# Hands-on Lab: Create and Load Tables using SQL Scripts

**Estimated time needed:** 20 minutes

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

### Objectives

After completing this lab, you will be able to use phpMyAdmin with MySQL to:

- Create a database on MySQL
- Create tables using SQL scripts
- Load data into tables directly from CSV files

### MySQL

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 use MySQL relational database service available as part of IBM Skills Network Labs (SN Labs) Cloud IDE, the virtual lab environment used in this course.

# Database Used in this Lab

The database used in this lab is internal. You will be working on a sample Cardio-Vascular Diseases (CVD) database. This CVD database schema consists of five tables: `PATIENTS`, `MEDICAL_HISTORY`, `MEDICAL_PROCEDURES`, `MEDICAL_DEPARTMENTS`, and `MEDICAL_LOCATIONS`.

Each table has a few rows of sample data. The following diagram shows the contents of the CVD database:

## SIMPLE CVD DATABASE TABLES

**PATIENTS**

| PATIENT_ID | FIRST_NAME | LAST_NAME | SSN | BIRTH_DATE | SEX | ADDRESS | DEPT_ID |
|---|---|---|---|---|---|---|---|
| P001 | John | Doe | 123456789 | 1990-05-15 | M | 123 Main St | D001 |
| P002 | Jane | Smith | 987654321 | 1985-10-20 | F | 456 Oak Ave | D002 |
| P003 | Michael | Johnson | 111222333 | 1975-03-12 | M | 789 Elm St | D003 |
| P004 | Emily | Brown | 444555666 | 1980-09-25 | F | 321 Pine Rd | D004 |
| P005 | William | Miller | 777888999 | 1992-11-18 | M | 567 Maple Ave | D003 |

**MEDICAL HISTORY**

| MEDICAL_HISTORY_ID | PATIENT_ID | DIAGNOSIS_DATE | DIA |
|---|---|---|---|
| MH001 | P001 | 2022-12-10 | |
| MH002 | P001 | 2023-07-30 | |
| MH003 | P002 | 2023-08-01 | |
| MH004 | P003 | 2023-08-01 | |
| MH005 | P004 | 2023-08-01 | |
| MH006 | P005 | 2023-08-02 | |

**MEDICAL PROCEDURES**

| PROCEDURE_ID | PROCEDURE_NAME | PROCEDURE_DATE | PATIENT_ID | DEPT_ID |
|---|---|---|---|---|
| PR001 | Angioplasty | 2023-07-30 | P001 | D002 |
| PR002 | Cardiac Catheterization | 2023-08-01 | P002 | D002 |
| PR003 | Electrocardiogram | 2023-08-02 | P003 | D003 |
| PR004 | Echocardiogram | 2023-08-03 | P004 | D004 |
| PR005 | Stress Test | 2023-08-03 | P005 | D003 |
| PR006 | Coronary Angiogram | 2023-08-04 | P003 | D003 |
| PR007 | Pacemaker Implantation | 2023-08-04 | P005 | D003 |

**MEDICAL DEPARTMENTS**

| DEPT_ID | DEPT_NAME | MANAGER_ID |
|---|---|---|
| D001 | Angioplasty | NULL |
| D002 | Cardiac Catheterization | NULL |
| D003 | Electrocardiogram | NULL |
| D004 | Echocardiogram | NULL |

**MEDICAL LOCATIONS**

| DEPT_ID | DEPT_NAME | MANAGER_ID |
|---|---|---|
| L001 | D001 | City Hospital |
| L002 | D002 | Medical Center |

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Your task is to create this database in MySQL. This task is divided into three parts.

Task 1: Create the database on MySQL using the phpMyAdmin GUI.

Task 2: Create all the tables in MySQL using an SQL script.

Task 3: Populate each table with the data in respective CSV files.

