

Final Project: Using SQL in MYSQL with phpMyAdmin



Estimated time needed: 20 minutes

In this lab, you will learn how to create tables and load data in the MySQL database service using the phpMyAdmin graphical user interface (GUI) tool.

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.

Review and familiarize yourself with the datasets

To complete the assignment problems you will be using three datasets that are available on the city of Chicago's Data Portal:

1. [Socioeconomic Indicators in Chicago](#)
2. [Chicago Public Schools](#)
3. [Chicago Crime Data](#)

1. Socioeconomic Indicators in Chicago

This dataset contains a selection of six socioeconomic indicators of public health significance and a "hardship index," for each Chicago community area, for the years 2008 – 2012.

A detailed description of this dataset and the original dataset can be obtained from the Chicago Data Portal at:

<https://data.cityofchicago.org/Health-Human-Services/Census-Data-Selected-socioeconomic-indicators-in-C/kn9c-c2s2>

2. Chicago Public Schools

This dataset shows all school level performance data used to create CPS School Report Cards for the 2011-2012 school year.

A detailed description of this dataset and the original dataset can be obtained from the Chicago Data Portal at:

<https://data.cityofchicago.org/Education/Chicago-Public-Schools-Progress-Report-Cards-2011-/9xs2-f89t>

3. Chicago Crime Data

This dataset reflects reported incidents of crime (with the exception of murders where data exists for each victim) that occurred in the City of Chicago from 2001 to present, minus the most recent seven days.

A detailed description of this dataset and the original dataset can be obtained from the Chicago Data Portal at:

<https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-present/jzp-q8t2>

This dataset is quite large - over 1.5GB in size with over 6.5 million rows. For the purposes of this assignment we will use a much smaller subset of this dataset.

Database Used in this Lab

`Mysql_learners` database has been used in this lab.

Here you will be creating and inserting data into the below mentioned 3 tables

- 1.chicago_public_schools
- 2.chicago_socioeconomic_data
- 3.chicago_crime

Here you will be using 3 dump files for this purpose.

[chicago_public_schools](#)[chicago_crime](#)[chicago_socioeconomic_data](#)

Create a database

1. Click on Skills Network Toolbox. In Database section, click MySQL.

To start the MySQL click Start.

The screenshot shows the Skills Network Toolbox interface. On the left, there's a sidebar with various icons: a clipboard, magnifying glass, gear, play triangle, cloud, and a tree. Below these are three more icons, with the bottom one highlighted by a red box. The main area has a dark header with tabs: Lab, IBMCloud, Launch Application, File, Edit, Selection, View, Go, Run, Terminal, Help. Under the 'DATABASES' section, 'MySQL INACTIVE' is selected and highlighted with a red box. Other options include PostgreSQL INACTIVE, Cassandra INACTIVE, and MongoDB INACTIVE. To the right of the MySQL section, there's a summary card for MySQL: version v8.0.22, configuration v5.0.4, and storage v14.14. It also says 'INACTIVE'. Below the MySQL card is a 'Start' button, which is also highlighted with a red box. At the bottom of the main area, there are tabs for Summary, Connection Information, and Details, with 'Summary' being the active tab. A note at the bottom encourages users to get started with MySQL.

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

The screenshot shows the IBMCloud Lab interface with the MySQL service active. The service details are as follows:

- MySQL X (phpMyAdmin)
- ACTIVE
- v8.0.22 | v5.0.4 | v14.14
- Connect to MySQL and phpMyAdmin directly in your Skills Network Labs environment.
- Stop button (highlighted with a red box)
- Summary, Connection Information, Details tabs

Your database and phpMyAdmin server are now ready to use and available with the following login credentials. For more details on how to navigate MySQL, please check out the Details section.

