

Lab 1: SQL

This tutorial introduces how to process SQL queries using XAMPP and MySQL.

1 Preparation

Download **assignment2_database.sql** from GitHub link or <https://buelearning.hkbu.edu.hk/mod/resource/view.php?id=870151>.

2 Installation and Setup

2.1 Install XAMPP on Windows

- 1) Go to <https://www.apachefriends.org/index.html> in your computer's web browser. Click “**XAMPP for Windows**” to download.
 - Depending on your browser, you may first have to select a save location or verify the download.
- 2) **Double-click the downloaded file.** This file should be named like xampp-windows-x64-7.3.9-0-VC15-installer.exe, and you'll find it in the default downloads location (e.g., the "Downloads" folder or the desktop).
- 3) **Click Next till complete the XAMPP setup.**

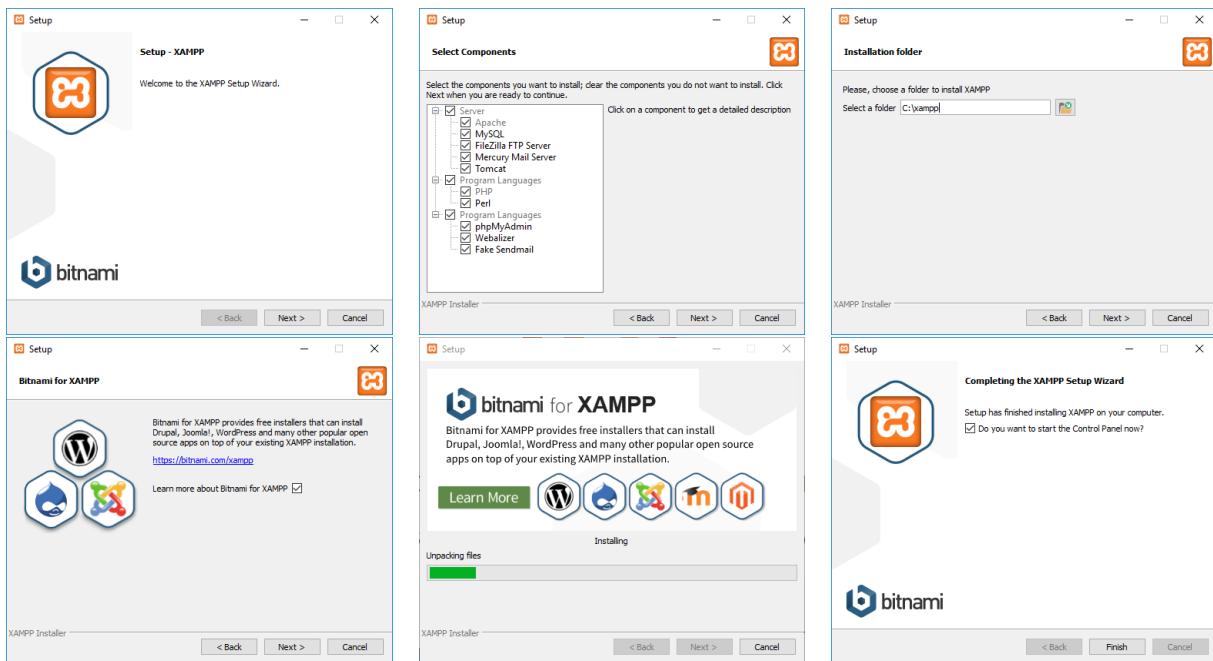
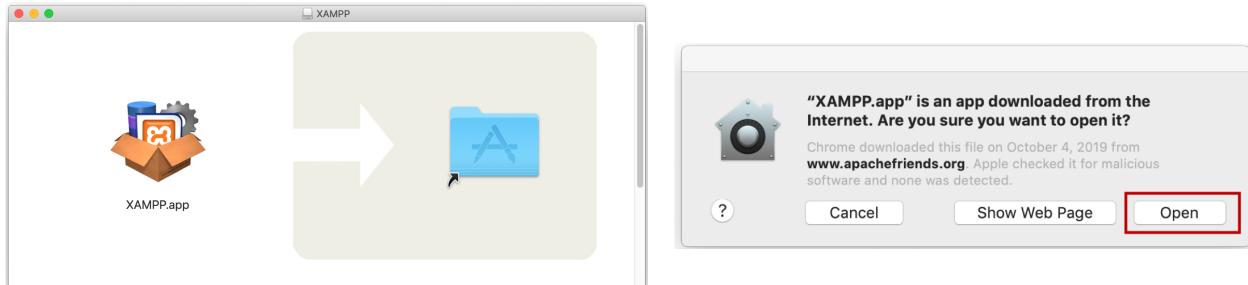


