Databases

Web applications in PHP to query a database

Practice n. 4

The purpose of this practice is to build a simple web application in PHP to query a database.

Preliminary steps

This practice is based on Apache Web server and MySQL database, in particular the versions available in XAMPP. It is necessary to boot both services in order to execute the exercises.

<u>Boot MySQL server on localhost and start Apache</u>

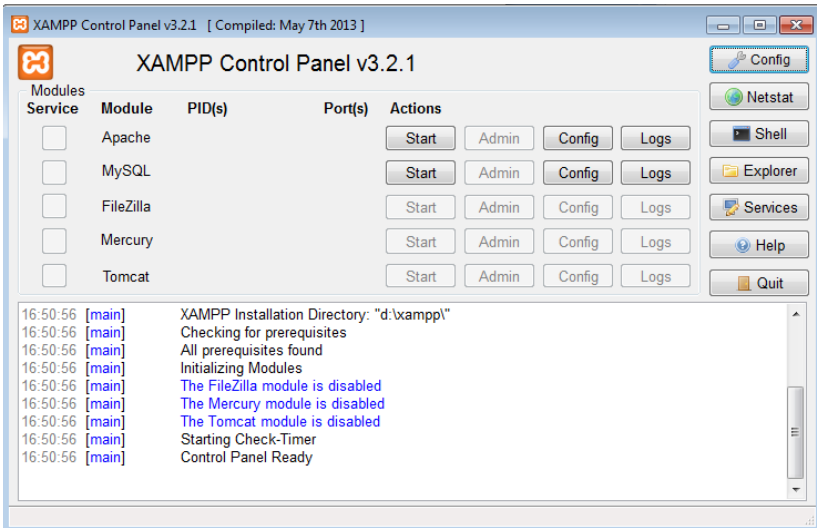
The execution of scripts with SQL commands for the creation and population of the database will be performed through the Web interface of MySQL.

Before opening the Web interface of MySQL it is necessary to:

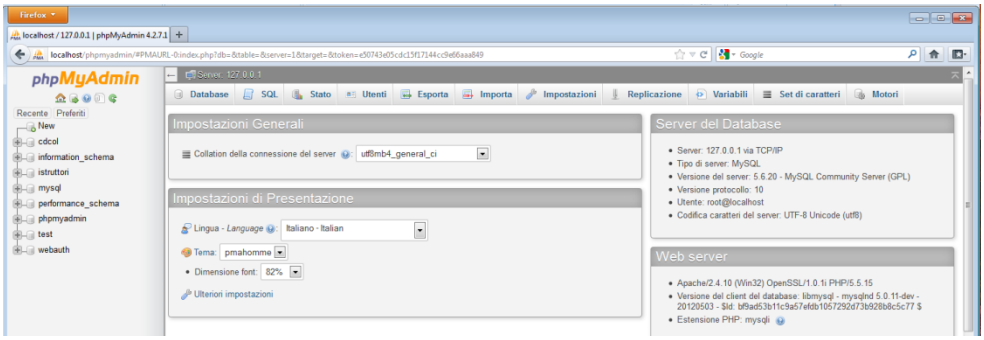
- Start the local Apache server
- Start the local MySQL server

Specifically, execute the following steps:

1) Start "XAMPP Control Panel"



2) Start Apache clicking the Start button in the row of "Apache" module.
3) Start MySQL clicking the Start button in the row of "MySQL" module.
4) Open the MySQL Web interface clicking the Admin button in the row of "MySQL" module (the browser will automatically open the URL associated to the page of administration and SQL querying, i.e., *phpMyAdmin*).



5) To execute a SQL script from the Web interface of MySQL:
   a. Select the "Import" panel
   b. Select the file with the script you want to execute and click on "Go" button.
6) To execute the creation/population script more than once, you need to cancel any existing instance of the database, either directly from the "Database" panel or by including at the beginning of the script the commands for deleting the existing tables.

Creation and population of the database used for the practice

The database used for this practice is the same of LAB3. It is called *Gym* and is used to record the activities of a gym. It's characterized by the following logical schema (primary keys are underlined, optional attributes are marked with asterisk):

TRAINER (<u>SSN</u>, Name, Surname, DateOfBirth, Email, PhoneNo*)
COURSE (<u>CId</u>, Name, CType, CLevel)
SCHEDULE (<u>SSN</u>, <u>WeekDay</u>, <u>StartTime</u>, Duration, CId, GymRoom)

1. Create the Gym database and populate it using the createDB.sql and populateDB.sql scripts available on the webpage of the course.

   Afterwards, the tables will contain the following data:

TRAINER table

SSN	Name	Surname	DateOfBirth	Email	PhoneNo
SMTPLA80N31B791Z	Paul	Smith	31/12/1980	p.smith@gym.it	*NULL*
KHNJHN81E30C455Y	John	Johnson	30/5/1981	j.johnson@gym.it	+2300110303444
AAAGGG83E30C445A	Peter	Johnson	30/5/1981	p.johnson@gym.it	+2300110303444

COURSE table

CId	Name	CType	CLevel
CT100	Spinning for beginners	Spinning	1
CT101	Fitdancing	Music	2

		activity	
CT104	Advanced spinning	Spinning	4

SCHEDULE table

SSN	WeekDay	StartTime	Duration	CId	GymRoom
SMTPLA80N31B791Z	**Monday**	**10:00**	45	CT100	R1
SMTPLA80N31B791Z	**Tuesday**	**11:00**	45	CT100	R1
SMTPLA80N31B791Z	**Tuesday**	**15:00**	45	CT100	R2
KHNJHN81E30C455Y	**Monday**	**10:00**	30	CT101	R2
KHNJHN81E30C455Y	**Monday**	**11:30**	30	CT104	R2
KHNJHN81E30C455Y	**Wednesday**	**9:00**	60	CT104	R1

Publish/upload a PHP page in XAMPP

To publish a PHP page with XAMPP you need to copy the PHP file in the *htdocs* folder of XAMPP (C:\XAMPP\htdocs).

