

CSCI 3901 Lab 7: Java – MySQL Connection

Fall 2021

Objective

In this lab, you will establish a connection between a Java program and a MySQL database.

Assignments 5 and 6 will use the kind of database connection that you establish in this lab.

Due: Not due for grading. This lab is for your own development. Its focus is to get your work environment set-up for future course work.

Preparation

- Download the mysql java .jar file from <https://dev.mysql.com/downloads/connector/j/>. If in doubt, use the “platform independent” file.
- Download and install the MySQLWorkbench from <https://dev.mysql.com/downloads/workbench/>. By some reports, the install for Windows may ask you for pre-requisite modules and/or may not run at the start. I hear that this can happen when trying to install the full MySQL suite. Instead, only look to install the workbench element of the larger download.

Resources

- Database diagram at <http://www.mysqltutorial.org/mysql-sample-database.aspx> for the data in this lab.

This database, which we will be using for the rest of the term, is the sales database for a model car company.

- The csci3901 database available at db.cs.dal.ca. You will need to be on the Dal network to access this database, so you will want to use the Dal Virtual Private Network (VPN) if you are working from home.

Alternatively, you can download and install your own copy of the mysql database onto your local computer and install your own copy of the database, with data retrieved from the same web page as the database diagram.

Procedure

Set-up

1. Create an IDE Java project for this lab
2. Link the mysql .jar file from the preparation section as an added or external library to your IDE project.
3. Download and install the Dal VPN client (from <https://wireless.dal.ca/vpnsoftware.php>). When asked for a server to connect to, use vpn.its.dal.ca as the target server.

4. Configure MySQLWorkbench to get a TCP/IP connection over SSH via timberlea.cs.dal.ca to db.cs.dal.ca (Figure 1). In that figure, store your timberlea password in the “Store in Keychain...” button near SSH Password and store your Banner ID (with a capital B) in the “Store in Keychain...” button near “Password” at the bottom.

Setup New Connection

Connection Name: test connection Type a name for the connection

Connection Method: Standard TCP/IP over SSH Method to use to connect to the RDBMS

Parameters SSL Advanced

SSH Hostname: timberlea.cs.dal.ca SSH server hostname, with optional port number.

SSH Username: mcallist Name of the SSH user to connect with.

SSH Password: Store in Keychain ... Clear SSH user password to connect to the SSH tunnel.

SSH Key File: ... Path to SSH private key file.

MySQL Hostname: db.cs.dal.ca MySQL server host relative to the SSH server.

MySQL Server Port: 3306 TCP/IP port of the MySQL server.

Username: mcallist Name of the user to connect with.

Password: Store in Keychain ... Clear The MySQL user's password. Will be requested later if not set.

Configure Server Management... Test Connection Cancel OK

Figure 1 MySQLWorkbench connection parameters

Lab steps

Part 1 – Using MySQLWorkbench

1. Open the MySQLWorkbench application. Execute the command “use csci3901;” in the workbench to access the class database.
2. Use the “show tables;” command to identify and report which tables are in the database and not in the ER diagram from the resources.
3. Report the outcome of the following SQL statements:
 - a. select * from orders where OrderID = 10250;
 - b. select * from orderdetails where OrderID = 10250;
 - c. select productCode, productName, productDescription from products where productCode = "S12_2823" or productCode = "S18_2238";
 - d. select customers.customerNumber, customerName from orders, customers where orderNumber = 10250 and orders.customerNumber = customers.customerNumber;

Part 2 – Java connection

4. Create a program that will ask for an order number from the user and will show the order information on the screen as an invoice, with a well-formatted structure. The invoice should include
 - a. The order date and order number
 - b. The customer name and address
 - c. The name of the sales representative
 - d. Order lines with product codes and product names, aligned appropriately
 - e. The total cost of the order

Use the steps and sample Java code in the “program a mysql connection in Java.pdf” file associated with the lab to help make the connection to the database.

Part 3 – Testing

5. Develop a plan on how you could test the correctness of your program from Part 2.

Database diagram:

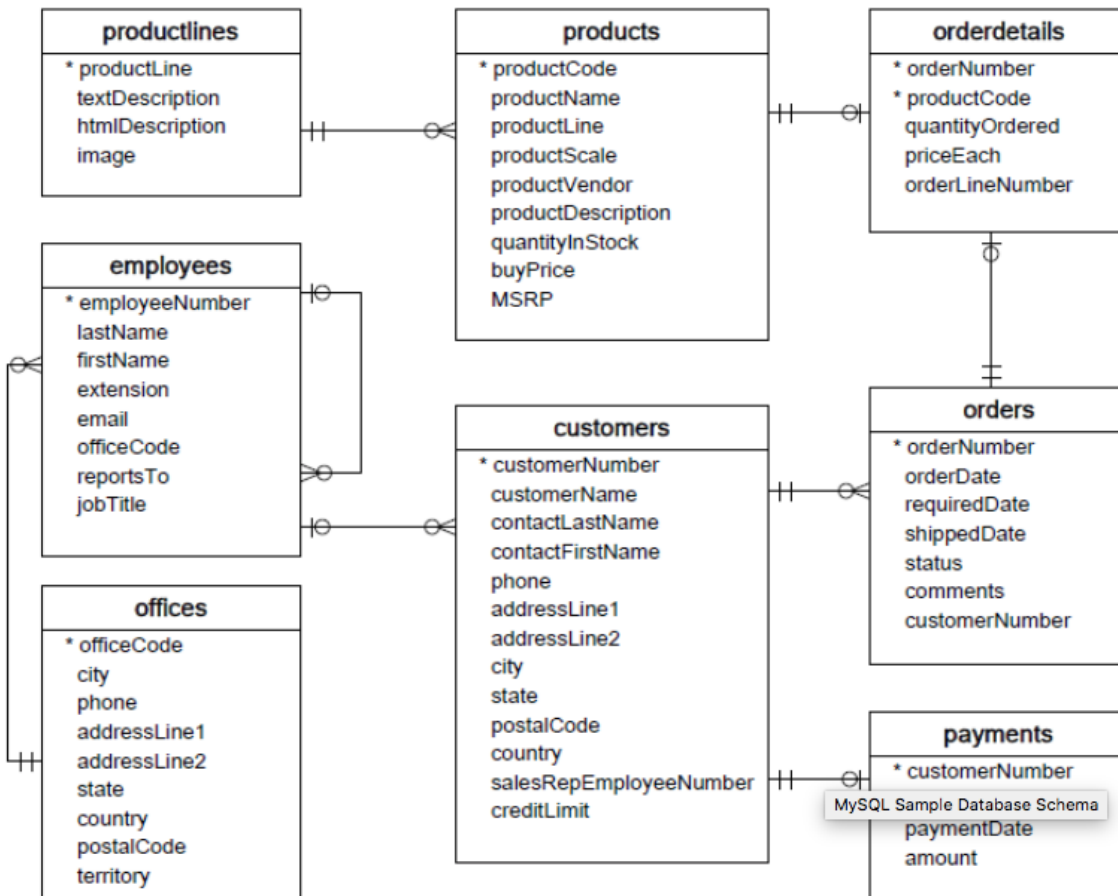


Figure 2 Database from <http://www.mysqltutorial.org/mysql-sample-database.aspx>