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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)

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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.