Tishk International University
Faculty of Applied Science
Information Technology Department

Database Connection & Table Creation in PHP

Web Programming

Lecture 8

Fall 2025

Course Code: IT349

Grade 3

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Outlines

- Introduction to Databases and SQL
- Overview of MySQL and phpMyAdmin
- Setting Up phpMyAdmin
- Connecting PHP to MySQL
- Executing SQL Queries in PHP
- Creating and Managing Tables in PHP and phpMyAdmin
- Homework

Learning Outcomes

- **At the end of today's session, you will be able to:**

  - ✓ Explain PHP MySQL interaction via phpMyAdmin.
  - ✓ Use PHP to connect and run SQL commands.
  - ✓ Analyze database errors.
  - ✓ Create tables with PHP and phpMyAdmin.

Introduction to Database

- The internet would not be what it is today without databases. In fact, PHP likely wouldn't be as popular or useful without its built-in support for various types of databases.

- A database is a collection of tables (made up of columns and rows) that stores information.

Introduction to Database

- Examples:

Gmail Stores user email accounts, inbox contents, contacts, and attachments.

Social Media…

Some Examples!

Introduction to Database

- Most databases are created, updated, and read using **SQL** (Structured Query Language).
- SQL is a standard language for interacting with databases.
- Used for creating, reading, updating, and deleting data in databases (CRUD operations).
- We'll use MySQL, a popular open-source database management system

Common SQL Commands

- **CREATE**: Used to create a new database or table.

```
CREATE DATABASE school;
```

```
CREATE TABLE students (
    id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(50),
    age INT
);
```

Common SQL Commands

- **ALTER**: Used to modify an existing table (add, remove, or change columns).

Add

```
ALTER TABLE students ADD COLUMN email VARCHAR(100);
```

Remove

```
ALTER TABLE students DROP COLUMN email;
```

Change

```
ALTER TABLE students RENAME COLUMN age TO student_age;
```

Common SQL Commands

- **INSERT**: Used to add new data (records) into a table.

```
INSERT INTO students (id, name, age)
VALUES (1, 'Ali', 20);
```

- **SELECT**: Used to retrieve data from a table.

```
SELECT * FROM students;
```

```
SELECT * FROM students
WHERE id = 5;
```

```
SELECT name, age FROM students
WHERE id = 5;
```

Common SQL Commands

- **UPDATE**: Used to modify existing records in a table.

```
UPDATE students
SET age = 21
WHERE id = 1;
```

- **DELETE**: Used to delete specific records (rows) from a table..

```
DELETE FROM students
WHERE id = 1;
```

Common SQL Commands

- **DROP**: Used to delete a whole database or table (REMOVES structure and data).

```
DROP TABLE students;
```



```
DROP DATABASE university;
```

Graphical Database Management Tools

- Alternatively, graphical database management tools such as **phpMyAdmin** or **MySQL Workbench** may be utilized to facilitate efficient database administration through an intuitive user interface.
- In this course, **phpMyAdmin** will be employed as the primary tool for managing and interacting with the database.

What is phpMyAdmin?

- **phpMyAdmin** is an open-source software tool, introduced on September 9, 1998, and written in PHP. It is a third-party application used to manage tables and data within databases.
- **phpMyAdmin** supports a wide range of operations on MySQL and MariaDB databases through a graphical interface. Its primary purpose is to facilitate the administration of MySQL databases over the web.

What is phpMyAdmin?

