INFO90002 Tutorial - Week 1

Introduction to MySQL Server and MySQL Workbench

GENERAL – MySQL, MySQL Server & MySQL Workbench

MySQL Server is a relational database. It supports ISO compliant SQL standards and data types. However when we think of "MySQL" we need to think about MySQL as being a brand like 'Microsoft' or 'IBM' or 'Oracle'. MySQL as a brand has a range of products. MySQL's core business is its relational database server. There are other products MySQL produce that support that database server such MySQL Utilities MySQL Router, MySQL Workbench. Each of these products produced by MySQL do different things to support the database server.

MySQL Server

The MySQL Server is an open source RDBMS (relational database management system). MySQL Server was originally developed by a Swedish Company in 1995. For a long time it was the defacto database of the Open Source movement in Information Technology. MySQL was acquired by Sun Microsystems in 2008 and then by Oracle as part of its acquisition of Sun Microsystems in 2010. The current GA (General Availability – the version made available to all customers) is version 8.0 and we will use release 8.0.20.

MySQL is a multithreaded (many things can go on at once) multi user (many users can connect to the server at once) relational database engine compliant with all SQL (pron. S-Q-L) ISO standards. This is the database that will store all of your tables and data and which you will use to learn SQL.

MySQL Workbench

MySQL Workbench is a GUI (graphic user interface) client tool that can be used to connect to and work with a MySQL server. It provides an integrated development environment for database design, database administration, SQL code development and basic database migration tools. In this subject we will be using most of these features of MySQL Workbench.

The MySQL Workbench creates a connection to the database server over a network. If MySQL Workbench client is located on the same host as the Server, it performs a loopback network connection.

Starting the MySQL Server

When you install the MySQL Server install on Windows it will create a MySQL Server service. This means your database server daemon (the process that allows the database server to start) will run each time you start your Windows machine. On Mac OS you will need to open 'System Preferences' and select the MySQL Server ICON and start the MySQL Server. On MacOS you can elect to start the database each time you start your machine.

