**ITC 250/CPET 499 Web Systems**

**Nov. 13, 2018**

**Managing MySQL Database – Commands Line**

**MySQL Topics of Discussion**

1. **SQL Statement Syntax**
2. **SQL Statement Examples**

**MySQL Documentation,** [**https://dev.mysql.com/doc/**](https://dev.mysql.com/doc/)

* **MySQL 8.0 Reference Manual, 2018/11/13,** [**https://dev.mysql.com/doc/refman/8.0/en/**](https://dev.mysql.com/doc/refman/8.0/en/)
* **MySQL 8.0 Release Notes**

**A) SQL Statement Syntax (Version 5.7, 10/25/2017)**

1. **Data Definition Statements,** [**https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-data-definition.html**](https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-data-definition.html)
	* ALTER: DATABASE, EVENT, FUNCTION, INSTANCE, LOGFILE GROUP, SERVER, TABLE, TABLE SPACE
	* CREATE: DATABASE, EVENT, FUNCTION, INDEX, LOGFILE GROUP, PROCEDURE, SERVER, TABLE, TABLE SPACE, VIEW
	* DROP: DATABASE, EVENT, FUNCTION, INSTANCE, LOGFILE GROUP, SERVER, TABLE, TABLE SPACE
	* RENAME TABLE
	* TRUNCATE TABLE
2. **Data Manipulation Statements,** [**https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-data-manipulation.html**](https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-data-manipulation.html)
	* CALL, DELETE, DO HANDLER, INSERT, LOAD DATA INFILE, LOAD XML, REPLACE
	* SELECT, SUBQUERY, UPDATE
3. **Transactional and Locking Statements,** [**https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-transactions.html**](https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-transactions.html)
	* START TRANSACTION, COMMIT, ROLLBACK
	* SAVEPOINT, ROLLBACK TO SAVEPOINT, RELEASE SAVEPOINTS
	* LOCK TABLES, UNLOCK TABLES
	* SET TRANSACTION
4. **Replication Statements**
	* Controlling Masters
	* Controlling Slave Servers
	* Controlling Group Replication
5. **Prepared SQL Statements**
	* PREPARE, EXECUTE, DEALLOCATE PREPARE
6. **Compound Statement**
	* Begin … End
	* Statement Label
	* Declare
	* Variables in Stored Programs
	* Flow Control Statements
	* Cursors
	* Condition Handling
7. **Database Administration Statements**
	* Account Management:
		+ ALTER USER
		+ CREATE USER
		+ DROP USER
		+ GRANT
		+ RENAME USER
		+ REVOKE
		+ SET PASSWORD
	* Table Maintenance:
	* Plugin and User-Defined Function
	* SET
	* SHOW
	* Other Administration Statements
		+ FLUSH, RESET, SHUTDOWN
		+ BINLOG, CACHE INDEX, KILL, LOAD INDEX INTO CACHE
8. **Utility Statements**
	* DESCRIBE
	* EXPLAIN
	* HELP
	* USE

**B) Examples of MySQL Statements/Commands**

**Run the mysql Tool on XAMPP Server**

* Start your XAMPP Console
* Click on Shell

Setting environment for using XAMPP for Windows.

Administrator@DESKTOP-H3PFGPI c:\xampp

# dir

 Volume in drive C is OS

 Volume Serial Number is 20AE-F744

 Directory of c:\xampp

09/25/2018 10:10 AM <DIR> .

09/25/2018 10:10 AM <DIR> ..