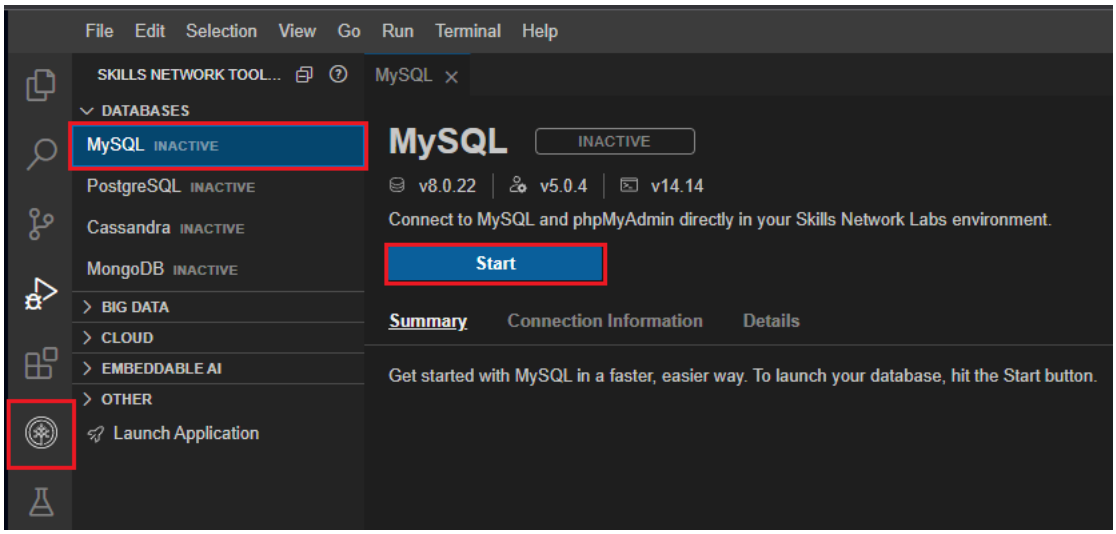
# Task 1 : Create the database

Follow the instructions shared below to create the database `CVD` in MySQL.