Once the file (for instance filename.php) has been copied, it will be accessible through the browser at the local address *http://localhost/filename.php.*

Exercise

Design a web application in PHP for the online consultation of the Gym database. The application has to provide the following functionalities:

1. By selecting the code of a course (from a select box filled with data obtained by querying the content of the table COURSE), show all the scheduled weekly lessons for that course. For each lesson, show the day of the week, the start time, the duration, the room and the name and surname of the lesson trainer. Fig.1 and Fig. 2 show, respectively, the page used to perform the request and the page with the result.
2. By selecting the surname of a trainer (from a select box filled with data obtained by querying the content of the table TRAINER) and a day of the week (from another select box), show all the lessons held by trainers with the given surname and scheduled for the given week day. For each lesson show the day of the week, the start time, the duration, the room, the name, type and level of the course, and the SSN, name and surname of the trainer. Lessons should be listed ordered by trainer SSN and by course name. If the selected trainer has no lessons scheduled for the selected day, show the message "No lesson scheduled for the trainer <*surname*> on <*week day*>". Fig. 3 and Fig. 4 show, respectively, the page used to perform the request and the page containing the result.

3. Write a different version of the pages at point 1, where the select box includes also the name of the course together with the code. Once the course is selected, show the same data at point 1. Fig. 5 and Fig. 6 show, respectively, the page used to perform the request and the page containing the result.
4. Change the color of the text in heading tags (h1, h2, h3 …) using CSS and exploiting tag or class selectors.

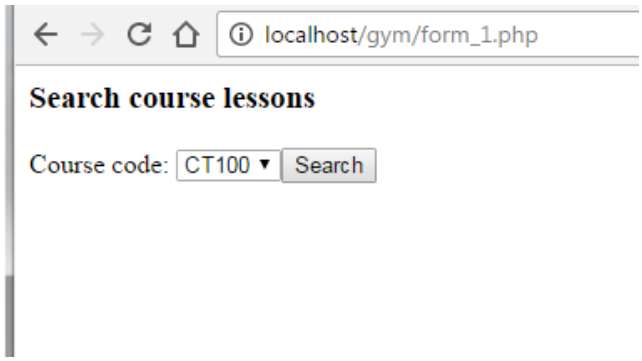


Figure 1 – Search by course code.

Day	Start time	Duration	Room	Trainer name	Instructor surname
Monday	10:00:00	45	R1	Paul	Smith
Tuesday	11:00:00	45	R1	Paul	Smith
Tuesday	15:00:00	45	R2	Paul	Smith

Figure 2 – Result of search by course code.

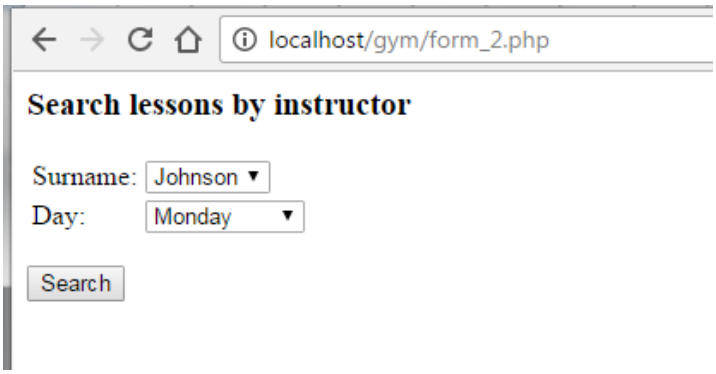


Figure 3 – Search by trainer surname and day of week.

localhost/gym/seaech_trainer_lessons.php?surname=Johnson&day=Monday

Scheduled lessons

The lessons scheduled for trainer Johnson on Monday are the following.

Day	Start time	Duration	Room	Course name	Level	Trainer SSN	Trainer Name	Trainer Surname
Monday	11:30:00	30	R2	Advanced spinning	4	KHNJHN81E30C455Y	John	Johnson
Monday	10:00:00	30	R2	Fitdancing	2	KHNJHN81E30C455Y	John	Johnson

Search again

Figure 4 – Result of search by trainer surname and day of week.

localhost/gym/form_3.php

Search couse lessons

Course code: CT100 - Spinning for beginners Search

Figure 5 – Search by course code and name.

localhost/gym/search_course_lessons3.php?course_code=CT100

Lessons scheduled for course CT100

Day	Start time	Duration	Room	Trainer name	Trainer surname
Monday	10:00:00	45	R1	Paul	Smith
Tuesday	11:00:00	45	R1	Paul	Smith
Tuesday	15:00:00	45	R2	Paul	Smith

Search again

Figure 6 – Result of search by course code and name.