Name: Aditya Kangune

Roll No: 23365

Class: SE-11

Batch: G-11

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PUNE INSTITUTE OF COMPUTER TECHNOLOGY

Information technology Department

DBMSL Assignment 2:

**AIM:**

Install and configure client and server for MySQL (Show all commands and necessary steps  for installation and configuration).

**PROBLEM STATEMENT / DEFINITION:**

Installation and configuration of client and server for: MySQL

(RDBMS)

**OBJECTIVE:**

To study installation & configuration of MySQL database.

**THEORY:**

Installation

Installation of MySQL:

First, remove the current version of MySQL you're  already using: $ sudo apt-get purge mysql-client core-5.5

To install MySQL, run the following command from a  terminal prompt: $ sudo apt install mysql-server

During the installation process, you will be prompted to enter  a password for the MySQL root user.

Once the installation is complete, the MySQL server should be  started automatically. You can run the following command  from a terminal prompt to check whether the MySQL server is  running:

$ sudo netstat -tap | grep mysql

When you run this command, you should see the following line  or something similar: tcp 0 0 localhost:mysql \*:\* LISTEN  2556/mysqld If the server is not running correctly, you can  type the following command to start it: $ sudo systemctl  restart mysql.service Configuration

You can edit the /etc/mysql/my.cnf file to configure the basic  settings - - log file, port number, etc. For example, to  configure MySQL to listen for connections from network hosts,  change the bind-address directive to the server's IP  address:

bind-address = 192.168.0.5

Replace 192.168.0.5 with the appropriate address or  127.0.0.1. After making a change to /etc/mysql/my.cnf the  MySQL daemon will need to be restarted:

$ sudo systemctl restart mysql.service

If you would like to change the MySQL root password, in a  terminal enter: $sudo dpkg-reconfigure mysql-server-5.5

The MySQL daemon will be stopped, and you will be prompted to  enter a new password.

User hosts

Following is example output for the preceding query:

SELECT User, Host, Password FROM mysql.user;

+------------------+-----------+------------------------------ ----------- -+ | User | Host | Password | +------------------ +-----------+--------- ---------------------------------+ |  root | localhost | 2470C0C06DEE42FD1618BB99005ADCA2EC9D1E19 |  | root | demohost | 2470C0C06DEE42FD1618BB99005ADCA2EC9D1E19  | | root | 127.0.0.1

| 2470C0C06DEE42FD1618BB99005ADCA2EC9D1E19 | | debian-sys maint | localhost | 03C2F472E5290DDE27E889681C90EA91FD6800F3  | | | % | | +----- -------------+-----------+----------------- -------------------------+ Users are associated with a host,  specifically, the host to which they connect. The root user  in this example is defined for localhost, for the IP address  of localhost, and the hostname of the server (demohost  in this example). You’ll usually need to set a user for only  one host, the one from which you typically connect.

If you’re running your application on the same computer as  the MySQL server the host that it connects to by default  is localhost. Any new users that you create must have  localhost in their host field. If your application  connects remotely, the host entry that MySQL looks for is  the IP address or DNS

hostname of the remote computer (the one from which the  client is coming).

A special value for the host is %, as you can see in the  preceding output for the blank, or anonymous, user (see the  following section). The % symbol is a wildcard ard that  applies to any host value. Anonymous users

In the example output, one entry has a host value but no  username or password. That’s an anonymous user. When a  client connects with no username specified, it’s trying to  connect as an anonymous user. You usually don’t want any  anonymous users, but some MySQL installations include one by  default. If you see one, you should either delete the user

(refer to the username with empty quotes, like ‘’) or set  a password for it.

Create a database

There is a difference between a database server and a  database, even though those terms are often used  interchangeably. MySQL is a database server, meaning it  tracks databases and controls access to them. The database  stores the data, and it is the database that applications  are trying to access when they interact with MySQL. Some applications create a database as part of their setup  process, but others require you to create a database  yourself and tell the application about it.

To create a database, log into the mysql shell and run the  following command, replacing demodb with the name of the  database that you want to create:

CREATE DATABASE demodb;

The database is created. You can verify its creation by  running a query to list all databases. The following example  shows the query and example output:

SHOW DATABASES;

+--------------------+

| Database |

+--------------------+

| information\_schema |

| demodb |

| mysql |

+--------------------+

3 rows in set (0.00 sec)

Add a database user

When applications connect to the database using the root user,  they usually have more privileges than they need. You can use  applications to connect to the new database. In the following  example, a user named demouser is created.

