

ITC 250/CPET 499 Web Systems
Nov. 1, 2016
Managing MySQL Database
Part 2 of 3

MySQL Topics of Discussion

- A) SQL Statement Syntax**
- B) SQL Statement Examples**
- C) phpMyAdmin Password**
- D) MySQL Root Password**
- E) Grant User Access to Tables**
- F) Planning Your Database Tables**

A) SQL Statement Syntax

- 1. Data Definition Statements, <https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-data-definition.html>**
 - o ALTER: DATABASE, EVENT, FUNCTION, INSTANCE, LOGFILE GROUP, SERVER, TABLE, TABLE SPACE
 - o CREATE: DATABASE, EVENT, FUNCTION, INDEX, LOGFILE GROUP, PROCEDURE, SERVER, TABLE, TABLE SPACE, VIEW
 - o DROP: DATABASE, EVENT, FUNCTION, INSTANCE, LOGFILE GROUP, SERVER, TABLE, TABLE SPACE
 - o RENAME TABLE
 - o TRUNCATE TABLE
- 2. Data Manipulation Statements, <https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-data-manipulation.html>**
 - o CALL, DELETE, DO HANDLER, INSERT, LOAD DATA INFILE, LOAD XML, REPLACE
 - o SELECT, SUBQUERY, UPDATE
- 3. Transactional and Locking Statements, <https://dev.mysql.com/doc/refman/5.7/en/sql-syntax-transactions.html>**
 - o START TRANSACTION, COMMIT, ROLLBACK
 - o SAVEPOINT, ROLLBACK TO SAVEPOINT, RELEASE SAVEPOINTS
 - o LOCK TABLES, UNLOCK TABLES
 - o SET TRANSACTION
- 4. Replication Statements**
 - o Controlling Masters
 - o Controlling Slave Servers
 - o Controlling Group Replication
- 5. Prepared SQL Statements**
 - o PREPARE, EXECUTE, DEALLOCATE PREPARE
- 6. Compound Statement**
 - o Begin ... End
 - o Statement Label
 - o Declare
 - o Variables in Stored Programs
 - o Flow Control Statements

- o Cursors
- o Condition Handling
- 7. Database Administration Statements**
 - o Account Management:
 - ALTER USER
 - CREATE USER
 - DROP USER
 - GRANT
 - RENAME USER
 - REVOKE
 - SET PASSWORD
 - o Table Maintenance:
 - o Plugin and User-Defined Function
 - o SET
 - o SHOW
 - o Other Administration Statements
 - FLUSH, RESET, SHUTDOWN
 - BINLOG, CACHE INDEX, KILL, LOAD INDEX INTO CACHE
- 8. Utility Statements**
 - o DESCRIBE
 - o EXPLAIN
 - o HELP
 - o 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\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)]>

```

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                    |
| testdb                  |
+-----+
6 rows in set (0.00 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 userdb table

```

MariaDB [(none)]> use mysql;
Database changed
MariaDB [mysql]> CREATE TABLE userdb(
    -> 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
+-----+
35 rows in set (0.01 sec)

```

```

MariaDB [mysql]> DESCRIBE userdb;
+-----+-----+-----+-----+-----+-----+
| 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 "userdb" database, then exit MySQL

```

MariaDB [mysql]> INSERT INTO userdb
-> 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 userdb;
+-----+-----+-----+-----+-----+-----+
| userID | firstName | lastName | emailAddr          | facebookURL
|        |           |          | 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
userdb;
+-----+-----+-----+
| firstName | lastName | twitterHandle |
+-----+-----+-----+
| Paul      | Lin      | @pihailin631  |
+-----+-----+-----+
1 row in set (0.00 sec)

MariaDB [mysql]> select facebookURL from userdb where firstName
='Paul';
ERROR 1054 (42S22): Unknown column 'facebookURL' in 'field list'
MariaDB [mysql]> select faceboorURL from userdB where firstName
='Paul';
+-----+
| faceboorURL |
+-----+
| 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 :

```

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

10/31/2016  03:03 PM    <DIR>          .
10/31/2016  03:03 PM    <DIR>          ..
...
10/31/2016  03:03 PM                802 userdb.frm
10/31/2016  10:58 AM            98,304 userdb.ibd
                98 File(s)        1,631,872 bytes
                2 Dir(s)  294,783,545,344 bytes free

