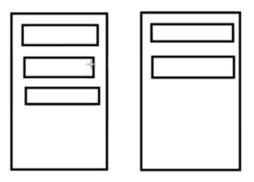
# MariaDB

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 INTAUTO INCREMENT Nur | ne VARCHAR (20) | Surname VARCHAR (20) | Age INT | Partic BOOLEAN |         |         |                      |          |                |  |
| 1 Xey                    | yam             | Ismayilzada          | 29      | 1              |         |         |                      |          |                |  |
| 2 Ali                    |                 | Tosayev              | 29      | 1              |         |         |                      |          |                |  |
|                          |                 |                      |         |                |         |         |                      | Teachers |                |  |
|                          |                 |                      |         |                | IDINTAU | Name VA | Surname VARCHAR (20) | Age INT  | Partic BOOLEAN |  |
|                          |                 |                      |         |                |         |         |                      |          |                |  |
|                          |                 | a a                  |         |                |         |         |                      |          |                |  |

| Product        |       |       | Clients   |          |         |        |            |      | Order     |          |
|----------------|-------|-------|-----------|----------|---------|--------|------------|------|-----------|----------|
| ProductID Name | Count | Price | Client ID | Name     | Address | Mobile | Order ID , | What | ProductID | ClientID |
| 1 HDD_1T       | 100   | 95    |           | 1 Ali    |         |        | ,          |      |           |          |
| 2 SSD_512      | 100   | 100   |           | 2 Huseyn |         |        |            |      |           |          |

## 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
```

#### 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;

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)):

### alter table info add column TIME TIMESTAMP DEFAULT CURRENT\_TIMESTAMP;



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)

```
lariaDB [marsagedenler]> select * from info;
  ID |
       NAME
                   SURNAME | FIELD
                                            MACHİNE
                                                          TIME
                                                          2024-04-20 21:54:09
2024-04-20 21:57:11
2024-04-20 21:59:31
2024-04-20 22:00:28
                   Kerimli |
        Azer
                               DEVOPS
                                             BMW
                                             BENZ
                   Bagirli
                               SYSADMIN
   2
        Huseyn
                               HELPDESK
        Nihad
                   Asgarov
                                             TOFAS
                   Aslanli
                               ENGINEER
                                             ROCKET
        0rxan
        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)]> 📕
 information_schema
test
 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
 row in set (0.001 sec)
```

## 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-cli.x86_64 | 5.4.16-48.el7 | @base | php-fedora-autōloader.noarch | 1.0.1-2.el7 | @epsl | php-gd.x86_64 | 5.4.16-48.el7 | @base | php-mbstring.x86_64 | 5.4.16-48.el7 | @base | php-mbstring.x86_64 | 5.4.16-48.el7 | @base | php-php-gd.x86_64 | 5.4.16-48.el7 | @base | php-php-gd.x86_64 | 5.4.16-48.el7 | @base | php-php-gttext.noarch | 1.0.12-1.el7 | @epsl | php-process.x86_64 | 5.4.16-48.el7 | @base | php-ttpdf-dejavu-sans-fonts.noarch | 6.2.26-1.el7 | @epsl | php-ttpdf-dejavu-sans-fonts.noarch | 6.2.26-1.el7 | @epsl | php-ttpdf-dejavu-sans-fonts.noarch | 6.2.26-1.el7 | @epsl | php-ttdy.x86_64 | 5.4.16-48.el7 | @epsl | php-xml.x86_64 | 5.4.16-48.el7 | @epsl | php-xml.x86_64 | 5.4.16-48.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-7.el7 | @epsl | php-yml.x86_64 | 5.4.16-9.el7 | @epsl | php-yml.x86_64 | 5.4.16-9.el7 | @epsl | php-yml.x86_64 | 5.4.16-9.el7 | @epsl | php-yml.x86_64 | 5.4.16-9.el7 | @epsl | php-yml.x86_64 | 5.4.16-9.el7 | @epsl | php-yml.x86_64 | 5.4.16-9.el7 | @epsl | php-yml.x86_64 | 5.4.16-9.el7 | @epsl | php-yml.x86_64 | 5.4.16-9.e
```

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

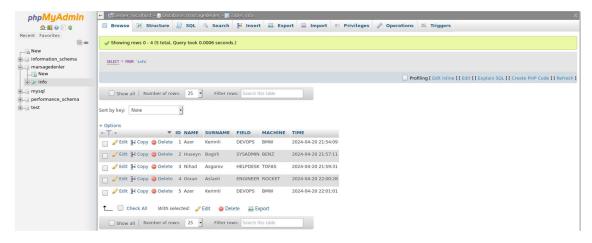
<Directory /usr/share/phpMyAdmin/>
   AddDefaultCharset UTF-8

<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;

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+IEHZFtwEFhG6SpX6SGSVBkRIdmmvQhDxz]/A.

ECDSA key fingerprint is MO5:18:39: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

Start slave;

## SHOW SLAVE STATUS\G;