Figure 1: XAMPP setup

2.2 Install XAMPP on macOS

- 1) Go to <https://www.apachefriends.org/index.html> in your computer's web browser. Click “**XAMPP for OS X**” to download.

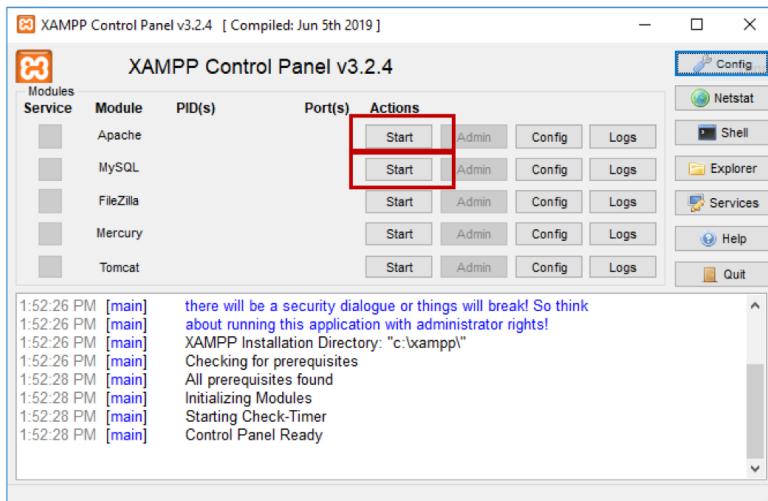
- 2) Double-click the DMG image file (e.g., xampp-osx-7.3.9-0-vm.dmg) and drag the XAMPP-VM icon to the Applications folder.
- 3) Launch XAMPP-VM by double-clicking the XAMPP-VM icon in the Applications folder.
- 4) Click “Open” when prompted.



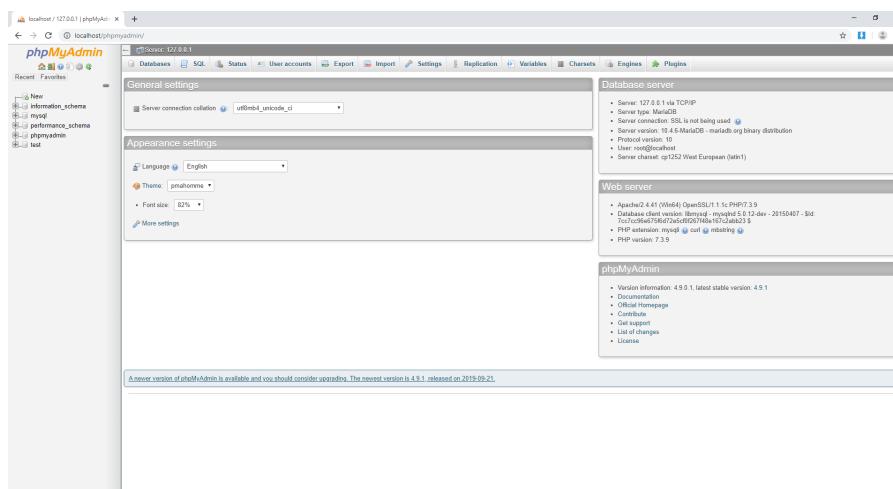
3 Start XAMPP

3.1 Start XAMPP on Windows

- 1) Launch the XAMPP control panel by double-clicking the XAMPP icon.
- 2) Click “Start” for Apache and MySQL modules.

