

Lab 1 Introduction to XAMPP

United International College

Outline

- XAMPP
- Apache
- MySQL
- Import a database

XAMPP

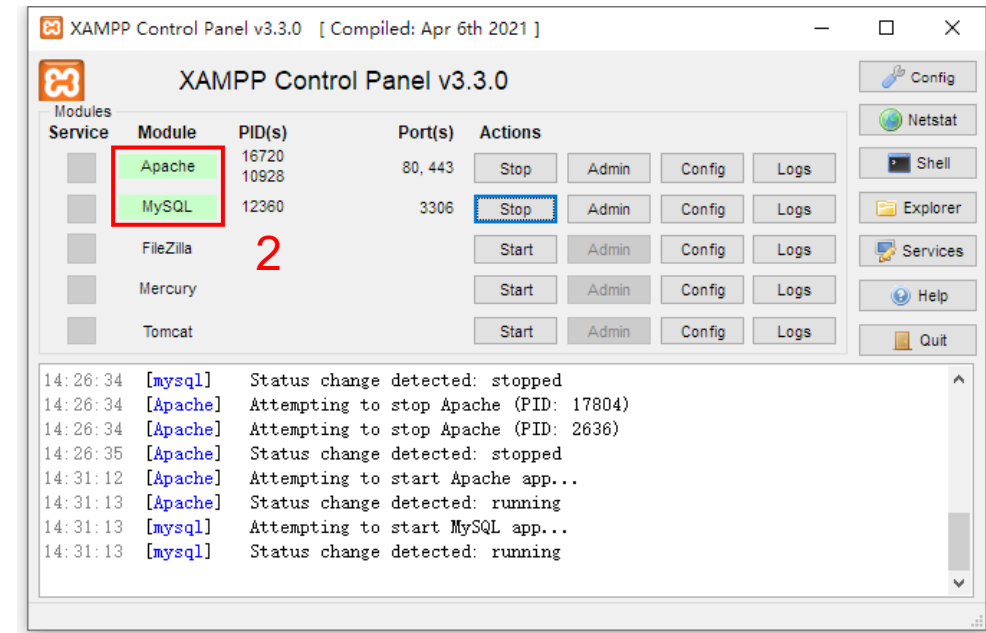
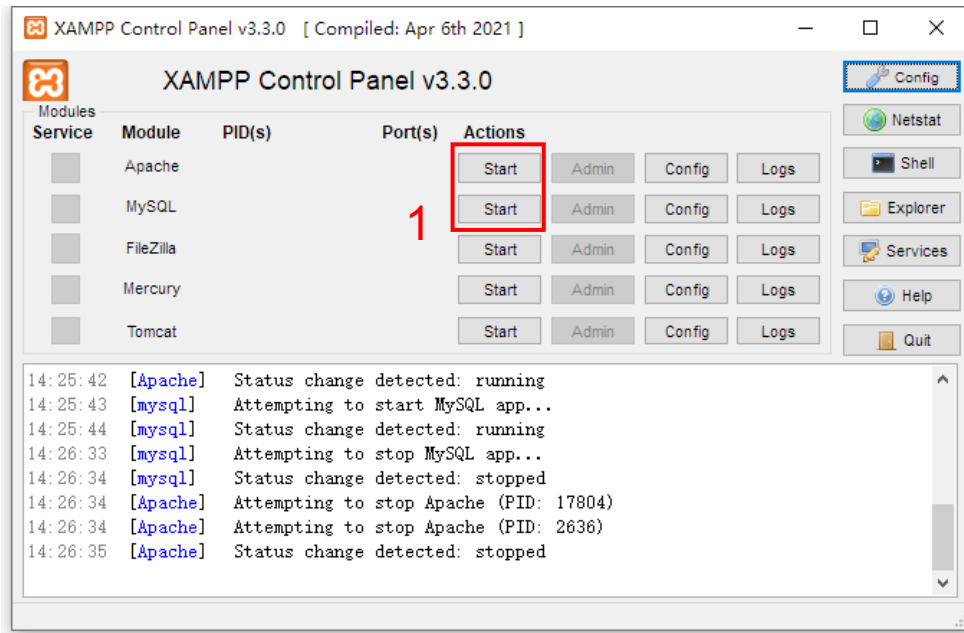
- XAMPP is a software package, which contains several services.
 - Apache – Web server
 - MySQL – Database server
 - FileZilla – FTP server (for file transfer)
 - Mercury – SMTP server (for emails)
 - Tomcat – Web server with Java environment
- In this course, we only need Apache and MySQL.
- FileZilla is not used because the servers are installed on our own computers. We don't need FTP software to transfer webpages to the server (what you have done in SDW1). Our computers are servers.