1. To create a new user, run the following command in the  mysql shell: INSERT INTO mysql.user (User,Host,Password) VALUES(‘demouser’,’localhost’,PASSWORD(‘demopassword’)); 2 . When you make changes to the user table in the mysql  database, tell MySQL to read the changes by flushing the  privileges, as follows: FLUSH PRIVILEGES;

3. Verify that the user was created by running a SELECT query  again:

SELECT User, Host, Password FROM mysql.user; +——————+———–+——— —— ————————— + | User | Host | Password | +——————+———–+————— —————————+ | root | localhost |

2470C0C06DEE42FD1618BB99005ADCA2EC9D1E19 | | root | demohost  | 2470C0C06DEE42FD1618BB99005ADCA2EC9D1E19 | | root |  127.0.0.1 | 2470C0C06DEE42FD1618BB99005ADCA2EC9D1E19 | |

debian-sys-maint | localhost |

03C2F472E5290DDE27E889681C90EA91FD6800F3 | | demouser |  localhost | 0756A562377EDF6ED3AC45A00B356AAE6D3C6BB6 | +————— —+———–+—— ————————————+

Grant database user permissions

Right after you create a new user, it has no privileges. The  user can log in, but it can’t be used to make any database  changes. 1. Give the user full permissions for your new  database by running the following command: GRANT ALL  PRIVILEGES ON demodb.\* to demouser@localhost;

2. Flush the privileges to make the change official by  running the following command: FLUSH PRIVILEGES; 3. To verify that those privileges were set, run the following  command: SHOW GRANTS FOR ‘demouser’@’localhost’; 2 rows in  set (0.00 sec) MySQL returns the commands needed to reproduce  that user’s permissions if you were to rebuild the server.  The USAGE on \\*.\\* part means the users get no privileges on  anything by default. That command is overridden by the second  command, which is the grant you ran for the new database. +—— —————————————————————————————————— —–+ | Grants for  demouser@localhost | +———————————————————— —————————————————– + | GRANT USAGE ON . TO ‘demouser’@’localhost’ IDENTIFIED BY  PASSWORD

‘0756A562377EDF6ED3AC45A00B356AAE6D3C6BB6’ | | GRANT ALL  PRIVILEGES ON demodb. TO ‘demouser’@’localhost’ | +————————— ———————————— —————————————— ——–+ 2 rows in set (0.00 sec)

------------------------------------------------------ -----**IMPLEMENTATION:**

\*\*\*\*\*\*\*\*\*Server Side\*\*\*\*\*\*\*\*\*

Aditya@Aditya-VirtualBox:~$ sudo mysql -u root -p

[sudo] password for Aditya:

Enter password:

Welcome to the MySQL monitor. Commands end with ; or \g. Your MySQL connection id is 8

Server version: 8.0.23-0ubuntu0.20.04.1 (Ubuntu) Copyright (c) 2000, 2021, Oracle and/or its affiliates.

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

mysql> show databases;

+--------------------+

| Database |

+--------------------+

| E\_Commerce |

| appliance\_shop |

| information\_schema |

| mysql |

| performance\_schema |

| sys |

+--------------------+

6 rows in set (0.01 sec)

mysql> use appliance\_shop;

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\_appliance\_shop |

+--------------------------+

| appliance |

+--------------------------+

1 row in set (0.00 sec)

mysql> describe appliance;

+--------------+-------------+------+-----+---------+-------+ | Field | Type | Null | Key | Default | Extra | +--------------+-------------+------+-----+---------+-------+ | type | varchar(20) | YES | | NULL | | | company\_name | varchar(20) | NO | PRI | NULL | | | quantity | int | YES | | NULL | | | cost | int | YES | | NULL | | +--------------+-------------+------+-----+---------+-------+ 4 rows in set (0.00 sec)

mysql> select \* from appliance;

+-----------------+--------------+----------+-------+ | type | company\_name | quantity | cost | +-----------------+--------------+----------+-------+ | Dishwasher | Bosch | 10 | 8000 | | Mixer | Philips | 4 | 30000 | | AC | Voltas | 21 | 34000 | | Washing Machine | Whirlpool | 10 | 20000 | +-----------------+--------------+----------+-------+ 4 rows in set (0.01 sec)

mysql> insert into appliance values ('Geyser', 'Heatles', 8,  12000);

Query OK, 1 row affected (0.01 sec)

mysql> select \* from appliance;

+-----------------+--------------+----------+-------+ | type | company\_name | quantity | cost |

+-----------------+--------------+----------+-------+ | Dishwasher | Bosch | 10 | 8000 | | Geyser | Heatles | 8 | 12000 | | Mixer | Philips | 4 | 30000 | | AC | Voltas | 21 | 34000 | | Washing Machine | Whirlpool | 10 | 20000 | +-----------------+--------------+----------+-------+ 5 rows in set (0.00 sec)

// Granting select privelege

mysql> grant select on appliance\_shop.appliance to  'Aditya'@'localhost'; Query OK, 0 rows affected (0.02 sec)

// Granting update privelege

mysql> grant update on appliance\_shop.appliance to  'Aditya'@'localhost'; Query OK, 0 rows affected (0.21 sec)