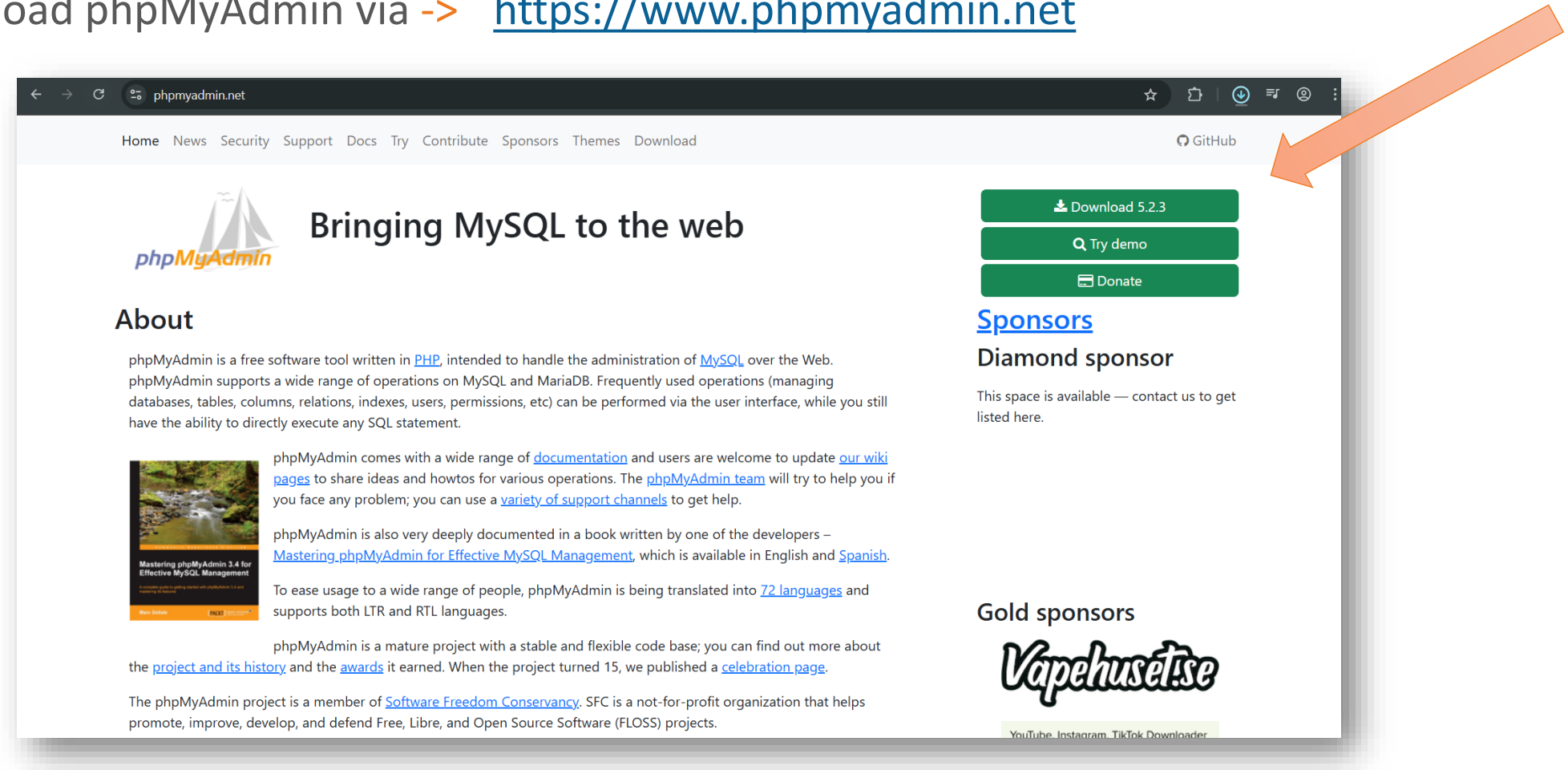
- **Key Features:**
  - Create, modify, and delete databases, tables, and records.
  - Execute SQL queries directly.
  - Import and export data in various formats.
  - Manage user accounts and permissions.

Why Use phpMyAdmin?

- Provides a user-friendly alternative to command-line database management.
- Supports complex database operations with minimal effort.
- Facilitates database backup and restore.
- Ideal for learning and teaching MySQL/MariaDB.

