

PROJECT REPORT

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Hospital Management System

Abstract

Hospital Management System is a structured PHP-based web application developed to manage hospital operations in a centralized and secure way. The system provides modules for managing patients, doctors, appointments, and users with proper authentication and authorization. Instead of repeating code, a master layout and routing system is used. The project supports soft delete, session management, and database abstraction using SQL schema files. This system reduces manual effort and improves data integrity and security.

Introduction

Hospitals handle large volumes of data daily, including patient records, doctor information, and appointment schedules. Manual handling of such data leads to errors, data loss, and inefficiency.

This Hospital Management System is designed to solve these issues by providing a modular, secure, and scalable web-based solution. The project is implemented using PHP with a routing mechanism and authentication guards to ensure secure access.

Objectives

The objectives of this project are:

To develop a centralized hospital management system

To implement authentication and authorization

To avoid code repetition using master layout

To manage hospital modules dynamically

To implement complete CRUD operations

To ensure data safety using soft delete

To provide session-based secure access

System Overview

The system follows a **modular MVC-like structure**:

Public folder handles user access

App folder contains authentication, modules, and business logic

Database folder contains SQL schemas and seeders

Routing and authentication guards ensure controlled access to each module.

Methodology

The project was developed using the following steps:

Requirement Analysis

Understanding hospital workflow and academic requirements.

System Design

Designing database schemas and module structure.

Development

Implementing routing, authentication, modules, and CRUD operations.

Testing

Verifying authentication, sessions, and module operations.

Deployment Setup

Providing scripts for local server execution.

Technologies Used

PHP

SQLite / MySQL (Schema based)

HTML & CSS

Apache (via PHP built-in server or XAMPP optional)

Master Layout Implementation

The project uses a **central layout system** where common components such as navigation and layout structure are reused.

This prevents duplication of navbar and sidebar code and makes the project easy to maintain and extend.

Session Management

Session handling is implemented using PHP sessions.

Once a user logs in, the session is active across all pages.

If the user logs out from any page, the session is destroyed and the user is logged out from all open tabs.

Authentication & Authorization

Login and signup handled through `auth_handler.php`

Unauthorized access is blocked using `auth_guard.php`

Only authenticated users can access protected routes

Authorization ensures controlled access to modules

Modules Implementation

Modules such as:

Patients

Doctors

Appointments

are executed dynamically using loops and routing.

This approach allows easy scalability and avoids hard-coded repetition.

CRUD Operations

Each module supports complete CRUD operations:

Create – Add new records

Read – Fetch records dynamically

Update – Modify existing records

Delete – Soft delete implementation

Soft Delete Mechanism

Hard delete is not used in this project.

Instead, records are marked inactive in the database.

Only active records are fetched, ensuring data recovery and audit safety.

Database Design

The database is designed using SQL schema files:

schema.sql

schema_sqlite.sql

Seed files are included for testing data.

This approach makes the database portable and easy to initialize.

Security Features

Session-based authentication

Auth guard for protected routes

No unauthorized access to internal modules

Logout destroys session completely

Results

The system fulfills all functional and academic requirements.

It successfully manages hospital data, ensures security, and avoids code duplication.

The modular structure makes the system easy to extend and maintain.

Advantages

Secure authentication system

No repeated code (master layout)

Modular and scalable architecture

Soft delete for data safety

Database portability

Limitations

UI can be enhanced

Online payment not included

Notification system not implemented

Future Work

Future improvements may include:

Online appointment booking

Email/SMS notifications

Role-based dashboards

Advanced reporting

Cloud deployment

Conclusion

The Hospital Management System is a well-structured and secure PHP-based application that meets all project requirements. By using routing, authentication guards, master layouts, and soft delete mechanisms, the system ensures efficiency, security, and scalability. This project is suitable for academic evaluation and real-world enhancement.