Connecting Workbench to the MySQL Server

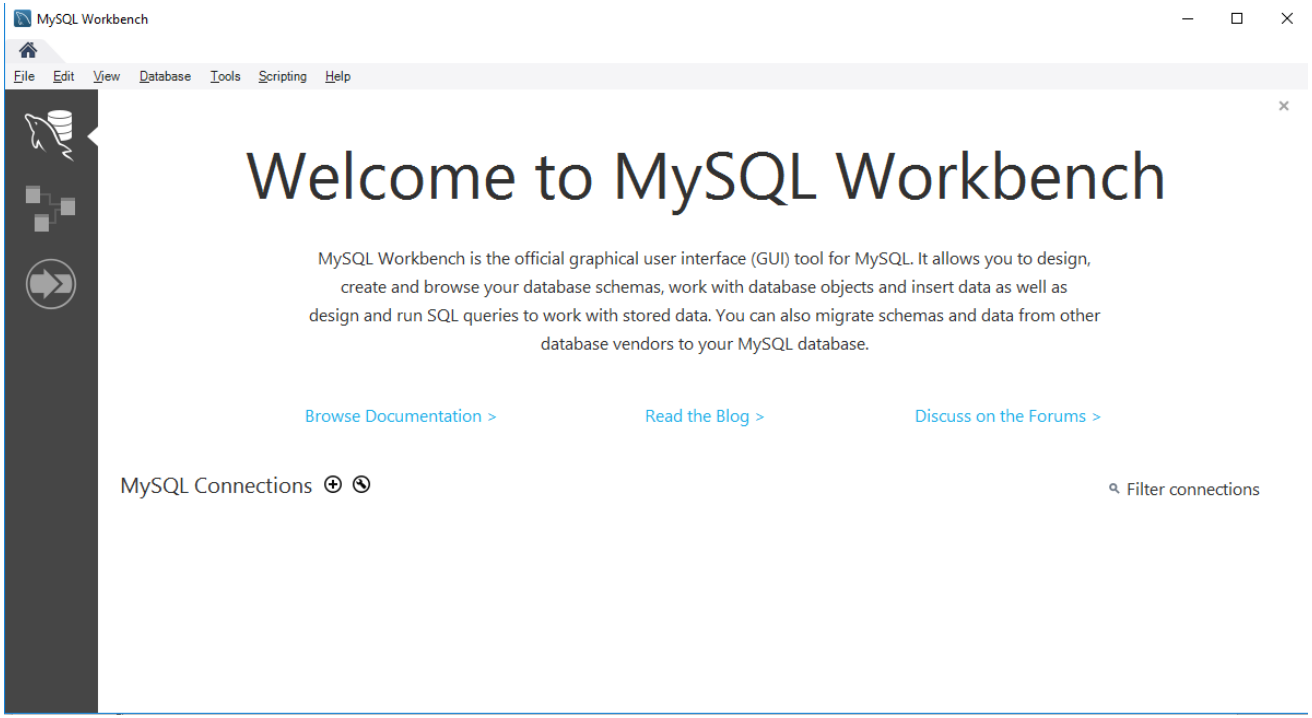

Figure 2 MySQL Workbench Welcome screen

The first task creates a connection between the MySQL Workbench "a client" to the MySQL Server " a server" this is the basic client server architecture you may be familiar with. For BYOD installs we still need to loopback a network connection from the client to the server.

Establishing Workbench to Server connections

Click on New Connection and fill out the connection details. You can specify any connection name you like, but you must specify a connection name.

The server we are using in this subject (details below) is only available for use within the university, or via the university's VPN (Virtual Private Network). To gain access to the university's VPN you need to look at http://studentit.unimelb.edu.au/findconnect/vpn and follow the appropriate instructions for your operating system.

HostName: info90002db.eng.unimelb.edu.au

Port: 3306

Your username is the username that you use to log into the university services normally. Your current password is in the format of:

***username*_YYYY**

initial password

YYYY is the current password. For example, Joanne Wu has the username *jwu3*. In the year 2020 Joanne's password would be:

