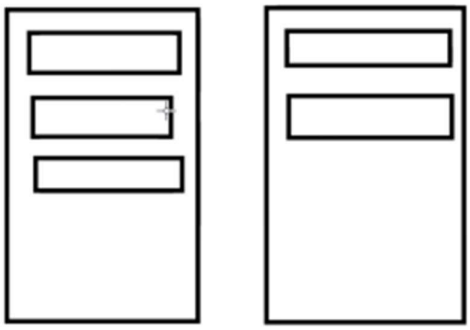
MariaDB

Database istənilin strukturda ən önəmli məsələlərdən biridir. Bütün şirkətin dataları qurulan serverin üzərində olur. Bir çox örnəkləri var. Məsələn MariaDB, MySQL, PostreSQL. Oracle MySQl alaraq onu ödənişli etdi. Və eynisi olaraq MariaDB -ni quraraq onu ödənişsiz etdi. MySQL və MariaDB commandları arasında heç bir fərq yoxdur.

Database sayı limitsiz ola bilər. Database -in içərisində bir neçə ədəd table olur. Həmçinin table sayıda limitsiz ola bilər. Table daxilində column və row -lar olur.



Students

ID INT AUTO_INCREMENT	Name VARCHAR(20)	Surname VARCHAR(20)	Age INT	Partic BOOLEAN
1	Xeyyam	Ismayilzada	29	1
2	Ali	Tosayev	29	1

Teachers

ID INT AUT	Name VAR	Surname VARCHAR(20)	Age INT	Partic BOOLEAN

Product

Product ID	Name	Count	Price
1	HDD_1T	100	85
2	SSD_512	100	100

Clients

Client ID	Name	Address	Mobile
1	Ali		
2	Huseyn		

Order

Order ID	What	Product ID	Client ID

Install MariaDB server

yum install mariadb mariadb-server –y

https://mariadb.org/download

systemctl start mariadb

systemctl enable --now mariadb

mysql_secure_installation

```
Remove anonymous users? [Y/n] n
```
-Y

```
Disallow root login remotely? [Y/n]
```
-Y

Login MySQL Server

mysql -u root -p

DATABASE Statement

The following SQL statement creates a database called "ingress":

```
Create database ingress;

show databases;

use ingress;

show tables;
```

CREATE TABLE

```
create table students ( ID INT AUTO_INCREMENT{davamlı olaraq yeni record əlavə etdikdə sıralanır}, NAME VARCHAR(20){maximum 20 xarakter} NOT NULL, SURNAME VARCHAR(20) NOT NULL, AGE INT NOT NULL, PRIMARY KEY (ID)){hər bir table ` da bir primary key olmalıdır və bu unic olmalıdır} );

describe students;

insert into students ( NAME,SURNAME,AGE) values ( 'Kenan', 'Movsumzade', 25);

select  * from students;

alter table students add column (PARTIC BOOLEAN) ;

insert into students (NAME, SURNAME, AGE, PARTIC) values (‘Reshad’, ‘Aliyev’, 19, 1);
```

SELECT COMMAND

```
select  * from students;

select NAME from students;

select NAME from students order by AGE desc;

select NAME from students order by age asc;

select NAME from students where id=1;
```

UPDATE TABLE

```
update students set  PARTIC=1 where ID=1;
```

MySQL CREATE USER syntax

Create user xeyyam identified by '123456';

Create user 'oktay'@'192.168.89.0/255.255.254.0' identified by '12345';

select HOST, USER, PASSWORD from mysql.user;

MySQL GRANT statement

The CREATE USER statement creates one or more user accounts with no privileges. It means that the user accounts can log in to the MySQL Server, but cannot do anything such as selecting a database and querying data from tables

To allow user accounts to work with database objects, you need to grant the user accounts privileges. And the GRANT statement grants a user account one or more privileges

Grant select, update, alter, instert on ingress.students to xeyyam;

show grants for xeyyam;

grant select on ingress.students to ‘oktay’@’192.168.149.0/24’;

show grants for ‘oktay’@’192.168.149.0/24’

grant all on *.* to murad identified by ‘123’ ; {həm yetki verir, həm də user qurur}

MySQL REVOKE statement

Revoke insert on ingress.students from xeyyam ;

show grants for xeyyam;

show grants for current_user;

Backup mysql database

mysqldump -u root -p ingress >backup.sql

mysqldump -u root -p ingress.students >backup_students.sql

to generate a backup of more than one da

tabase. You must add the ***—databases*** option in the ***mysqldump*** command.