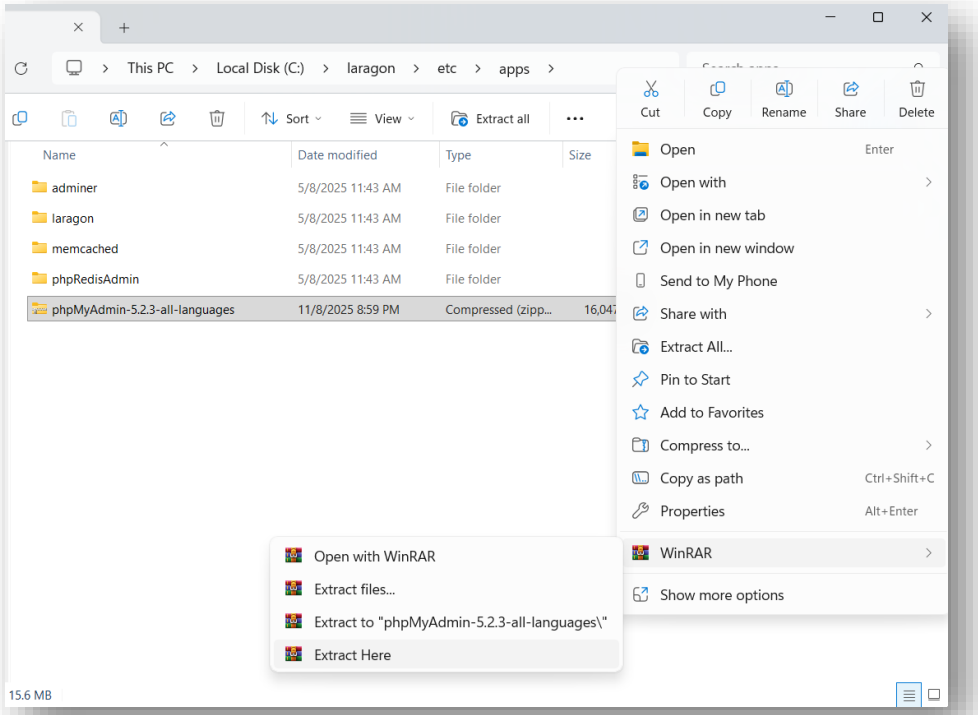
Installing phpMyAdmin

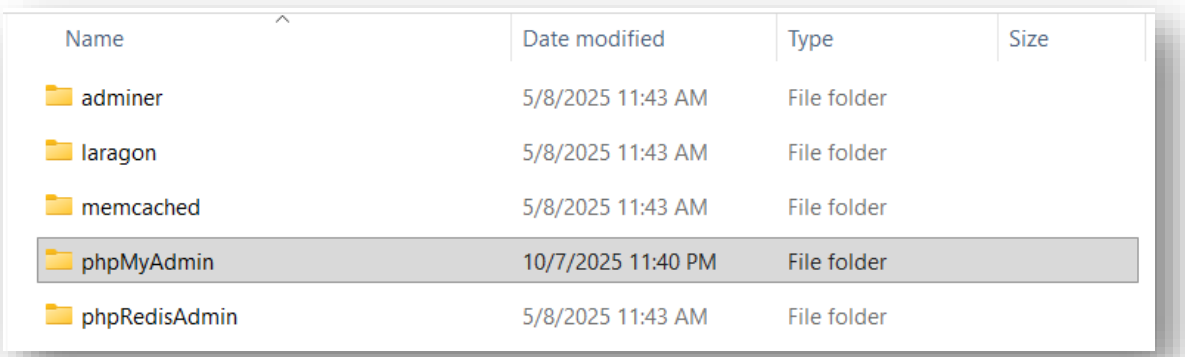
1. Download phpMyAdmin via -> https://www.phpmyadmin.net



Installing phpMyAdmin

2. Copy the downloaded .zip or .rar file to C:\laragon\etc\apps
3. Extract the file and rename it as phpMyAdmin.
4. Delete the .zip or .rar file.

