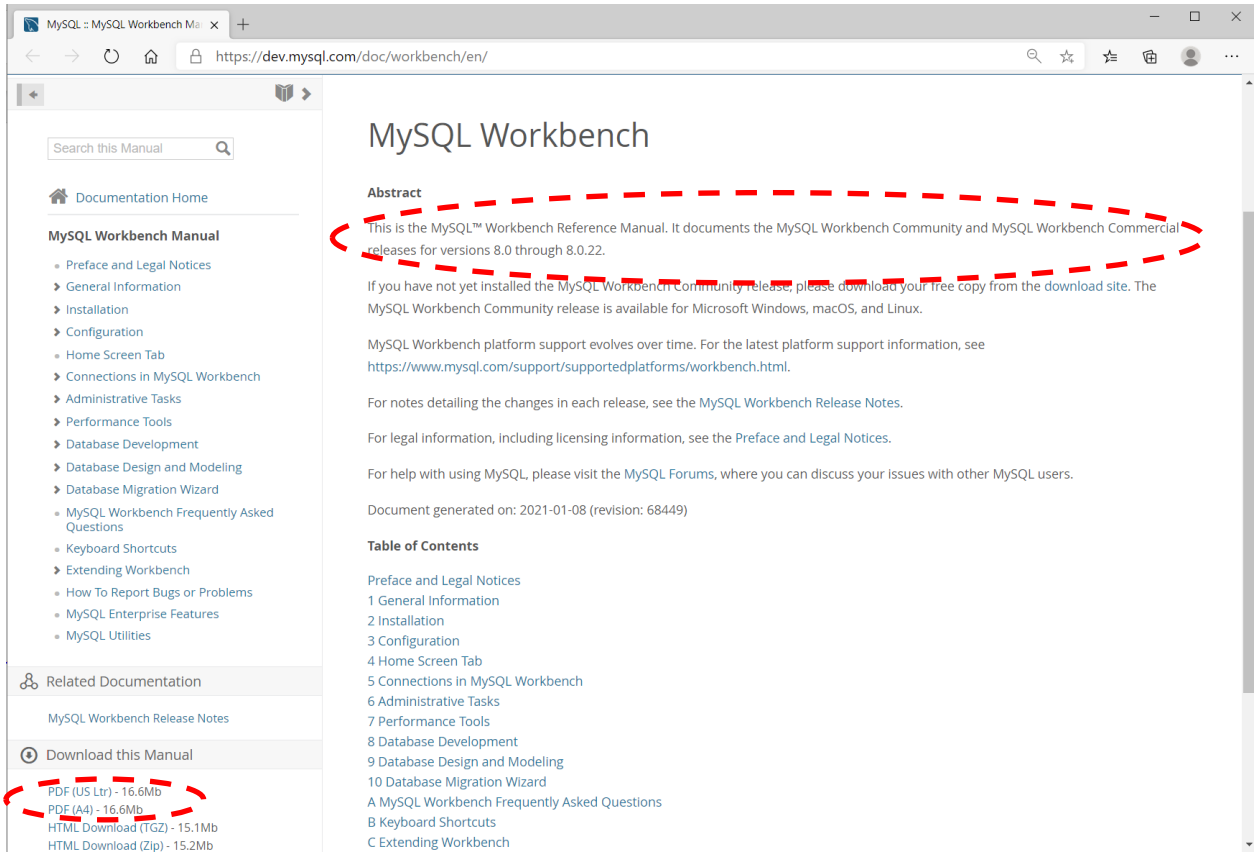
MySQL Lab 2
Using MySQL Workbench

TOC

1 Getting Started with MySQL Workbench

1.1 Introduction

The MySQL Workbench Reference Manual can be downloaded from this link: https://dev.mysql.com/doc/workbench/en/:



MySQL Workbench is a graphical tool for working with MySQL servers and databases. There are five main functions supported in MySQL Workbench, which are listed below (as given in the MySQL Workbench documentation):

• **SQL Development** It enables you to create and manage connections to database servers, along with enabling you to configure connection parameters. It provides the capability to execute SQL queries on the database connections using the built-in SQL Editor and external SQL script files.

• **Data Modeling (Design)** It enables you to create models of your database schema graphically, reverse and forward engineer between a schema (ER model) and a live database, and edit all aspects of your database using the comprehensive Table Editor. The Table Editor provides easy-to-use facilities for editing Tables, Columns, Indexes, Triggers, Partitioning, Options, Inserts and

Privileges, Routines and Views.