XAMPP control panel

- The control panel of XAMPP is a special controller which allows users to config each component of the system.
- To start XAMPP control panel,
 - Click “**start**” button.
 - Type “**XAMPP control panel**” to search the panel.
 - Then, you will see the interface of the panel.

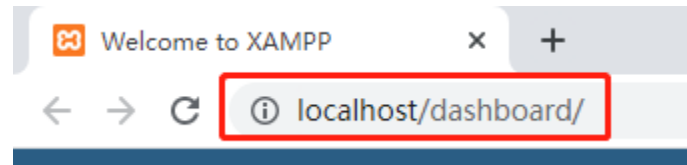
XAMPP control panel

1. To start Apache and MySQL, click “**Start**” for these two modules.
2. Once the services are started successfully, you will see the two modules are highlighted.

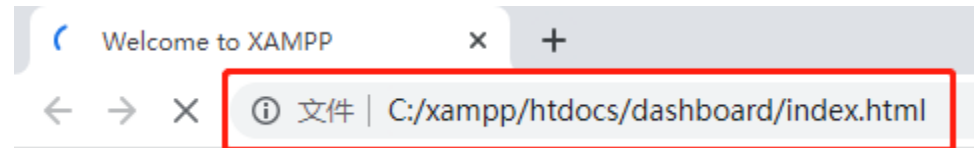


Apache

- After you start the server, the “**Admin**” button is available.
- Click “**Admin**” for Apache server. Then, there will be a pop-out webpage introducing XAMPP.
- Note that this webpage is accessed via the Apache web server, but not opened directly from the local computer.
- You can see this from the address bar of the browser.



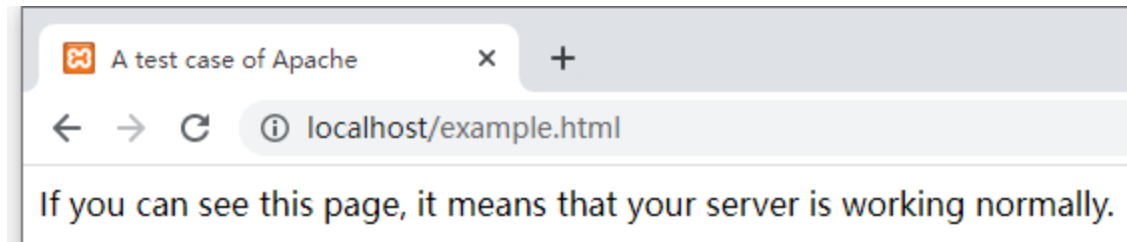
- If the webpage is opened by double-click from the hard drive, the address bar is