Username: malikas [Copy](#)

Password: [Copy](#)

You can manage MySQL via:

[phpMyAdmin](#) [New Terminal](#)

Or to interact with the database in the terminal, select one of these options:

[MySQL CLI](#) [New Terminal](#)

3. You will see the phpMyAdmin GUI tool.

← → C ⌂ sandipsahajo-8080.theiadocker-27.proxy.cognitiveclass.

phpMyAdmin

Recent Favorites

New
information_schema
mysql
performance_schema
sakila
sys

Server: mysql:3306

Databases SQL Status

General settings

Server connection collation: utf8mb4_unicode_ci

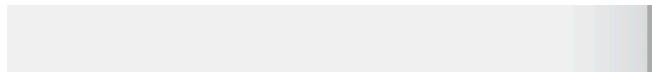
More settings

Appearance settings

Language English

Theme: pmahomme

This screenshot shows the phpMyAdmin interface. On the left, there's a sidebar with a tree view of databases: New, information_schema, mysql, performance_schema, sakila, and sys. Below the sidebar are tabs for Databases, SQL, and Status. The main area has two sections: 'General settings' and 'Appearance settings'. In 'General settings', it shows the server connection collation as 'utf8mb4_unicode_ci'. In 'Appearance settings', it shows the language as 'English' and the theme as 'pmahomme'.



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

The encoding will be left as **utf8mb4_0900_ai_ci**. UTF-8 is the most commonly used character encoding for content or data.

Databases

Create database

Mysql_learners utf8mb4_0900_ai_ci **Create**

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

Check all With selected: [Drop](#)

Note: Enabling the database statistics here might cause heavy traffic between the web server and the MySQL server.

- [Enable statistics](#)

Load the dump files one by one into the database **Mysql_learners** by clicking the **Import** tab and choose the file. Click on **Go** button.

Importing into the database "Mysql_learners"

File to import:

File may be compressed (gzip, bzip2, zip) or uncompressed.

A compressed file's name must end in **[format].[compression]**. Example: **.sql.zip**

Browse your computer: chicago_pu..._schools.sql (Max: 2,048KiB)

You may also drag and drop a file on any page.

Character set of the file:

Partial import:

Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. (*This might be a good way to import large files, however it is not recommended for most users.*)

Skip this number of queries (for SQL) starting from the first one:

Other options:

Enable foreign key checks

Format:

phpMyAdmin

Recent Favorites

New information_schema mysql Mysql_learners New chicago_public_schools performance_schema sys

Server: mysql:3306 » Database: Mysql_learners

Structure SQL Search Query Export Import Operations

Import has been successfully finished, 22 queries executed. (chicago_public_schools.sql)

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0008 seconds.)

```
-- phpMyAdmin SQL Dump -- version 5.0.4 -- https://www.phpmyadmin.net/ -- -- Host: mysql Version: 7.4.15 SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO"
```

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)

START TRANSACTION

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)

```
SET time_zone = "+00:00"
```

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)

```
/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */
```

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

```
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */
```

The tables are created and the data is loaded successfully. Repeat the same operation with the other 2 dump files to create and load the tables.

You will see a screen as below

```

`PERCENT_OF_HOUSING_CROWDED`, `PERCENT_HOUSEHOLDS_BELOW_POVERTY`, `PERCENTAGED_16_UNI  

`PERCENTAGED_UNDER_18_OR_OVER_64`, `PER_CAPITA_INCOME`, `HARDSHIP_INDEX` ) VALUES ('1'  

'Ridge', '7.8', '17.2', '8.8', '20.8', '38.5', 23040, '46'), ('3', 'Uptown', '3.8', '24  

'8.2', '13.4', '25.5', 37524, '17'), ('5', 'North Center', '0.3', '7.5', '5.2', '4.5',  

60058, '5'), ('7', 'Lincoln Park', '0.8', '12.3', '5.1', '3.6', '21.5', 71551, '2'), ('

```

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)

COMMIT

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)

```
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */
```

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)

```
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */
```

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)

```
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */
```

Console

Problems

Now write and execute SQL queries to solve assignment problems

Problem 1

Find the total number of crimes recorded in the CRIME table.

Problem 2

Retrieve first 10 rows from the CRIME table.

Problem 3

How many crimes involve an arrest?

Problem 4

Which unique types of crimes have been recorded at GAS STATION locations?

► Click here for a hint

Problem 5

In the CENUS_DATA table list all Community Areas whose names start with the letter 'B'.

Problem 6

Which schools in Community Areas 10 to 15 are healthy school certified?

Problem 7

What is the average school Safety Score?

Problem 8

List the top 5 Community Areas by average College Enrollment [number of students]

Problem 9

Use a sub-query to determine which Community Area has the least value for school Safety Score?

Problem 10

[Without using an explicit JOIN operator] Find the Per Capita Income of the Community Area which has a school Safety Score of 1.

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