jwu3_2020

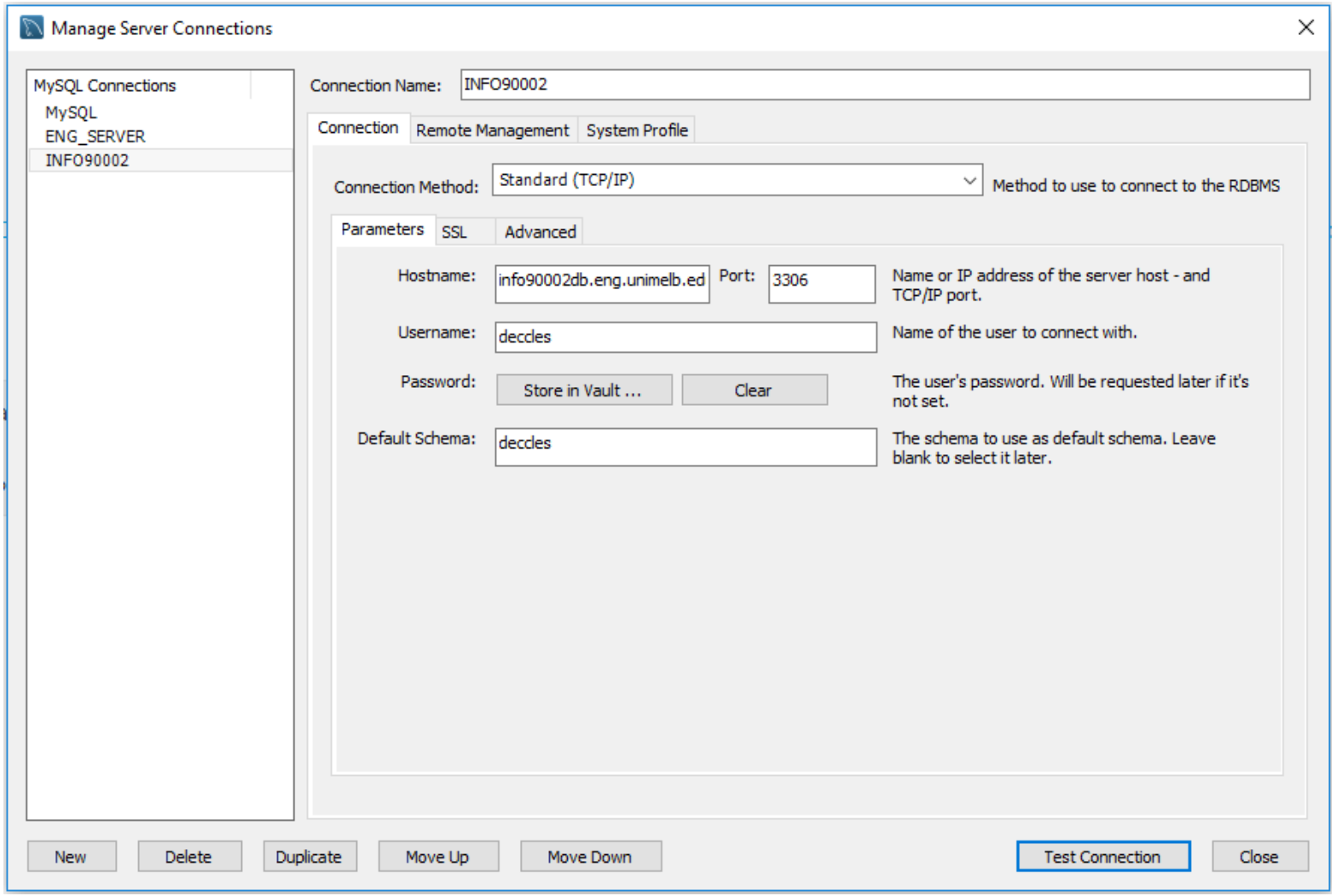

Figure 3 MySQL Connection Setup Configuration screen

If the connection is correct, when you press the "Test Connection" button you should see a dialog.

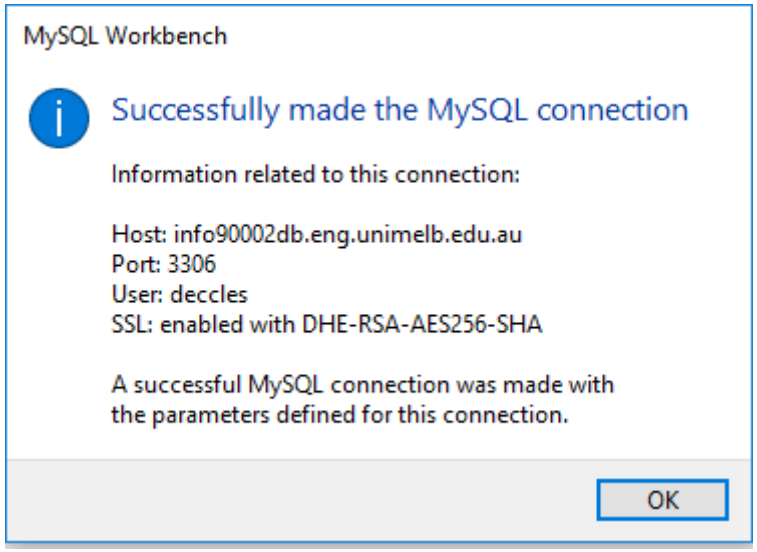

Figure 4 Successful Test Connection dialog box

If you do not see the above dialog window double check your settings. If your settings are correct please **ask a tutor** to assist you. Otherwise, acknowledge the "OK" in the dialog box and make sure to SAVE your connection with a meaningful name (e.g. INFO90002).

