

Executing SQL Queries



Hands-on Lab : Executing SQL Queries

Estimated time needed: 30 minutes

In this lab you will be using phpMyAdmin, which is a free tool embedded in this lab environment to work on MySQL.

Objectives

After completing this lab you will be able to:

- Create a Database
- Create and load tables using csv files
- Execute SQL queries

Software Used in this Lab

In this lab, you will use [MySQL](#). MySQL is a Relational Database Management System (RDBMS) designed to efficiently store, manipulate, and retrieve data.



To complete this lab you will utilize MySQL relational database service available as part of IBM Skills Network Labs (SN Labs) Cloud IDE. SN Labs is a virtual lab environment used in this course.

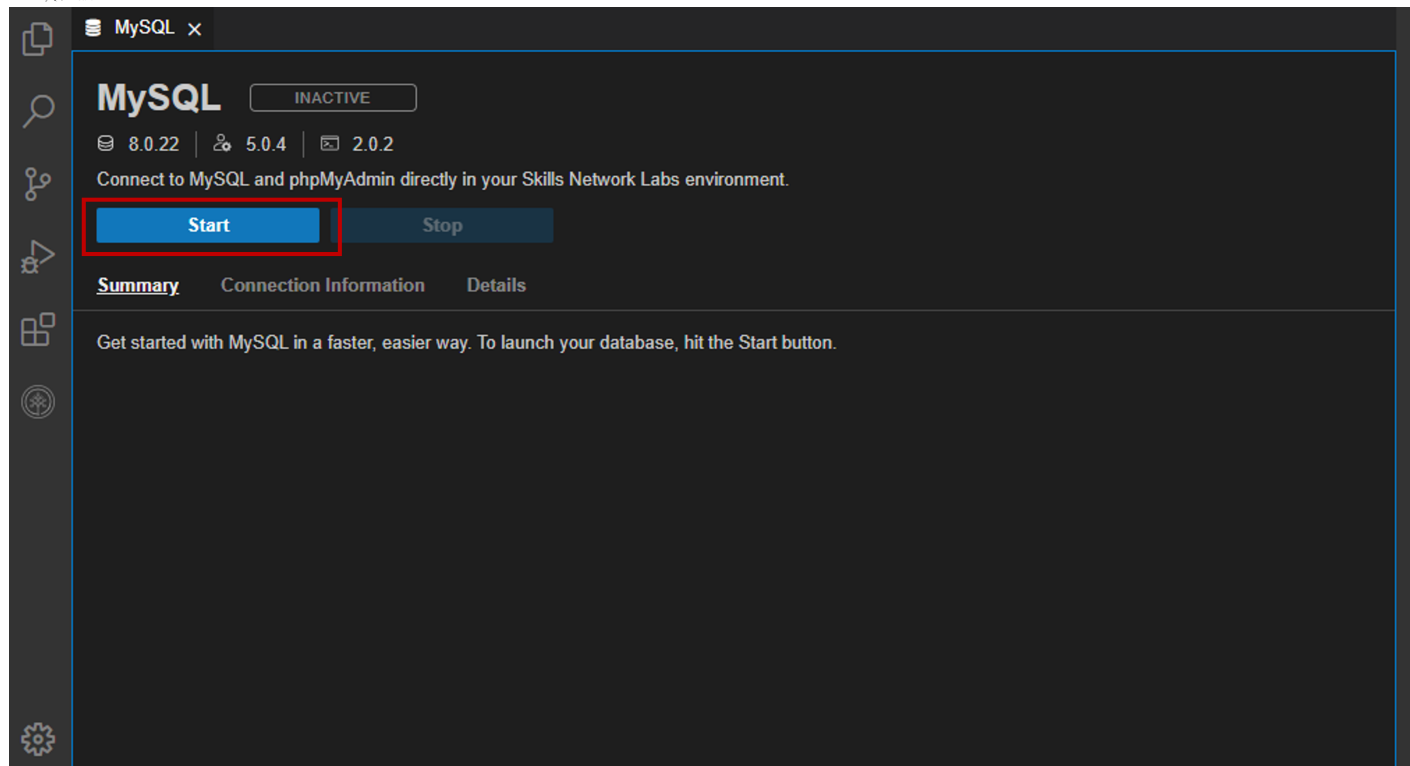
Prework - Create and populate database

TASK A: Create a Database

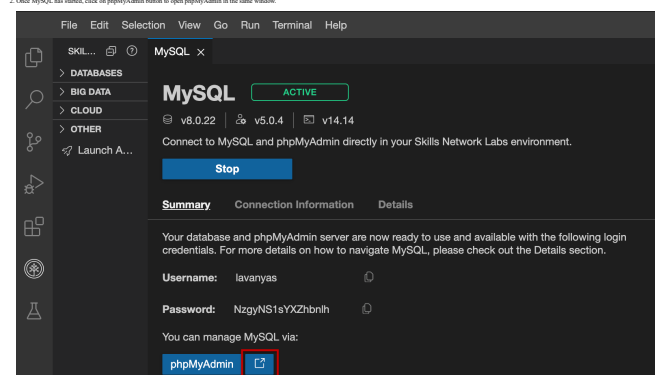
1. Start the MySQL service server using the Open MySQL Page in IDE.

[Open MySQL Page in IDE](#)

To start the MySQL, click Start.



2. Once MySQL has started, click on phpMyAdmin button to open phpMyAdmin in the same window.



3. You will use the phpMyAdmin GUI tool.

The screenshot displays the phpMyAdmin web interface for a MySQL server. The top navigation bar includes tabs for Databases, SQL, Status, User accounts, Export, Import, Settings, Binary log, Replication, Variables, Charsets, and Engines. The main content area is titled 'Server: mysql:3306' and is divided into three panels. The 'General settings' panel shows the 'Server connection collation' set to 'utf8mb4_unicode_ci' with a link to 'More settings'. The 'Appearance settings' panel shows the 'Language' set to 'English' and