Lab Three: SQL Basics

At the end of this lab, you should have:

- connected to the remote server and changed your password;

- implemented, read and updated a data model;

- implemented, read and updated (but not deleted) data;

- answered questions based upon database content.

You should also have answered the relevant questions at the end of the lab sheet. The above statements are the *learning outcomes* of this laboratory and will be achieved in concert with the other learning activities that you undertake for this unit.

Task One: Changing Your Password

1. Open up the MySQL Shell (this method will differ depending on whether you use UniApps or your own installation) and connect to the remote database server. The command you will issue (type and then press enter/return) to connect to the remote database server is as follows:

   `\connect <StudentID>@db.tris.id.au`

   where `<StudentID>` is your UWA Student ID. You will then need to input your password, which is the same as your Student ID as well. Do **not** save the password, as we are about to change it. You will see the name (and port) of the server, once you have connected, in the MySQL shell on the left-hand side.

2. You are currently in 'JS' mode, however you will need to enter 'SQL' mode before entering/issuing any SQL commands. To do this, issue the command as follows:

   `\sql`

   You will note the word 'SQL' appears on the left-hand side of the shell. This will only happen if this command has been issued/completed correctly.

3. Change your password to something memorable and unique, replacing `<NewPassword>` with your password and noting that it is case-sensitive. You may wish to note it down or even take a picture of it. The format for doing this is as follows:

   `SET PASSWORD = '<NewPassword>';`

4. Log out of the server by issuing the command `\exit` and then log back into the server using your new password to ensure that you entered it correctly (the username remains unchanged and is still your Student ID – so the `\connect` statement does not differ).

Task Two: Creating a Database

5. Create a database that you will work on during semester for your work in Business Intelligence by issuing the command as follows, after switching to SQL mode:

   `CREATE DATABASE <StudentID>_db;`

   Ensure that you replace `<StudentID>` with your Student ID and that you enter `db` in lower case – MySQL is case-sensitive! Ensure you specify the semicolon. If this command is entered incorrectly, do not worry – it will not work!

6. You will use this database for all activities (unless stated otherwise) during semester. Each time you connect to the server, including right now, issue the following SQL command:

    ```
    USE <StudentID>_db;
    ```

    If you issue this command correctly, you will not need to prefix future commands with '`<StudentID>_db.`'. Otherwise, continue to prefix future commands with this prefix.

Task Three: Creating a(n Entity Data Model) Table

7. Create a table within your MySQL database for an entity named TransactionItem that has the following attributes:

    a. A unique identifier (as a primary key) for each row that automatically increases;

    b. A text field for a description of each line item;

    c. A numeric field to store the quantity of each line item purchased;

    d. A numeric field to store the unit price of each line item purchased, and;

    e. A numeric field to store the total price (i.e. unit price multiplied by quantity) of each line item purchased.

    You may wish to consult the lecture notes to assist with this.

8. Issue a command to read-back the data model (Table) once you have done this, to ensure that you have completed the above exercises correctly.

9. Modify your TransactionItem table such that you now have a new optional attribute named hasGst, which can either be *True* or *False*. Ensure you choose the most appropriate data type for this! Refer back to the previous list of data types in the lecture, if needed.

Task Four: Entering, Analysing and Processing Data

10. Effect the commands to add the following four records to your TransactionItem table. This may take some time and that is OK. Consider what values must be specified. Quotations of numbers are not an issue – but text must be quoted.

id	description	quantity	unitPrice	totalPrice	hasGst
1	Basic Widget	1	123.45	123.45	True (1)
2	Product B	1	99.95	99.95	True (1)
3	Other Service	2	100.00	200.00	False (0)
4	Business Intelligence	1	42.42	42.42	False (0)

    Recall that commands in MySQL are run instantly, numbers may be quoted (quotes around them) but text must be and True/False values can be stated as text (in all capitals) or as 0/1.

11. View the contents of your TransactionItem table to ensure you have entered the details correctly. If you have not, go back and fix any issues that you may have!

12. Adjust the price(s) of "Product B" to be 199.95. You will need to change two columns.

13. Again, view the contents of your TransactionItem table to ensure you have entered the details correctly and determine how many individual items have been recorded in the transaction.

14. Quit the server in the same manner as before, as you have completed all activities.

End of activities. Please see the next page for the questions you may wish to answer.

Questions

Ensure you can answer these questions to cement your understanding of the lab.

1. Record down the username and password you will use to connect to the server.

2. Record down the other commands you issued to the server to complete the activities.

End of Lab Three.