Lab Report No:	05
Lab Report Name:	Connecting a database (MySQL) with Linux
ID:	IT-17037

Objective:- The objective is to install MySQL client or MySQL server on Ubuntu 18.04 Bionic Beaver Linux.

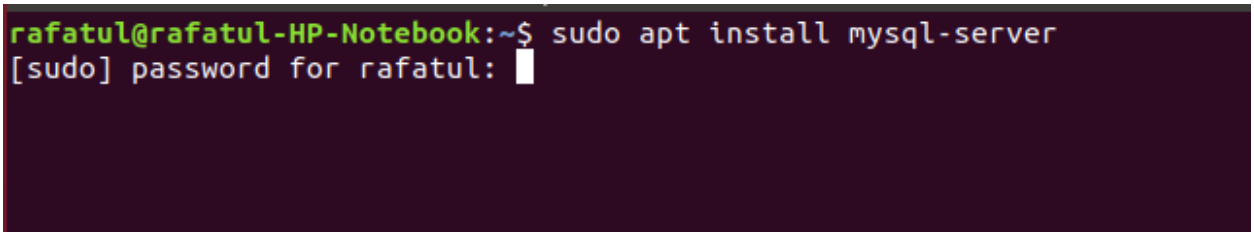
Install MySQL on Ubuntu:- MySQL is an open-source database management system, commonly installed as part of the popular LAMP(Linux, Apache, MySQL, PHP/Python/Perl) stack. It uses a relational databases and SQL (Structured Query Language) to manage its data. The short version of the installation is simple: update your package index, install the mysql- server package, and them run the included security script.

On Ubuntu 18.04, only the latest version of MySQL is included in the APT package repository by default. At the time of writing, that's MySQL 5.7

To install it, update the package index on your server with apt:

$ sudo apt update

Then install the default package:



Log into MySQL :- In order to use a password to connect toMySQL as root, you will need to switch its authentication method from sudo apt. To do this, open up the MySQL prompt from your terminal:

```
rafatul@rafatul-HP-Notebook:~$ sudo mysql
[sudo] password for rafatul:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.7.27-0ubuntu0.18.04.1 (Ubuntu)

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

To configure the root account to authenticate with a password, run the following ALTER USER command. Be sure to change password to a strong password of your choosing, and note that this command will change the root password you set in Step 2:

Then, run FLUSH PRIVILEGES which tells the server to reload the grant tables and put your new changes into effect:

```
mysql> ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'password';
Query OK, 0 rows affected (0.04 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.00 sec)
```

Create database:- The CREATE DATABASE statement is used to create a new SQL database.

```
mysql> create database university;
Query OK, 1 row affected (0.00 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| student            |
| sys                |
| university         |
+--------------------+
6 rows in set (0.00 sec)
```

Insert data into table:- Firstly, select the database.

```
mysql> use university;
Database changed
mysql>
```

The CREATE TABLE statement is used to create a new table in a database.

```
mysql> create table student(studentID int,name varchar(50),address varchar(60));

Query OK, 0 rows affected (0.41 sec)
```

The INSERT INTO statement is used to insert new records in a table.

```
mysql> insert into student values(101,"Rahim","Bogura");
Query OK, 1 row affected (0.07 sec)

mysql> insert into student values(105,"Shakib","Magura");
Query OK, 1 row affected (0.05 sec)

mysql> insert into student values(105,"Hridoy","Bogura");
Query OK, 1 row affected (0.05 sec)

mysql> insert into student values(106,"Shohan","Dhaka");
Query OK, 1 row affected (0.05 sec)

mysql> insert into student values(108,"Riad","Mymensingh");
Query OK, 1 row affected (0.05 sec)
```

Describe table:- use the DESCRIBE statement.

```
mysql> describe student;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| studentID | int(11)     | YES  |     | NULL    |       |
| name      | varchar(50) | YES  |     | NULL    |       |
| address   | varchar(60) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Alter table:- The ALTER TABLE statement is used to add, delete, or modify columns in an existing table.

```
mysql> select*from student;
+-----------+--------+------------+
| studentID | name   | address    |
+-----------+--------+------------+
|       101 | Rahim  | Bogura     |
|       105 | Shakib | Magura     |
|       105 | Hridoy | Bogura     |
|       106 | Shohan | Dhaka      |
|       108 | Riad   | Mymensingh |
+-----------+--------+------------+
5 rows in set (0.00 sec)
```

```
mysql> alter table student add email varchar(50);
Query OK, 0 rows affected (0.72 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select*from student;
+-----------+--------+------------+-------+
| studentID | name   | address    | email |
+-----------+--------+------------+-------+
|       101 | Rahim  | Bogura     | NULL  |
|       105 | Shakib | Magura     | NULL  |
|       105 | Hridoy | Bogura     | NULL  |
|       106 | Shohan | Dhaka      | NULL  |
|       108 | Riad   | Mymensingh | NULL  |
+-----------+--------+------------+-------+
5 rows in set (0.00 sec)
```

Modify table:- The MODIFY statement is used to modify columns in an existing table.

```
mysql> alter table student modify email varchar(50);
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Drop data of table:- The DROP TABLE statement is used to drop an existing table in a database.

```
mysql> drop table student;
Query OK, 0 rows affected (0.25 sec)
```

```
mysql> show tables;
Empty set (0.00 sec)
```

Update data of table:- The UPDATE statement is used to modify the existing records in a table.

```
mysql> update student set email="patterson@gmail.com" where studentID=105;
Query OK, 2 rows affected (0.12 sec)
Rows matched: 2  Changed: 2  Warnings: 0

mysql> select*from student;
+-----------+--------+-----------+---------------------+
| studentID | name   | address   | email               |
+-----------+--------+-----------+---------------------+
|       101 | Rahim  | Bogura    | NULL                |
|       105 | Shakib | Magura    | patterson@gmail.com |
|       105 | Hridoy | Bogura    | patterson@gmail.com |
|       106 | Shohan | Dhaka     | NULL                |
|       108 | Riad   | Mymensingh | NULL               |
+-----------+--------+-----------+---------------------+
5 rows in set (0.00 sec)
```

Where and delete operation:- The WHERE clause is used to extract only those records that fulfill a specified condition.

```
mysql> select*from student where address="Bogura" ;
+-----------+--------+---------+---------------------+
| studentID | name   | address | email               |
+-----------+--------+---------+---------------------+
|       101 | Rahim  | Bogura  | NULL                |
|       105 | Hridoy | Bogura  | patterson@gmail.com |
+-----------+--------+---------+---------------------+
2 rows in set (0.00 sec)
```

The DELETE statement is used to delete existing records in a table.

```
mysql> delete from student where studentID=105;
Query OK, 2 rows affected (0.07 sec)

mysql> select*from student;
+-----------+---------+------------+------------------+
| studentID | name    | address    | email            |
+-----------+---------+------------+------------------+
|       101 | Rahim   | Bogura     | NULL             |
|       106 | Shohan  | Dhaka      | NULL             |
|       108 | Riad    | Mymensingh | NULL             |
|       109 | Shabbir | Rajshahi   | cannon@gmail.com |
+-----------+---------+------------+------------------+
4 rows in set (0.00 sec)
```

Conclusion:-In this lab we learned how to install MySQL 8.0 on Ubuntu 18.04 from MySQL official apt repository. Also, you know how to login into MySQL server. Then execute, create database, insert data into table, describe table, alter table, modify table, drop table, update date of table, where and delete operation.