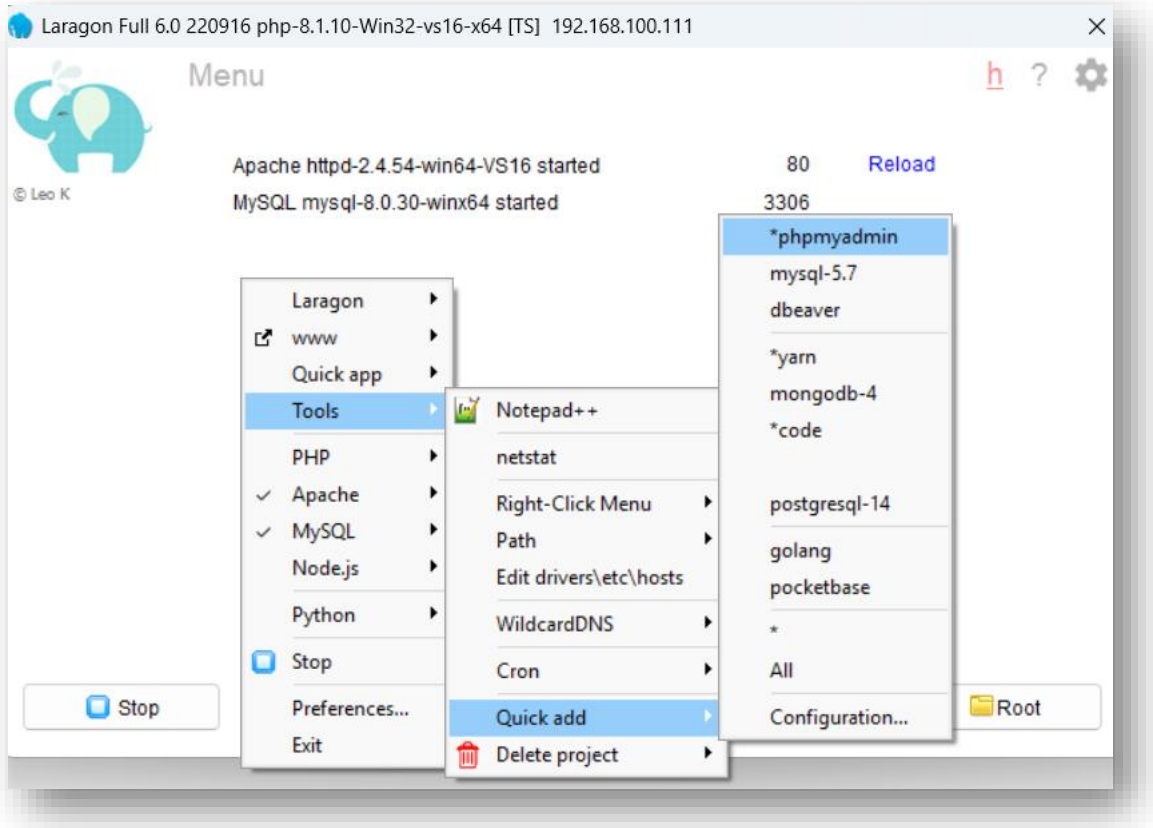




Installing phpMyAdmin

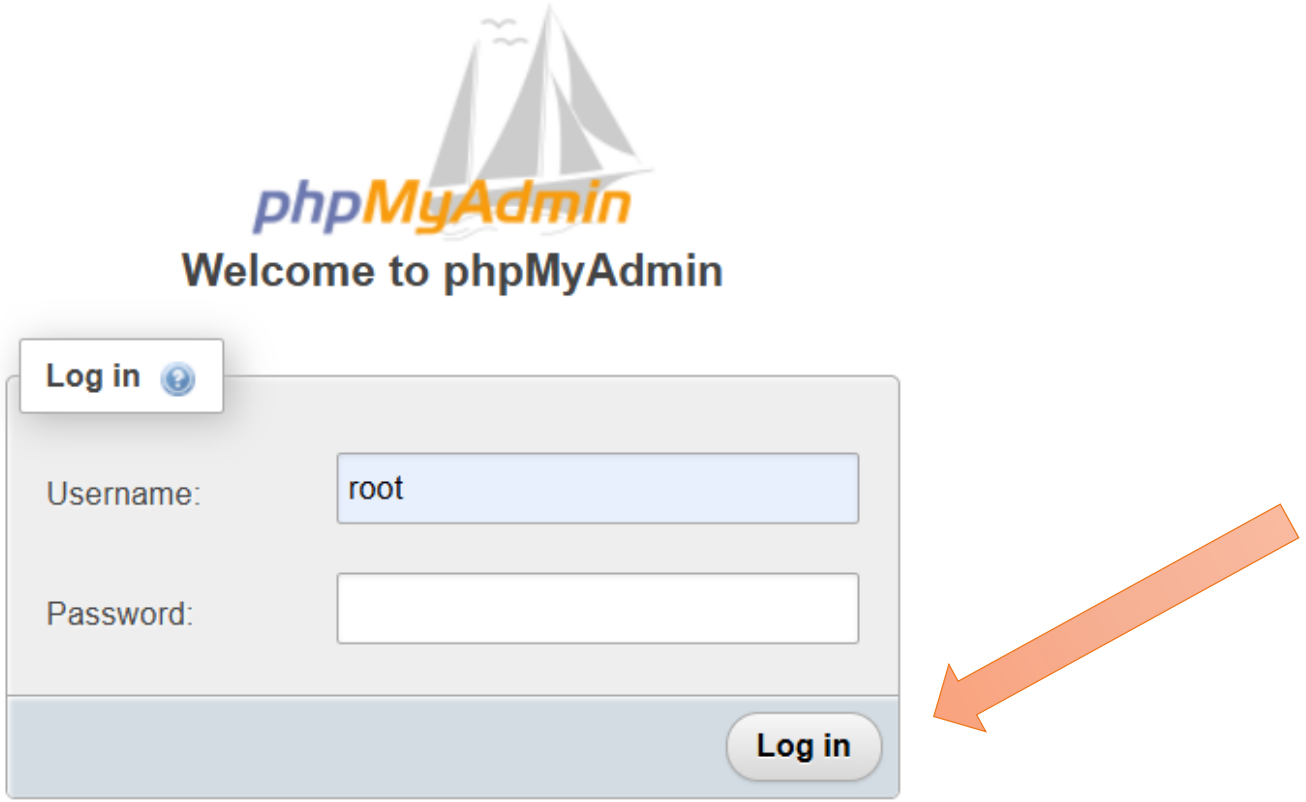
- Or you can download and install phpMyAdmin directly from Laragon.

