CSE3OAD/CSE4OAD

MySQL and JDBC: How to Perform the Basic Tasks

1. How to install MySQ on your PC or laptop
2. How to find details of your MySQL account on latcs7
3. How to access MySQL through the command-line interface (CLI)
4. How to change your password
5. How to run (My)SQL scripts
6. How to access MySQL via Java programs

1 How to install MySQL on your PC or laptop

One way to provide yourself with quick and easy access to MySQL and JDBC is to install MySQL server and a Driver on your PC or laptop (assuming Windows platform).

- To install MySQLServer on your PC or laptop
  - See Appendix 1 of Chapter 6 on LMS.
  - The server can be accessed as a local server.
  - When installing the server, you should choose to create an anonymous user. The anonymous user has empty username and password.
  - Appendix 1 shows how to install the server and how to choose to create an anonymous user.

2 How to find details of your MySQL account on latcs7

When your MySQL account on latcs7 is first created, the detail about it is put in the file named

```
MySQL_Account_Information_latcs7.cs.latrobe.edu.au
```

your own latcs7 root directory.

To see the password, login to latcs7 and enter:

```
ls
```

to see if the file is there. If it is, enter:

```
cat MySQL_Account_Information_latcs7.cs.latrobe.edu.au
```

This file provides:

- The database server URL
- The database name
- The username
- The password

You often want to change the initial password to something that is easier to remember and to type in. To do this, see section **??** below.

3 How to access MySQL through the Command-Line Interface (CLI)

General case:

► To access MySQL through the CLI as a non-anonymous user,

- Use a command with the general syntax:
  ```
  mysql -h -hostURL -u username -p
  ```
  For example,
  ```
  mysql -h latcs7.cs.latrobe.edu.au -u yourusername -p
  ```
- The server will prompt for the password, so ebter the password.
- If all goes well, the server will display the mysql prompt.
- Then you can test it further with, e.g.
  ```
  show databases;
  ```

Special cases:

► To access a local MySQL server through the CLI as a non-anonymous user,

- Enter a command with the general syntax:
  ```
  mysql -u username -p
  ```
  For example, suppose you have login to latcs7.cs.latrobe.edu.au using putty, then you can access the MySQL server there, as the local server, with:
  ```
  mysql -u username -p
  ```
- Next enter the password (as requested by the server).

► To access a local MySQL server through the CLI as an anonymous user,

- Enter the following simple command:
  ```
  mysql
  ```
- The system will respond (if all goes well) with a mysql prompt.

4 How to change your password

- To change your password
  - Login to MySQL server (through the CLI).
  - At the MySQL prompt, enter a command with the general syntax:
    ```
    set password = password('yourNewPassword');
    ```
  - For example, if your password is `secret` then you enter:
    ```
    set password = password('secret');
    ```

5 How to run MySQL scripts

General case:

- To run a MySQL script,
  - Use a command with the general syntax:
    ```
    mysql -h -hostURL -u username -p < script.sql
    ```
    For example,
    ```
    mysql -h latcs7.cs.latrobe.edu.au -u username -p < script.sql
    ```
  - If all goes well, there will be no error message.
  - Or, if your script has some query command, e.g. `show databases` or a `select` statement, the output will be show on the screen

Special cases:

- To run a MySQL script to access a local MySQL server as a non-anonymous user,
  - Enter a command with the general syntax:
    ```
    mysql -u username -p < script.sql
    ```
  - The server will prompt for the password.

- To run a MySQL script to access a local MySQL server in CLI mode as an anonymous user,
  - Enter the simple command:
    ```
    mysql < script.sql
    ```

6 How to access databases through your Java programs

To enable your Java programs to access MySQL databases, you must make the Driver class available to the programs at runtime.

WHEN you run your Java program on your PC/laptop, you have control over where you want to put the the Driver class (i.e. the jar file that contains the Driver class). Hence you have options such as those given below.

- One way to make the Driver class available to your Java program:
  - Put the Driver's jar file (e.g. `mysql-connector-java-bin.jar`) on the same directory as your Java program.
  - Compile your program as usual with, e.g.
    `javac YourProgram.java`
  - Run your program with, e.g.
    `java -cp .;mysql-connector-java-bin.jar YourProgram`
    That is, you specify the classpath so that the runtime system can locate the Driver.

- Another way to make the Driver class available to your Java program is shown by the following example:
  - Suppose when you run command
    `java - version`
    you get the answer that the version is `jdk1.8.0_66`)
  - Then you can try to put the jar file (e.g. `mysql-connector-java-bin.jar`) in the directory
    `C:\Program Files\Java\jdk1.8.0_66\jre\lib\ext`
  - Then you can run your program with, e.g.
    `java YourProgram`
  - This is the recommended option

WHEN you run your Java programs on UNIX servers such as latcs7 or latcs8, you do not have control over how the runtime system is installed. Therefore, you should provide your own Driver jar file and make sure that it is on the classpath at runtime. For example you can do this as shown below.

- To run your Java programs on latcs7 or latcs8 (for example),
  - Put the Driver's jar file (e.g. `mysql-connector-java-bin.8jar`) on the same directory as your Java program.
  - Compile your program as usual with, e.g.
    `javac YourProgram.java`
  - Run your program with, e.g.
    `java -cp .;mysql-connector-java-bin.jar YourProgram`
    That is, specify the classpath so that the runtime system can locate the Driver.

IF you access a database as a non-anonymous user, your program should prompt for the password, which can be achieved with the following statements:

```
char[] pwd = System.console().readPassword("Password: ");
String password = new String(pwd);
```

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