References

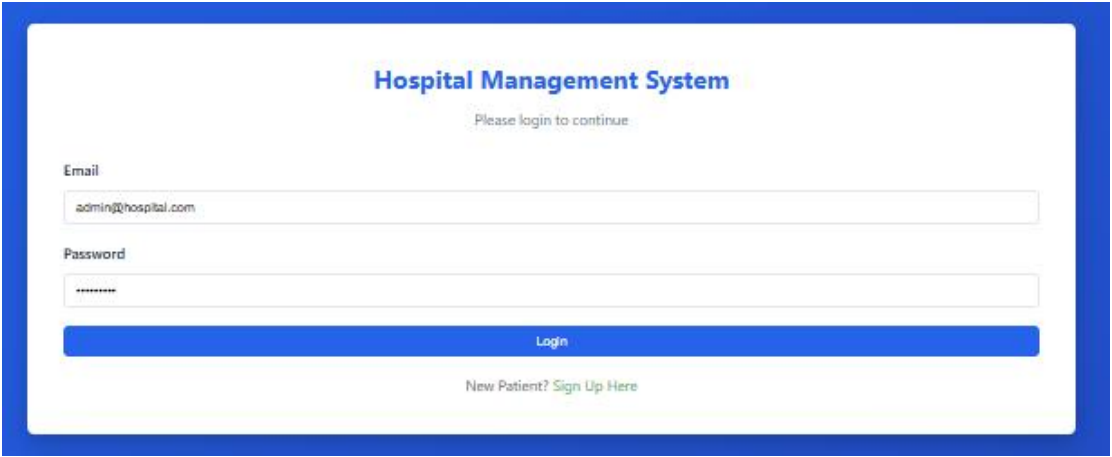
PHP Official Documentation

SQLite Documentation

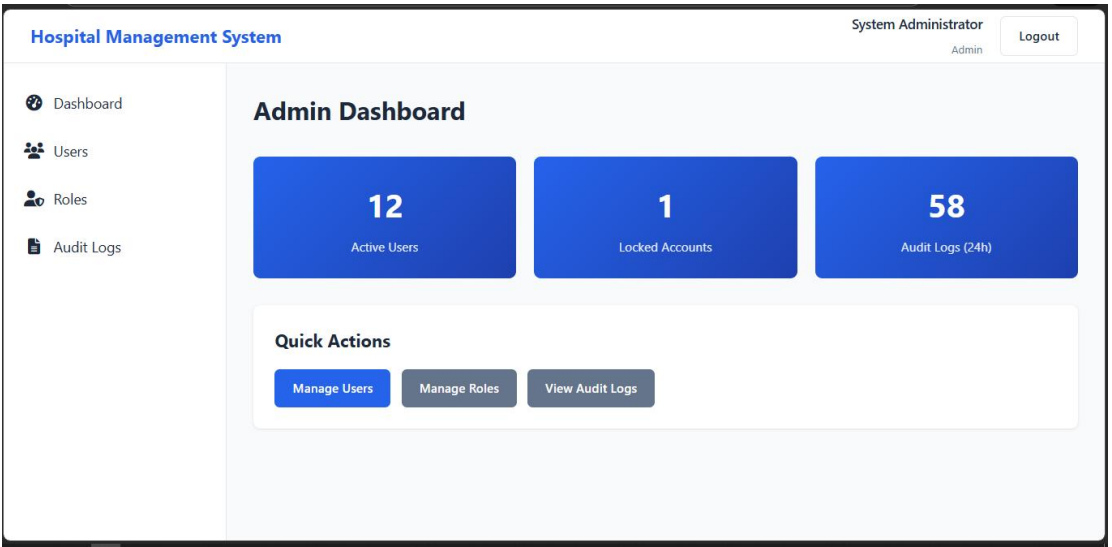
Apache Server Documentation

Screenshots

1.login as admin



2.Dashboard



3.User management

Hospital Management System

System AdministratorAdminLogout

Dashboard

Users

Roles

Audit Logs

User Management

Create New User

User status updated

ID	Name	Email	Roles	Status	Last Login	Actions
14	Shaheer khan	shaheer@123gmail.com	No roles	Active	Never	<div>EditDelete</div> <div>Active</div>
13	Ali Hassan	ali_hassan@example.com	Patient	Inactive	2025-12-28 18:33	<div>EditDelete</div> <div>Inactive</div>
11	Abdullah	abdullahshakeel2648@gmail.com	Patient	Locked	2025-12-28 18:18	<div>EditDeleteUnlock</div> <div>Locked</div>
10	Ali Hassan	patient@hospital.com	Patient	Active	2025-12-28 18:25	<div>EditDelete</div> <div>Active</div>

4.Log in as a doctor

Hospital Management System

Dr. Ahmed KhanDoctorLogout

Dashboard

Appointments

Patients

Prescriptions

Doctor Dashboard

Welcome, Dr. Dr. Ahmed Khan!

This is the doctor dashboard. Here you can view appointments, patient records, and manage prescriptions.

