

Creating a User Database and Table Using SQL

A login system needs a users table that can identify accounts, store password hashes and enforce roles. This example uses fictional accounts and prepares the database for PDO-based PHP pages.

“ Never store plain-text passwords. The `password` field below stores the output from PHP's `password_hash()` function.

Create the database

Open `http://localhost/phpmyadmin/`, select **SQL**, and run:

```
CREATE DATABASE project_db
  CHARACTER SET utf8mb4
  COLLATE utf8mb4_unicode_ci;

USE project_db;
```

Create the users table

```
CREATE TABLE users (
  user_id INT AUTO_INCREMENT PRIMARY KEY,
  username VARCHAR(50) NOT NULL UNIQUE,
  password VARCHAR(255) NOT NULL,
  role VARCHAR(20) NOT NULL DEFAULT 'user',
  created_at TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
  CONSTRAINT chk_user_role CHECK (role IN ('user', 'admin'))
);
```

Field	Purpose
<code>user_id</code>	Stable unique identifier
<code>username</code>	Unique login name
<code>password</code>	Password hash, never the original password
<code>role</code>	Authorisation level: <code>user</code> or <code>admin</code>
<code>created_at</code>	Account creation time

Some older MariaDB versions accept but do not enforce `CHECK` constraints. PHP must still validate the role, and ordinary registration must never accept an administrator role from the user.

Create a fictional administrator

Generate a hash with PHP's `password_hash()` or the classroom password-hasher tool. Insert the generated hash—not the test password:

```
INSERT INTO users (username, password, role)
VALUES ('admin_demo', '$2y$10$REPLACE_WITH_A_REAL_TEST_HASH', 'admin');
```

Use only a fictional test password. Never enter a personal, school or reused password into a classroom tool.

Verify the table

```
DESCRIBE users;
SELECT user_id, username, role, created_at FROM users;
```

Do not select or display password hashes unless diagnosing a specific local problem.

Check

- ☐ Username is unique.
- ☐ Password field is long enough for modern hashes.
- ☐ New accounts default to `user`.
- ☐ Administrator status cannot be selected during public registration.
- ☐ All accounts and data are fictional.

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