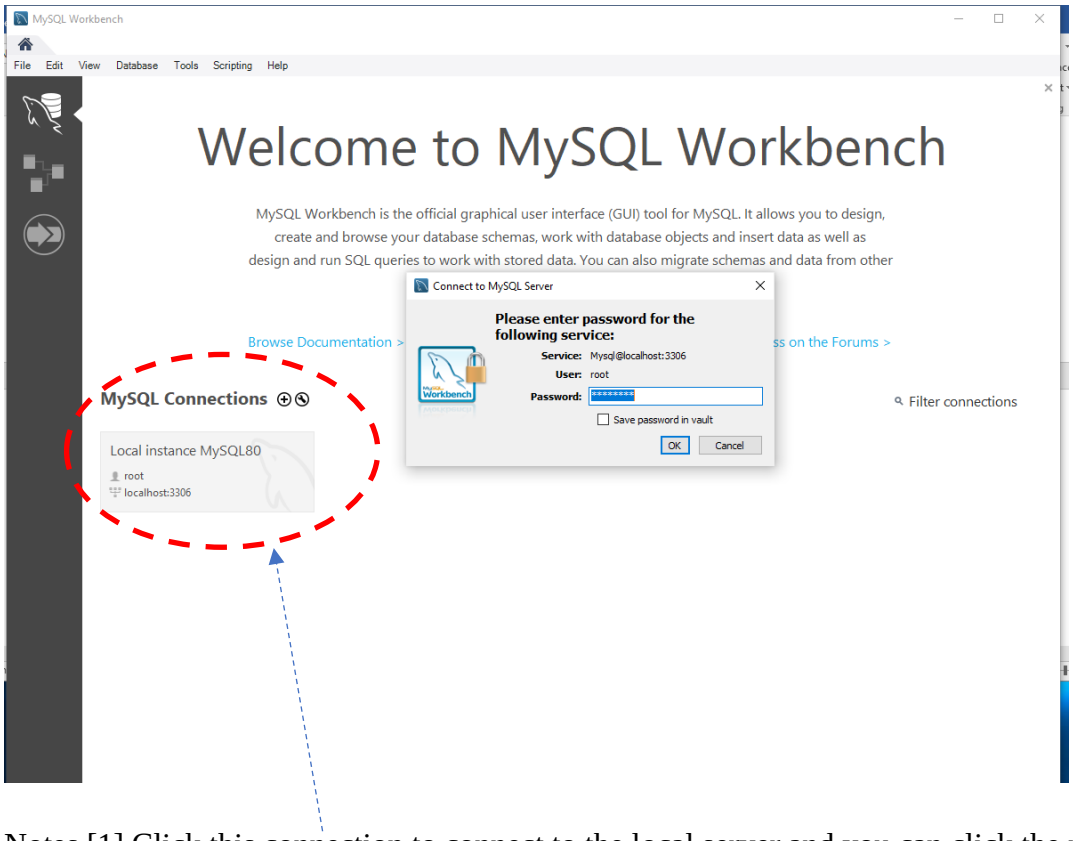
• **Server Administration** It enables you to administer MySQL server instances by administering users, performing backup and recovery, inspecting audit data, viewing database health, and monitoring the MySQL server performance.

• **Data Migration** It allows you to migrate from Microsoft SQL Server, Microsoft Access, Sybase ASE, SQLite, SQL Anywhere, PostreSQL, and other RDBMS tables, objects and data to MySQL. Migration also supports migrating from earlier versions of MySQL to the latest releases.

• **MySQL Enterprise Support** It supports for Enterprise products such as MySQL Enterprise Backup, MySQL Firewall, and MySQL Audit.

1.2 Basic Workbench User Interface

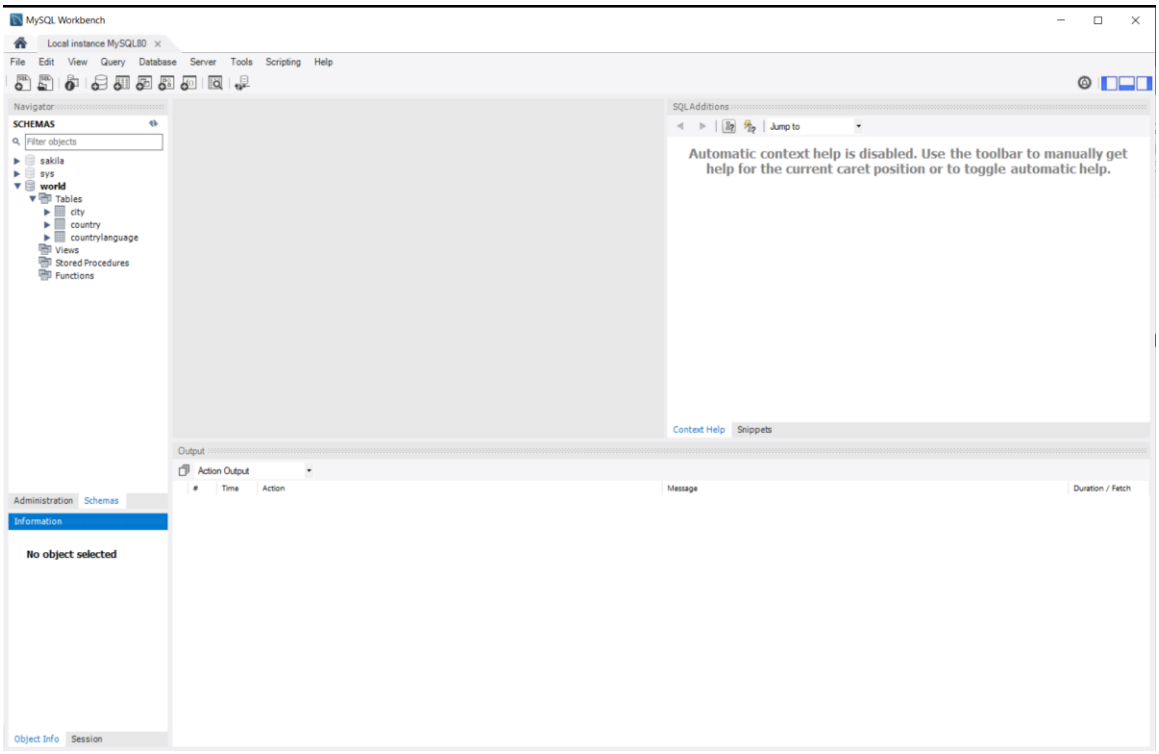
Start the Workbench and click a MySQL Connection to connect to the desired MySQL server and you click a connection, the interface pops up a dialog to ask to log in to the server. As shown in the following figure, the clicked connection uses the user, root, which is the administrator of the server, to log in a local server. Recall when you install the local MySQL server, you choose the password for the root user.



