

CST 363 online Database – Quiz 4

Name _____Christopher Holmes_____

Read and study the chapters on security, recovery, and stored procedures in the textbook. Also see PowerPoint slides and videos on iLearn for this week.

Answer the following questions briefly. Use complete sentences.

1. What SQL statements are considered part of SQL DCL?

The statements GRANT and REVOKE are considered part of the DCL.

2. For MySQL, explain how users, groups, permissions and objects are related.

Objects can be anything in the database, and even the entire database. Permissions are what governs what can be done to an object. Permissions can be given to users and to groups. Therefore, a user exists in a database, can belong to a group or not, and the users and groups can be given permissions to an object to be able to do operations in the database.

3. What happens if a user is granted a privilege from two different administrators and then one of the administrators revokes the privilege? Does the user still maintain the privilege until both administrator revoke it?

Research this about mysql by searching and reading the mysql online reference about grant and revoke statements. Then do the following experiment.

Using mysql workbench, connect as root

Define 3 new users: Admin1, Admin2 and User1.

Admin1 and Admin2 should be given DBA privilege.

User1 is not given any privilege by root.

Now connect as User1. Are you able to select from any tables?

Now connect as Admin1 and grant select on some table to User1.

Now connect as Admin2 and grant select on some table to User1.

Now connect as User1 and verify that User1 can indeed select from the table.

Now connect as Admin1 and revoke the select.

Now connect as User1. Is User1 still able to select?

Now connect as Admin2, revoke select from User1.

Now connect as User1. Is User1 still able to select?

Based on your reading and the experiment above, what happens when a User in MySQL is granted the same privilege by two different administrators and then one of the administrators revokes it?

The changes that are made that are database privileges are applied based on who was the last administrator to apply/revoke, and they take effect after the next use statement that the user uses. Privileges that are applied to tables and columns are applied to all queries after the changes are made.

4. Recovery

- a. Describe the roll forward process and under what conditions is it used?

The roll forward process will go through all of the processes and it restores the information that was changed in the current transaction. You would be able to use a roll forward when you need to restore the data that is at the end of a transaction.

- b. Describe the rollback process and under what conditions is it used?

A rollback will take all the changes to the current transaction. You would be able to use a rollback when commit is not enforced.

5. Write a **user-defined sql function** named **LastNameFirst** that concatenates the employee's LastName and FirstName into a single value named FullName, and displays, in order, the LastName, a comma, a space, and the FirstName (*hint: Smith and Steve would be combined to read Smith, Steve*). There are many ways to do this without writing a user defined function, but the purpose of this exercise is to write a solution that uses an sql user-defined function.

Use your computer to write and test the function, then copy and paste the working code here. You will need to create a table with columns LastName, FirstName and insert some data for testing your sql function.

```
create function LastNameFirst(last varchar(45), first varchar(45))
    returns varchar(90) deterministic
return concat(last, ', ', first);
```