

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.**

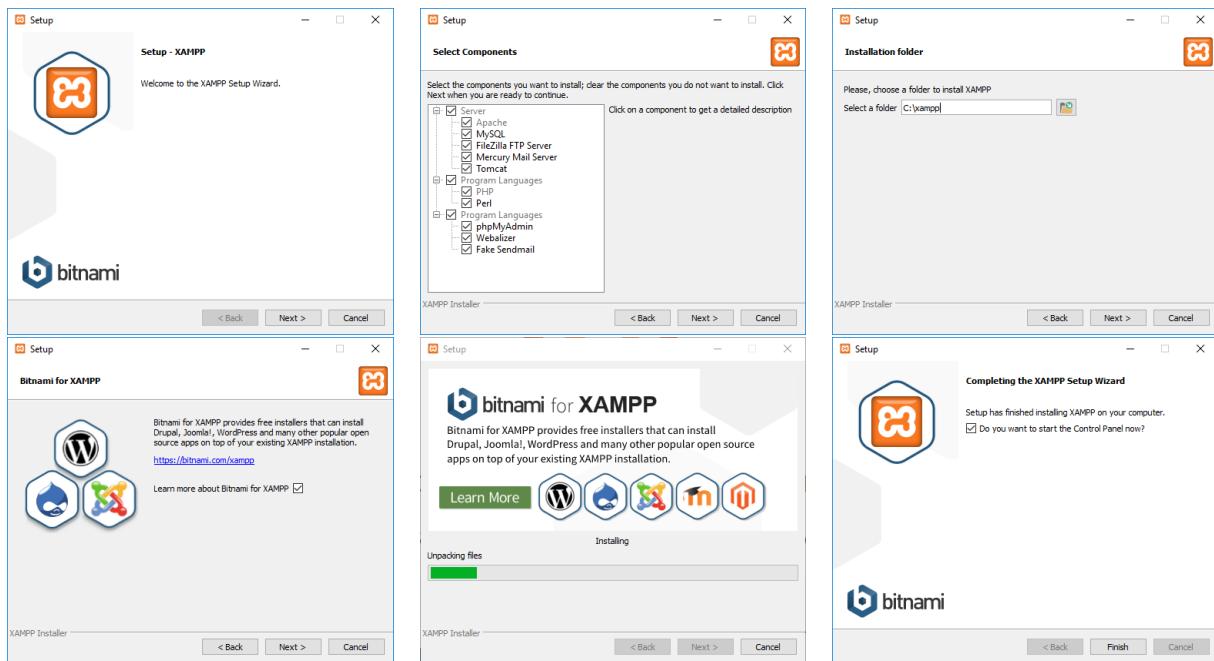
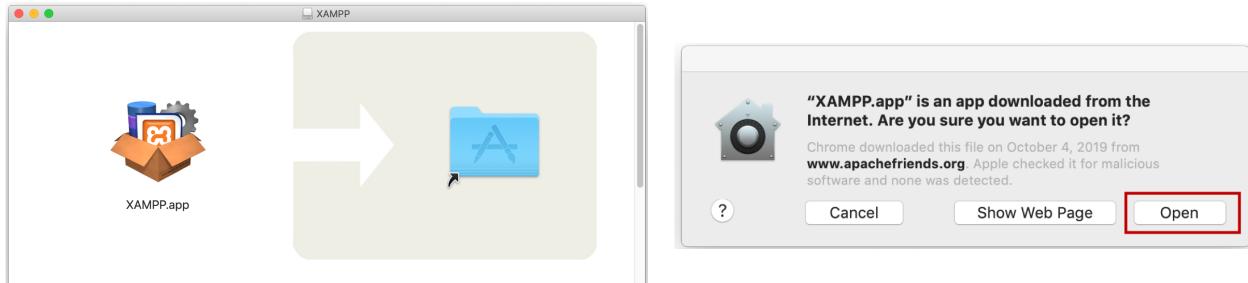


Figure 1: XAMPP setup

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.

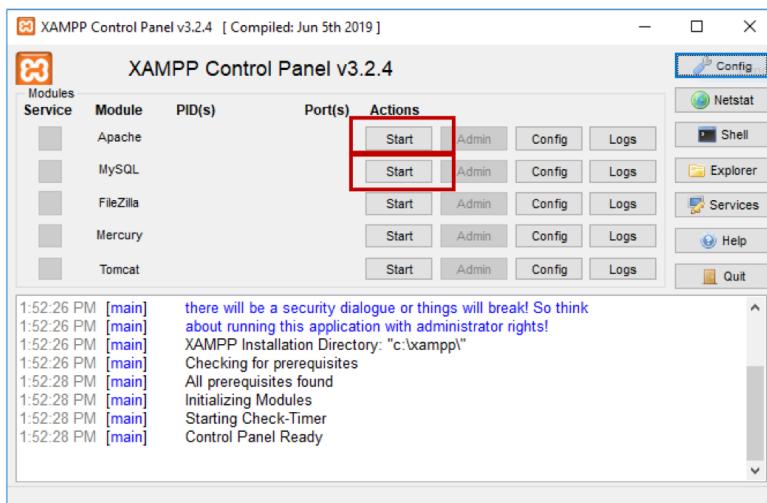
- 2) Double-click the DMG image file (e.g., xampp-osx-7.3.9-0-vm.dmg) and drag the XAMPP-VM icon to the Applications folder.
- 3) Launch XAMPP-VM by double-clicking the XAMPP-VM icon in the Applications folder.
- 4) Click “Open” when prompted.