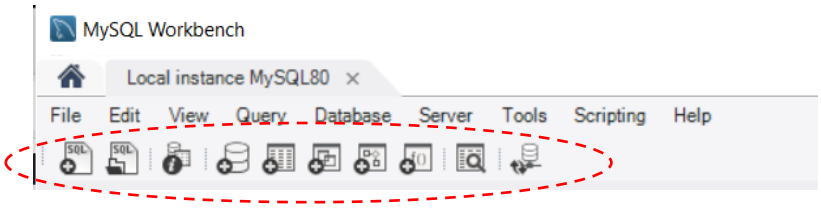
Notes [1] Click this connection to connect to the local server and you can click the plus sign to create a new connection.

[2] If the server you try to connect is not running, you will see a warning message and you have to use the menu, `Server > Startup/Shutdown`, to start the server.

After you successfully log in to the server, you will see the Workbench main interface window as shown in the following figure:



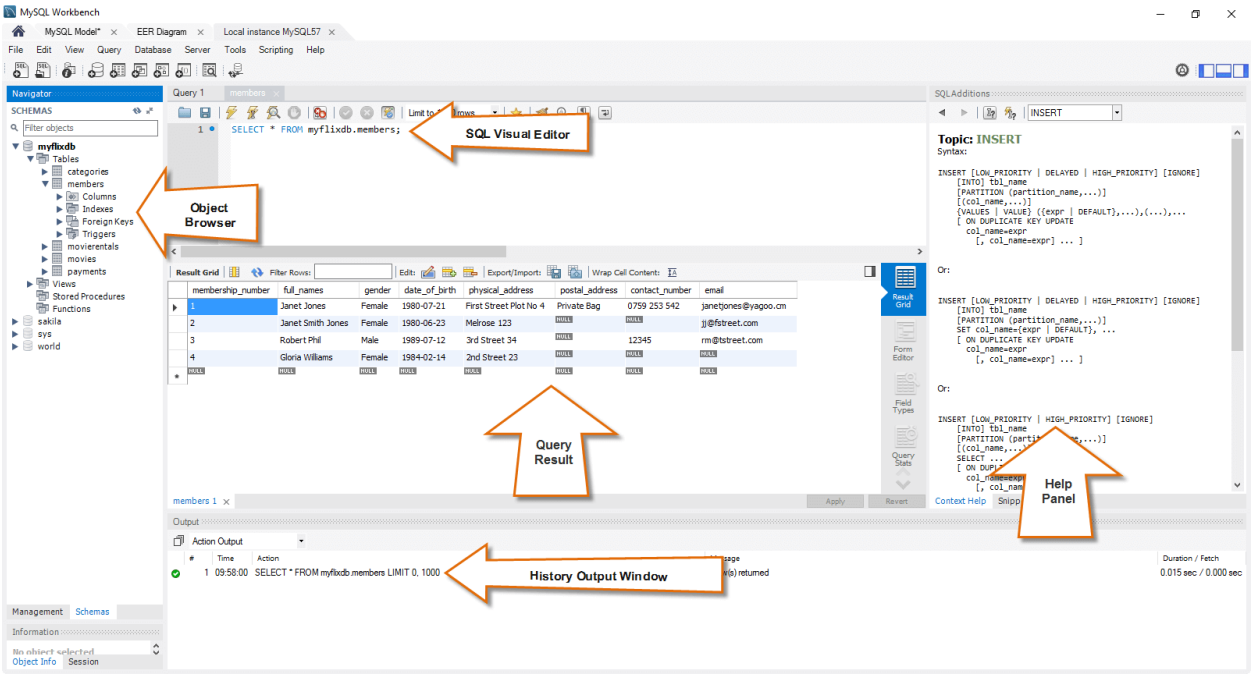
The work you want to do on the sever can be selected from the tool bar just below the menu bar as show in the following figure (move the mouse cursor over a tool, a tool hint will be shown):