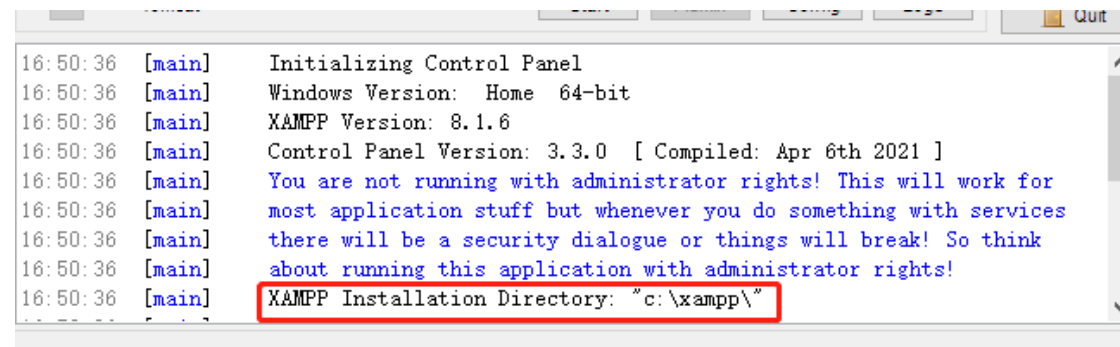
- “C:/xampp/” is the location where Goliath installs XAMPP on his computer.

Apache

- To publish a webpage, you need to put the webpage at “.../xampp/htdocs/”, where “...” is the directory of the system.
- Copy and past “example.html” to “.../xampp/htdocs/”
- Open your web browser and enter “localhost/example.html” into the address bar.
- If everything is fine, then you are supposed to see the webpage.



- To find where you install XAMPP, you can check the system dialog.



MySQL

- Click the “**Admin**” button for MySQL. Then, there will be a pop-up webpage called “phpMyAdmin”.
- “phpMyAdmin” is a web application (website) to let users access the database server with a graphical user interface.

MySQL

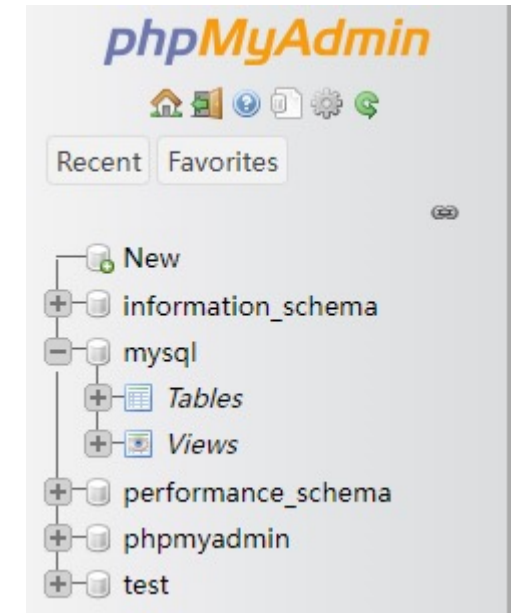
The screenshot displays the phpMyAdmin web interface in a browser window. The address bar shows 'localhost / 127.0.0.1 | phpMyA' and the URL 'localhost/phpmyadmin/index.php'. The interface includes a top navigation bar with tabs for Databases, SQL, Status, User accounts, Export, Import, Settings, Replication, Variables,Charsets,Engines, and Plugins. A left sidebar shows a tree view of databases: information_schema, mysql, performance_schema, phpmyadmin, and test. The main content area is divided into several panels:

- General settings:** Displays 'Server connection collation' set to 'utf8mb4_unicode_ci' and a link for 'More settings'.
- Appearance settings:** Displays 'Language' set to 'English' and 'Theme' set to 'pmahomme', with a 'View all' button.
- Database server:** Lists server details:
 - Server: 127.0.0.1 via TCP/IP
 - Server type: MariaDB
 - Server connection: SSL is not being used
 - Server version: 10.4.24-MariaDB - mariadb.org binary distribution
 - Protocol version: 10
 - User: root@localhost
 - Server charset: UTF-8 Unicode (utf8mb4)
- Web server:** Lists web server details:
 - Apache/2.4.53 (Win64) OpenSSL/1.1.1n PHP/8.1.6
 - Database client version: libmysql - mysqlnd 8.1.6
 - PHP extension: mysqli, curl, mbstring
 - PHP version: 8.1.6
- phpMyAdmin:** Lists version information and links:
 - Version information: 5.2.0
 - Documentation
 - Official Homepage
 - Contribute
 - Get support
 - List of changes
 - License

A 'Console' tab is visible at the bottom left of the main content area.

