

# 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
- 

## 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
- 

## 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/
    │   ├── 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/
    │   ├── database.php     → PDO + Data Access Objects
    │   ├── userDao.php      → Singleton PDO wrapper
    │   ├── bookDAO.php      → Users table logic
    │   └── borrowingDAO.php → Books 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
- 

#### 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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