The tool hints of the tools in the tool bar from left to right are listed below:

1 Create a new SQL tab for executing queries
2 Open a new SQL script file in a new query tab
3 Open Inspector for the selected object
4 Create a new schema in the connected server
5 Create a table in the active schema in the connected server
6 Create a new view in the active schema in the connected server
7 Create a new stored procedure in the active schema in the connected server
8 Create a new function in the active schema in the connected server
9 Search table data for text
10 Reconnect to DBMS

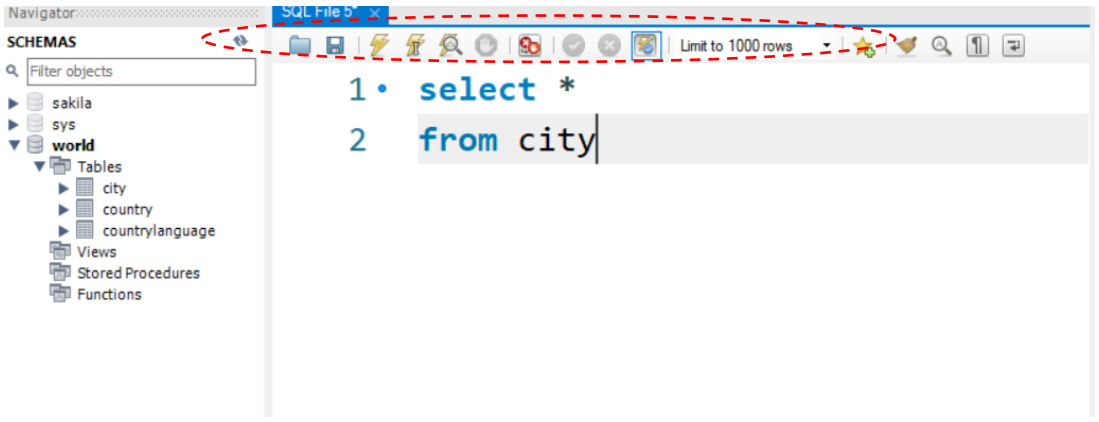
The figure below shows the **SQL Development** window of the Workbench after we create a SQL query tab.



(Source: https://www.guru99.com/introduction-to-mysql-workbench.html)

Note in the bottom of the Navigator (Object Browser), you can select Management or Schemas (in MySQL, a schema is a database). In the figure, since Schemas is selected, The Navigator window lists all the Schemas (i.e. Databases). By clicking a schema in the Navigator will select the schema as the active schema. All SQL operations are applied to the active schema.

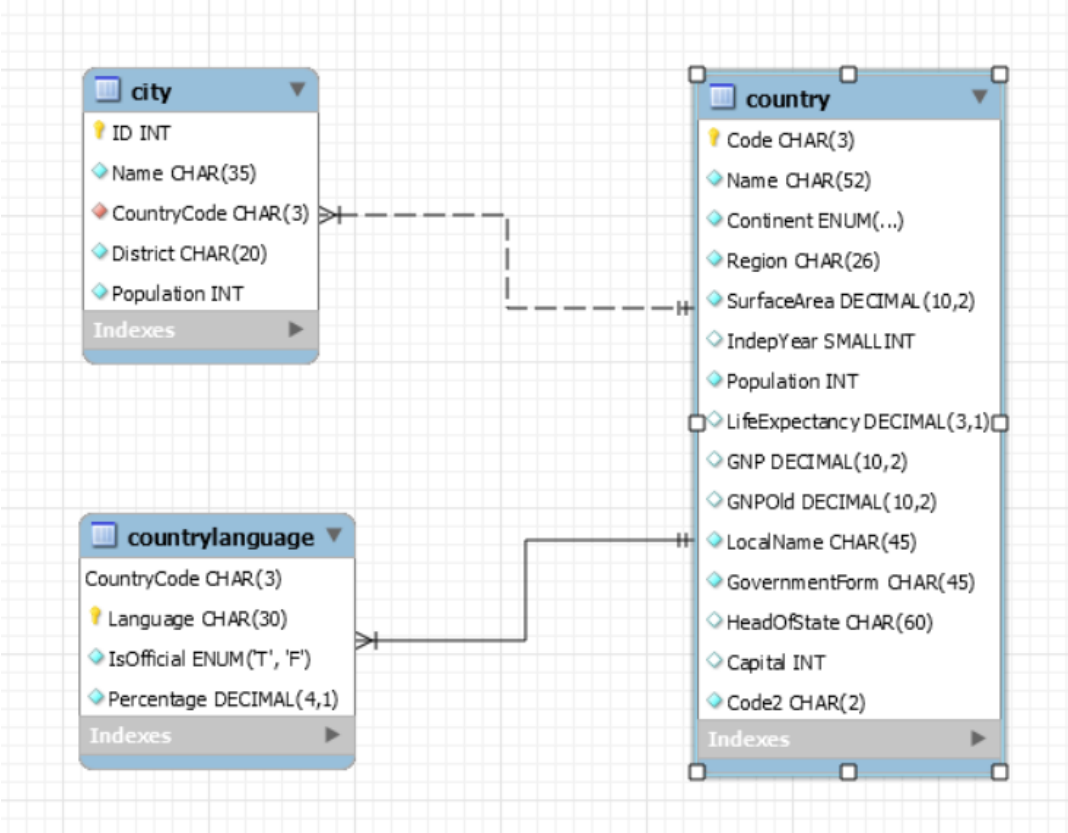
The tool bar in the SQL visual editor as shown in the figure below allow you to open a new script file, save, execute, and so on:



Use the tool hints to know about the function of each tool in the tool bar.

1.3 Using Workbench to Load the World Samples Database

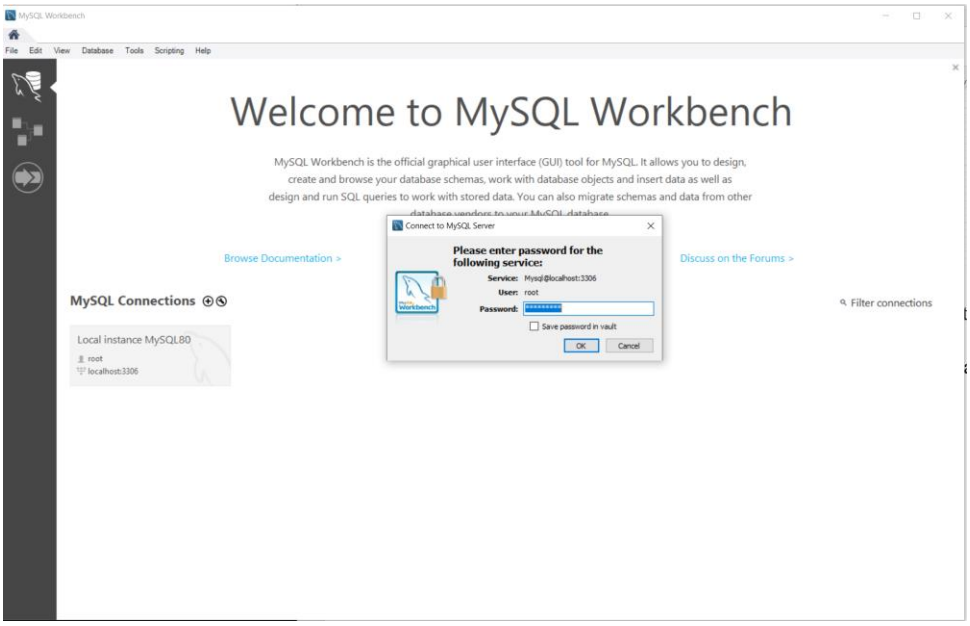
The World database is a small database containing information about cities, countries, and languages spoken by the people of the countries and the data is from the world around 1990s. The schema of the `world` database is shown in the following figure:



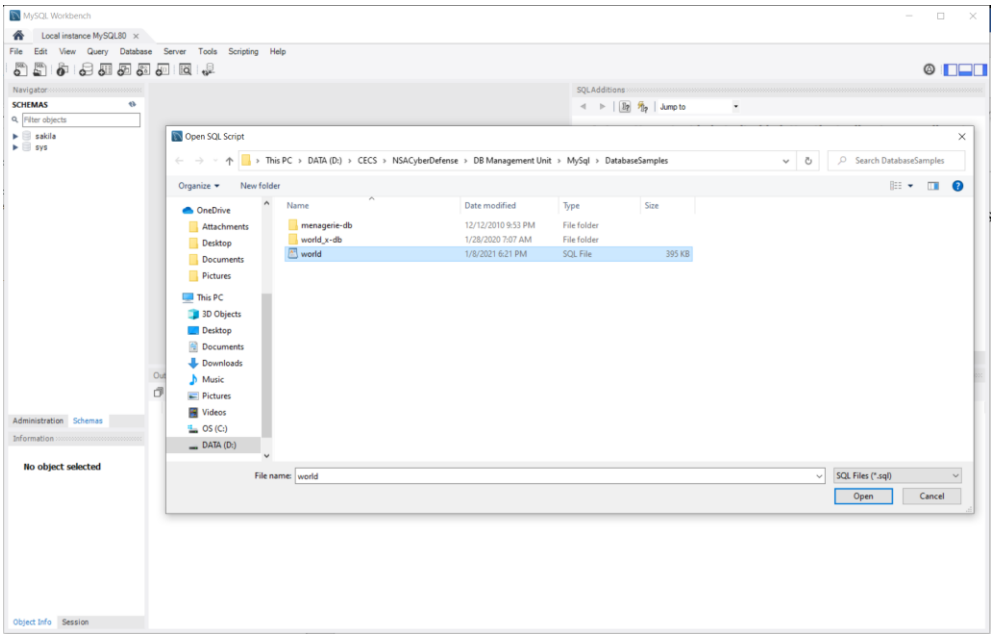
The script file, `world.sql`, can be used to load the `world` database to a MySQL server

Follow these step-by-step instructions to load the World database using MySQL Workbench.