09/14/2018 07:07 PM <DIR> anonymous

09/14/2018 07:08 PM <DIR> apache

06/07/2013 06:15 AM 436 apache\_start.bat

06/07/2013 06:15 AM 140 apache\_stop.bat

…

09/14/2018 07:19 PM <DIR> cgi-bin

…

10/09/2018 09:22 AM <DIR> htdocs

09/14/2018 07:06 PM <DIR> img

…

09/14/2018 07:10 PM <DIR> mysql

06/07/2013 06:15 AM 481 mysql\_start.bat

06/07/2013 06:15 AM 220 mysql\_stop.bat

03/13/2017 06:04 AM 824 passwords.txt

09/14/2018 07:13 PM <DIR> perl

10/09/2018 08:50 AM <DIR> php

10/09/2018 08:33 AM <DIR> phpMyAdmin

Administrator@LIN-PC c:\xampp\mysql

#

**Root Password is Not Configured**

Administrator@LIN-PC c:\xampp\mysql

**# mysql -u root**

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MariaDB connection id is 2

Server version: 10.1.35-MariaDB mariadb.org binary distribution

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)]> exit

Bye

Administrator@DESKTOP-H3PFGPI c:\xampp

# cd mysql

Administrator@DESKTOP-H3PFGPI c:\xampp\mysql

# cd bin

Administrator@DESKTOP-H3PFGPI c:\xampp\mysql\bin

**Set/Reset Root Password as ‘secret’**

Administrator@LIN-PC c:\xampp\mysql\bin

**# mysqladmin -u root password secret**

**# cd ..**

**# mysql –u root –p**

**Enter Passwords: \*\*\*\*\*\***

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MariaDB connection id is 4

Server version: 10.1.356-MariaDB mariadb.org binary distribution

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)]>

**SQL Query Statements**

* **USE**
* **SHOW**
* **SELECT/FROM**
* **CREATE**
* **DESCRIBE**
* **DROP**
* **INSERT INTO**
* **databases, TABLE, VALUES**

MariaDB [(none)]> **show databases;**

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

| Database |

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

| information\_schema |

| mysql |

| performance\_schema |

| phpmyadmin |

| test |

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

5 rows in set (0.05 sec)

MariaDB [(none)]>

**SQL Query**

* **use mysql;**
* **show tables;**

MariaDB [mysql]> **use mysql;**

Database changed

MariaDB [mysql]> **show tables;**

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

| Tables\_in\_mysql |

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

| column\_stats |

| columns\_priv |

| db |

| event |

| func |

| general\_log |

| gtid\_slave\_pos |

| help\_category |

| help\_keyword |

| help\_relation |

| help\_topic |

| host |

| index\_stats |

| innodb\_index\_stats |

| innodb\_table\_stats |

| ndb\_binlog\_index |

| plugin |

| proc |

| procs\_priv |

| proxies\_priv |

| roles\_mapping |

| servers |

| slave\_master\_info |

| slave\_relay\_log\_info |

| slave\_worker\_info |

| slow\_log |

| table\_stats |

| tables\_priv |

| time\_zone |

| time\_zone\_leap\_second |

| time\_zone\_name |

| time\_zone\_transition |

| time\_zone\_transition\_type |

| **user** |

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

34 rows in set (0.04 sec)

MariaDB [mysql]> **select Host, User, Password from user;**

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

| Host | User | Password |

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

| localhost | root | \*14E65567ABDB5135D0CFD9A70B3032C179A49EE7 |

| 127.0.0.1 | root | |

| ::1 | root | |

| localhost | | |

| localhost | pma | |

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

5 rows in set (0.00 sec)