the 'Theme' set to 'pmahomme'. The 'Database server' panel lists server details: 'Server: mysql via TCP/IP', 'Server type: MySQL', 'Server connection: SSL is not being used', 'Server version: 8.0.22 - MySQL Community Server - GPL', 'Protocol version: 10', 'User: root@172.18.0.2', and 'Server charset: UTF-8 Unicode (utf8mb4)'. The 'Web server' panel lists: 'Apache/2.4.38 (Debian)', 'Database client version: libmysql - mysqlnd 7.4.15', 'PHP extension: mysql curl mbstring', and 'PHP version: 7.4.15'. The 'phpMyAdmin' panel lists: 'Version information: 5.0.4, latest stable version: 5.1.0', 'Documentation', 'Official Homepage', 'Contribute', 'Get support', 'List of changes', and 'License'. The left sidebar shows a tree view of databases: 'New', 'information_schema', 'mysql', 'performance_schema', 'sakila', and 'sys'.

4. In the tree-view, click **New** to create a new empty database. Then enter **MySQL_Learners** as the name of the database and select **utf8_general_ci** and click **Create**.

UTF-8 is the most commonly used character encoding for content or data.

The screenshot shows the MySQL Workbench interface with the 'Databases' tab selected. The 'Create database' dialog is open, showing 'MySql_Learners' as the database name and 'utf8_general_ci' as the collation. Below the dialog, a table lists existing databases:

Database	Collation	Master replication	Action
information_schema	utf8_general_ci	✓ Replicated	Check privileges
mysql	utf8mb4_0900_ai_ci	✓ Replicated	Check privileges
performance_schema	utf8mb4_0900_ai_ci	✓ Replicated	Check privileges
sys	utf8mb4_0900_ai_ci	✓ Replicated	Check privileges

Total: 4

TASK B: Create and load tables using csv files.