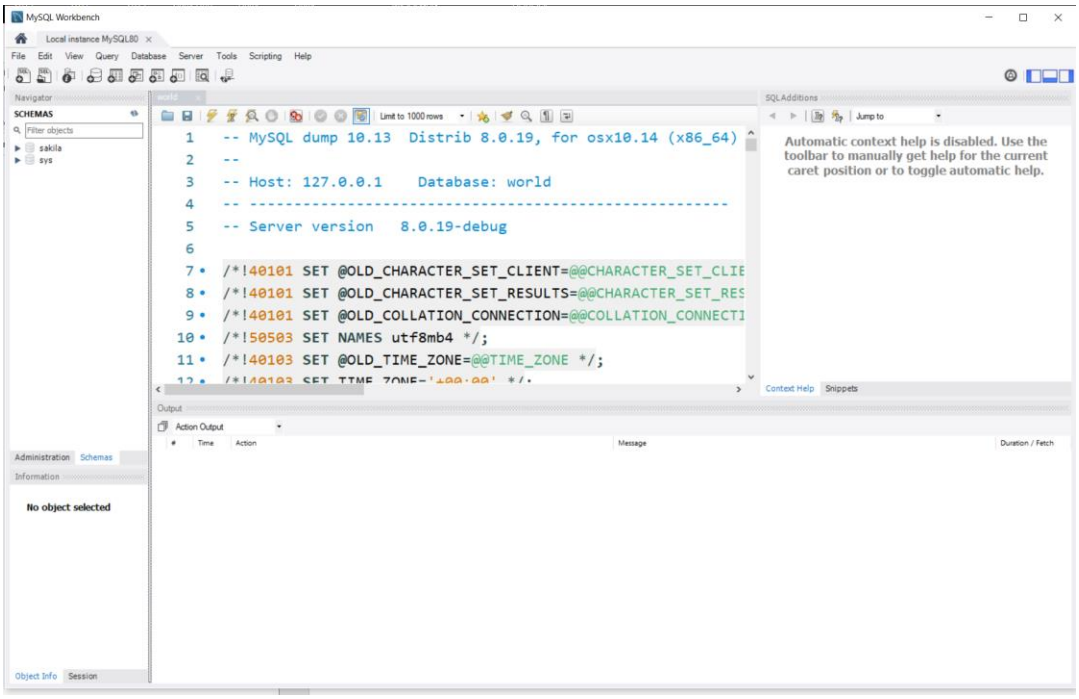
Step1 Start Workbench and connect to a MySQL server



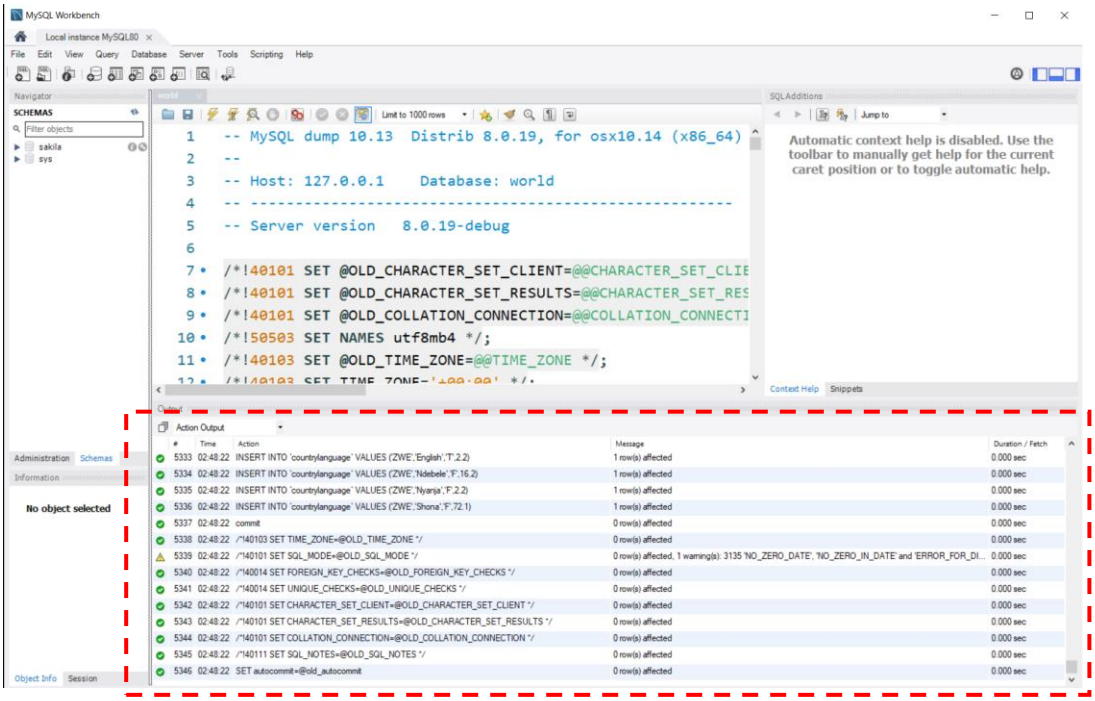
Step2 Use the menu, `file>Open SQL Script..`, to open the script, `world.sql`.