Upcoming Appointments

Date	Time	Patient	Reason	Status
2025-12-29	08:00	Ayesha Malik		Confirmed
2025-12-31	13:00	Ali Hassan	N/A	Scheduled
2025-12-31	13:08	Ali Hassan	N/A	Scheduled
2026-01-02	01:57	Ali Hassan	N/A	Scheduled

5.Doctor appointments

Hospital Management System

Dr. Ahmed KhanDoctorLogout

Dashboard

Appointments

Patients

Prescriptions

My Appointments

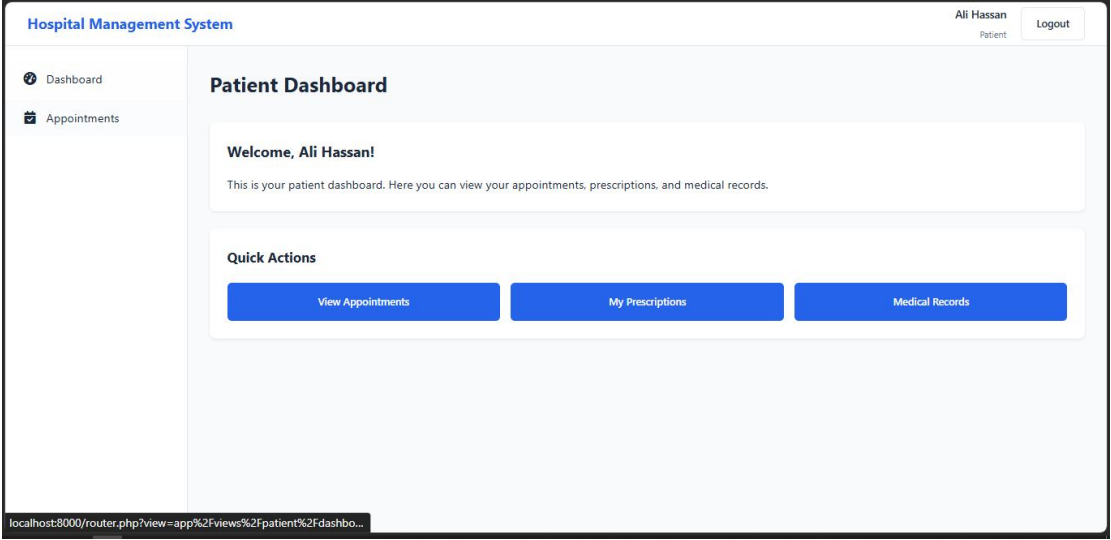
4Total Appointments

4Upcoming

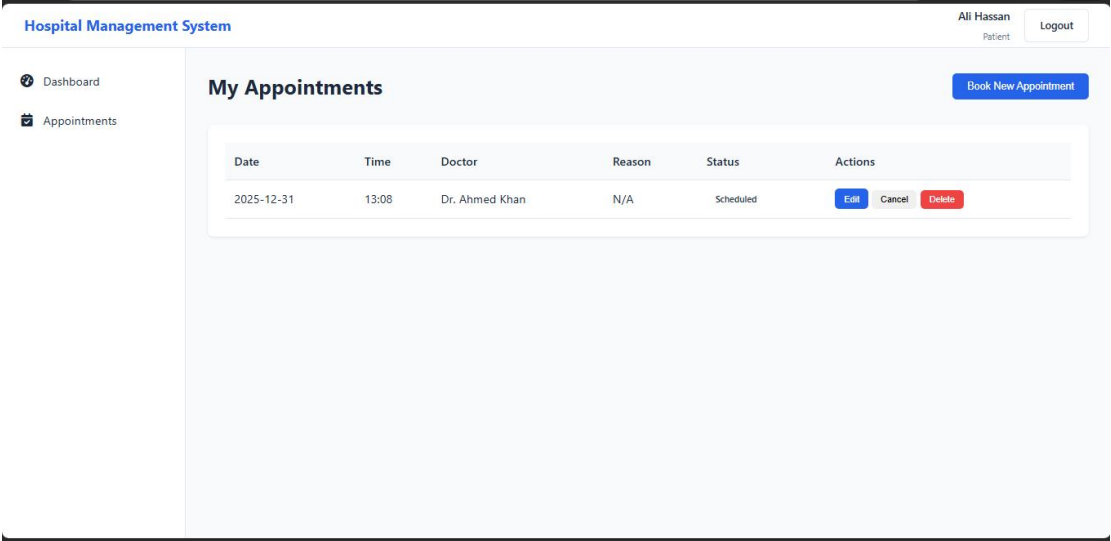
0Today

Date	Time	Patient	Contact	Reason	Status	Notes	Actions
2025-12-29	08:00	Ayesha Malik	lab@hospital.com 555-0303		Confirmed	No notes	<div>Confirmed</div> Notes
2025-12-31	13:00	Ali Hassan	ali_hassan@example.com 555-1001	N/A	Scheduled	No notes	<div>Scheduled</div> Notes
2025-12-31	13:08	Ali Hassan	patient@hospital.com 555-1001	N/A	Scheduled	No notes	<div>Scheduled</div> Notes
2026-01-02	01:57	Ali Hassan	ali.hassan@example.com 555-1001	N/A	Scheduled	No notes	<div>Scheduled</div> Notes

