | someanotherguy |
|        54 |   89 | anotherone     |
+-----------+------+----------------+
5 rows in set (0.000 sec)
```

```
MariaDB [batch61]> create table table3 (enroll_no INT,marks INT, email VARCHAR(50));
Query OK, 0 rows affected (0.018 sec)
```

```
MariaDB [batch61]> insert into table3 values(20,100,'yagna@gnu.ac.in'),(22,34,'user1@outlook.com'),(32,42,'some
guy@hotmail.com'),(41,73,'someanotherguy@yahoo.com'),(54,89,'anotherone@gmail.com');
Query OK, 5 rows affected (0.005 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [batch61]> select * from table3;
+-----------+-------+-------------------------+
| enroll_no | marks | email                   |
+-----------+-------+-------------------------+
|        20 |   100 | yagna@gnu.ac.in         |
|        22 |    34 | user1@outlook.com       |
|        32 |    42 | someguy@hotmail.com     |
|        41 |    73 | someanotherguy@yahoo.com |
|        54 |    89 | anotherone@gmail.com    |
+-----------+-------+-------------------------+
5 rows in set (0.000 sec)
```

```
MariaDB [batch61]> use yagna_2116;
Database changed
MariaDB [yagna_2116]> create table table1 (enroll_no INT,marks INT, email VARCHAR(50));
Query OK, 0 rows affected (0.022 sec)
```

```
MariaDB [yagna_2116]> insert into table1 values(20,100,'yagna@gnu.in'),(22,34,'user1@out.com'),(32,42,'someguy
mail.com'),(41,73,'someanotherguy@yaho.com'),(54,89,'another@gmail.com');
Query OK, 5 rows affected (0.005 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [yagna_2116]> select * from table1;
+-----------+-------+------------------------+
| enroll_no | marks | email                  |
+-----------+-------+------------------------+
|        20 |   100 | yagna@gnu.in           |
|        22 |    34 | user1@out.com          |
|        32 |    42 | someguy@mail.com       |
|        41 |    73 | someanotherguy@yaho.com |
|        54 |    89 | another@gmail.com      |
+-----------+-------+------------------------+
5 rows in set (0.000 sec)
```

```
MariaDB [yagna_2116]> create table table3 (enroll_no INT,marks INT, name VARCHAR(50));
Query OK, 0 rows affected (0.020 sec)

MariaDB [yagna_2116]> insert into table3 values(20,21,'yagna'),(22,34,'user1'),(32,42,'someguy'),(41,53,'somean
otherguy'),(54,89,'anotherone');
Query OK, 5 rows affected (0.004 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [yagna_2116]> select * from table3;
+-----------+-------+----------------+
| enroll_no | marks | name           |
+-----------+-------+----------------+
|        20 |    21 | yagna          |
|        22 |    34 | user1          |
|        32 |    42 | someguy        |
|        41 |    53 | someanotherguy |
|        54 |    89 | anotherone     |
+-----------+-------+----------------+
5 rows in set (0.000 sec)
```

```
MariaDB [yagna_2116]> create table table2 (enroll_no INT,marks INT, name VARCHAR(50));
Query OK, 0 rows affected (0.022 sec)

MariaDB [yagna_2116]> insert into table2 values(20,21,'yagna'),(22,34,'user1'),(32,42,'someguy'),(41,53,'somean
otherguy'),(54,89,'lastone');
Query OK, 5 rows affected (0.006 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [yagna_2116]> select * from table2;
+-----------+-------+----------------+
| enroll_no | marks | name           |
+-----------+-------+----------------+
|        20 |    21 | yagna          |
|        22 |    34 | user1          |
|        32 |    42 | someguy        |
|        41 |    53 | someanotherguy |
|        54 |    89 | lastone        |
+-----------+-------+----------------+
5 rows in set (0.000 sec)
```

4) One user must be having the access to both the database while another user should have the read access to one database and read and write access to another database.

To grant all privileges to one user using grant all privileges on *.* to 'yagna'@'localhost' identified by 'password';

To provide read access to one db: grant SELECT on batch61.* to 'user1'@'localhost' identified by '@yagna' and to give write access just add INSERT with select and give the database name.

Here **all privileges** means every privileges, **db_name.table_name** to take entire db **db_name.*** to all dbs ***.***; **to user_name@host_name**; **identified by 'password'** to give password.