mysqldump -u root -p --databases mysql ingress > backup_dbs.sql

mysqldump -u root -p --all-databases >backup_all.sql

Restore mysql database

Restoring a MySQL database using ***mysqldump*** is simple. To restore the database, you must create an empty database. First, let us drop and recreate the sakila database by executing the following command.

source backup_teachers.sql

mysql -u root -p ingress < backup.sql

- --add-drop-table – dump fayla create table-den qabaq drop etmeyi elave edir
- --no-data – yalniz database strukturu backup edir
- --lock-all-tables – backup geden zaman yeni recordlarin yazilmasini dayandirir
- --add-drop-database – dump fayla create database –dan qabaq drop database elave edir

MariaDB-de debug log-u aktivleshdirmek:

MariaDB [(none)]> SET GLOBAL general_log_file='/var/log/mariadb/mariadb_debug.log';

MariaDB [(none)]> SET GLOBAL log_output = 'FILE';

MariaDB [(none)]> SET GLOBAL general_log = 'ON';

INSTALLING PHPMYADMIN

sudo yum install php php-mysqlnd

yum install epel-release - y
sudo yum install phpmyadmin –y

yum install httpd – y

systemctl enable --now httpd

vim /etc/httpd/conf.d/phpMyAdmin.conf

add your host ip to allow or add Require all granted after <RequireAny>

vim /etc/httpd/conf/httpd.conf

<IfModule dir_module>

    DirectoryIndex index.html index.php

</IfModule>

TASK

Install and Configure MariaDB

Add MariaDB repo

```
#MariaDB 10.4 CentOS repository list - created 2024-04-20 16:45 UTC
# https://mariadb.org/download/
[mariadb]
name = MariaDB
# rpm.mariadb.org is a dynamic mirror if your preferred mirror goes offline. See https://mariadb.org/mirrorbits/ for
details.
# baseurl = https://rpm.mariadb.org/10.4/centos/$releasever/$basearch
baseurl = https://mirrors.aliyun.com/mariadb/yum/10.4/centos/$releasever/$basearch
module_hotfixes = 1
# gpgkey = https://rpm.mariadb.org/RPM-GPG-KEY-MariaDB
gpgkey = https://mirrors.aliyun.com/mariadb/yum/RPM-GPG-KEY-MariaDB
gpgcheck = 1
```

sudo yum install MariaDB-server MariaDB-client

```
[root@localhost yum.repos.d]# yum list installed | grep mariadb
MariaDB-client.x86_64                10.4.33-1.el7.centos       @mariadb
MariaDB-common.x86_64                10.4.33-1.el7.centos       @mariadb
MariaDB-compat.x86_64                10.4.33-1.el7.centos       @mariadb
MariaDB-server.x86_64                10.4.33-1.el7.centos       @mariadb
galera-4.x86_64                      26.4.16-1.el7.centos       @mariadb
```

mysql_secure_installation

```
[root@localhost mysql]# mysql_secure_installation

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB
      SERVERS IN PRODUCTION USE!  PLEASE READ EACH STEP CAREFULLY!

In order to log into MariaDB to secure it, we'll need the current
password for the root user. If you've just installed MariaDB, and
haven't set the root password yet, you should just press enter here.

Enter current password for root (enter for none):
OK, successfully used password, moving on...

Setting the root password or using the unix_socket ensures that nobody
can log into the MariaDB root user without the proper authorisation.

You already have your root account protected, so you can safely answer 'n'.
```

Create database and table

create database marsagedenler;

```
MariaDB [(none)]> create database marsagedenler;
Query OK, 1 row affected (0.000 sec)

MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| marsagedenler      |
| mysql              |
| performance_schema |
| test               |
+--------------------+
5 rows in set (0.000 sec)
```

create table info (ID INT AUTO_INCREMENT , NAME VARCHAR(20) NOT NULL, SURNAME VARCHAR(20) NOT NULL, FIELD VARCHAR(20) NOT NULL, MACHİNE VARCHAR(20) NOT NULL, PRIMARY KEY (ID));

```
MariaDB [marsagedenler]> create table info (ID INT AUTO_INCREMENT , NAME VARCHAR(20) NOT NULL, SURNAME VARCHAR(20) NOT NULL, FIELD VARCHAR(20) NOT NULL, MACHİNE VARC
HAR(20) NOT NULL, PRIMARY KEY (ID));
Query OK, 0 rows affected (0.005 sec)

MariaDB [marsagedenler]> describe info;
+---------+-------------+------+-----+---------+----------------+
| Field   | Type        | Null | Key | Default | Extra          |
+---------+-------------+------+-----+---------+----------------+
| ID      | int(11)     | NO   | PRI | NULL    | auto_increment |
| NAME    | varchar(20) | NO   |     | NULL    |                |
| SURNAME | varchar(20) | NO   |     | NULL    |                |
| FIELD   | varchar(20) | NO   |     | NULL    |                |
| MACHİNE | varchar(20) | NO   |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
5 rows in set (0.002 sec)
```