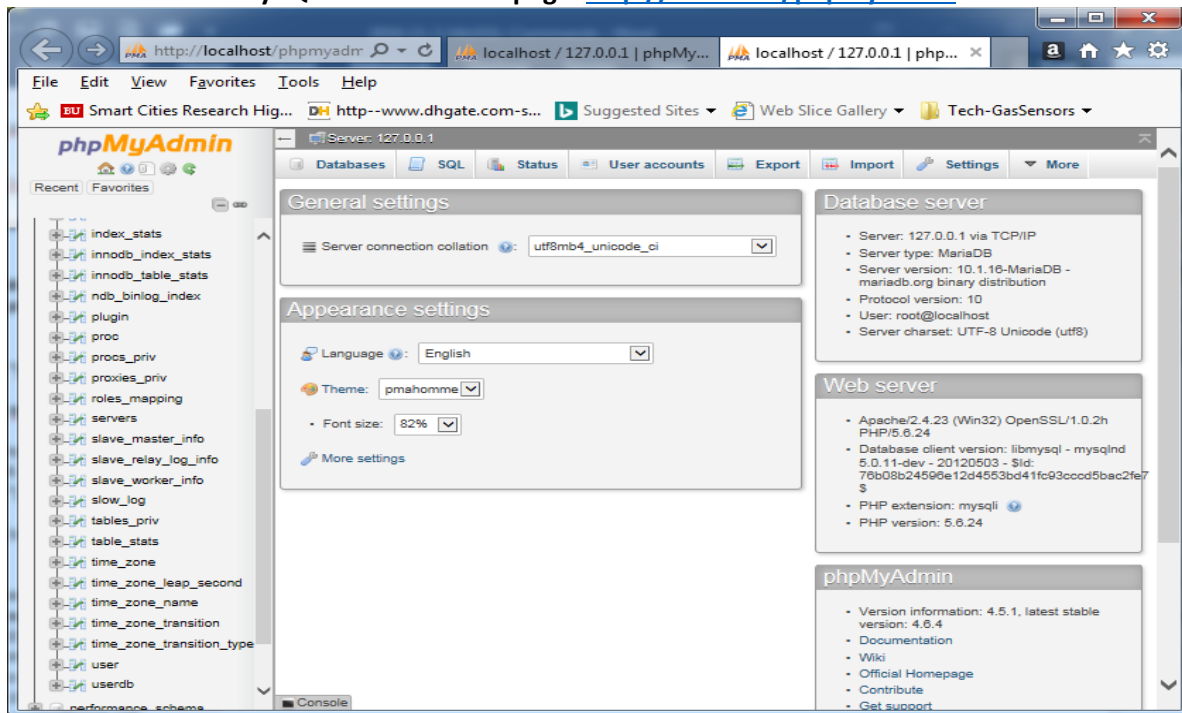
```

userdb.ibd data file contains InnoDB table and its indexes.

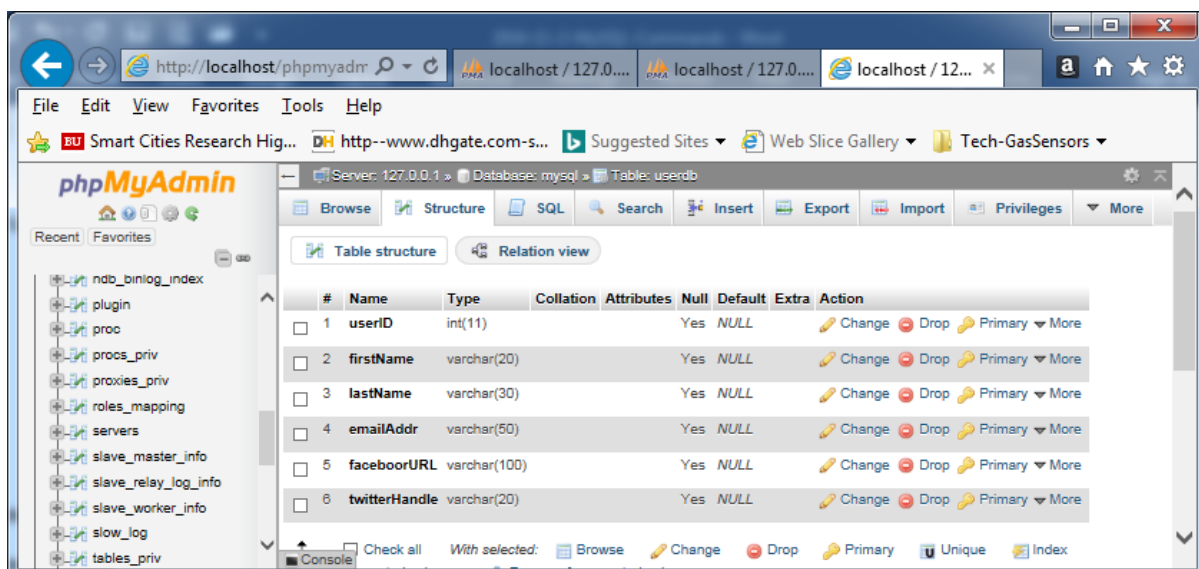
References

- 11.1 MySQL .frm File Format, <https://dev.mysql.com/doc/internals/en/frm-file-format.html>
- 15.1 Introduction to InnoDB (General Purpose Storage Engine), <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>