MySQL

- On the left-hand side of the interface, there is a hierarchical database list to show all databases in the system.
- You can click “+” in front of each database to show the content.



- System information is presented on the right.
- You can check the versions.

Database server

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- Server type: MariaDB
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Web server

- Apache/2.4.53 (Win64) OpenSSL/1.1.1n PHP/8.1.6
- Database client version: libmysql - mysqlnd 8.1.6
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phpMyAdmin

- Version information: 5.2.0
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MySQL



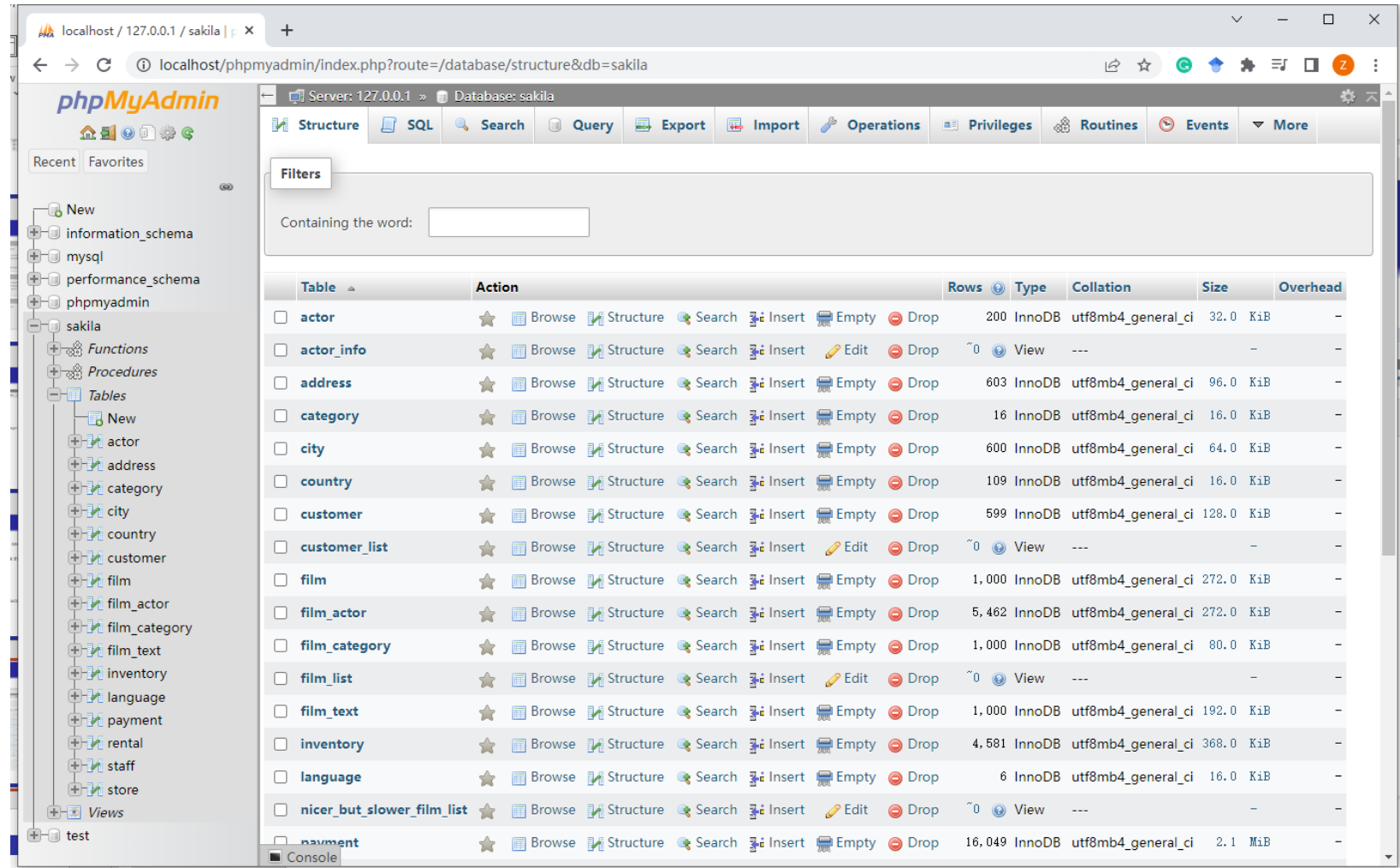
- The menu bar is on the top.
 1. “**Database**”: to show all databases in the system.
 2. “**SQL**”: to let users write SQLs.
 3. “**User accounts**”: to show the users information. Administrators can manage user accounts here.
 4. “**Export**”: to let users export a table or a database from the system.
 5. “**Import**”: to import tables or databases from a local file.
 6. “**Settings**”: to setup the system.
- Others are rarely used in this course.