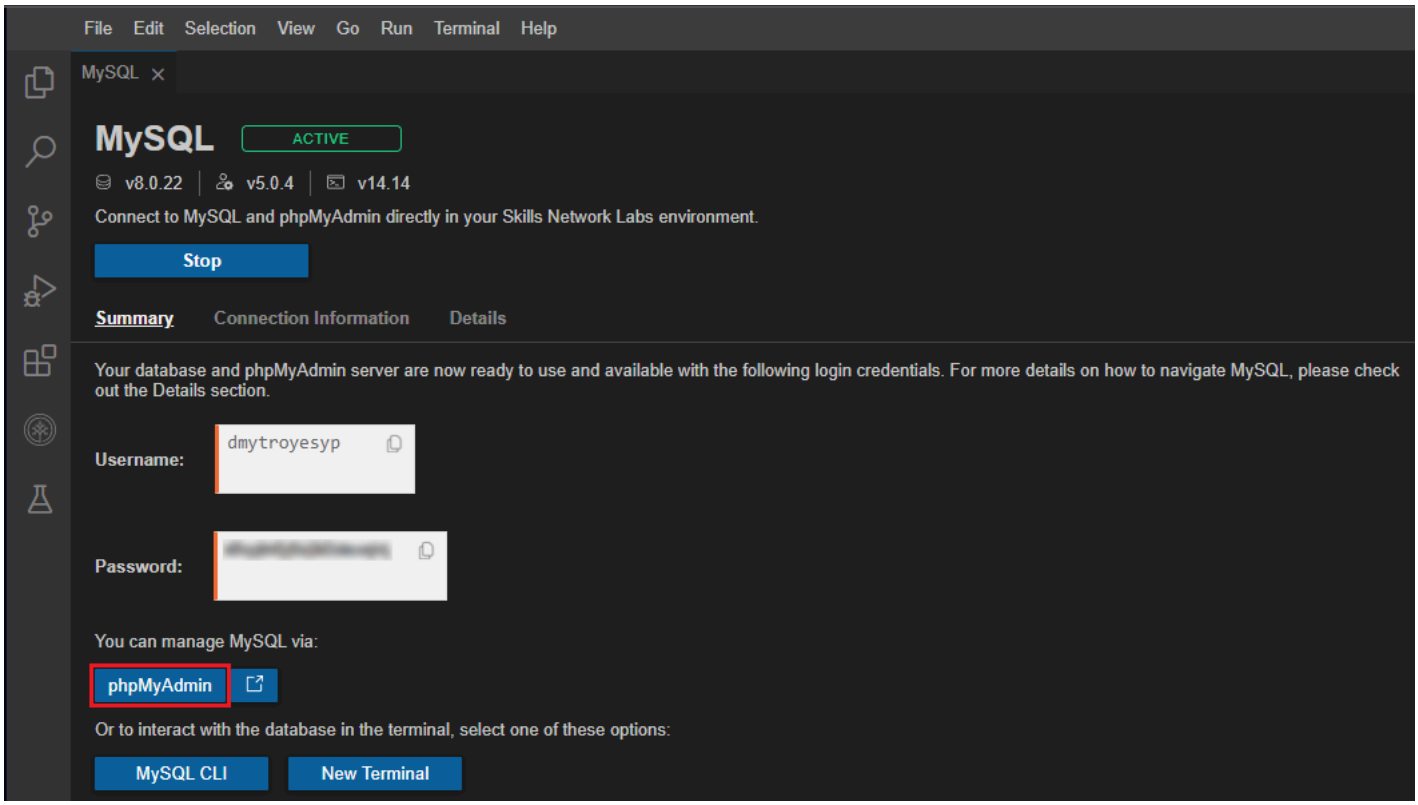
## Launch phpMyAdmin

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

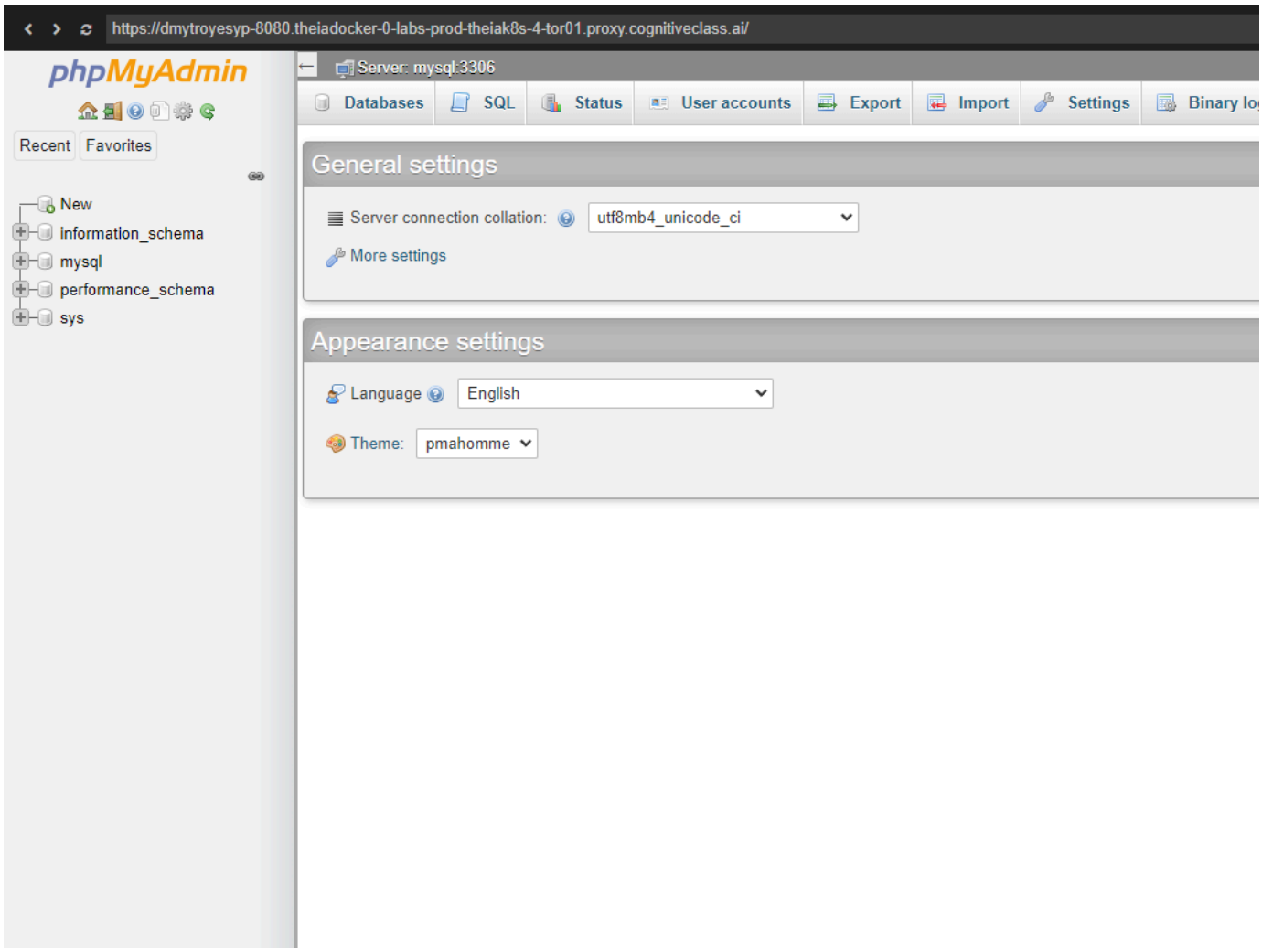
To start the MySQL, click **Start**.