Click on Admin on MySQL to see the web page: <http://localhost/phpmyadmin>



View Data Tables from phpMyAdmin

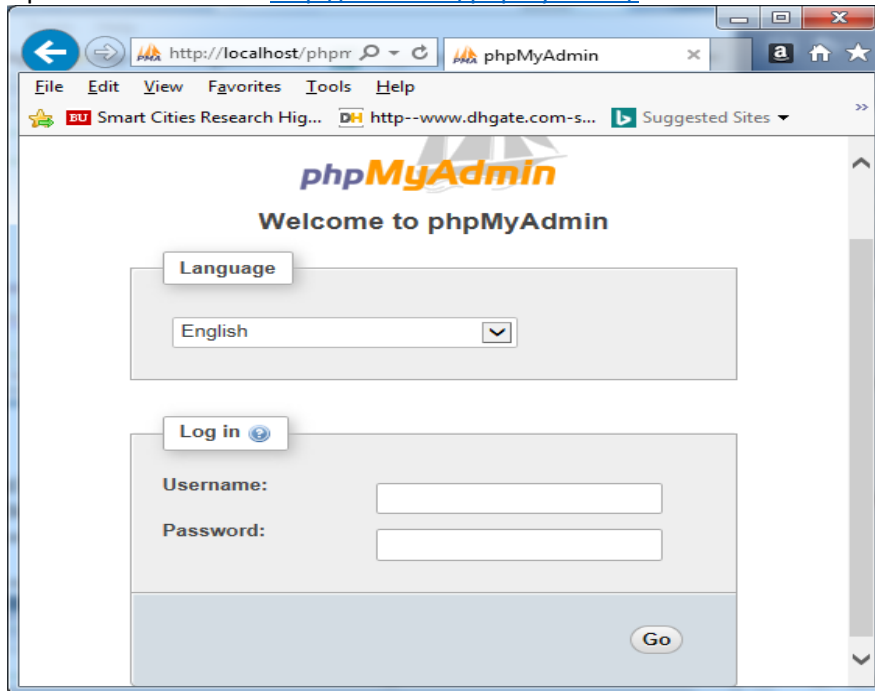


Modification/Changes of a Table:

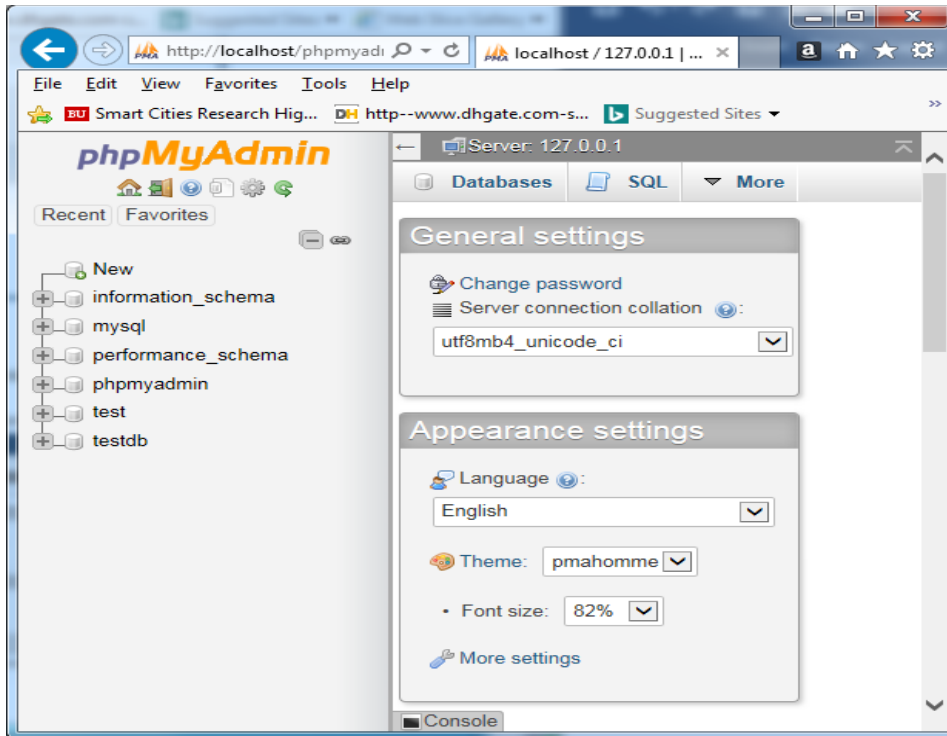
- Change Filed Name **faceboorURL** => facebookURL
- userID => AUTO_INCREMENT PRIMARY KEY

C) phpMyAdmin Password

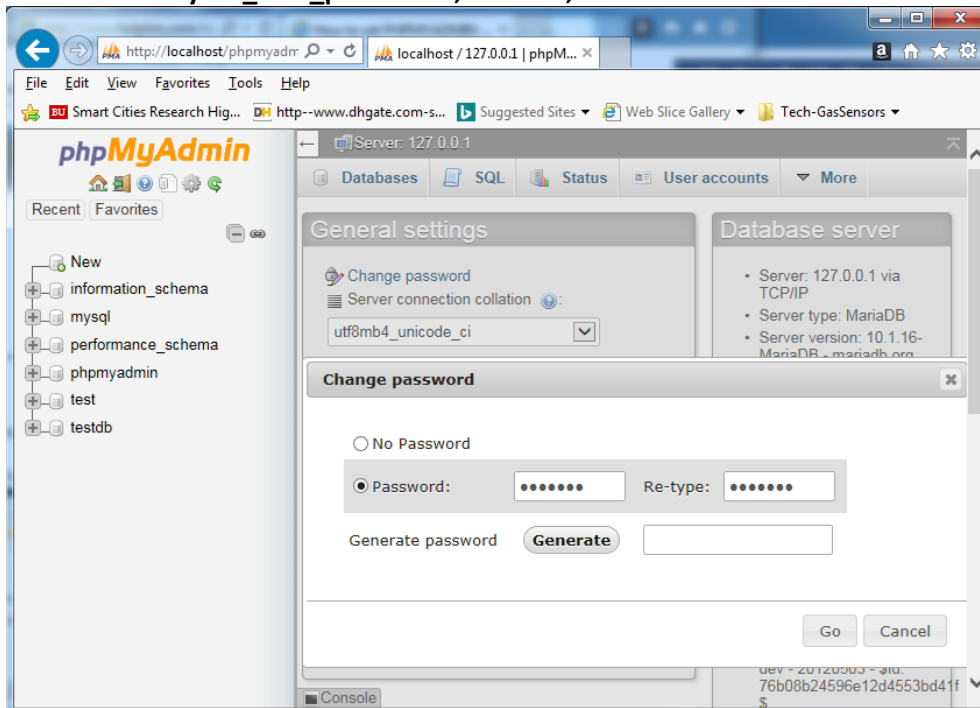