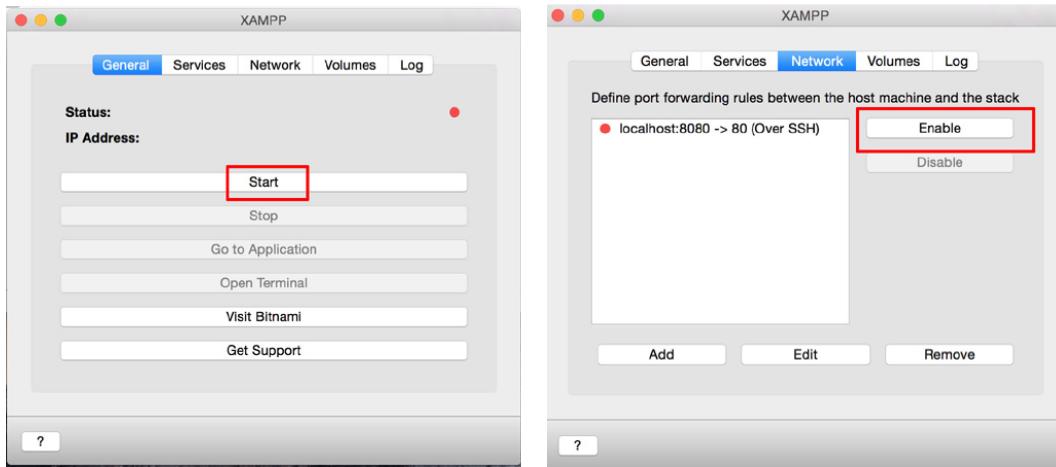


- 3) Type <http://localhost/phpmyadmin/> in the web browser to start working with MySQL.

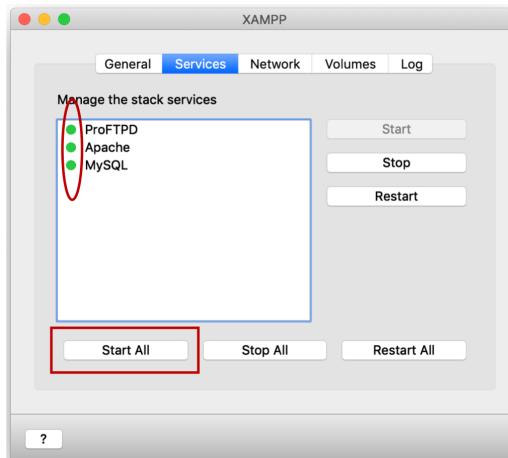


3.2 Start XAMPP on macOS

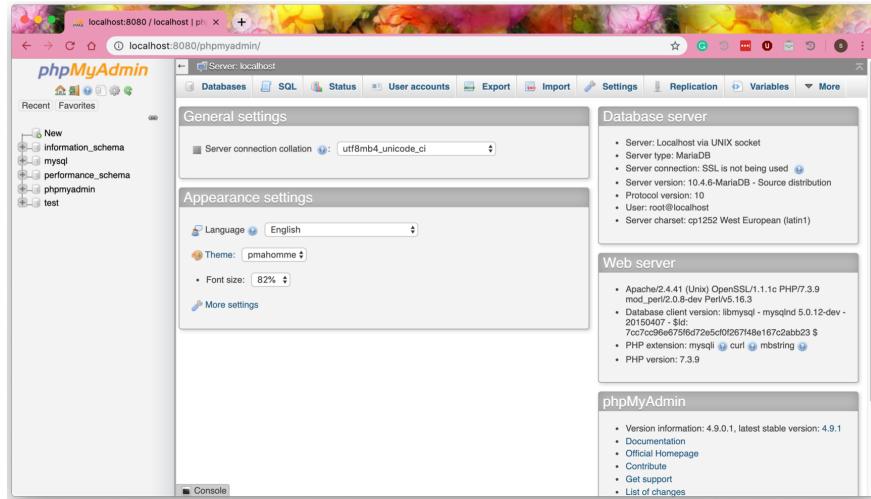
- 1) Launch the XAMPP stack manager by double-clicking the XAMPP icon in the mounted disk image.
- 2) Click the “Start” button in the “General” tab of the stack manager. Wait for the status icon to turn green.
- 3) Navigate to the “Network” tab and enable port forwarding (port 80 of the stack to port 8080 of the host system) over SSH.