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

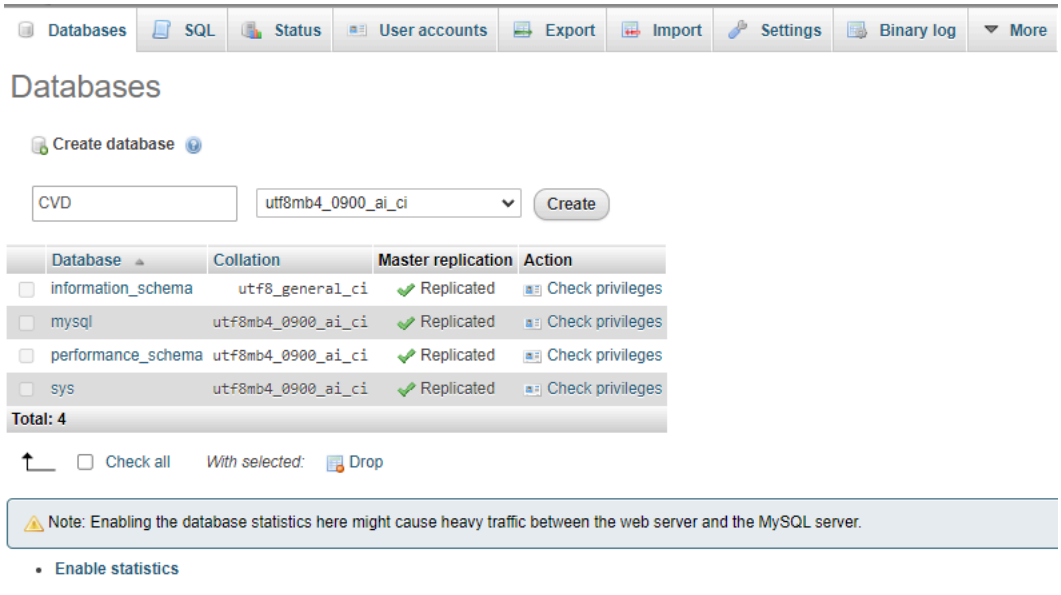



3. You will see the phpMyAdmin GUI tool.




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

   Leave the default **utf8** encoding. UTF-8 is the most commonly used character encoding for content or data.




# Task 2 : Create tables using SQL script

In this exercise, you will learn how to execute a script containing the CREATE TABLE commands for all the tables rather than create each table manually by typing the DDL commands in the SQL editor.

