COSC 30603
Lab Assignment 1: MySQL Database

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You are going to complete this lab in your VMWare virtual machine.

1. Install CentOS-7-x86_64-Minimal-1810 on your virtual machine. I have included a PDF "Install CentOS 7 in VMWare.pdf" describing how to install CentOS on TCU Online.
2. In CentOS, install wget
   ```
   sudo yum install wget
   ```
3. Please follow the instructions on this page to install MySQL 8:
   Write down your MySQL password, if you forget, you will need to reinstall MySQL, which is a complex process.
   https://www.digitalocean.com/community/tutorials/how-to-install-mysql-on-centos-7
   Write down your root password here:
4. Launch MySQL from terminal
   Access the MySQL shell by typing the following and enter
   ```
   mysql -u root -p
   ```
   Then type your password
5. Run SQL commands once you open MySQL prompt from your terminal.
   Note that MySQL is case-insensitive. Also note that all SQL statements need to end with a semicolon (;).

   a.
   ```
   show databases;
   ```
   b.
   ```
   create database TCU;
   show databases;
   use TCU;
   ```
   c.
   ```
   create table STUDENT (
        sid int(7),
     sname varchar(30),
     sdno int(5));
   ```
   A table named STUDENT is created in the database. What is the meaning of "int(7)" in the statement.
   Answer:

Student ID will be an integer that is 7 digits long.

   d.
   ```
   describe STUDENT;
   ```
   Explain the function of this command.
   Answer:

Shows all the values in STUDENT table.

e. `insert into STUDENT values (30, 'John Doe', 20);`
Insert a tuple into the table. Note the order of the values in the parentheses. It must correspond to the order of the columns in the table definition.

Now try:
`insert into STUDENT values ('Mark Smith', 20, 10);`
Write down what happened. Why?
Answer:

Mark Smith is not an integer value so it produced an error in console. It happened because I was inserting the information into the wrong rows.

f. `select * from STUDENT;`
Display all the columns of all the rows in the table STUDENT.

g.
```
insert into STUDENT values (100, 'Mark Smith', 10);
select * from STUDENT;
```
How many rows are there in the table?
Answer:

There are two rows, plus the header.

h.
```
delete from STUDENT where sid = 30;
select * from STUDENT;
```
Delete statement: it deletes a row whose sid is 30 from the table. Note that delete is usually used with a "where" clause to specify which rows to delete. A delete statement without a "where" clause will delete ALL the tuples in a table.

i.
```
alter table STUDENT rename STUDENT2;
show tables;
```

j.
```
alter table STUDENT2 add gpa decimal;
select * from STUDENT2;
```

k.
```
alter table STUDENT2 drop gpa;
select * from STUDENT2;
```

```
l.   select user, host FROM mysql.user;
```
user table is defined in “mysql” database, which is maintained automatically by MySQL DBMS. We are interested the user and host attributes.

```
m.   create user 'sammy'@'localhost' IDENTIFIED BY
'Tiger123$';
    select user, host FROM mysql.user;
```
As a root user of MySQL, you can create and grant the user privileges all tables within the database, as well as the power to add, change, and remove user privileges.

```
GRANT select, insert on TCU. STUDENT2 to
'sammy'@'localhost';
```
The above statement grants user ‘sammy’ select and insert privilege database TCU and its table STUDENT2 (if TCU had another table, Sammy cannot access it)
Once you have finalized the permissions that you want to set up for your new users, always be sure to reload all the privileges.
```
FLUSH PRIVILEGES;
```

```
n.   exit;
mysql -u sammy -p
Tiger123$
```
Now you are no longer the root user, try to drop table STUDENT in database TCU.
Write your result here:

The user sammy is not able to drop the database since they have only select and insert privileges, and is not able to delete unless it is specified in the permissions.

Submission: Submit an electronic copy of your answers to the questions in this lab using the TCU Online.