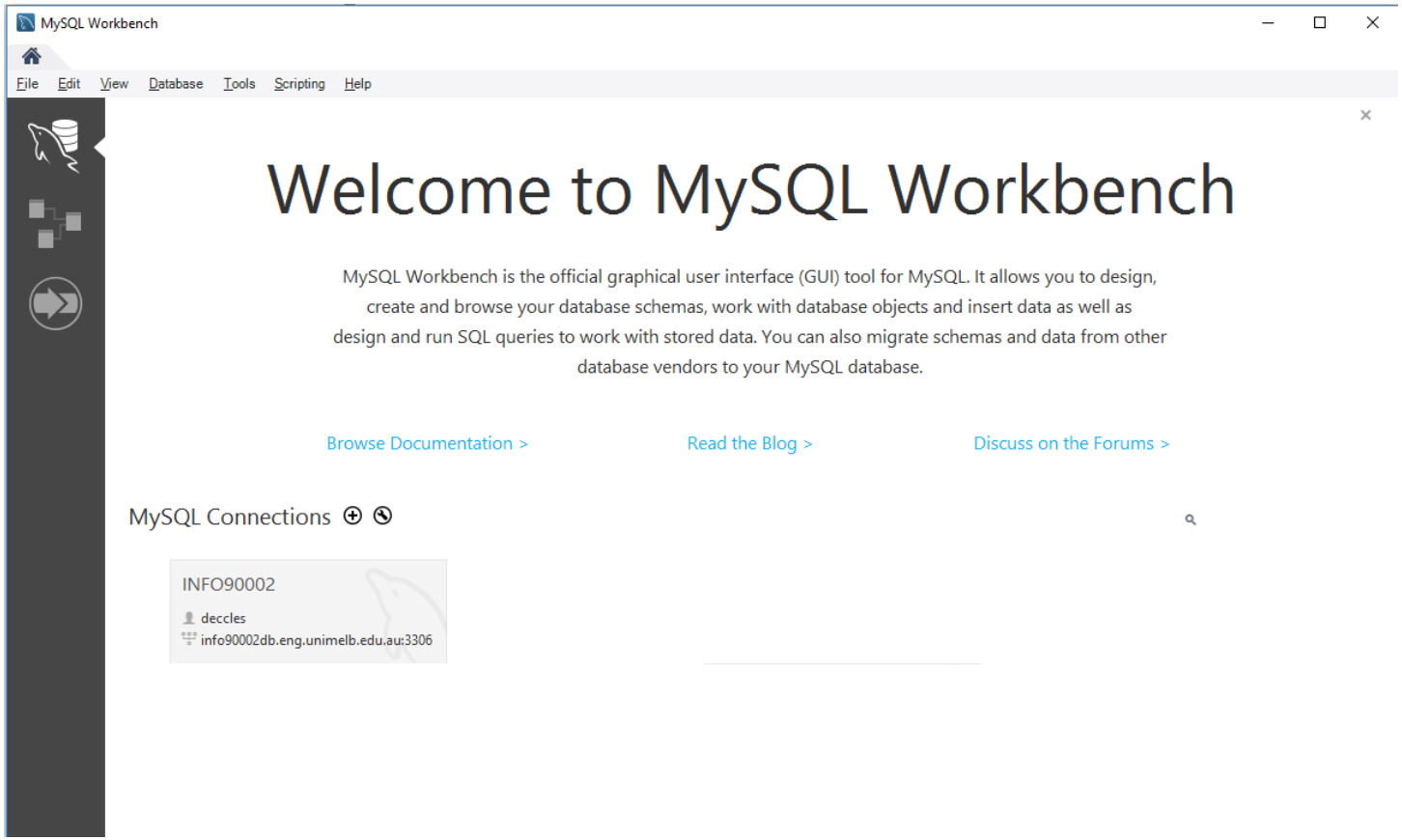

Figure 5. MySQL Connections showing the new MySQL database connection labelled MySQL showing the Engineering IT address info90002db.eng.unimelb.edu.au

If you click on the "INFO90002" button you will launch MySQL Workbench and be connected to your local MySQL Server