alter table info add column TIME TIMESTAMP DEFAULT CURRENT_TIMESTAMP;

```
MariaDB [marsagedenler]> ALTER TABLE info ADD COLUMN TIME TIMESTAMP DEFAULT CURRENT_TIMESTAMP;
Query OK, 0 rows affected (0.003 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [marsagedenler]> describe info;
+---------+-------------+------+-----+---------------------+----------------+
| Field   | Type        | Null | Key | Default             | Extra          |
+---------+-------------+------+-----+---------------------+----------------+
| ID      | int(11)     | NO   | PRI | NULL                | auto_increment |
| NAME    | varchar(20) | NO   |     | NULL                |                |
| SURNAME | varchar(20) | NO   |     | NULL                |                |
| FIELD   | varchar(20) | NO   |     | NULL                |                |
| MACHİNE | varchar(20) | NO   |     | NULL                |                |
| TIME    | timestamp   | NO   |     | current_timestamp() |                |
+---------+-------------+------+-----+---------------------+----------------+
6 rows in set (0.001 sec)
```

insert into info (NAME, SURNAME, FIELD, MACHİNE) values ("Azer","Kerimli","DEVOPS","BMW");

insert into info (NAME, SURNAME, FIELD, MACHİNE) values ("Huseyn", "Bagirli", "SYSADMIN", "BENZ");

insert into info (NAME, SURNAME, FIELD, MACHİNE) values ("Nihad", "Asgarov", "HELPDESK", "TOFAS");

insert into info (NAME, SURNAME, FIELD, MACHİNE) values ("Orxan", "Aslanli", "ENGINEER", "ROCKET");

```
MariaDB [marsagedenler]> insert into info (NAME, SURNAME, FIELD, MACHİNE) values ("Azer","Kerimli","DEVOPS","BMW");
Query OK, 1 row affected (0.002 sec)
```

```
MariaDB [marsagedenler]> insert into info (NAME, SURNAME, FIELD, MACHİNE) values ("Huseyn","Bagirli","SYSADMIN","BENZ");
Query OK, 1 row affected (0.002 sec)
```

```
MariaDB [marsagedenler]> insert into info (NAME, SURNAME, FIELD, MACHİNE) values ("Nihad","Asgarov","HELPDESK","TOFAS");
Query OK, 1 row affected (0.001 sec)
```

```
MariaDB [marsagedenler]> insert into info (NAME, SURNAME, FIELD, MACHİNE) values ("Orxan","Aslanli","ENGINEER","ROCKET");
Query OK, 1 row affected (0.002 sec)
```

```
MariaDB [marsagedenler]> select * from info;
+----+--------+---------+----------+----------+---------------------+
| ID | NAME   | SURNAME | FIELD    | MACHİNE  | TIME                |
+----+--------+---------+----------+----------+---------------------+
|  1 | Azer   | Kerimli | DEVOPS   | BMW      | 2024-04-20 21:54:09 |
|  2 | Huseyn | Bagirli | SYSADMIN | BENZ     | 2024-04-20 21:57:11 |
|  3 | Nihad  | Asgarov | HELPDESK | TOFAS    | 2024-04-20 21:59:31 |
|  4 | Orxan  | Aslanli | ENGINEER | ROCKET   | 2024-04-20 22:00:28 |
|  5 | Azer   | Kerimli | DEVOPS   | BMW      | 2024-04-20 22:01:01 |
+----+--------+---------+----------+----------+---------------------+
5 rows in set (0.001 sec)
```

Grant User

Grant all *.* on nihad1 identified by “salam.12”

```
MariaDB [marsagedenler]> grant all on *.* to nihad1 identified by "salam.12" ;
Query OK, 0 rows affected (0.001 sec)
```