- Go to "c:\xampp\phpMyAdmin" directory and find "Config.inc.php" file
- Open Config.inc.php with a text editor:
 - Change: `$cfg['Servers'][$a]['auth_type']='config'`
 - To: `$cfg['Servers'][$a]['auth_type']='cookie'`
- Save the file
- Open a web browser: <http://localhost/phpmyadmin/>

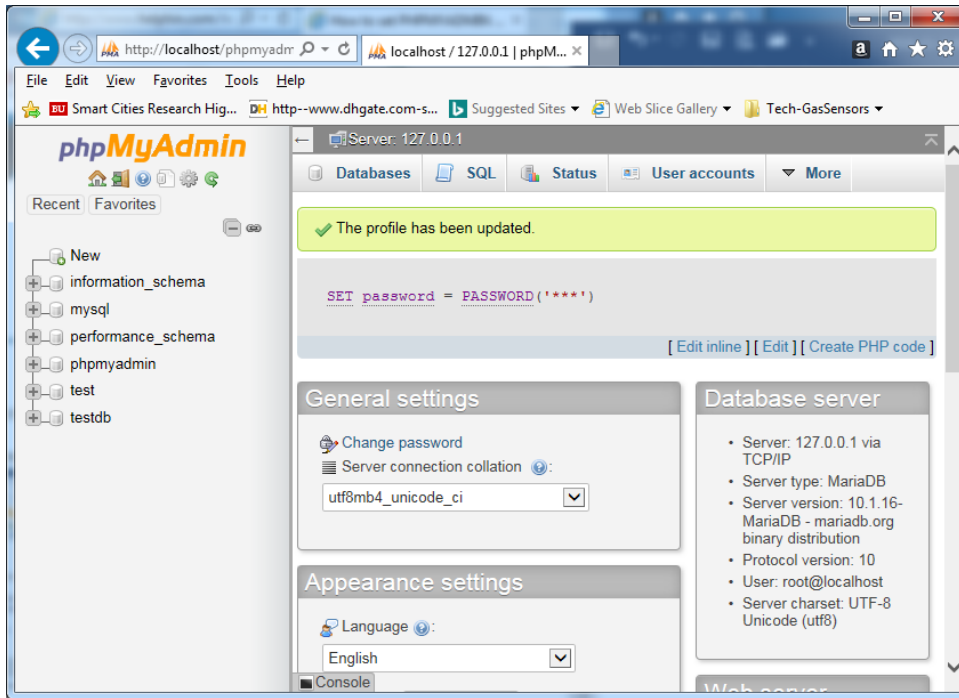


- Enter "root" in Username
- Leave Password Null, press Go button