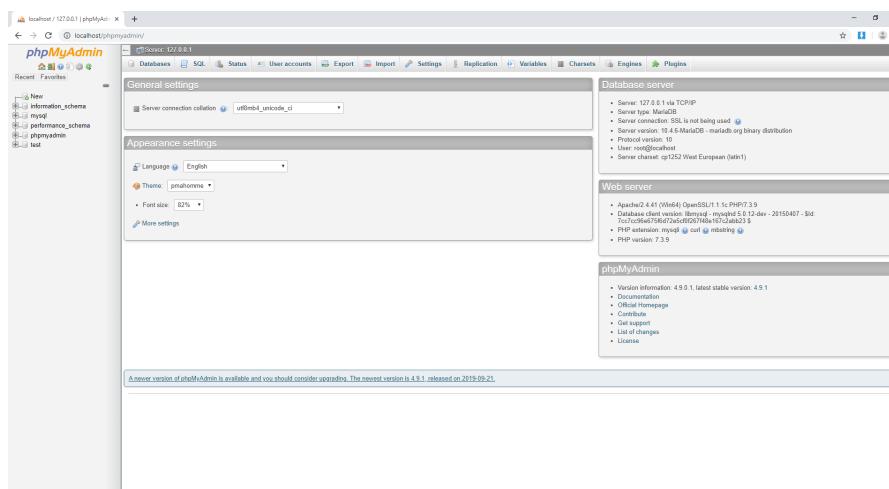
3 Start XAMPP

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.

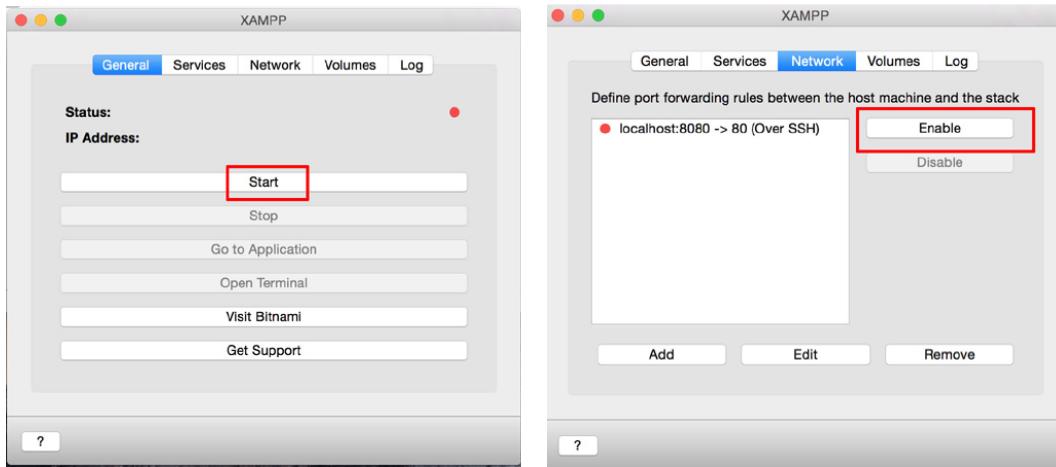


- 3) Type `http://localhost/phpmyadmin/` in the web browser to start working with MySQL.

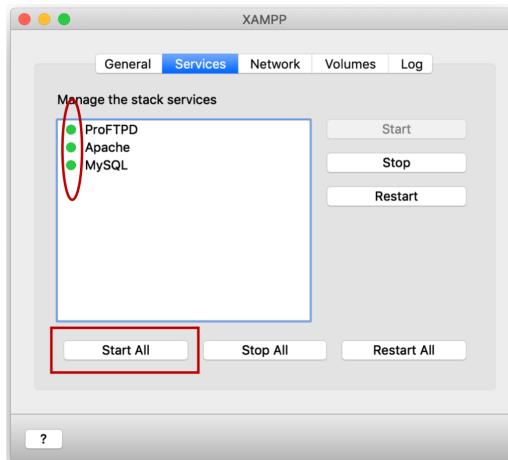


3.2 Start XAMPP on macOS

- 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.

The screenshot shows the phpMyAdmin dashboard. On the left, there's a sidebar with a 'New' button highlighted. The main area has sections for 'General settings' (server connection collation set to utf8mb4_unicode_ci), 'Appearance settings' (language set to English, theme to pmahomme, font size to 82%), and 'Database server' (details about the MySQL server). The bottom right contains links for phpMyAdmin version information and documentation.

4 Query on Database Using MySQL

- Create New Database

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

The screenshot shows the 'Databases' page in phpMyAdmin. A red box highlights the 'New' button in the sidebar. The main area shows a table of existing databases (information_schema, mysql, performance_schema, phpmyadmin, test) and a 'Create database' input field where 'Assignment2' is entered. Below it, a dropdown menu shows 'Collation' set to 'latin1_swedish_ci'. A red box highlights this dropdown. A 'Create' button is also visible. At the bottom, there's a note about enabling statistics and a 'Console' button.

- 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

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
Console

localhost:8080 / localhost / Assignment2

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

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.)
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Other options:
 Enable foreign key checks

Format:
SQL
Console

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 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

- 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. The top navigation bar includes tabs for Structure, SQL, Search, Query, Export, Import, Operations, Privileges, Routines, Events, and More.

- 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 beginning of the input box. Below the input box are buttons for 'Clear', 'Format', 'Get auto-saved query', and checkboxes for 'Bind parameters', 'Bookmark this SQL query:', 'Delimiter ;', 'Show this query here again', 'Retain query box', 'Rollback when finished', and 'Enable foreign key checks'. At the bottom right of the input box is a 'Go' button. The top navigation bar is identical to the previous screenshot.

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 SQL tab, a query is entered:

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

The results pane shows the columns: mID, title, year, director. The 'Go' button at the bottom right of the SQL panel is highlighted with a red box.

The screenshot shows the results of the executed SQL query. The results table contains the following data:

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

3) Try more SQL queries by yourself!