1. Download the 4 **csv** files below to your local computer:


- [dimdate.csv](#)
- [dimtrack.csv](#)
- [dimstation.csv](#)
- [facttrips.csv](#)

2. To load each **csv** file do the following steps:

• Select your database **MySql_Learners** and click on **Import** tab and select the **csv** file

The screenshot shows the phpMyAdmin interface with the 'Import' tab selected. The 'Importing to the database "MySQL_Learners"' window is open. The 'Importing to:' dropdown is set to 'MySQL_Learners'. The 'Importing type:' dropdown is set to 'SQL'. The 'Importing method:' dropdown is set to 'Quick'. The 'Importing options:' section is expanded, showing 'Allow for interruption of import if the script detects it is close to the PHP timeout limit' checked, 'Skip this number of queries (SQL, starting from the first one)' set to 0, and 'Enable foreign key checks' checked. The 'Format:' dropdown is set to 'CSV'.

• Then scroll down and check the box as shown below and click on **Go** to load the csv file



The screenshot shows the phpMyAdmin interface with the 'Import' tab selected. The 'Import' button is highlighted in red. The 'Format-specific options' section is expanded, showing checkboxes for 'Ignore tables found on import' and 'Ignore tables found on import'. The 'Import' button is highlighted in red.

• Once the tables are loaded, you will get a message that the records are inserted successfully

The screenshot shows the phpMyAdmin interface with the 'Structure' tab selected. The table 'tbl_users' is defined with the following columns:

- id**: int(11) UNSIGNED, Primary Key, Auto-Increment
- username**: varchar(255), NOT NULL
- password**: varchar(255), NOT NULL
- email**: varchar(255), NOT NULL
- last_login**: datetime, NULL

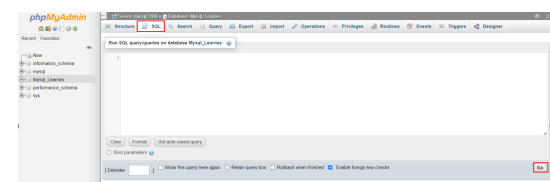
The 'Indexes' section shows a PRIMARY index on the 'id' column.

The 'Warnings' section at the bottom lists four warnings:

- Warning #1061 Integer display width is deprecated and will be removed in a future release
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Further You can import all the other **csv** files in the same way

3. To run the SQL queries you need to copy the given codes and paste it to the text area of the SQL page and click on **Go**.



Execute SQL Queries

Exercise 1: List all stations in an alphabetical order. Output should contain StationId, StationName.

- Solution System
- Output

Exercise 2: List all trips that collected waste > 40. Output should contain TripId, Waste.

- Solution System
- Output

Exercise 3: List average waste collected for each date. Output should contain DateId, average waste.

- Solution System
- Output

Exercise 4: List track Names with their count. Output should contain TrackName, count

- Solution System
- Output

Exercise 5: List City with total waste collected. Output should contain CityName, total_Waste

- Solution System
- Output

Exercise 6: List minimum waste collected per quarter in 2019. Output should contain QuarterName, minimum waste.

- Solution System
- Output

Exercise 7: List maximum waste collected in Q1 in Sao Paulo. Output should contain QuarterName, City, maximum Waste.

- Solution System
- Output

Exercise 8: List the days of the week results in the highest average waste collected by Value tracks. Output should contain WeekDayName, TrackName, avg_Waste.

- Solution System
- Output

Exercise 9: List the dates when each city collected its maximum Waste. Output should contain city, date, maximum Waste.

- Solution System
- Output

Congratulations! You have completed this lab successfully.

Authors

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Other Contributors

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Change Log

Date (YYYY-MM-DD)	Version	Changed By	Change Description
2022-12-08	1.0	Pratiksha Verma	Created initial version
2022-12-21	1.1	Pratiksha Verma	Updated screenshot
2023-06-05	1.2	Anita Verma	Updated screenshot and screenshot

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