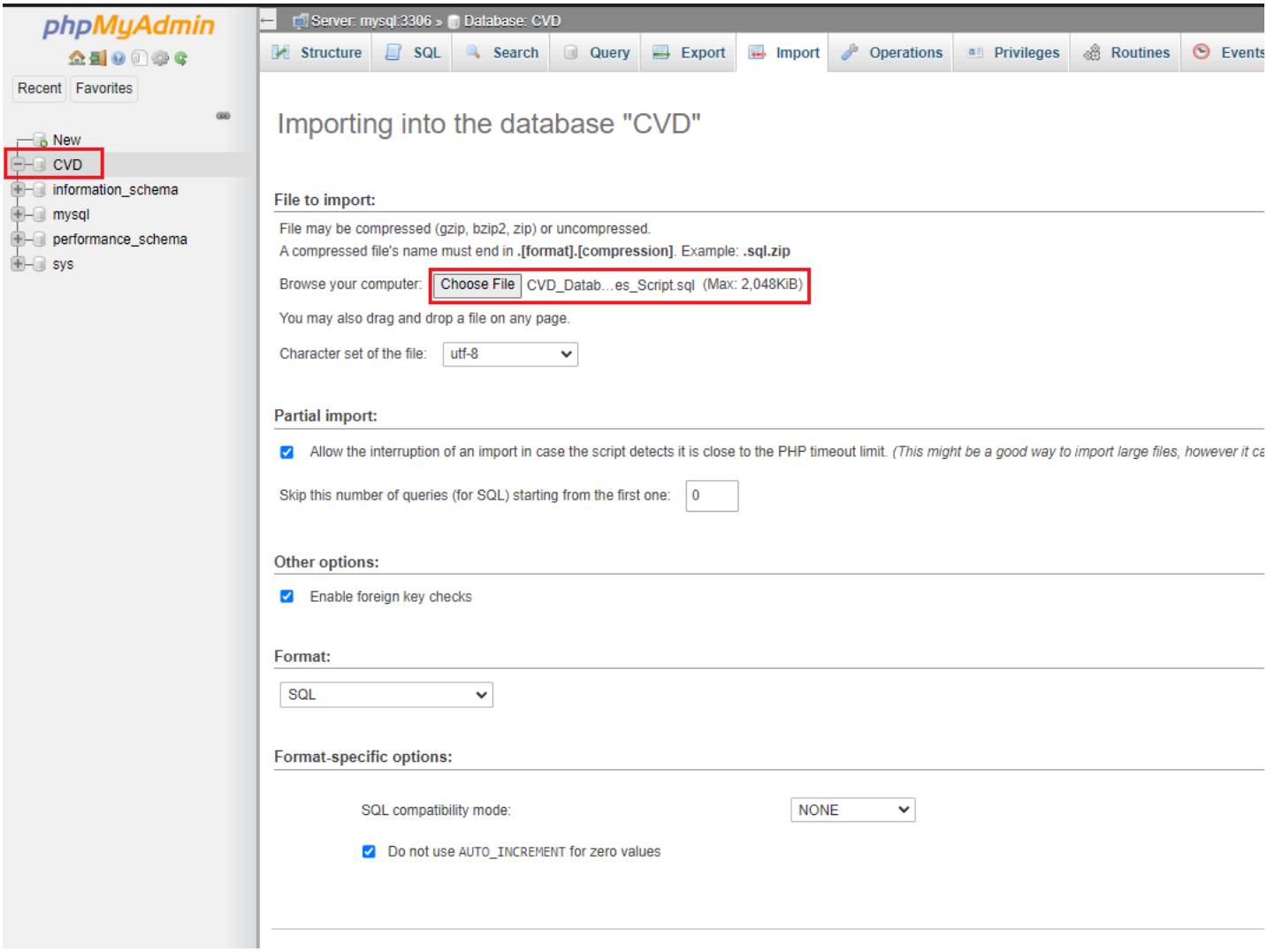
> Note: SQL scripts are basically a set of SQL commands compiled in a single file. Each command must be terminated with a semicolon `;`. The extension of the file is to be kept as `.sql`. Upon importing this file in the phpMyAdmin interface, the commands in the file are run sequentially.

Follow the steps shared below.