Import

- The labs of this course focus on a well designed and implemented sample database.
- This database is in the file “sakila.sql”.
- Note that this file is written in SQL. You can open the file and check the source code using a txt reader, for example Notepad.
- To import the file,
 - Click “**import**” in the menu bar;
 - In the “**File to import**” section, click “**choose a file**”;
 - In the pop out file explorer, locate “sakila.sql” and click “open”;
 - Click “**import**” at the bottom of the page.
- If everything works fine, the system will tell you “Import has been successfully finished”.

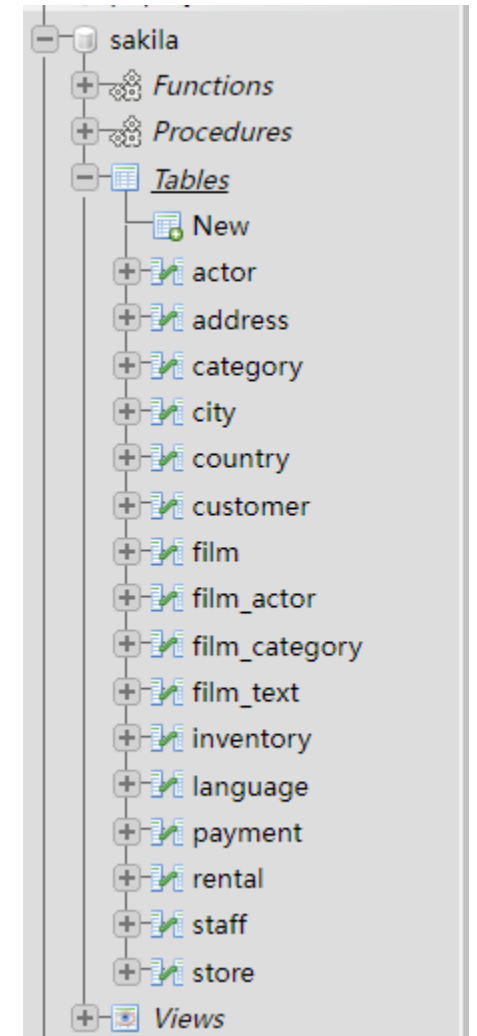
View a database

- Click “sakila” in the database list to select the database.
- All tables are shown on the page.
- The options in the menu bar is changed to the functions can be done on one selected database.



Basic Concepts

- From the database list, one can see the database “sakila” has **functions**, **procedures**, **tables**, and **views**.
- Each table contains a class of data of the same type.
- For example, the table “actor” contains actors’ information.
- A relational database consists of one or multiple tables.
- Functions, procedures, and views will be introduced later in this course.













