Great! Here’s a clean, well-organized version of your PHP Library System documentation, structured with headings, subheadings, and neat formatting so it’s easy to copy into Word and then export as PDF.

# **PHP Library Management System Documentation**

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## **1. Introduction**

The PHP Library Management System is designed to manage book inventories, user registrations, book reservations, and transaction tracking. The system supports role-based access with Admin and User roles, ensuring secure and efficient library operations.

## **2. System Overview**

This web-based system allows users to search for books, reserve them, and track transactions. Admins can add books, manage users, and view all transactions. The system uses MySQL stored procedures, triggers, and scheduled events to maintain data integrity and automate certain tasks.

## **3. Features**

* User login and registration with role-based access
* Book search functionality
* Book reservation system
* Admin dashboard to add books and manage users
* Transaction history tracking
* Automated email notifications (optional)
* Use of MySQL stored procedures, triggers, and scheduled events

## **4. System Architecture**

* **Frontend:** PHP, HTML, CSS, JavaScript
* **Backend:** PHP (server-side scripting)
* **Database:** MySQL with stored procedures and triggers
* **User Roles:**
  + **Admin:** Full access to manage books, users, and transactions
  + **User:** Can search books and make reservations

## **5. Database Design**

The database consists of the following main tables:

* users – Stores user details and roles
* books – Stores book details including title, author, category, and availability
* transactions – Tracks book reservations and returns
* roles – Defines user roles (Admin, User)
* book log – Stores new added book

## **6. Stored Procedures, Triggers, and Events**

### **Stored Procedures**

* **User Registration:** Inserts new users with validation checks
* **Book Addition:** Adds new books ensuring no duplicates
* **Book Reservation:** Checks availability and logs transactions

### **Triggers**

* **After Insert on Transactions:** Updates book availability automatically
* **Before Delete on Users:** Checks for active reservations

### **Scheduled Events**

* **Reservation Expiry:** Automatically releases books if not collected within a timeframe

## **7. User Management**

* Secure login and registration form with password hashing
* Role-based authentication to restrict access
* Admin panel to add, update, and delete users

## **8. Installation and Setup**

1. Set up a local or remote server with PHP and MySQL
2. Import the provided SQL database script to create the database and tables
3. Configure database connection details in the PHP config file
4. Upload PHP files to the web server
5. Access the system via a web browser
6. Register as a user or login as admin with predefined credentials

## **9. Usage**

* **User:** Search for books by title, author, or category; reserve available books
* **Admin:** Add new books, manage users, view all transactions

## **10. Future Enhancements**

* Integration with email notifications for reservations and returns
* Mobile responsive design
* Enhanced search with filters and sorting
* Integration with barcode scanning for physical library management
* Advanced reporting and analytics dashboard