- 4) Go to the “Services” tab, click “Start All” to enable MySQL service.
 - When the status icons before stack services (e.g., MySQL) turn green, it means the services are available.



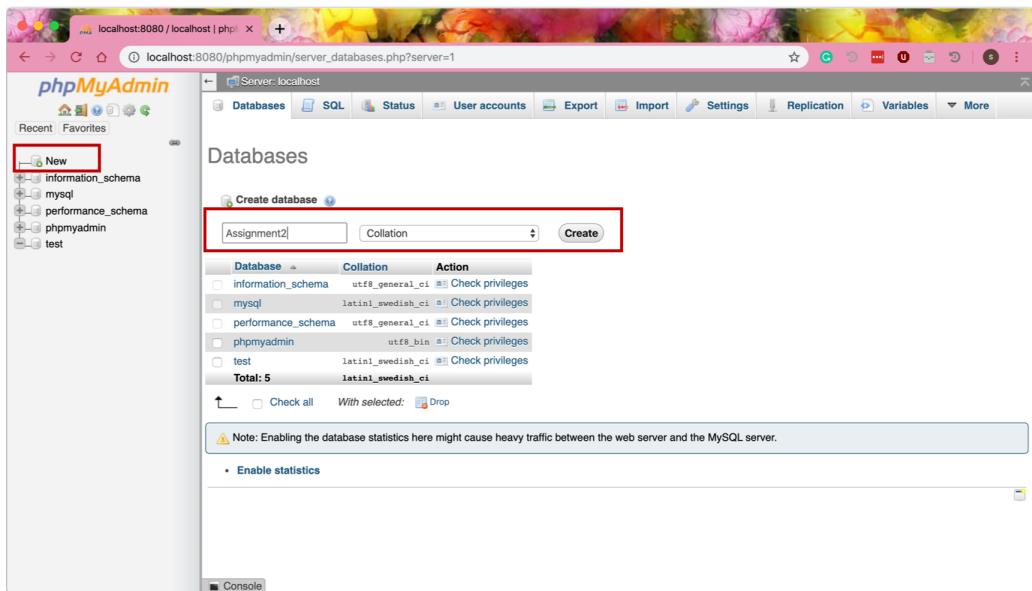
- 5) Type `http://localhost:8080/phpmyadmin/` in the web browser to start working with MySQL.



4 Query on Database Using MySQL

- Create New Database

- 1) Click “New” on the left column.
- 2) Enter database name (e.g., Assignment2) and choose encoding method as “Collation”, then click “Create” to create a database.



- Import Data

- 1) Go to database Assignment2 by clicking “Assignment2” on the left column.
- 2) Navigate to the “Import” tab, click “Choose File” then choose **assignment2_database.sql** from your computer.
- 3) Scroll down then click “Go”.

localhost:8080 / localhost / Assignment2

localhost:8080/phpmyadmin/db_import.php?db=Assignment2

Import

Importing into the database "Assignment2"

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: No file chosen (Max: 128MiB)

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

Character set of the file: utf-8

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 can break transactions.)
Skip this number of queries (for SQL) starting from the first one: 0