```
MariaDB [yagna_2116]> grant all privileges on *.* to 'yagna'@'localhost' identified by 'password';
Query OK, 0 rows affected (0.001 sec)

MariaDB [yagna_2116]> grant select on batch61.* to 'user1'@'localhost' identified by '@yagna';
Query OK, 0 rows affected (0.000 sec)

MariaDB [yagna_2116]> grant select,insert on yagna_2116.* to 'user1'@'localhost' identified by '@yagna';
Query OK, 0 rows affected (0.001 sec)
```

```
[root@workstation student]# mysql -u user1 -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 18
Server version: 10.3.17-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]> use batch61;
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
MariaDB [batch61]> select * from table1;
+------+---------+----------------+
| id   | roll_no | name           |
+------+---------+----------------+
|    1 |      20 | yagna          |
|    2 |      34 | user1          |
|    3 |      12 | someguy        |
|    4 |      53 | someanotherguy |
|    5 |      89 | anotherone     |
+------+---------+----------------+
5 rows in set (0.001 sec)

MariaDB [batch61]> insert into table1 values(24,131,'tester');
ERROR 1142 (42000): INSERT command denied to user 'user1'@'localhost' for table 'table1'
MariaDB [batch61]>
```

```
[root@workstation student]# mysql -u yagna -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 19
Server version: 10.3.17-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]> use batch61;
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
MariaDB [batch61]> select * from table1;
+------+---------+----------------+
| id   | roll_no | name           |
+------+---------+----------------+
|    1 |      20 | yagna          |
|    2 |      34 | user1          |
|    3 |      12 | someguy        |
|    4 |      53 | someanotherguy |
|    5 |      89 | anotherone     |
+------+---------+----------------+
5 rows in set (0.000 sec)

MariaDB [batch61]> insert into table1 values(24,131,'tester');
Query OK, 1 row affected (0.004 sec)

MariaDB [batch61]>
```

```
MariaDB [batch61]> select * from table1;
+------+---------+-----------------+
| id   | roll_no | name            |
+------+---------+-----------------+
|    1 |      20 | yagna           |
|    2 |      34 | user1           |
|    3 |      12 | someguy         |
|    4 |      53 | someanotherguy  |
|    5 |      89 | anotherone      |
|   24 |     131 | tester          |
+------+---------+-----------------+
6 rows in set (0.001 sec)
```

5) Create a third user and that user should have only the access to two tables present in Batch61 database.

To give two tables

To make user : create user ‘user2’@’localhost’ identified by ‘user2’;

To grant access : grant all privileges on batch61.table1 to ‘user2’@’localhost’ identified by ‘user2’;

Same for table2

```
MariaDB [(none)]> create user 'user2'@'localhost' identified by 'user2';
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> grant all privileges on batch61.table1 to 'user2'@'localhost' identified by 'user2';
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> grant all privileges on batch61.table2 to 'user2'@'localhost' identified by 'user2';
Query OK, 0 rows affected (0.000 sec)
```

```
[root@workstation student]# mysql -u user2 -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 21
Server version: 10.3.17-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]> use batch61;
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
MariaDB [batch61]> select * from table1;
+------+---------+----------------+
| id   | roll_no | name           |
+------+---------+----------------+
|    1 |      20 | yagna          |
|    2 |      34 | user1          |
|    3 |      12 | someguy        |
|    4 |      53 | someanotherguy |
|    5 |      89 | anotherone     |
|   24 |     131 | tester         |
+------+---------+----------------+
6 rows in set (0.000 sec)

MariaDB [batch61]> select * from table3;
ERROR 1142 (42000): SELECT command denied to user 'user2'@'localhost' for table 'table3'
MariaDB [batch61]>
```

6) Demonstrate how to check the privilege details of users. (show the privileges assigned to all the users)

Theres two ways to see the privilege details of users either with show grants for 'user'@'host'; or by using sql query select USER, Select_priv, Insert_priv, Update_priv, Delete_priv from mysql.user;

```
MariaDB [(none)]> show grants for 'yagna'@'localhost';
+-----------------------------------------------------------------------------------------------------------------------
--------+
| Grants for yagna@localhost
       |
+-----------------------------------------------------------------------------------------------------------------------
--------+
| GRANT ALL PRIVILEGES ON *.* TO 'yagna'@'localhost' IDENTIFIED BY PASSWORD '*2470C0C06DEE42FD1618BB99005ADCA2EC
9D1E19' |
+-----------------------------------------------------------------------------------------------------------------------
--------+
1 row in set (0.000 sec)
```

```
MariaDB [(none)]> select USER,Select_priv, Insert_priv, Update_priv, Delete_priv from mysql.user;
+-------+-------------+-------------+-------------+-------------+
| USER  | Select_priv | Insert_priv | Update_priv | Delete_priv |
+-------+-------------+-------------+-------------+-------------+
| root  | Y           | Y           | Y           | Y           |
| root  | Y           | Y           | Y           | Y           |
| root  | Y           | Y           | Y           | Y           |
| yagna | Y           | Y           | Y           | Y           |
| user1 | N           | N           | N           | N           |
| user2 | N           | N           | N           | N           |
+-------+-------------+-------------+-------------+-------------+
6 rows in set (0.000 sec)
```

7) Demonstrate how to revoke a single permission of a user

To revoke we can use revoke SELECT on batch61.* from 'user1'@'localhost';
//this will revoke select privileges of user1 from all tables of batch61 database

