

# Digital Library System – Setup Guide

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This project is a secure PHP + MySQL web application for user registration, login, book browsing, searching/filtering, borrowing books, returning borrowed items, and viewing personal borrowing history.

It follows secure development practices using prepared statements, password hashing, session handling, and server-side validation.

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## 1. Requirements

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Before running the project, ensure:

- **XAMPP** is installed
- **Apache** is ON
- **MySQL** is ON
- phpMyAdmin is accessible at:

```
http://localhost/phpmyadmin
```

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## 2. Project Installation

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1. Place the project folder inside:

```
C:\xampp\htdocs\web-project
```

2. Confirm your folder structure matches:

```
web-project/
|
|— index.php
|— books.php
|— book_details.php
|— login.php
|— register.php
|— my_borrowings.php
|
|— action/
|   |— borrow_book.php
|   |— logout.php
|   |— process_register.php
|   |— process-login.php
```

```
├── return_book.php
├── config/
│   └── database.php
├── database/
│   ├── database.php
│   ├── userDAO.php
│   ├── bookDAO.php
│   └── borrowingDAO.php
├── partials/
│   └── navbar.php
├── css/
│   └── style.css
├── js/
│   ├── login.js
│   └── signup.js
└── webProject_schema.sql
```

3. Start XAMPP:

- **Apache** → ON
- **MySQL** → ON

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## 3. Import the Database

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1. Open phpMyAdmin
2. Click **New** → create database:

```
digital_library_db
```

3. Open **Import** tab
4. Upload and import:

```
webProject_schema.sql
```

5. Click **Go**

This loads the following tables:

- **users**
- **books**

- borrowings

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## 4. Project Folder Structure Explanation

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```
web-project/
├── index.php           → Home page (hero section)
├── books.php           → Book catalog + search/filter
├── book_details.php    → Single book view + Borrow button
├── login.php           → User login page
├── register.php        → New user registration
├── my_borrowings.php   → View & return borrowed books
├── partials/
│   └── navbar.php      → Shared navigation bar (dynamic)
├── action/             → Server-side handlers (POST actions)
│   ├── process_register.php → Handles user signup
│   ├── process_login.php   → Handles user authentication
│   ├── borrow_book.php     → Creates new borrowing
│   ├── return_book.php     → Marks borrowing as returned
│   └── logout.php          → Ends session
├── config/
│   └── database.php       → DB credentials + PDO config
├── database/            → PDO + Data Access Objects
│   ├── database.php       → Singleton PDO wrapper
│   ├── userDAO.php        → Users table logic
│   ├── bookDAO.php        → Books table logic
│   └── borrowingDAO.php   → Borrowings table logic
├── css/
│   └── style.css          → Global styles, cards, grids, navbar
├── js/
│   ├── login.js           → (Optional) client-side validation
│   └── signup.js           → (Optional) client-side validation
└── webProject_schema.sql → Database schema
```

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## 5. How to Run the System

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After Apache and MySQL are running, open your browser:

```
http://localhost/web-project/
```

or go directly to:

`http://localhost/web-project/books.php`

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## 6. Step-by-Step Usage

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### 1. Register a New User

Open:

`http://localhost/web-project/register.php`

Fill out:

- Full name
- Email
- Password

System checks:

- Required fields
- Email format
- Password hashing
- Duplicate email prevention

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### 2. Login

Visit:

`http://localhost/web-project/login.php`

Enter your registered email and password. System validates credentials using:

- `userDAO->getUserByEmail()`
- `password_verify()` against stored hash

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### 3. Browse Books

Go to:

```
http://localhost/web-project/books.php
```

Features include:

- Search by **title**, **author**, **ISBN**
- Filter by **category**
- View full book details

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## 4. View Book Details & Borrow

Open any title:

```
book_details.php?id=BOOK_ID
```

If logged in and the book is marked **available**:

- A *Borrow This Book* button appears
- Request is processed via `borrow_book.php`

The system prevents:

- Borrowing same book twice
- Borrowing unavailable books

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## 5. View Your Borrowed Books

```
http://localhost/web-project/my_borrowings.php
```

You can:

- See all your borrowings
- See borrow + return timestamps
- Return an active borrowing

Returns are processed through:

```
action/return_book.php
```

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## 6. Logout

```
action/logout.php
```

Destroys session and returns to home.

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## 7. Security Practices Implemented

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Consistent with CYB325 secure development requirements :

### Client-Side

- Clean UI with semantic HTML5
- JavaScript validation (required fields, formats)

### Server-Side

- Strict server-side validation for all inputs
  - PDO with prepared statements → prevents SQL injection
  - Password hashing using `password_hash()`
  - Safe session usage
  - Output escaping using `htmlspecialchars()`
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