**ITC 250/CPET 499 Web Systems**

**Oct. 26, 2017**

**Managing MySQL Database**

**Part 2 of 3**

**MySQL Topics of Discussion**

1. **SQL Statement Syntax**
2. **SQL Statement Examples**
3. **phpMyAdmin Password**
4. **MySQL Root Password**
5. **Grant User Access to Tables**
6. **Planning Your Database Tables**

**A) SQL Statement Syntax (Current 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

Administrator@LIN-PC c:\xampp

# cd mysql

Administrator@LIN-PC c:\xampp\mysql

# dir

Volume in drive C has no label.

Volume Serial Number is CA27-2D0F

Directory of c:\xampp\mysql

10/25/2016 10:45 AM <DIR> .

10/25/2016 10:45 AM <DIR> ..

10/25/2016 10:45 AM <DIR> backup

10/25/2016 10:46 AM <DIR> bin

07/13/2016 09:10 PM 17,987 COPYING

07/13/2016 09:10 PM 26,545 COPYING.LESSER

07/13/2016 09:10 PM 86,259 COPYING.thirdparty

07/13/2016 09:10 PM 1,980 CREDITS

10/30/2016 11:33 PM <DIR> data

07/13/2016 09:10 PM 8,245 EXCEPTIONS-CLIENT

07/18/2016 05:50 AM 5,057 my-huge.ini

07/18/2016 05:50 AM 20,906 my-innodb-heavy-4G.ini

07/18/2016 05:50 AM 5,044 my-large.ini

07/18/2016 05:50 AM 5,055 my-medium.ini

07/18/2016 05:50 AM 2,921 my-small.ini

07/13/2016 09:10 PM 2,105 README

03/30/2013 08:29 AM 1,105 resetroot.bat

10/25/2016 10:45 AM <DIR> share

07/18/2016 05:50 AM 3,574 wsrep.ini

13 File(s) 186,783 bytes

6 Dir(s) 295,222,722,560 bytes free

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 6

Server version: 10.1.16-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2016, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]>

**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 6

Server version: 10.1.16-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2016, 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 |

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

| art |

| bookcrm-comprehensive |

| information\_schema |

| mysql |

| performance\_schema |

| phpmyadmin |

| test |

| testdb |

| travels |

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

9 rows in set (0.01 sec)

**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 (0.02 sec)

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

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

| Host | User | Password |

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

| localhost | root | |

| 127.0.0.1 | root | |

| ::1 | root | |

| localhost | | |

| localhost | pma | |

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

5 rows in set (0.01 sec)

**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 (0.01 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 (0.01 sec)

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

MariaDB [mysql]> INSERT INTO userdb2

-> VALUES (1, "Paul", "Lin", "pihailin631@gmail.com",

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

-> "@pihailin631");

Query OK, 1 row affected (0.00 sec)

MariaDB [mysql]> SELECT \* FROM userdb2;

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

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

| userID | firstName | lastName | emailAddr | faceboorURL

| twitterHandle |

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

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

| 1 | Paul | Lin | pihailin631@gmail.com | https://www.facebook.c

om/paul.lin.3110567 | @pihailin631 |

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

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

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 “userdb” 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)