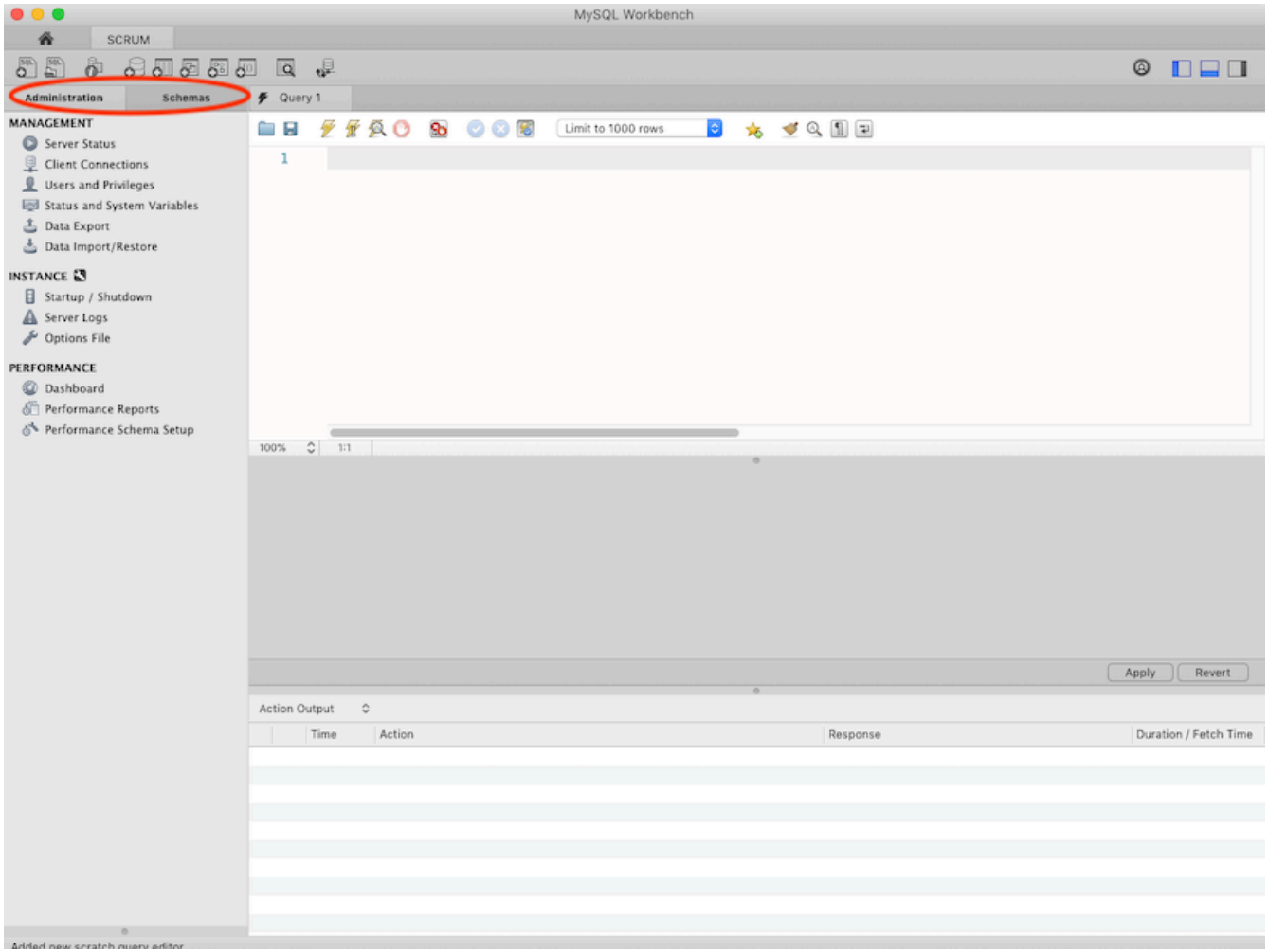

Figure. 6 The MySQL workbench. Notice the two tabs 'Administration' and 'Schema' in the Navigator window on the left