Create user “nihad2”@”localhost” identified by “salam.12”;
grant show view on *.* for “nihad2”@”localhost”
show grants for “nihad2”@”localhost”

```
MariaDB [marsagedenler]> create user "nihad2"@"localhost" identified by "salam.12" ;
Query OK, 0 rows affected (0.001 sec)
```

```
MariaDB [mysql]> show grants for "nihad2"@"localhost" ;
+-----------------------------------------------------------------------------------------------------------------------+
| Grants for nihad2@localhost                                                                                           |
+-----------------------------------------------------------------------------------------------------------------------+
| GRANT SELECT, SHOW VIEW ON *.* TO `nihad2`@`localhost` IDENTIFIED BY PASSWORD '*AB1103608F76820CD0D527CCA5686F4BCF86CF53' |
+-----------------------------------------------------------------------------------------------------------------------+
1 row in set (0.000 sec)
```

grant select, delete, update on marsagedenler.info to nihad3 identified by “salam.12”;
show grants for nihad3;

```
MariaDB [mysql]> grant select, delete, update on marsagedenler.info to nihad3 identified by "salam.12" ;
Query OK, 0 rows affected (0.001 sec)

MariaDB [mysql]> show grants for nihad3;
+-----------------------------------------------------------------------------------------------------------------------+
| Grants for nihad3@%                                                                                                   |
+-----------------------------------------------------------------------------------------------------------------------+
| GRANT USAGE ON *.* TO `nihad3`@`%` IDENTIFIED BY PASSWORD '*AB1103608F76820CD0D527CCA5686F4BCF86CF53'                 |
| GRANT SELECT, UPDATE, DELETE ON `marsagedenler`.`info` TO `nihad3`@`%`                                                |
+-----------------------------------------------------------------------------------------------------------------------+
2 rows in set (0.000 sec)
```

Create user nihad1 identified by ”salam.12”;
grant select on *.* to “nihad1”@”192.168.198.128”;
grant insert on *.* to “nihad1”@”192.168.198.127” ;

```
MariaDB [(none)]> grant select on *.* to “nihad1”@”192.168.198.128” ;
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> grant insert on *.* to "nihad1"@"192.168.198.127";
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> show grants for "nihad1"@"192.168.198.127";
+-----------------------------------------------------+
| Grants for nihad1@192.168.198.127                   |
+-----------------------------------------------------+
| GRANT INSERT ON *.* TO 'nihad1'@'192.168.198.127' |
+-----------------------------------------------------+
1 row in set (0.00 sec)
```

```
[root@localhost mysql]# mysql -u nihad1 -p -h 192.168.198.129
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 12
Server version: 5.5.68-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)]>
```

```
MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| test               |
+--------------------+
2 rows in set (0.002 sec)

MariaDB [(none)]> use test;
Database changed
MariaDB [test]> show tables;
Empty set (0.001 sec)

MariaDB [test]> CREATE TABLE TEACHERS ( ID INT NOT NULL, NAME VARCHAR(40) NOT NULL, SURNAME VARCHAR(40) NOT NULL, PARTIC BOOLEAN, PRIMARY
 KEY (ID) );
Query OK, 0 rows affected (0.007 sec)

MariaDB [test]> show tables;
+----------------+
| Tables_in_test |
+----------------+
| TEACHERS       |
+----------------+
1 row in set (0.001 sec)

MariaDB [test]>
```

Reset MariaDb Root Password

Stop the MySQL service.
Start the MySQL service in safe mode. This gives access to MySQL bypassing the authorization table.

```
[root@localhost mysql]# sudo systemctl stop mysql
[root@localhost mysql]# sudo mysqld_safe --skip-grant-tables &
[2] 55796
```

Must run flush privileges.

```
MariaDB [(none)]> flush privileges;
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> SET PASSWORD FOR root@localhost = PASSWORD("salam.12");
Query OK, 0 rows affected (0.001 sec)

MariaDB [(none)]> flush privileges;
Query OK, 0 rows affected (0.001 sec)

MariaDB [(none)]>
```

```
[root@localhost mysql]# mysql -u root --password='salam.12'
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 17
Server version: 10.4.33-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)]>
```