Step 3 The following figure shows the Workbench window after is loaded.

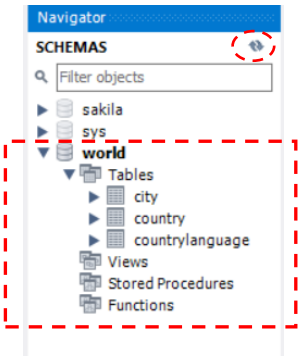


Click the Execute (the third tool on the tool bar in the SQL visual Editor) to execute the script.



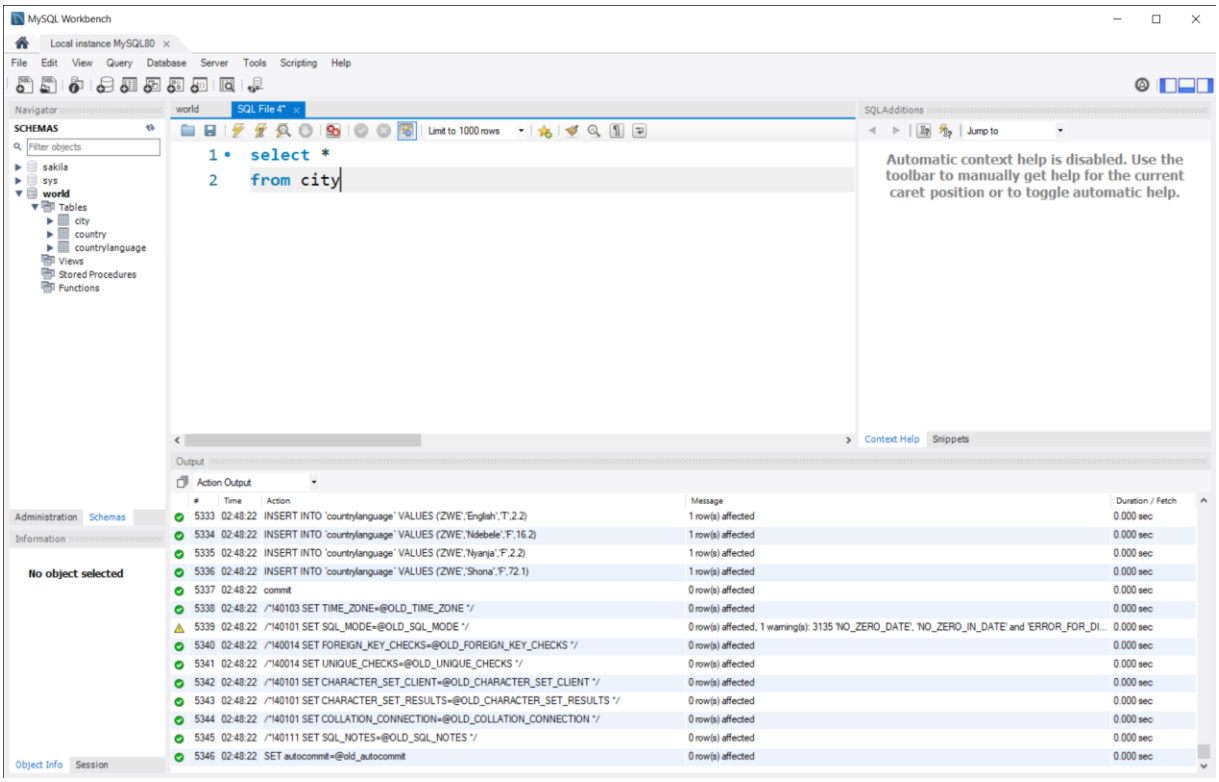
Script execution results are shown in the Action Output window (highlighted above).

The newly created `world` database is not shown in the navigator. You have to click the ? mark inside the Navigator to refresh like shown in the following figure.



As shown in the Navigator, you can see three are tables (`city`, `country`, and `countrylanguage`) created in the `world` schema.