MariaDB [mysql]>

**Example: Use mysql database, create a userdb2 table**

MariaDB [(none)]> **use mysql;**

Database changed

MariaDB [mysql]> **CREATE TABLE userdb2(**

 -> **userID int,**

 -> **firstName varchar(20),**

 -> **lastName varchar(30),**

 -> **emailAddr varchar(50),**

 -> **facebookURL varchar(100),**

 -> **twitterHandle varchar(20)**

 -> **);**

**Query OK, 0 rows affected (0.33 sec)**

**SHOW all tables within the mysql database**

MariaDB [mysql]> **SHOW tables;**

**+---------------------------+**

**| Tables\_in\_mysql |**

**+---------------------------+**

**| column\_stats |**

**| columns\_priv |**

**| db |**

**| event |**

**| func |**

**| general\_log |**

**| gtid\_slave\_pos |**

**| help\_category |**

**| help\_keyword |**

**| help\_relation |**

**| help\_topic |**

**| host |**

**| index\_stats |**

**| innodb\_index\_stats |**

**| innodb\_table\_stats |**

**| ndb\_binlog\_index |**

**| plugin |**

**| proc |**

**| procs\_priv |**

**| proxies\_priv |**

**| roles\_mapping |**

**| servers |**

**| slave\_master\_info |**

**| slave\_relay\_log\_info |**

**| slave\_worker\_info |**

**| slow\_log |**

**| table\_stats |**

**| tables\_priv |**

**| time\_zone |**

**| time\_zone\_leap\_second |**

**| time\_zone\_name |**

**| time\_zone\_transition |**

**| time\_zone\_transition\_type |**

**| user |**

**| userdb |**

**| userdb2 |**

**+---------------------------+**

**36 rows in set (0.01 sec)**

MariaDB [mysql]> **DESCRIBE userdb2;**

**+---------------+--------------+------+-----+---------+-------+**

**| Field | Type | Null | Key | Default | Extra |**

**+---------------+--------------+------+-----+---------+-------+**

**| userID | int(11) | YES | | NULL | |**

**| firstName | varchar(20) | YES | | NULL | |**

**| lastName | varchar(30) | YES | | NULL | |**

**| emailAddr | varchar(50) | YES | | NULL | |**

**| facebookURL | varchar(100) | YES | | NULL | |**

**| twitterHandle | varchar(20) | YES | | NULL | |**

**+---------------+--------------+------+-----+---------+-------+**

6 rows in set (0.14 sec)

**Insert one Row of Data Into “userdb2” database, then exit MySQL**

MariaDB [mysql]> **INSERT INTO userdb2**

 -> VALUES (1, "Paul", "Lin", "pilin@purdue.edu",

 -> "https://www.facebook.com/paul.lin.3110567",

 -> "@pihailin631");

Query OK, 1 row affected (0.08 sec)

MariaDB [mysql]> **SELECT \* FROM userdb2;**

**+--------+-----------+----------+------------------+-------------------------------------------+---------------+**

**| userID | firstName | lastName | emailAddr | facebookURL | twitterHandle |**

**+--------+-----------+----------+------------------+-------------------------------------------+---------------+**

**| 1 | Paul | Lin | pilin@purdue.edu | https://www.facebook.com/paul.lin.3110567 | @pihailin632 |**

**+--------+-----------+----------+------------------+-------------------------------------------+---------------+**

**1 row in set (0.00 sec)**

MariaDB [mysql]> **SELECT firstName, lastName, twitterHandle FROM userdb2;**

**+-----------+----------+---------------+**

**| firstName | lastName | twitterHandle |**

**+-----------+----------+---------------+**

**| Paul | Lin | @pihailin631 |**

**+-----------+----------+---------------+**

**1 row in set (0.00 sec)**

MariaDB [mysql]> **select facebookURL from userdb2 where firstName ='Paul';**

**+-------------------------------------------+**

**| facebookURL |**

**+-------------------------------------------+**

**| https://www.facebook.com/paul.lin.3110567 |**

**+-------------------------------------------+**

**1 row in set (0.00 sec)**

MariaDB [mysql]>**exit**

Bye

Administrator@LIN-PC c:\xampp\mysql

**The created “userdb2” table definition is saved with an .frm extension, which can be located in the following location :**

Administrator@LIN-PC c:\xampp\mysql

**# cd data**

Administrator@LIN-PC c:\xampp\mysql\data

**# cd mysql**

Administrator@LIN-PC c:\xampp\mysql\data\mysql

Directory of c:\xampp\mysql\data\mysql

# dir

10/31/2016 03:03 PM <DIR> .

10/31/2016 03:03 PM <DIR> ..

…

10/26/2017 01:08 PM 802 userdb2.frm

10/26/2017 01:18 PM 98,304 userdb2.ibd

 100 File(s) 1,763,746 bytes

 2 Dir(s) 294,783,545,344 bytes free

**Userdb2.ibd data file contains InnoDB table and its indexes.**

**References**

* **11.1 MySQL .frm File Format,** [**https://dev.mysql.com/doc/internals/en/frm-file-format.html**](https://dev.mysql.com/doc/internals/en/frm-file-format.html)
* **15.1 Introduction to InnoDB (General Purpose Storage Engine),** [**http://dev.mysql.com/doc/refman/5.7/en/innodb-introduction.html**](http://dev.mysql.com/doc/refman/5.7/en/innodb-introduction.html)
* **15.7.4 InnoDB File-Per-Table Tablespace,** [**http://dev.mysql.com/doc/refman/5.7/en/innodb-multiple-tablespaces.html**](http://dev.mysql.com/doc/refman/5.7/en/innodb-multiple-tablespaces.html)