In Version 8 of MySQL Workbench Schema and Administration are in separate windows To see your schema select 'Schema' in the navigation window

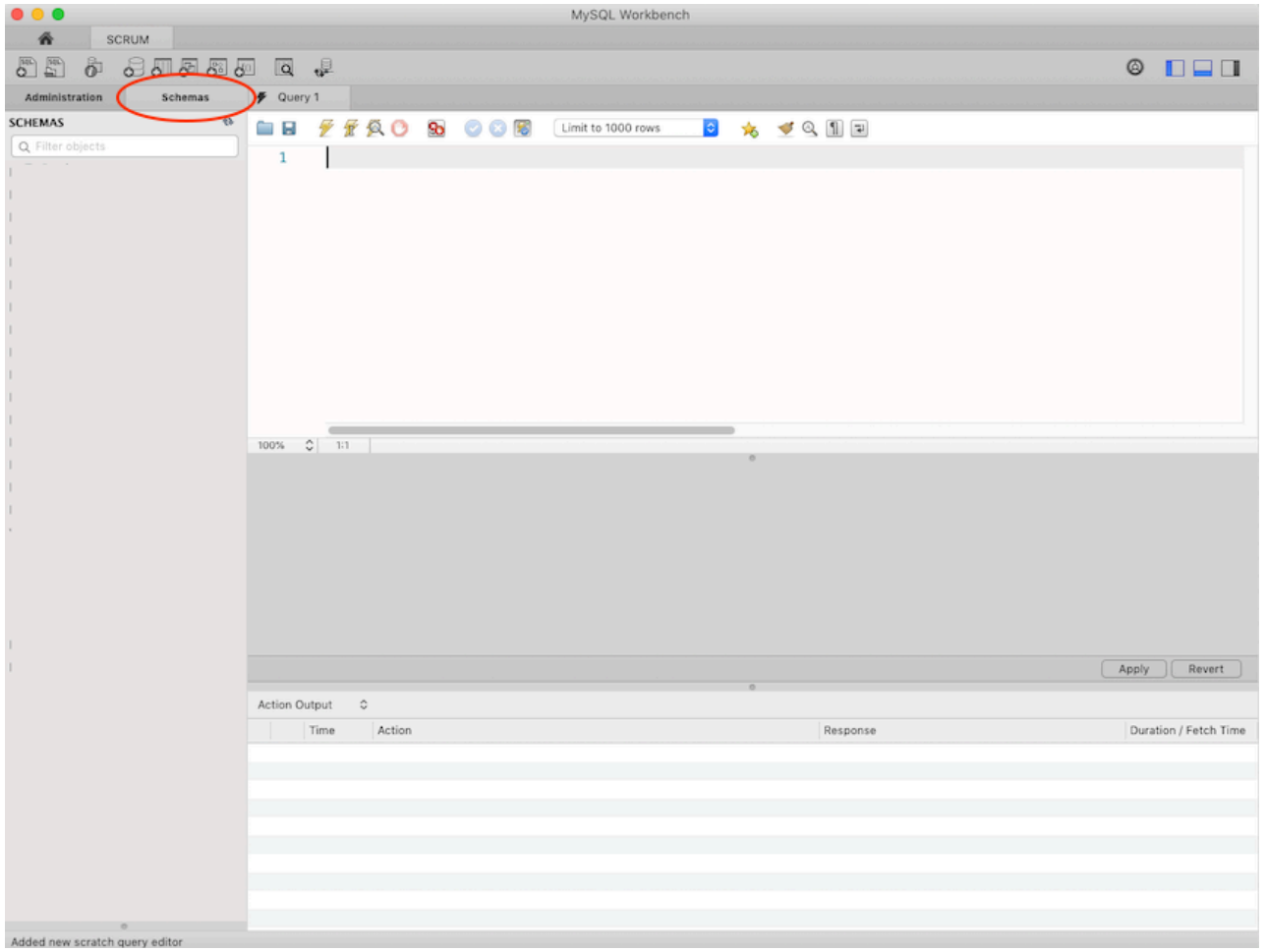

Figure. 7 The MySQL workbench. Schema view

There are two ways to execute commands through MySQL Workbench. We can write queries in an ad hoc manner by typing commands into the query window or we can run an SQL script containing one or more commands by loading the file and executing the code. We will do both of these during the semester.

