E-Book Web System: A Web-Based Application for Managing and Reading Digital Books

Introduction

The E-Book Web System is a web-based application designed to manage and provide access to digital books efficiently. The system allows users to register, log in, search for books, and read uploaded e-books online. Administrators can upload books, manage categories, and oversee user activity through a centralized dashboard.

The project was developed using PHP for server-side processing, MySQL for database management via phpMyAdmin, XAMPP as the local server environment, and Visual Studio Code as the development tool. This system demonstrates the application of information management concepts, particularly database normalization, relationships, and SQL operations.

Objectives of the System

General Objective

To develop a database-driven web application that efficiently stores, retrieves, and manages digital book information.

Specific Objectives

- To implement a secure user login and registration system
- To allow users to search books by title, author, and category
- To enable administrators to upload and manage e-books
- To design a normalized relational database
- To apply SQL queries such as SELECT, JOIN, UPDATE, and DELETE

Scope and Features

System Features

- User registration and login
- Role-based access (admin and user)
- Dashboard interface
- Book upload functionality
- Search bar (title, author, category)
- Category-based book organization

Limitations

- Runs on a local server environment
- No online payment integration
- No mobile application version

Tools and Technologies Used

• Visual Studio Code – Code editor
• XAMPP – Local server (Apache & MySQL)
• PHP – Server-side scripting
• MySQL / phpMyAdmin – Database management
• HTML, CSS – Frontend development

Database Design

The system uses a normalized relational database consisting of five (5) tables to comply with information management principles.

Tables Used

1. Users
2. Books
3. Authors
4. Categories

5. Book_Categories

Entity Relationship Diagram

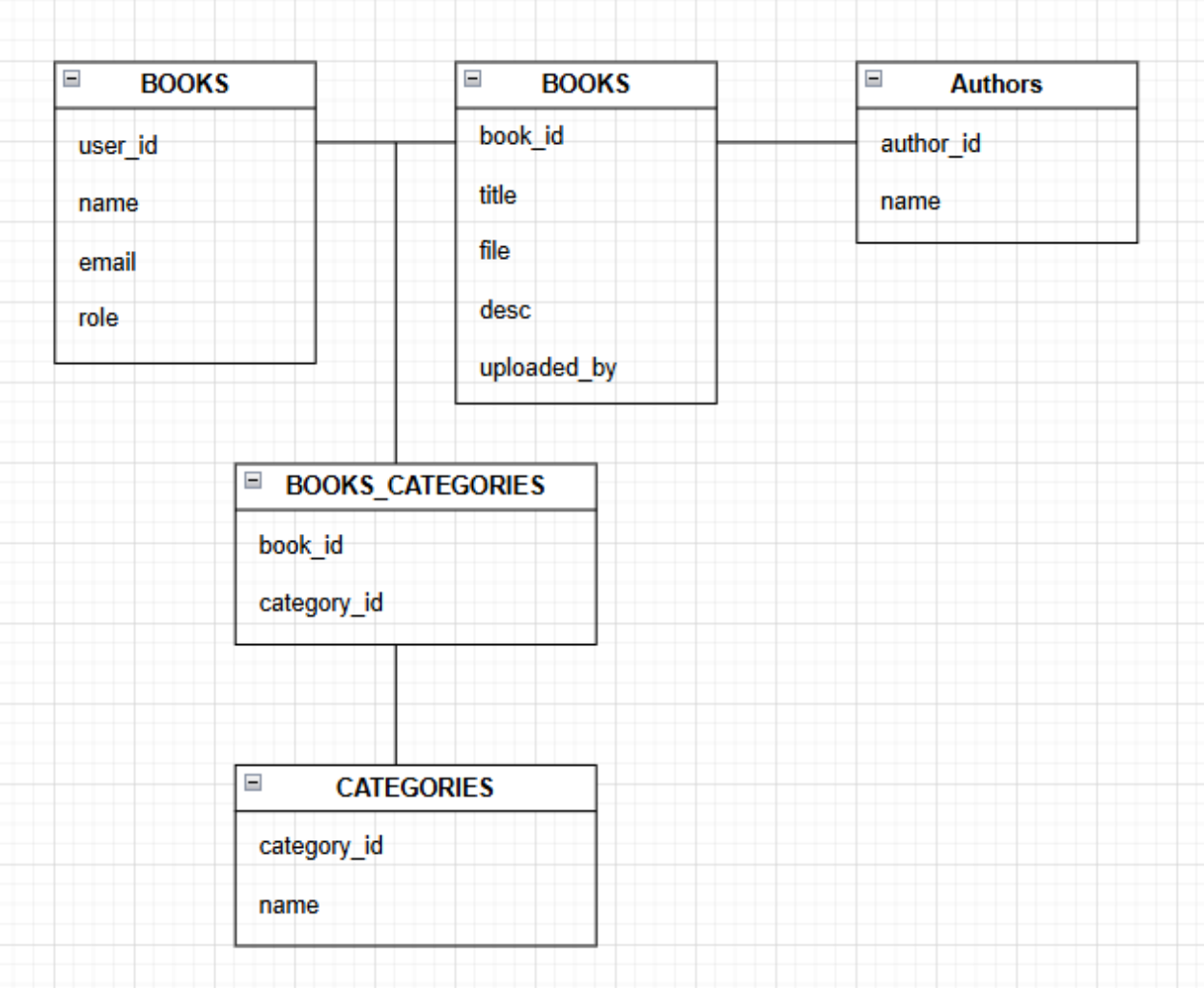


Figure 1: Entity Relationship (ER) Diagram

Table Descriptions

Users Table

Field	Description
user_id (PK)	Unique user identifier
name	User's name
email	User email
password	Encrypted password
role	Admin or user

