Pre-Joining Topics

Week 1: MYSQL Basics

Overview of Workbench

What is MySQL?

MySQL is an open-source Relational Database Management System (RDBMS) developed by Oracle Corporation, Sun Microsystems, that uses Structured Query language(SQL) to interact with databases. You can use MySQL to store, retrieve, manipulate and process data that is in the form of tables.

Why Use MySQL?

There are various relational database management systems present in the tech world today, such as Microsoft SQL Server, Microsoft Access, Oracle, DB2, etc.

Here are some reasons why people use MySQL over other Database Management Systems.

- Multiple Storage Engines

MySQL adheres to multiple storage engines, and each one of the storage engines possesses unique features, while other databases like SQL Server only support a single storage engine.

- InnoDB: It is the default storage engine fabricated with MySQL since version 5.5. It supports ACID-based transactions.
- MyISAM: Former to version 5.5, MyISAM was the default storage engine used by MySQL. It does not support ACID-based transactions.

High Performance

MySQL has reported high performance compared to other database management systems because of its simplicity in design, and adherence to multiple storage engines.

- Cost-Effective

The community edition of MySQL is free of cost, and the commercial edition has a licensing fee, which is cost-effective compared to other products available in the market.

- Cross-Platform

MySQL runs on Windows, Linux, and macOS because of its cross-platform property.

With this, it is clear why MySQL is used. Now, you will see what MySQL Workbench exactly is and how one can use it.

What is MySQL Workbench?

MySQL Workbench is a unified cross-platform, open-source relational database design tool that adds functionality and ease to MySQL and SQL development work. MySQL Workbench provides data modeling, SQL development, and various administration tools for configuration. It also offers a graphical interface to work with the databases in a structured way.

- You can create a Graphical Model using MySQL Workbench
- MySQL Workbench provides reverse engineering for live databases to models
- MySQL Workbench offers a forward engineering model to a script/live database

MySQL Workbench - Modeling and Designing Tool

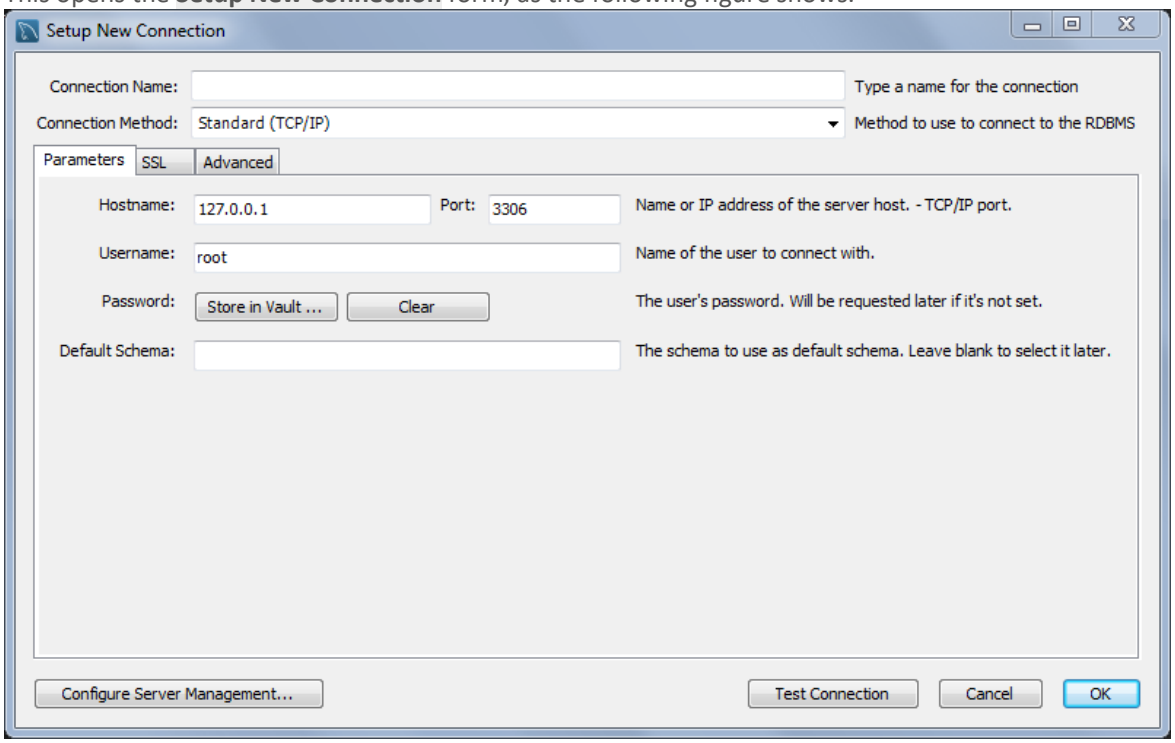
- MySQL Workbench possesses tools that allow database administrators to virtually create physical database design models that can be easily transitioned into MySQL databases using forward engineering.
- MySQL Workbench adheres to all objects such as tables, views, stored procedures, triggers, etc.

MySQL Workbench functionality covers five main topics:

- ***SQL Development***: Enables you to create and manage connections to database servers. Along with enabling you to configure connection parameters, MySQL Workbench provides the capability to execute SQL queries on the database connections using the built-in SQL Editor.
- ***Data Modeling (Design)***: Enables you to create models of your database schema graphically, reverse and forward engineer between a schema 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***: 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***: 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***: Support for Enterprise products such as MySQL Enterprise Backup, MySQL Firewall, and MySQL Audit.