Changing your password

To change your password, after logging in, enter the command:

```
SET PASSWORD = 'NewP@SSw0rdH3Re';
```

Now press the leftmost Lightning button on the toolbar to run the query. Also remember that your password **is case sensitive**.

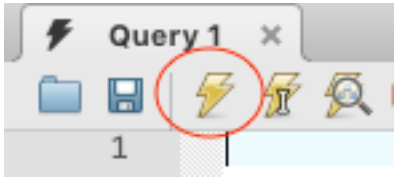

Figure 8 The Lightening button executes all queries written in the query window of MySQL Workbench

Safe Mode

MySQL workbench tries to stop you from making mistakes by running in safe mode. You may get an error like this when you try to UPDATE multiple records:

```
“Error Code: 1175. You are using safe update mode and you tried to update a table without a WHERE that uses a KEY column”
```

To disable safe mode, toggle off the safe updates option in

Preferences -> SQL Queries and reconnect."

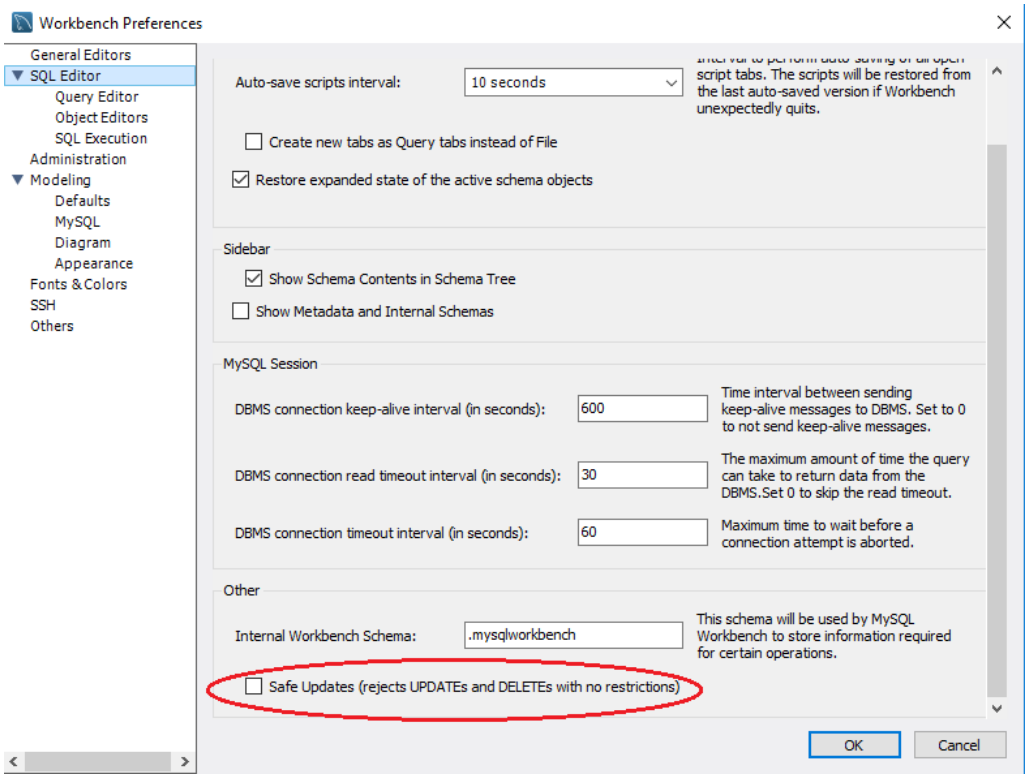

Figure 9. Ensure the Safe Updates is unchecked.