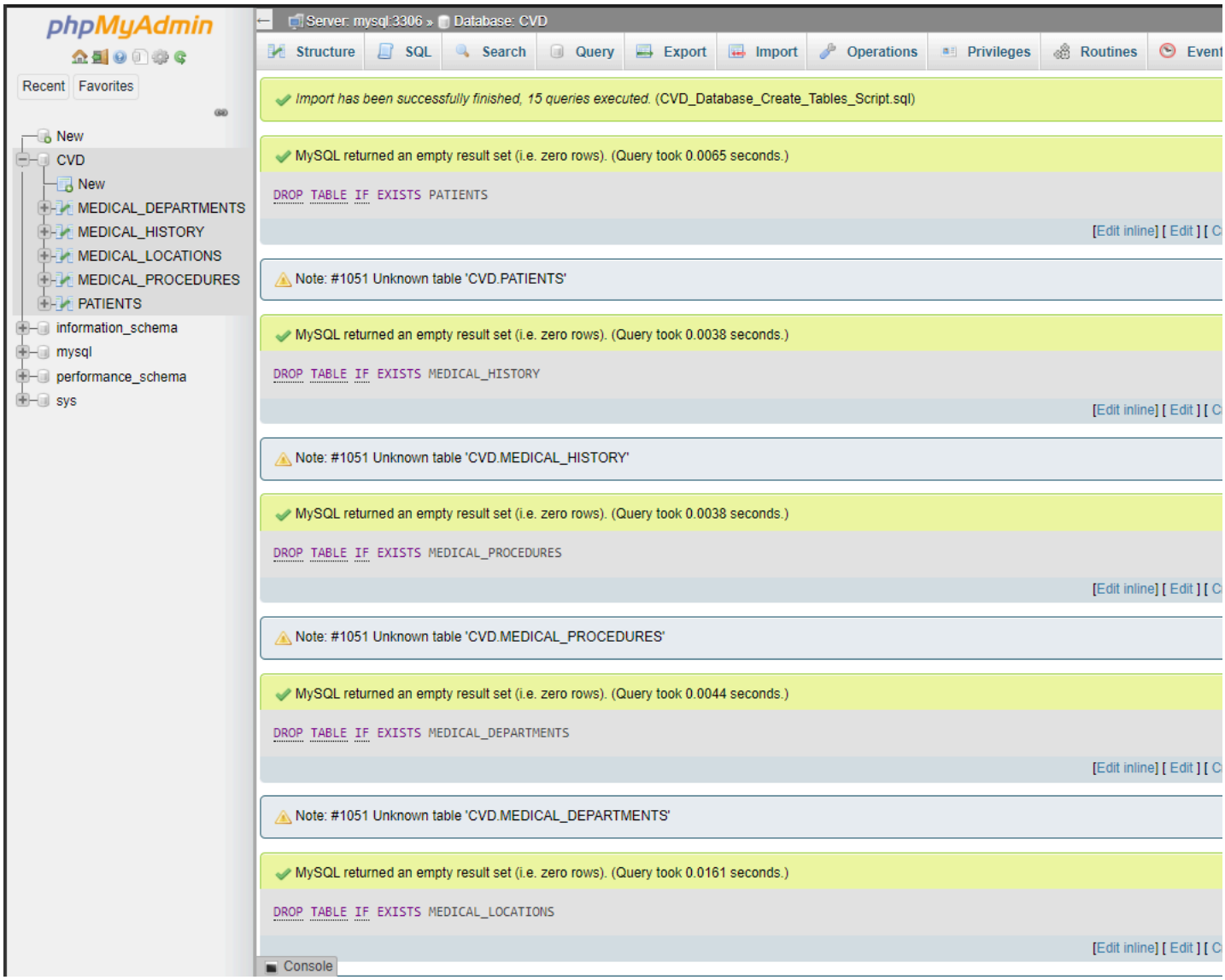
- Download the script file to your local machine:

CVD_Database_Create_Tables_Script.sql

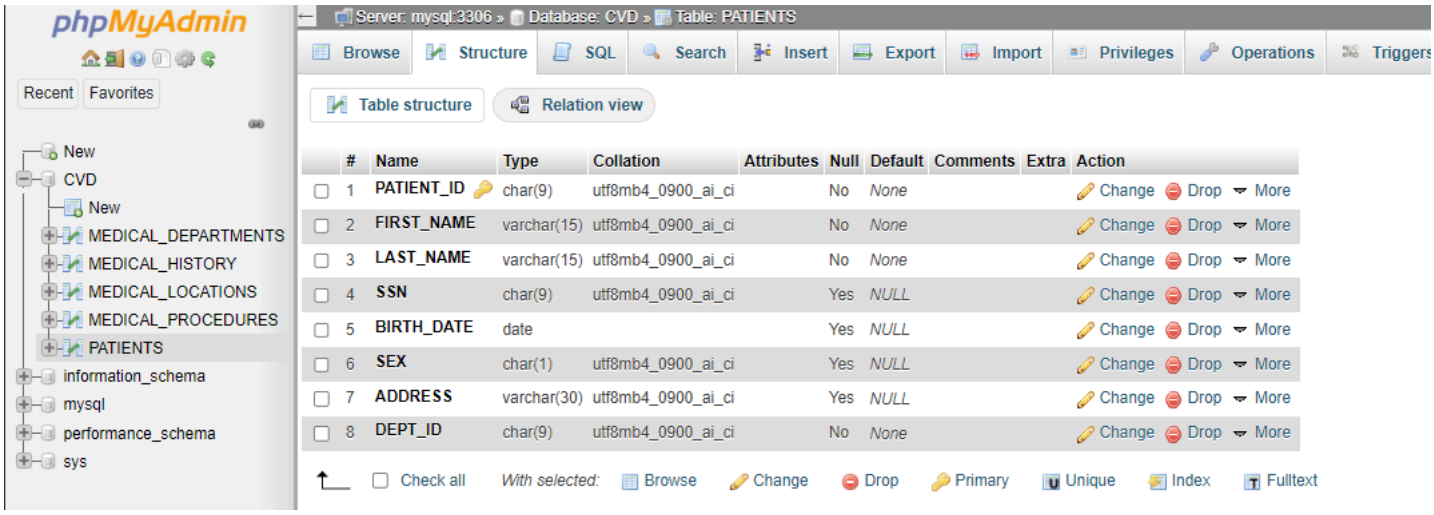
- Select the CVD database. Then click the **Import** tab.
- Click **Choose File**, browse for the file and upload it.
- Once uploaded, scroll down and click **Go**.




- The script then gets executed successfully, and the interface shows entries in the image below.




- Click any of the tables to see its Table Definition (its list of columns, data types, and so on). The image below displays the structure of the table PATIENTS.




# Task 3 : Load data into tables

You now need to load the data to the tables. You could manually insert each row into the table one by one, but that is highly inefficient. Instead, MySQL (and almost every other database) lets you load data from CSV files directly to the tables.

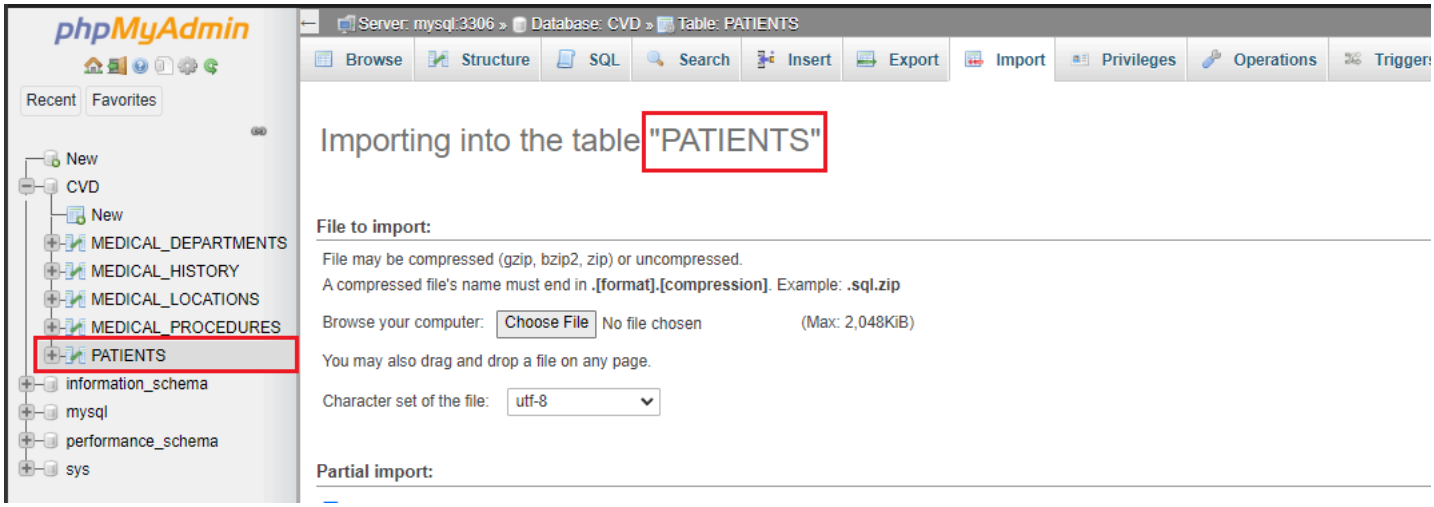
The steps below explain loading data into the tables you created in Task 2.