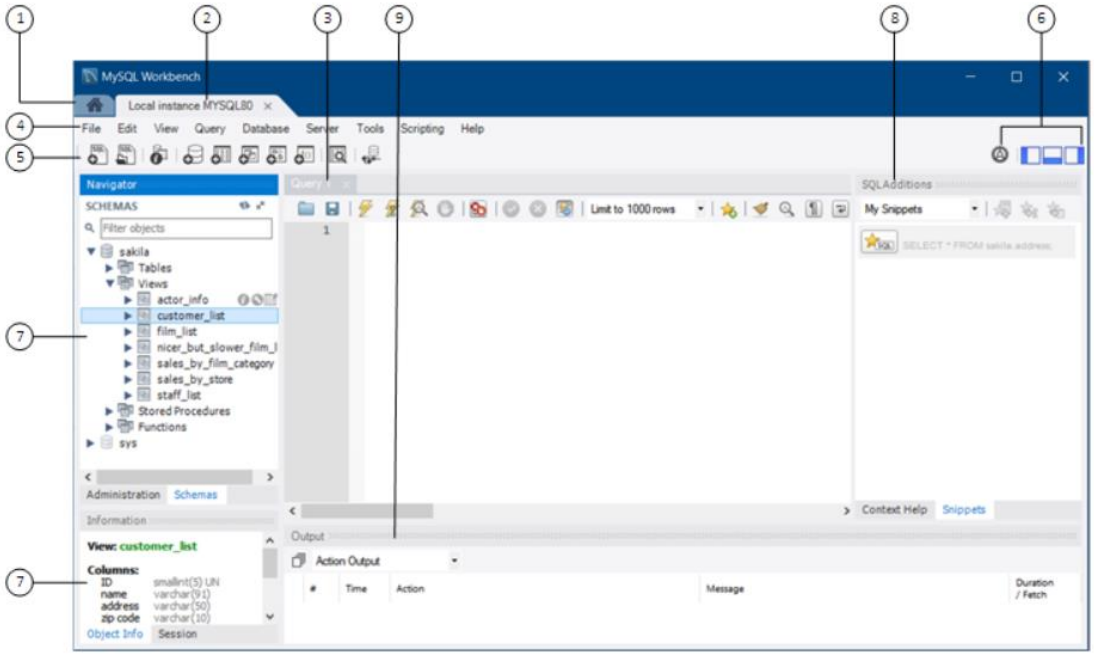
Creating A New MySQL Connection (Simple)

To add a connection, click the [+] icon to the right of the **MySQL Connections** title on the home screen. This opens the **Setup New Connection** form, as the following figure shows.



Visual SQL Editor

Figure 8.1 Visual SQL Editor



Description of the Visual SQL Editor Elements

1. Home screen tab. The Home screen tab provides quick access to connections, models, and the MySQL Migration wizard. Unlike the other main tabs, the Home screen tab does not close.
2. Connection tab. Each connection made to the MySQL server is represented by a separate connection tab. A server can be active or inactive when the connection tab for it is opened
3. SQL query tab. The SQL query tab is a secondary tab that opens by default when you make a connection to a MySQL server. Each query tab is uniquely identified by an incrementing number: query 1, query 2, and so on. To close an open tab, click the x on the tab. All SQL query tabs provide an area to edit queries. You can open other specialized editors within tabs in this same central area. For example, you can edit schemas, tables, columns, and so on. Administration tabs also open in this area.
4. Main menu bar. The menu bar has the following menus: **File**, **Edit**, **View**, **Query**, **Database**, **Server**, **Tools**, **Scripting**, and **Help**. The actions available to you depend on which tab is selected when you click a menu.
5. Main toolbar. The quick actions in this toolbar are (ordered from left to right):
    - Create a new SQL tab for executing queries
    - Open an SQL script file in a new query tab
    - Open Inspector for the selected object
    - Create a new schema in the connected server
    - Create a new table in the active schema in connected server
    - Create a new view in the active schema in the connected server
    - Create a new stored procedure in the active schema in the connected server
    - Create a new function in the active schema in the connected server
    - Search table data for text in objects selected in the sidebar schema tree
    - Reconnect to DBMS
6. Shortcut actions. Provides the following shortcuts (ordered from left to right):
    - Show preferences dialog
    - Hide or show the sidebar panel

- Hide or show the output area panel
- Hide or show the secondary sidebar panel

7. Sidebar panel. The sidebar has two main labels: Navigator and Information. The labels are omitted on some hosts.

The Navigator has two subtabs: **Administration** (previously named **Management**) and **Schemas**. You can merge (or separate) the content of the two tabs into a single list by clicking merge ( ).

The Information area provides the **Object Info** and **Session** subtabs, which include read-only information about a selected object and about the active connection.

8. Secondary sidebar panel (SQL Additions). The SQL Additions area provides the following subtabs:
    - **Context Help**
    - **Snippet**
9. Output area panel. The output panel can display a summary of the executed queries in the following forms: Action Output, Text Output, or History Output

References

Simplilearn.com

Dev.mysql.com. Mysql Workbench Manual