

ICT2103: Information Management
Lab 2: SQL Basics in MariaDB

Objectives

To learn the SQL installation and basic operations.

Deliverables

You are required to finish the lab tasks listed below and submit your lab report. All tasks shall be completed.

Format: **ONE (1) PDF file** (ONE screenshot per task. **SIX (6)** in total.)

Filename: <sid>_<name>_Lab2.pdf, e.g., **2002103_ZhangWei_Lab2.pdf**.

Venue: Dropbox in xSiTe.

Deadline: the end of the week (Sunday, 11:30pm) when the lab is conducted.

Penalty: A penalty of 20% for wrong format or filename and 10% per day for late submission will be imposed. A penalty of 100% for this lab will be imposed for the 1st time plagiarism and a penalty of 100% for ALL the labs for the 2nd time plagiarism.

Software

MariaDB (an open-source MySQL). <https://mariadb.com/>

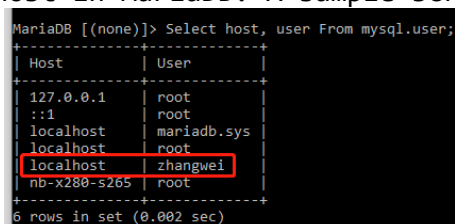
Background

In this lab, you are required to install database software on your laptop or workstation. To standardize, we choose MariaDB in this lab. MariaDB is an open-source MySQL, so the syntax is almost the same as MySQL. After the installation, we practice the database operations like creating a user and the basic CRUD operations. For other options like MS SQL Server, normally we install the database software first as well as a management studio later. The syntax is more or less the same, but there are some differences. However, MS SQL is not our focus in this lab.

(Note: For some students with certain SQL background, you are likely to finish all the tasks in this lab within a half-hour. Of course, you are welcome to work on team projects during the lab hours and discuss with the lab instructors about your project. You are **strongly encouraged to go beyond** our lecture materials to explore the latest and advanced database technologies.)

Tasks:

Q1. Please download the installation package of MariaDB. Please visit the official webpage for download and instructions. After the successful **installation**, open the MySQL Client and get into MariaDB. Your first task in MariaDB is to **create a local user** using **your name** and **grant privileges** to the user. The **1st screenshot** in your lab report includes a list of the users as well as the corresponding host in MariaDB. A sample screenshot is as follows.



```
MariaDB [(none)]> Select host, user From mysql.user;
```

Host	User
127.0.0.1	root
:::1	root
localhost	mariadb.sys
localhost	root
localhost	zhangwei
nb-x280-s265	root

6 rows in set (0.002 sec)

(Note: You **will not** get lab marks if your name as a local user is **not shown** in the screenshot.)

(Note: Please think about why we need to grant privileges. You are welcome to perform tests without granting privileges.)

- Q2. Using your newly created local user, **create** a **database** using your name, e.g., zhangweiDB. Then, **create** a **table** called students in the database. The table has 3 columns, namely sid (for student identifier as an integer and **primary key**), name (for the name of a student), and grade (for the grade of a student). The 2nd screenshot in your report includes a list of the databases in MariaDB. Here is a sample.

```
MariaDB [(none)]> Show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| zhangweidb |
+-----+
4 rows in set (0.001 sec)
```

- Q3. Perform the 1st **read** operation in the table just created. Display all the rows, if any, in the table and check if the table is empty.
- Q4. Perform the 1st **insert** operation by adding **yourself** as the 1st new student (e.g., with sid 2002103, name 'ZHANG Wei', and **with grade** 'NA') into the table. Display all the rows in the latest table. Perform the 2nd and 3rd **insert** operations by adding a new student (with sid 2002222, name 'Valtteri', but **without grade**) and another new student (with sid 2003333, name 'Russell', but **without grade**) into the table. Display all the rows in the latest table.
(Note: The 1st insert shall be your own info, not the instructors'.)
- Q5. Perform the 1st **update** operation by updating your grade to 'A+'. Display all the rows in the latest table. Perform the 2nd **update** operation by updating the grade of Valtteri to 'A-'. Display all the rows in the latest table.
- Q6. Perform the 1st **delete** operation by deleting the student 'Valtteri'. **Display** all the rows in the latest table. Perform the 2nd **delete** operation by deleting all the students in the table. **Display** all the rows in the latest table. Then, **delete** the **database**, and **display** all the databases as in the 2nd task.

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