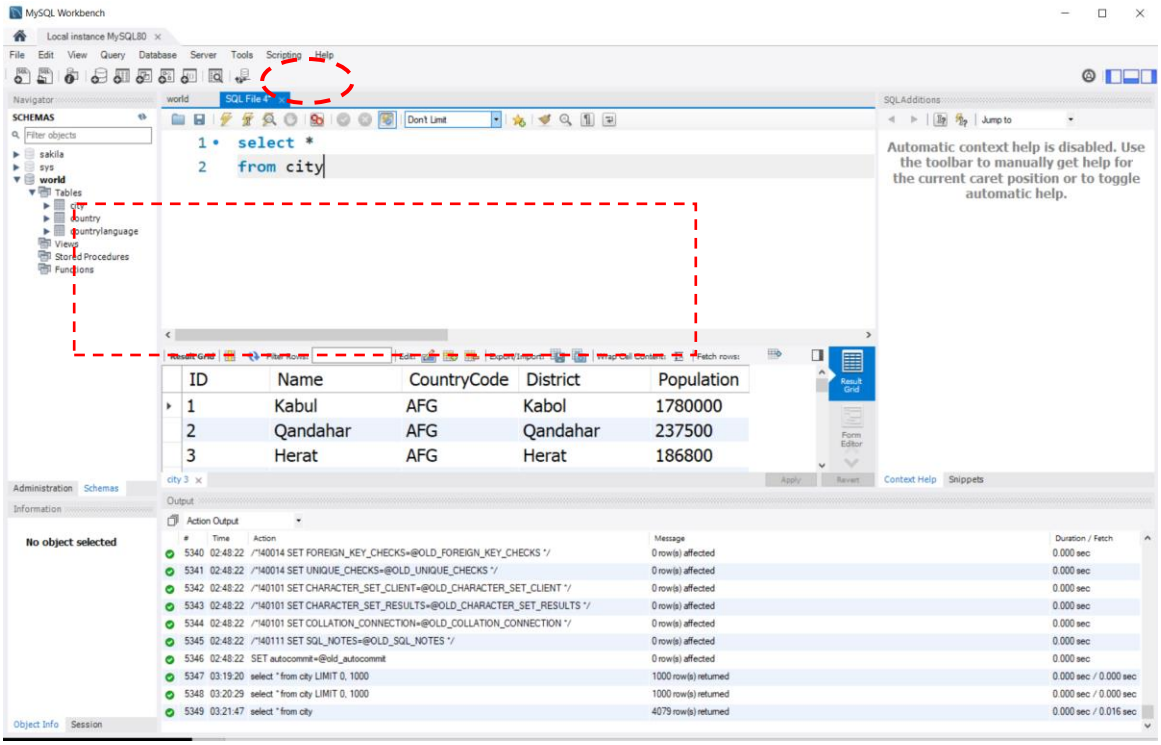
After the world database (called schema in MySQL) is loaded, run a couple of SQL queries to verify the loaded data. Use the menu, File>New Query Tab, to open a new query in the SQL visual Editor window as shown in the following figure:



In the Editor, enter,

```
select *
from city
```

and execute the query and the result is shown in the following figure:



The returned result is displayed in a table form (highlighted) and you can scroll down the displayed table to see more data in the city table. You will find out there are 4079 city rows. Be warned if the table is big you need to limit the number of rows to return. In the example, we set the limit to "Don't Limit" to retrieve all rows.

Likewise, you can retrieve all rows in the tables, `country` and `countrylanguage`, respectively.

2 Lab Activities

2.1 Load the world database to a MySQL server

Activity 2.1.1

Run MySQL Workbench on your computer and connect to a MySQL server on which you have permission to create databases. Load the world database using the script, `world.sql`, to the connected MySQL server.

Activity 2.1.2

Name all the columns in the city, county, and countrylanguage tables, respectively.

Activity 2.1.3

In the Object Browser panel, select the world > Tables > city > Name. What is the Definition of the Name column shown in the Information panel?

In the Object Browser panel, select the world > Tables > city > Population. What is the Definition of the Name column shown in the Information panel?

2.2 Explore the world database

Select the world database in the Object Browser panel as the active database.

Activity 2.2.1

Create a new query in the SQL Visual Editor window and enter the following SQL statement in the editor window (either upper or lower case because MySQL SQL is case insensitive):

```
select *
from city
limit 5
```

This SQL statement retrieves all columns (i.e., * means all columns) of the first five rows from the `city` table. Execute the SQL statement and show the result.

Activity 2.2.2

Enter the following SQL statement in the editor window:

```
select Code, Name, Continent, Population
from country
limit 5
```

This SQL statement retrieves four columns (i.e., `Code`, `Name`, `Continent`, and `Population` given in the `select` clause) of the first five rows from the `country` table. Execute the SQL statement and show the result.

Activity 2.2.2

Use SQL statements to find the number of rows in the tables, `city`, `country`, and `countrylanguage`, respectively. Show your results.