  Steps: Right click ok Laragon -> Tools -> Quick add -> *phpMyAdmin

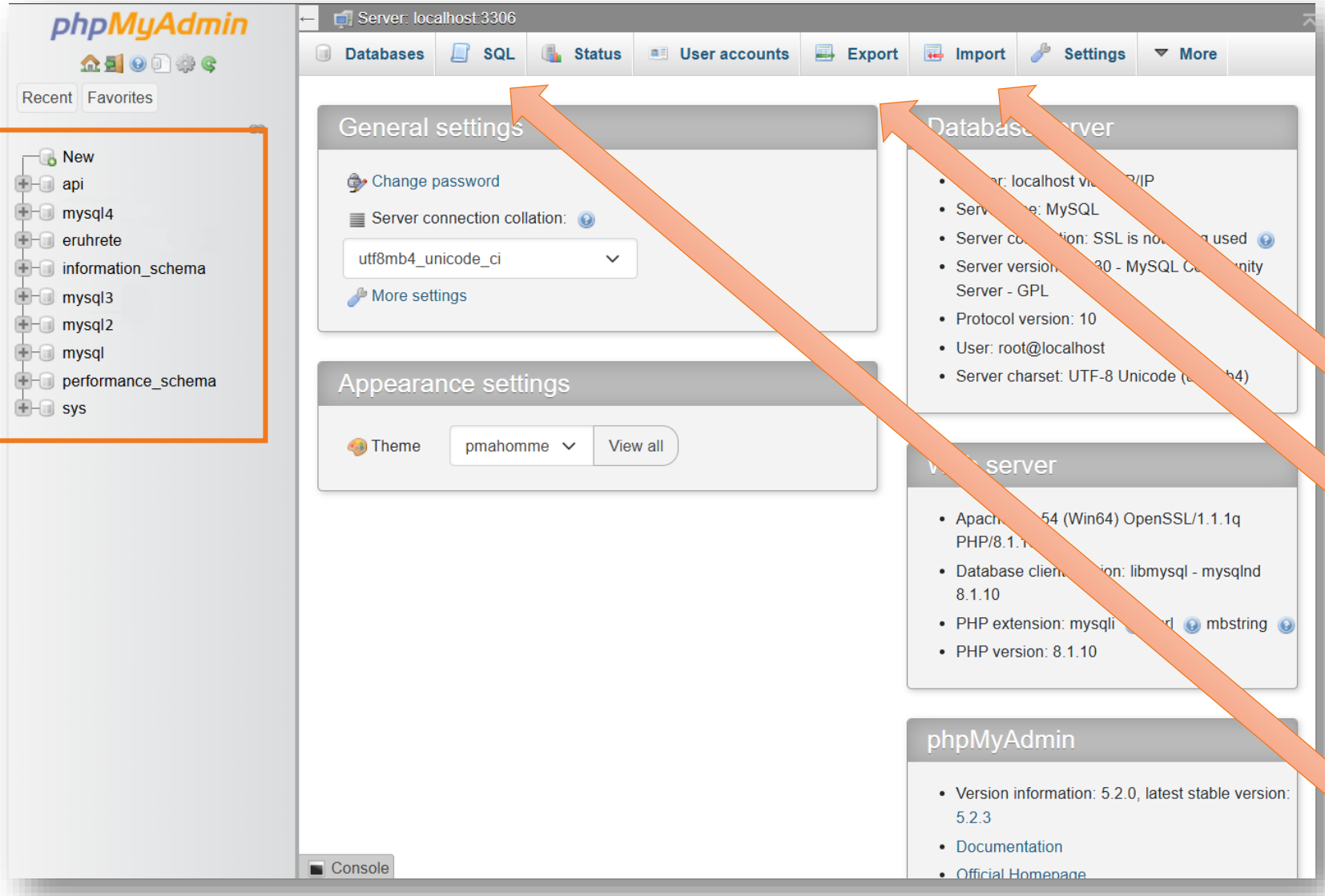


phpMyAdmin Interface

- By default, the username is “root” and has no password.



phpMyAdmin Interface



List of DBs

Import DB

Export DB

Write SQL Query

Demonstration

Server Connection

- To establish a connection between PHP and the MySQL database server, we use the mysqli_connect() function. This function takes the server's name, username, and password as arguments, and attempts to create a connection to the database.
- If the connection is successful, PHP will be able to interact with the MySQL server; otherwise, it will return an error.

```
<?php
        $dbc = mysqli_connect('localhost', 'root', ' ‘);
?>
```

Server Connection

- After establishing a connection to the database server, we check whether the connection was successful. If mysqli_connect_error() (or $conn->connect_error in object-oriented style) detects an error, the script stops and displays an error message using die(). Otherwise, it prints a message confirming that the connection was successful.

```php
<?php
    $dbc = mysqli_connect('localhost', 'root', '');
    if (!$dbc) {
     die("Connection failed: " . mysqli_connect_error());
    }
     else{
       echo "Connected to database server successfully";
     }
?>
```