You will need to scroll to the bottom of the SQL Editor window

Safe Mode is stopping you from accidentally deleting everything from a table rather than a few distinct rows. Or, for example, making a mass accidental UPDATE to all movie genres rather than one movie.

To exit out of safe mode, go to the edit menu

Edit --> Preferences --> SQL Queries --> Uncheck "Safe Updates".

It is important that you close MySQL Workbench and , restart and reconnect to MySQL Workbench so that your safe update change take effect.

Appendix: BYOD Installs

BYOD Install of MySQL Server & MySQL Workbench

To install MySQL for this class on your own device you will need the MySQL Server and MySQL Workbench products for your operating system. Both MySQL Server and MySQL Workbench are supported on UNIX, Linux, Mac OS and Windows operating systems.

MySQL Workbench is the tool that we will be using to connect to the MySQL database and do any database modelling.

Downloads:

MySQL Workbench and MySQl Server tool are available from the MySQL downloads pages. You will need to download and install MySQL Server and Workbench to complete the SQL labs in this subject.

When downloading, it is advised to select the "No thanks, just start my download" rather than signing up for an Oracle account:

The Server can be downloaded from this link Be sure to download the MySQL Community Server edition of the MySQL database server.

https://dev.mysql.com/downloads/mysql/

Download MySQL Workbench from this link

http://dev.mysql.com/downloads/workbench/

If you intend to install on a Windows environment it is best to use the integrated Windows installer package which includes both the Server and Workbench for Windows

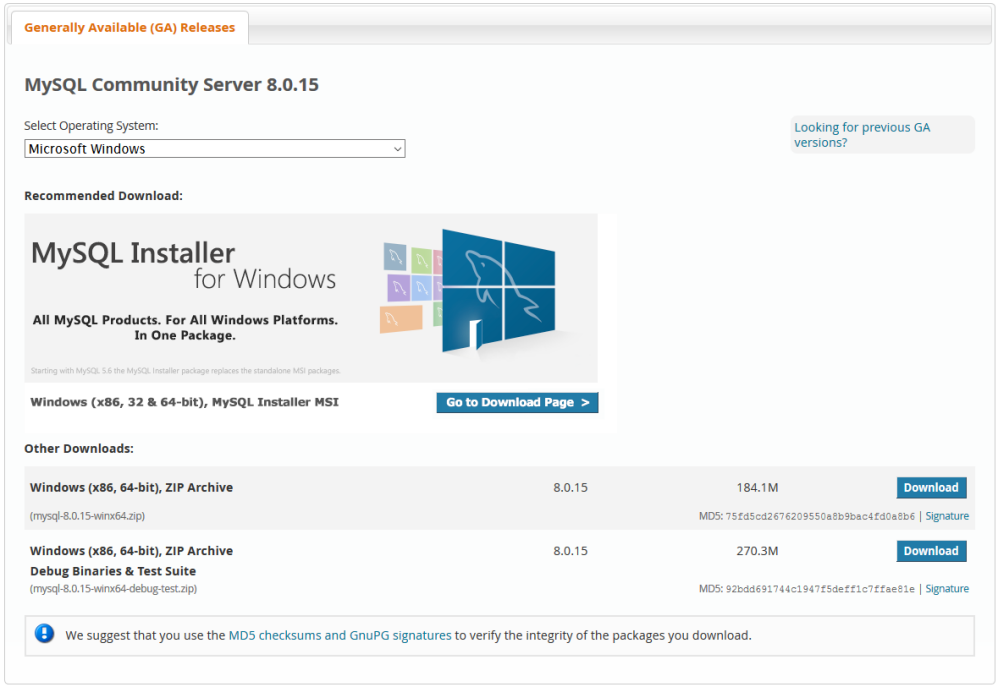

Figure 1: The MySQL Installer for Windows link on the Server download page