PhpMyAdmin

sudo yum install php php-mysqlnd
yum install epel-release - y
sudo yum install phpmyadmin –y

```
[root@localhost mysql]# yum list installed | grep php
php.x86_64                              5.4.16-48.el7              @base
php-bcmath.x86_64                       5.4.16-48.el7              @base
php-cli.x86_64                          5.4.16-48.el7              @base
php-common.x86_64                       5.4.16-48.el7              @base
php-fedora-autoloader.noarch            1.0.1-2.el7                @epel
php-gd.x86_64                           5.4.16-48.el7              @base
php-mbstring.x86_64                     5.4.16-48.el7              @base
php-mysqlnd.x86_64                      5.4.16-48.el7              @base
php-pdo.x86_64                          5.4.16-48.el7              @base
php-php-gettext.noarch                  1.0.12-1.el7               @epel
php-process.x86_64                      5.4.16-48.el7              @base
php-tcpdf.noarch                        6.2.26-1.el7               @epel
php-tcpdf-dejavu-sans-fonts.noarch      6.2.26-1.el7               @epel
php-tidy.x86_64                         5.4.16-9.el7               @epel
php-xml.x86_64                          5.4.16-48.el7              @base
phpMyAdmin.noarch                       4.4.15.10-7.el7            @epel
```

yum install httpd – y
systemctl enable --now httpd

```
[root@localhost mysql]# systemctl enable --now httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
```

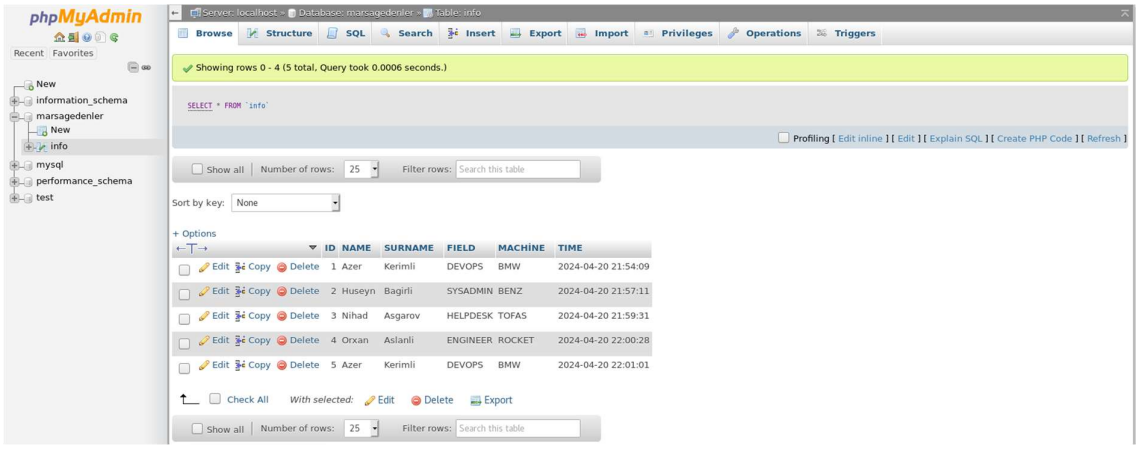
vim /etc/httpd/conf.d/phpMyAdmin.conf

```
Alias /phpMyAdmin /usr/share/phpMyAdmin
Alias /phpmyadmin /usr/share/phpMyAdmin

<Directory /usr/share/phpMyAdmin/>
   AddDefaultCharset UTF-8

   <IfModule mod_authz_core.c>
     # Apache 2.4
     <RequireAny>
       Require all granted
```

vim /etc/httpd/conf/httpd.conf

```
<IfModule dir_module>
    DirectoryIndex index.html index.php
</IfModule>
```

Go to 192.168.198.128/phpmyadmin



Master-Slave

vim /etc/my.cnf

```
[mysqld]
log-basename=master
log-bin
server-id = 1
bind-address=192.168.198.129  ##Master server IP
binlog-do-db=db1 #Database Name
binlog-format=row
```

Systemctl restart mariadb

mysql -u root -p

```
MariaDB [(none)]> stop slave;
Query OK, 0 rows affected, 1 warning (0.000 sec)

MariaDB [(none)]> grant replication slave on *.* to "master"@"%" identified by "salam.12";
Query OK, 0 rows affected (0.001 sec)

MariaDB [(none)]> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.001 sec)

MariaDB [(none)]> FLUSH TABLES WITH READ LOCK;
Query OK, 0 rows affected (0.001 sec)
```

Show master status;

```
MariaDB [(none)]> show master status;
+--------------------+----------+--------------+------------------+
| File               | Position | Binlog_Do_DB | Binlog_Ignore_DB |
+--------------------+----------+--------------+------------------+
| mariadb-bin.000001 |      466 | db1          |                  |
+--------------------+----------+--------------+------------------+
1 row in set (0.00 sec)
```

mysqldump --all-databases --user=root --password --master-data > masterdatabase.sql

Backup Master server database and transfer it to the Slave

```
[root@localhost etc]# mysqldump --all-databases --user=root --password --master-data > masterdatabase.sql
Enter password:
```