1. Download the 5 CSV files below to your local machine.
    - Patients.csv
    - MedicalHistory.csv
    - MedicalProcedures.csv
    - MedicalDepartments.csv
    - MedicalLocations.csv

The steps to load a CSV to a table are as follows.

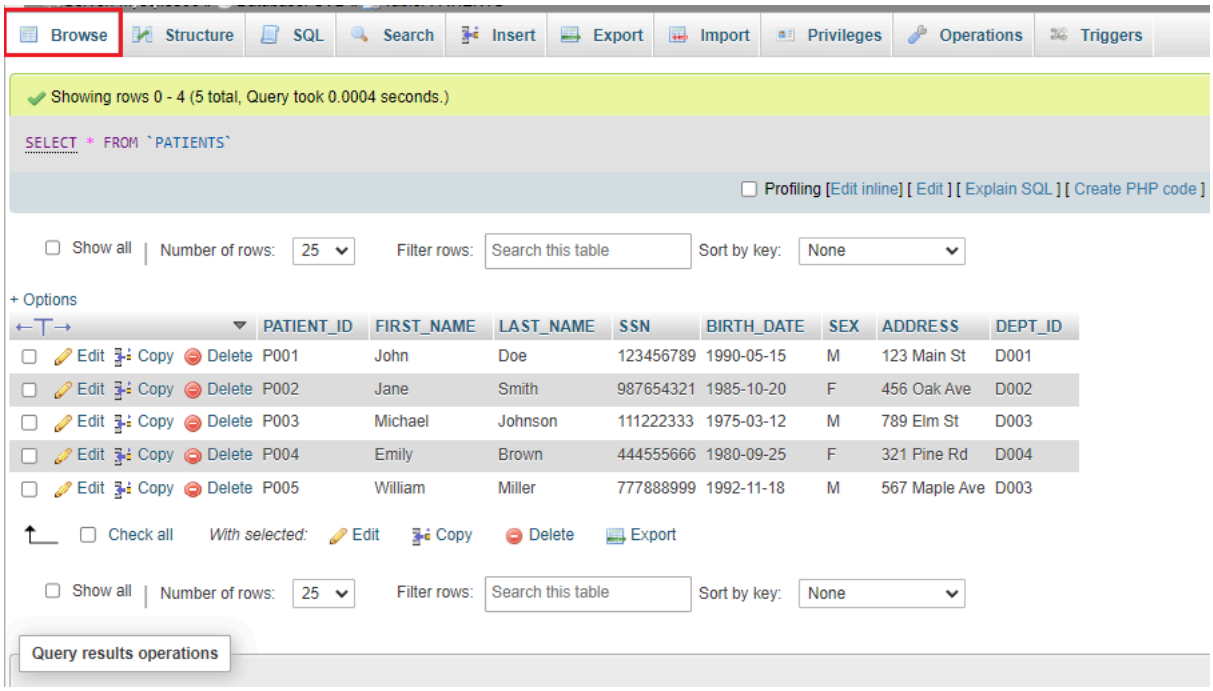
- Select the table.
- Click the Import tab.
- Browse to the location of the CSV file and click 'Go' to load the CSV file.

The images below share how to load the CSV data to the `PATIENTS` table.




Once the table is loaded, you will get a message that the records are inserted successfully.

Further, you can click on browse and view the table's data.




### Practice exercise

Repeat the same process for all of the other tables.

# Conclusion

Congratulations on completing this lab.

In this lab, you learned how to :

- Use phpMyAdmin GUI to operate on MySQL servers
- Create a new database in phpMyAdmin.
- Create the tables for the dataset using SQL scripts
- Load data from a CSV file directly to a table in MySQL.

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