Database Connection

- At this stage, the database name is specified within the mysqli_connect() function to establish a connection with the database in phpMyAdmin

```php
<?php
    $dbc = mysqli_connect('localhost', 'root', '', 'my_database');
    if (!$dbc) {
     die("Connection failed: " . mysqli_connect_error());
    }
     else{
       echo "Connected to database successfully";
     }
?>
```

Close Connection

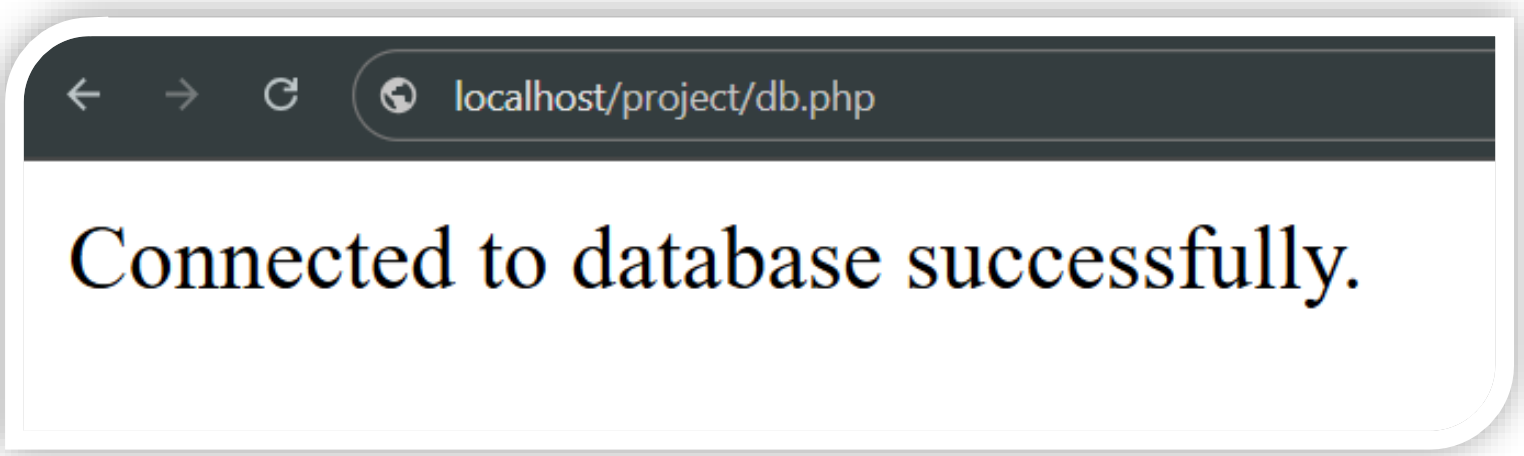
- Once you're finished working with a database, you can close the connection, just as you'd close an open file.

```
<?php    mysqli_close($dbc);   ?>
```

```php
<?php
    $dbc = mysqli_connect('localhost', 'root', '', 'my_database');
    if (!$dbc) {
     die("Connection failed: " . mysqli_connect_error());
    }
     echo "Connected to database successfully";
     mysqli_close($dbc);
?>
```

Database Connection Output

- If PHP is properly configured with MySQL support and the provided username, password, host, and database credentials are valid, the expected confirmation message will be displayed.



Debug SQL Errors

- **mysqli_error()**: It's used to retrieve the most recent MySQL error message that occurred while running a query on a given MySQL connection.

```
<?php
        echo mysqli_error($dbc);
?>
```

Create Table

- After creating and selecting the initial database, the next step is to define the tables within it. Although a database may contain multiple tables, this introductory example focuses on creating a single table to store all relevant data.