Books Table

Field	Description
book_id (PK)	Unique book identifier
title	Book title
author_id (FK)	Reference to authors
file_path	File location
description	Book summary
uploaded_by (FK)	User uploader

Authors Table

Field	Description
author_id (PK)	Author identifier
author_name	Author name

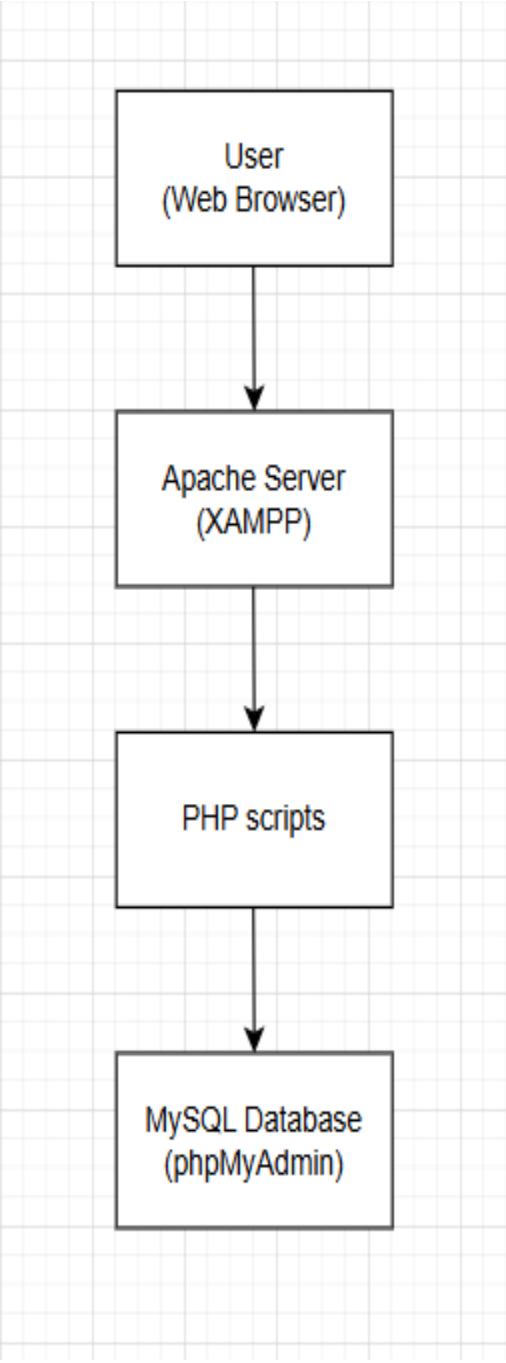
Categories Table

Field	Description
category_id (PK)	Category identifier
name	Category name

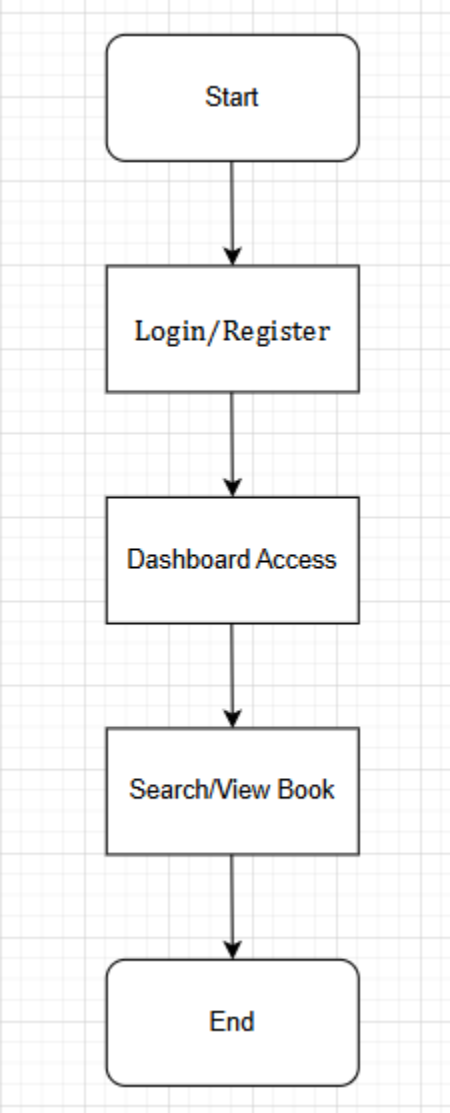
Book_Categories Table

Field	Description
Book_id (FK)	Linked Book
Category_id (FK)	Linked Category

System Architecture



System Flow Diagram



SQL Operations Used

- SELECT – retrieving books and search results
- JOIN – combining books, authors, and categories
- INSERT – adding users and books
- UPDATE – modifying book details

  DELETE – removing book records

Challenges and Learning

Challenges encountered include database connection issues, file uploads, and debugging PHP errors. Through this project, knowledge in PHP-MySQL integration, CRUD operations, and system design was improved.

Conclusion

The E-Book Web System successfully demonstrates effective information management through a normalized database design and functional web application. By implementing relational tables, foreign key constraints, and structured queries, the system ensures data integrity and efficient retrieval. This project enhanced practical understanding of database design, SQL operations, and system integration.