

Assignment 3

Aim

The objectives of this assignment include:

- Implementation of discretionary access control and complex consistency constraints.
- Using the DBMS backup and restore features to find the differences between two states of a database table.

Preparation

1. Connect to MySQL as user root and create a database with a name of <your UOW email prefix>. E.g. ytc066.
2. Execute the script A3create.sql to create the necessary tables in the database created in the previous step. This script creates relational tables that can be used to store information about physicians, clients, prescriptions, and drugs.
3. Execute the script A3load.sql to insert the records.

Task 1 (5 Marks)

1. Create two users with the following usernames and set all passwords to be the same as the username:
 - a. <your UOW email prefix>_1 (E.g. ytc066_1)
 - b. <your UOW email prefix>_2
2. Use GRANT statement(s) to grant <your UOW email prefix>_1 the privileges to alter relational tables, to drop relational tables, and to read and write relational tables in the database created in the preparation step. The privilege must be granted such that <your UOW email prefix>_1 is able to grant the privileges to the other users.
3. Use GRANT statement(s) to grant <your UOW email prefix>_2 the privileges to create views and to write data to the PRESCRIPTION table. The privilege must be granted such that <your UOW email prefix>_2 is able to grant the privileges to the other users.
4. Use ALTER USER statement to set the resource limits of <your UOW email prefix>_1: total number of queries issued per hour must be set to 555, and total number of updates issued per hour must be set to 222.
5. Use ALTER USER statement(s) to expire the password of <your UOW email prefix>_2.

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6. Use SELECT statement(s) to retrieve and display the privileges granted to all the users.
7. Save all the SQL commands and the results into a text file. The file name must be <Your group>_<UOW ID>_task1.txt. Example: T1_1234567_task1.txt.

Task 2 (3 Marks)

To refresh the content of the database, you can execute A3drop.sql, A3create.sql and A3load.sql in sequence.

1. Use one SELECT statement to retrieve records that violate the following constraint:

" A CLIENT which is an INCLIENT should NOT be an OUTCLIENT."

For each violation record, display the following as one column and only display unique rows:

A client with the client ID of <insert ClientID here> and having the name <insert CName here> is both an INCLIENT <insert WardNumber, BedNumber here> and an OUTCLIENT <insert DayBedNumber here>

2. Save the SELECT statement and the query result into a text file. The file name must be <Your group>_<UOW ID>_task2.txt.

Task 3 (2 Marks)

To refresh the content of the database, you can execute A3drop.sql, A3create.sql and A3load.sql in sequence.

1. Use mysqldump which is a command line program (NOT a SQL command) to create a logical backup of the PHYSICIAN table and save it in a file with the name <your UOW email prefix>.bak.
2. Execute the script: A3task3change.sql to make changes to the records in the database.
3. Use a text editor to modify the backup file: <your UOW email prefix>.bak by changing the name of the PHYSICIAN table to PHYSICIAN_original.
4. Use mysql (command line program) to restore the PHYSICIAN_original table to the database.
5. Use SELECT statement(s) to retrieve the following records:
 - a. Records added to the PHYSICIAN table in step (2).
 - b. Records in the PHYSICIAN table that were modified in step (2).
 - c. Records deleted from the PHYSICIAN table in step (2).

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6. Save the SELECT statement(s) and the query result from step (5) into a text file. The file name must be <Your group>_<UOW ID>_task3.txt

Submission

- A) Please submit the following:
 - 1) The text file for task 1.
 - 2) The text file for task 2.
 - 3) The text file and the bak file for task 3.
- B) The SQL statements must be arranged in the correct sequence of execution.
- C) Submission must be uploaded to Moodle before the due date (set on Moodle). NO email submission is allowed.
- D) Late submission penalty (5% per day) will be applied regardless of the reasons: network delay, disconnection, etc. Therefore, you are advised to avoid peak submission period near the submission deadline. This deduction amount is per day including public holidays and weekends. Work more than 4 days late will be awarded a mark of zero.
- E) Re-submission (because of incorrect file included in the original submission) will be treated as late submission if it is submitted after the deadline.