Unlock tables;

```
MariaDB [(none)]> unlock tables;
Query OK, 0 rows affected (0.000 sec)
```

Backup aldıgımız master`i scp vasitəsilə slave`ə göndəririk.

```
[root@localhost ~]# scp masterdatabase.sql root@192.168.198.128:/home
The authenticity of host '192.168.198.128 (192.168.198.128)' can't be established.
ECDSA key fingerprint is SHA256:bXK661+IEHZFtwEFhGGSpX6SGSVBkR1dmmvQhDxzJ/A.
ECDSA key fingerprint is MD5:18:39:a3:88:b7:68:e8:59:cb:20:35:30:f6:3d:80:a7.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.198.128' (ECDSA) to the list of known hosts.
root@192.168.198.128's password:
masterdatabase.sql                                                                    100%  506KB  32.1M
```

Slave

firewall-cmd --add-port=3306/tcp --permanent
firewall-cmd --reload

```
 43  firewall-cmd --permanent --add-port=3306/tcp
 44  firewall-cmd --reload
```

vim /etc/my.cnf

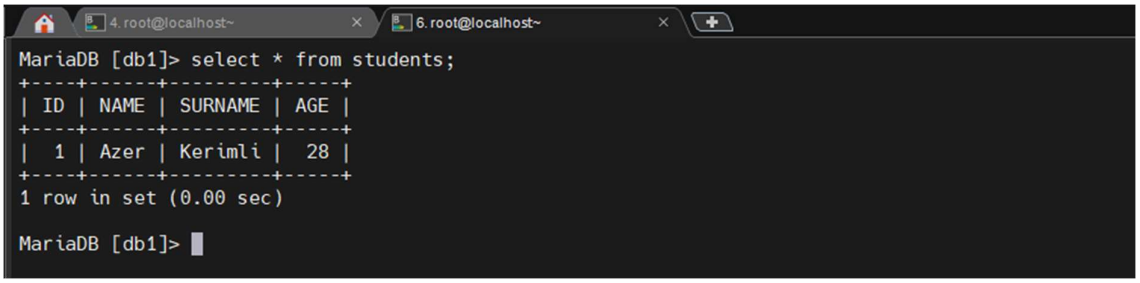
```
[mysqld]
server-id=2
replicate-do-db=db1 #DatabaseName
```

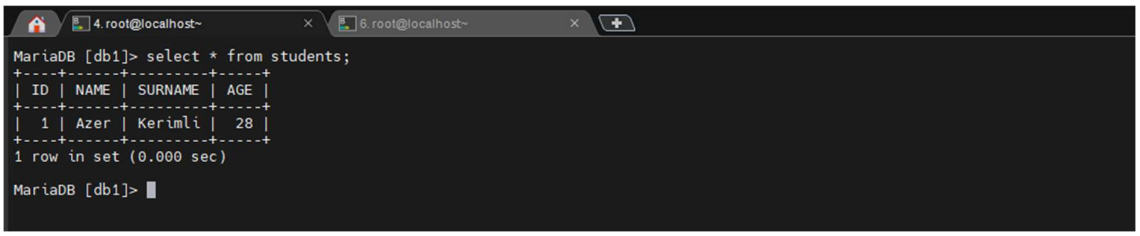
Mysql -u root -p

```
MariaDB [(none)]> stop slave;
Query OK, 0 rows affected, 1 warning (0.000 sec)

MariaDB [(none)]> CHANGE MASTER TO MASTER_HOST='192.168.198.12
9',
    -> MASTER_USER="master",
    -> MASTER_PASSWORD="salam.12",
    -> MASTER_LOG_FILE="mariadb-bin.000001",
    -> MASTER_LOG_POS=466;
Query OK, 0 rows affected (0.008 sec)
```

Start slave;

SHOW SLAVE STATUS\G;


4. root@localhost~
6. root@localhost~
MariaDB [db1]> select * from students;
+----+------+---------+-----+
| ID | NAME | SURNAME | AGE |
+----+------+---------+-----+
| 1 | Azer | Kerimli | 28 |
+----+------+---------+-----+
1 row in set (0.00 sec)
MariaDB [db1]>


4. root@localhost~
6. root@localhost~
MariaDB [db1]> select * from students;
+----+------+---------+-----+
| ID | NAME | SURNAME | AGE |
+----+------+---------+-----+
| 1 | Azer | Kerimli | 28 |
+----+------+---------+-----+
1 row in set (0.000 sec)
MariaDB [db1]>