Other options:
 Enable foreign key checks

Format:
SQL

localhost:8080 / localhost / Assignment2

localhost:8080/phpmyadmin/db_import.php?db=Assignment2

Import

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 can break transactions.)
Skip this number of queries (for SQL) starting from the first one: 0

Other options:
 Enable foreign key checks

Format:
SQL

Format-specific options:
SQL compatibility mode: NONE
 Do not use AUTO_INCREMENT for zero values

Go

4) Relations and records are imported successfully to the database.

localhost:8080 / localhost / Assignment2

localhost:8080/phpmyadmin/import.php

Import

Import has been successfully finished, 22 queries executed. (assignment2_database.sql)

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0006 seconds.)

```
-- phpMyAdmin SQL Dump -- version 4.8.5 -- https://www.phpmyadmin.net/ -- -- Host: 127.0.0.1 -- Generation Time: Mar 22, 2019 at 04:25 AM -- Server version: 10.1.38-MariaDB -- PHP Version: 7.1.27 SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO"
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0017 seconds.)

```
SET AUTOCOMMIT = 0
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0017 seconds.)

```
START TRANSACTION
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0007 seconds.)

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

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0020 seconds.)

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

[Edit inline] [Edit] [Create PHP code]

Console returned an empty result set (i.e. zero rows). (Query took 0.0006 seconds.)

- View Database Details

- 1) Click “Assignment2” on the left to view the details of the database.

- It contains 3 tables: *movie*, *rating* and *reviewer*.

- 2) Further view the records in each table by clicking the table name.

The screenshot shows the phpMyAdmin interface for the database 'Assignment2'. On the left, there's a tree view of databases and tables. The 'Tables' section lists three tables: 'movie', 'rating', and 'reviewer'. Each table has options like 'Browse', 'Structure', 'Search', 'Insert', 'Empty', and 'Drop'. Below the table list, it says '3 tables Sum'. At the bottom, there's a 'Create table' form with 'Name:' and 'Number of columns: 4' fields, and a 'Go' button.

- SQL Query

- 1) Navigate to the “SQL” tab.

- SQL tab can be used to write all the *MySQL supported* queries.

The screenshot shows the SQL tab in phpMyAdmin. The main area is a large input box labeled 'Run SQL query/queries on database Assignment2:'. An orange arrow points from the text 'Type queries here' to the top-left corner of this input box. Below the input box are several buttons: 'Clear', 'Format', 'Get auto-saved query', 'Bind parameters', 'Bookmark this SQL query:', and checkboxes for 'Show this query here again', 'Retain query box', 'Rollback when finished', and 'Enable foreign key checks'. There's also a 'Delimiter' dropdown and a 'Go' button.

- 2) Query example

- Type SQL query in the input box.
- Click “Go” to show the query result.

The screenshot shows the phpMyAdmin interface for the 'Assignment2' database. In the left sidebar, the 'movie' table is selected under the 'Assignment2' schema. The main area displays an SQL query in the 'Run SQL query/queries on table Assignment2.movie:' field:

```
1 SELECT * FROM movie
2 WHERE year > 1990;
```

The results pane on the right shows the columns: mID, title, year, director. Below the query input, there are several buttons: SELECT*, SELECT, INSERT, UPDATE, DELETE, Clear, Format, Get auto-saved query, Bind parameters, and a 'Go' button which is highlighted with a red box.

The screenshot shows the phpMyAdmin interface after executing the SQL query. The results pane now displays the data from the 'movie' table where 'year > 1990'. Two rows are shown:

mID	title	year	director
105	Titanic	1997	James Cameron
107	Avatar	2009	James Cameron

Below the results, there are sections for 'Query results operations' (Print, Copy to clipboard, Export, Display chart, Create view) and 'Bookmark this SQL query' (Label: [input], Let every user access this bookmark). The 'Go' button at the bottom of the previous screenshot's interface is also visible here.

3) Try more SQL queries by yourself!