// Granting insert privelege

mysql> grant insert on appliance\_shop.\* to

'Aditya'@'localhost'; Query OK, 0 rows affected (0.03  sec)

// Granting all priveleges

mysql> grant all on appliance\_shop.\* to

'Aditya'@'localhost'; Query OK, 0 rows affected (0.00  sec)

// Revoking select command

mysql> revoke select on appliance\_shop from

'Aditya'@'localhost'; ERROR 1147 (42000): There is no such  grant defined for user 'Aditya' on host 'localhost' on table  'appliance\_shop'

mysql> revoke select on appliance\_shop.appliance from  'Aditya'@'localhost'; Query OK, 0 rows affected (0.03 sec)

// Revoking insert command

mysql> revoke insert on appliance\_shop.appliance from  'Aditya'@'localhost'; Query OK, 0 rows affected (0.48 sec)

// Revoking update command

mysql> revoke update on appliance\_shop.appliance from  'Aditya'@'localhost'; Query OK, 0 rows affected (0.03 sec)

mysql>exit

----------------------------------------------------- ----- \*\*\*\*\*\*\*\*\*Client Side\*\*\*\*\*\*\*\*\*

Aditya@Aditya-VirtualBox:~$ sudo mysql -u Aditya -p Enter  password:

Welcome to the MySQL monitor. Commands end with  ; or \g. Your MySQL connection id is 28

Server version: 8.0.22-0ubuntu0.20.04.3 (Ubuntu)

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

// Checking present databases

mysql> show databases;

+--------------------+

| Database |

+--------------------+

| E-commerce |

| information\_schema |

+--------------------+

2 rows in set (0.01 sec)

// New database visible after permission from root

mysql> show databases;

+--------------------+

| Database |

+--------------------+

| E-commerce |

| appliance\_shop |

| information\_schema |

+--------------------+

3 rows in set (0.00 sec)

// Selecting database to use

mysql> use appliance\_shop;

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

//Checking present tables

mysql> show tables;

+--------------------------+

| Tables\_in\_appliance\_shop |

+--------------------------+

| appliance |

+--------------------------+

1 row in set (0.00 sec)

mysql> describe appliance;

+--------------+-------------+------+-----+---------+-------+ | Field | Type | Null | Key | Default | Extra | +--------------+-------------+------+-----+---------+-------+ | type | varchar(20) | YES | | NULL | | | company\_name | varchar(20) | NO | PRI | NULL | | | quantity | int | YES | | NULL | | | cost | int | YES | | NULL | | +--------------+-------------+------+-----+---------+-------+ 4 rows in set (0.00 sec)

mysql> select \* from appliance;

+-----------------+--------------+----------+-------+ | type | company\_name | quantity | cost | +-----------------+--------------+----------+-------+ | Dishwasher | Bosch | 10 | 8000 | | Mixer | Philips | 4 | 30000 | | AC | Voltas | 21 | 34000 | | Washing Machine | Whirlpool | 10 | 20000 |

+-----------------+--------------+----------+-------+ 4 rows in set (0.01 sec)

// Updating BEFORE select command is granted

mysql> update appliance set type = 'Geyser' where  company\_name = ‘Heatle’; ERROR 1142 (42000): UPDATE command  denied to user 'Aditya'@'localhost' for table 'appliance'

// Updating AFTER select command is granted

mysql> update appliance set type = 'Geyser'

where company\_name = ‘Heatle’; Query OK, 1 row  affected (0.02 sec)

Rows matched: 1 Changed: 1 Warnings: 0

// Updated version visible

mysql> select \* from appliance;

+-----------------+--------------+----------+-------+ | type | company\_name | quantity | cost | +-----------------+--------------+----------+-------+ | Dishwasher | Bosch | 10 | 8000 | | Geyser | Heatles | 8 | 12000 | | Mixer | Philips | 4 | 30000 | | AC | Voltas | 21 | 34000 | | Washing Machine | Whirlpool | 10 | 20000 | +-----------------+--------------+----------+-------+ 5 rows in set (0.00 sec)

// Selecting AFTER revoke command

mysql> select \* from appliance;

ERROR 1142 (42000): SELECT command denied to user  'Aditya'@'localhost' for table 'appliance'

// Inserting AFTER revoke command

mysql> insert into appliance VALUES(‘Heater’,'IBS', 20,  9000);

ERROR 1142 (42000): INSERT command denied to user  'Aditya'@'localhost' for table 'appliance'

// Updating AFTER revoke command

mysql> update sample set type = 'ACs' where company\_name =  ‘Voltas;; ERROR 1142 (42000): UPDATE command denied to user  'Aditya'@'localhost' for table 'sample'

mysql> exit

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**Conclusion:**

1. Study of installation steps on client server MySQL.

2. Study of configuration of MySQL.