```
MariaDB [(none)]> revoke SELECT on batch61.* from 'user1'@'localhost';
Query OK, 0 rows affected (0.001 sec)
```

8) Set up a default secure MariaDB database called "result" with a user "yourname"with all privileges. In this database, create one simple table with name "students" that allow to store names varchar(20) and their marks int(10). Enter two students with their marks.

Firstly, we will create result database using create database result;

Then use result; to use the database. Create table students (name VARCHAR(20),marks INT(10)); to create a table and INSERT INTO STUDENTS VALUES(...),(...); to insert values

```
MariaDB [(none)]> create database result;
ERROR 1007 (HY000): Can't create database 'result'; database exists
MariaDB [(none)]> use result;
Database changed
```

```
MariaDB [result]> create table students (name VARCHAR(20),marks INT(10));
Query OK, 0 rows affected (0.042 sec)

MariaDB [result]> insert into students values('yagna',53),('user1',35);
Query OK, 2 rows affected (0.014 sec)
Records: 2  Duplicates: 0  Warnings: 0

MariaDB [result]> select * from students;
+-------+-------+
| name  | marks |
+-------+-------+
| yagna |    53 |
| user1 |    35 |
+-------+-------+
2 rows in set (0.008 sec)

MariaDB [result]>
```

9) Demonstrate how to update the records of the table using any user except root user.

To update we can use update table1 set id=10 where roll_no=20; // here SET is the new value and we can select the row using WHERE condition; so id set to 10 for roll_no 20.

```
MariaDB [batch61]> update table1 set id=10 where roll_no=20;
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [batch61]> select * from table1;
+------+---------+----------------+
| id   | roll_no | name           |
+------+---------+----------------+
|   10 |      20 | yagna          |
|    2 |      34 | user1          |
|    3 |      12 | someguy        |
|    4 |      53 | someanotherguy |
|    5 |      89 | anotherone     |
|   24 |     131 | tester         |
+------+---------+----------------+
6 rows in set (0.001 sec)

MariaDB [batch61]> show grants;
+-----------------------------------------------------------------------
---------------------------------------+
| Grants for yagna@localhost
                                       |
```

10) Delete the create user

Here we can use drop query : drop user ‘user’@’localhost’ to delete a user.

```
MariaDB [(none)]> drop user 'user2'@'localhost';
Query OK, 0 rows affected (0.001 sec)

MariaDB [(none)]> select USER from mysql.user;
+-------+
| USER  |
+-------+
| root  |
| root  |
| root  |
| user1 |
| yagna |
+-------+
5 rows in set (0.001 sec)
```

11) Backup the database with mysqldump to /root/result.dump.

We can perform this task using mysqldump : mysqldump -u root -p batch61 > /root/result.dump

Here **-u** is used to specify mariadb user and **-p** to provide password.

Batch61 is the database that we want to backup.
/root/result.dump is the file path where the data will be stored.

```
[root@workstation student]# mysqldump -u root -p batch61 > /root/result.dump
Enter password:
```

```
[root@workstation student]# cat /root/result.dump
-- MySQL dump 10.17  Distrib 10.3.17-MariaDB, for Linux (x86_64)
--
-- Host: localhost    Database: batch61
-- ------------------------------------------------------
-- Server version       10.3.17-MariaDB

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8mb4 */;
/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
/*!40103 SET TIME_ZONE='+00:00' */;
/*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0 */;
/*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0
*/;
/*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
/*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;

--
-- Table structure for table `table1`
```

12)Create another user and provide the privilege to just update the information.

To provide update privilege : grant UPDATE on *.* to ‘user3’@’localhost’ identified by ‘user3’; // so update is provided to user3 on all databases and tables

```
MariaDB [(none)]> create user 'user3'@'localhost' identified by 'user3';
Query OK, 0 rows affected (0.002 sec)

MariaDB [(none)]> grant UPDATE on *.* to 'user3'@'localhost' identified by 'user
3';
Query OK, 0 rows affected (0.000 sec)
```

13) Delete the create table, also demonstrate how to perform update operation on the values on the table.

To delete a table : drop table table1;

```
Database changed
MariaDB [batch61]> drop table table1;
Query OK, 0 rows affected (0.027 sec)

MariaDB [batch61]>
```

```
MariaDB [batch61]> update table1 set id=10 where roll_no=20;
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [batch61]> select * from table1;
+------+---------+----------------+
| id   | roll_no | name           |
+------+---------+----------------+
|   10 |      20 | yagna          |
|    2 |      34 | user1          |
|    3 |      12 | someguy        |
|    4 |      53 | someanotherguy |
|    5 |      89 | anotherone     |
|   24 |     131 | tester         |
+------+---------+----------------+
6 rows in set (0.001 sec)

MariaDB [batch61]> show grants;
+-----------------------------------------------------------------------
---------------------------------------+
| Grants for yagna@localhost
                                       |
```

14) Demonstrate how to delete the database along with the table present in it.

If we delete a database the table inside will get deleted so, we only need to delete the database.

We can delete it using drop database yagna_2116; //here yagna_2116 is the database name which we want to delete.