Basic Concepts

- Select the “actor” table from the list.
- All data in this table is presented in a tabular form.
- Each row (also called **tuple**) is a set of information about one specific object.
 - One row is about one actor in this example.
- Each column (also called **attribute**) is about one **type** of data.
- The **schema** of a table is the set of all attributes.
- E.g. the schema of actor
`actor=(actor_id,first_name,last_name,last_update)`
- The words “tuple” and “attribute” are also used in ER diagrams (in the lectures). They are different concepts, but with the similar meanings.

actor_id	first_name	last_name	last_update
1	PENELOPE	GUINNESS	2006-02-15 04:34:33
2	NICK	WAHLBERG	2006-02-15 04:34:33
3	ED	CHASE	2006-02-15 04:34:33
4	JENNIFER	DAVIS	2006-02-15 04:34:33
5	JOHNNY	LOLLOBRIGIDA	2006-02-15 04:34:33
6	BETTE	NICHOLSON	2006-02-15 04:34:33
7	GRACE	MOSTEL	2006-02-15 04:34:33
8	MATTHEW	JOHANSSON	2006-02-15 04:34:33

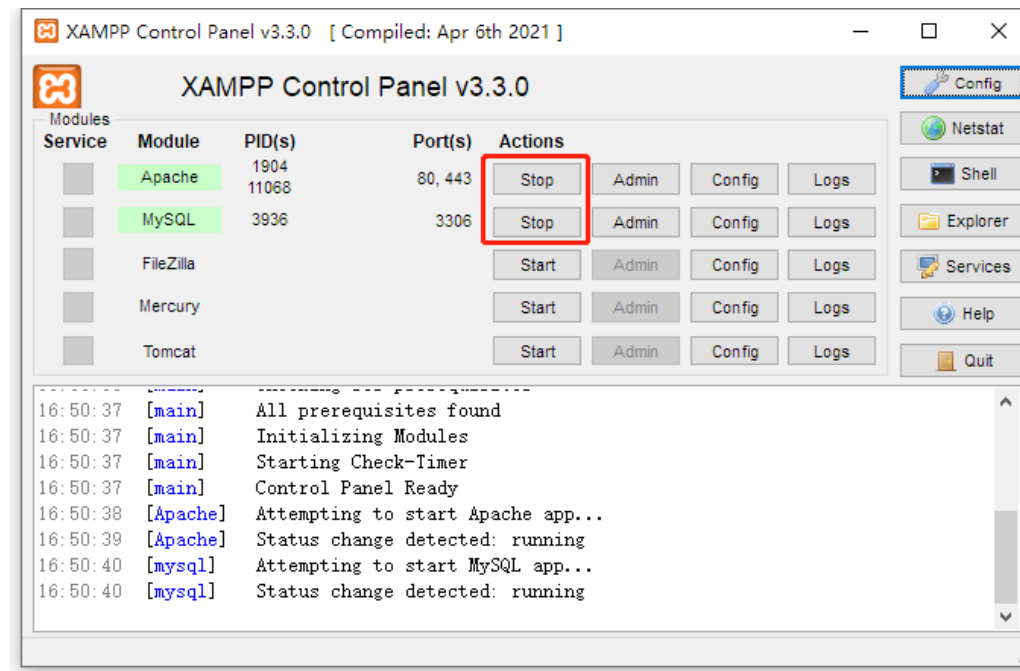
Structure Information

- The schema of a table is also called metadata, information about data.
- Together with types, default values, etc., table structure is defined.
- Click “**Structure**” to check the table structure.

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1	actor_id 	smallint(5)		UNSIGNED	No	None		AUTO_INCREMENT	 Change  Drop More
<input type="checkbox"/>	2	first_name	varchar(45)	utf8mb4_general_ci		No	None			 Change  Drop More
<input type="checkbox"/>	3	last_name 	varchar(45)	utf8mb4_general_ci		No	None			 Change  Drop More
<input type="checkbox"/>	4	last_update	timestamp			No	current_timestamp()		ON UPDATE CURRENT_TIMESTAMP()	 Change  Drop More

Stop services

- SQLs will be introduced from the next lab.
- After using the system, please remember to stop the servers.



End of Lab 1