1

```
$query = "CREATE TABLE students (
    id INT AUTO_INCREMENT PRIMARY KEY,
    student_name VARCHAR(100),
    email VARCHAR(100),
    department VARCHAR(50),
    age INT
)";
```

Executing The Query

- **mysqli_query()**: It's used to send an SQL query to a MySQL database and execute it.

```
<?php
        mysqli_query($dbc, $query);
?>
```

Executing The Query

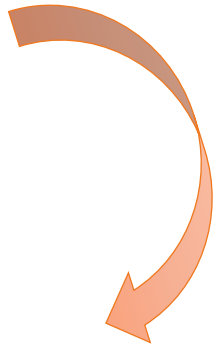
2

```php
<?php
$dbc = mysqli_connect('localhost', 'root', '', 'uni');

if (!$dbc) {
    die("Connection failed: " . mysqli_connect_error());
} else {

    $query = "CREATE TABLE students (
        id INT AUTO_INCREMENT PRIMARY KEY,
        student_name VARCHAR(100),
        email VARCHAR(100),
        department VARCHAR(50),
        age INT
    )";

    if (mysqli_query($dbc, $query)) {
        echo "The students table was created successfully.";
    } else {
        echo "Error creating table: " . mysqli_error($dbc) . "<br> The query being executed was: $query";
    }
}
mysqli_close($dbc);
?>
```

Table Created Output

- If the table is created successfully without any errors, the following message will be displayed.

Creating Table in

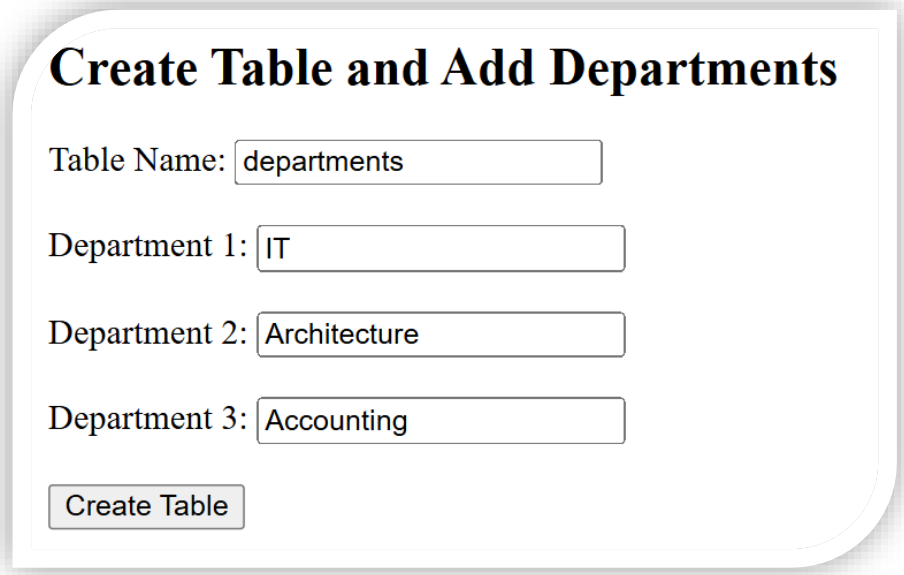


Let’s do it together

👏

Homework

- Create a database in phpMyAdmin and name it “departments”. Then, design a form with four fields: one for entering a table name and three for entering department names. Upon submitting the form, a table should be automatically created in the database using the provided table name and department information.



Lab Assesments and Next Session's Topic

Lab Assessments

- Lab Exercises.

Next Session's Topic

- Create and Read in PHP

References

- Tatroe, K., & MacIntyre, P. (2020). Programming PHP: Creating dynamic web pages (4th ed.). O'Reilly Media.
- Ullman, L. (2016). PHP for the web: Visual QuickStart guide (5th ed.). Peachpit Press.
- PHP Documentation. (n.d.). PHP.net. Retrieved November 8, 2025, from https://www.php.net/docs.php

Thank You!