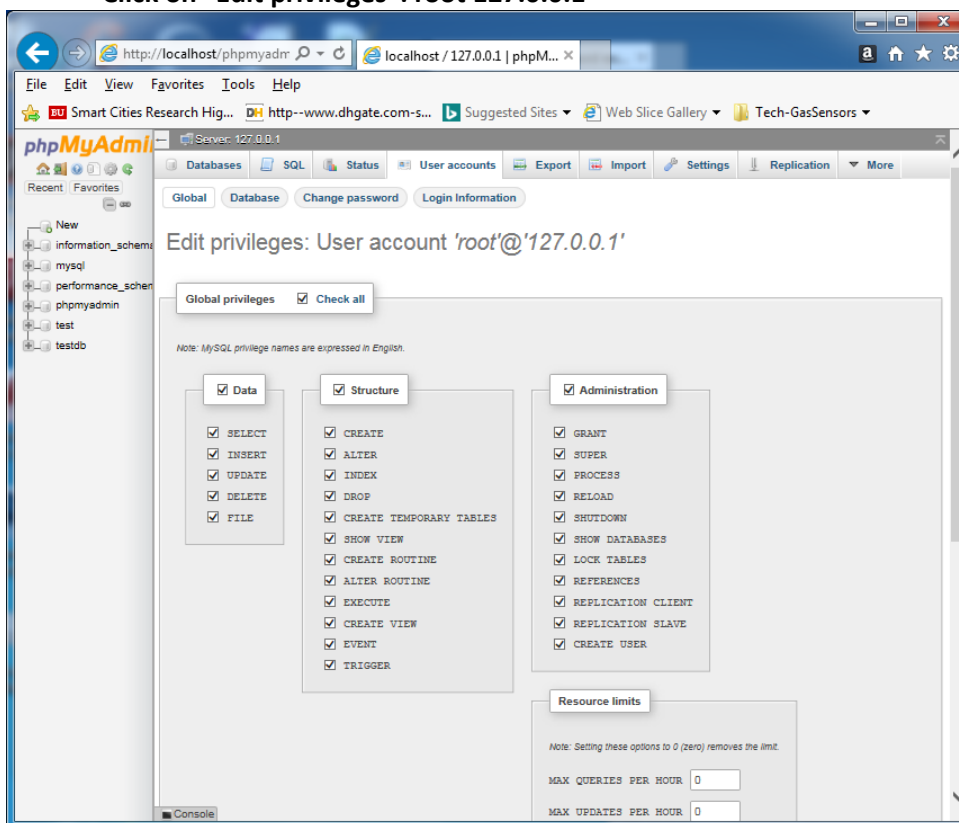
- Click “Change password”
- Enter “your_new_password”, Reenter, Hit “Go”



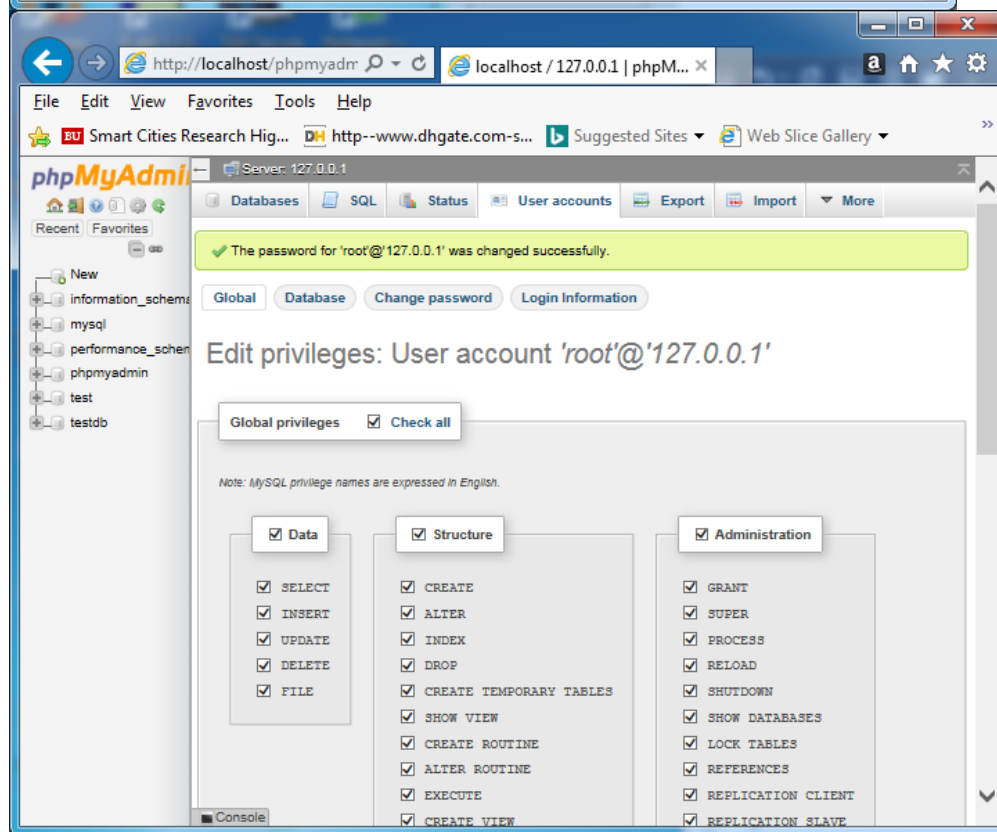
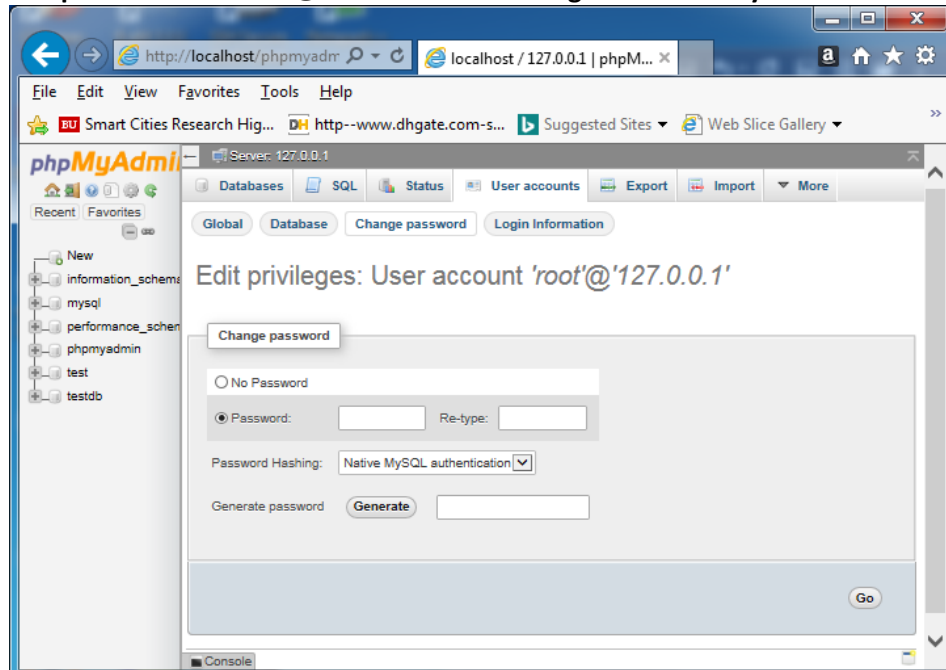


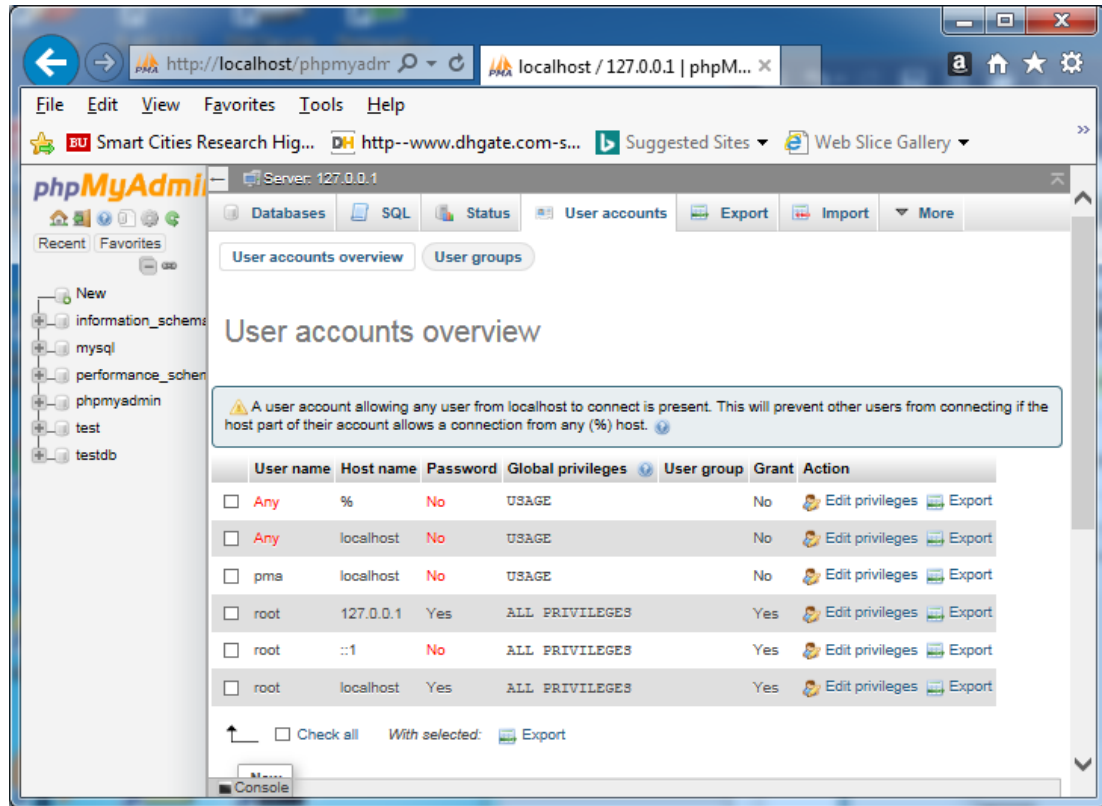
D) MySQL Password

- Click on “User accounts”
- Click on “Edit privileges”: root 127.0.0.1



- Under “User accounts”, Click on “Change password”, to see another Dialog box
- Enter “your_new_password”
- The password for ‘root’@’127.0.0.1’ was changed successfully





E) Grant Other Users to Access Database

- From the Shell connect to MySQL as an Administrator
`> mysql -u root -p mysql`
- On the mysql prompt, you type
`> grant all privileges on DATA_BASE_NAME.* to USERNAME@localhost identified by 'PASSWORD';`
`> flush privileges;`
`> \q`

F) Planning Database Table

- Data Tables
- Entity of a Table
- ID (AUTO_INCREMENT, PRIMARY KEY)
- Constraints: NOT NULL

Customer/User Info Table

- User ID
- First Name
- Last Name
- Email Address
- Street Address
- State
- Country

- **Browser Type**
- **Computer Type**

Product Catalog (Services) Table

Primary Key

Secondary Keys