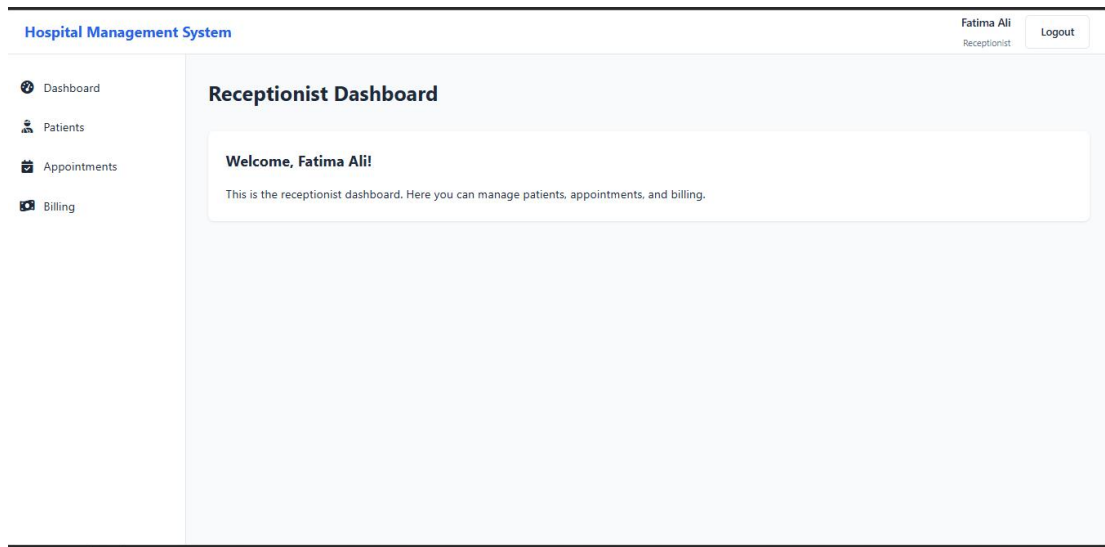
6.Patient dashboard



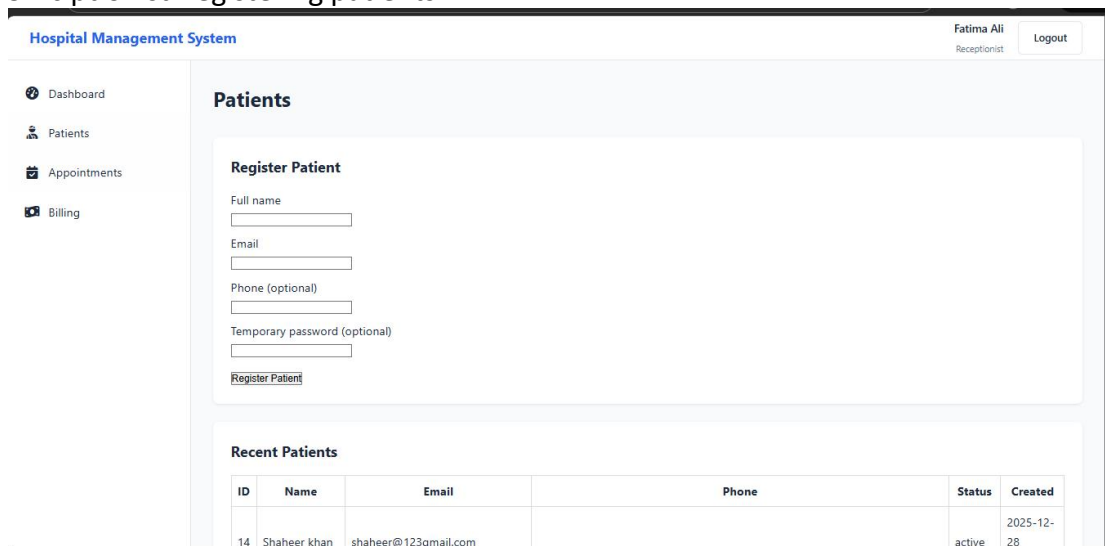
7.Patient appointment booking



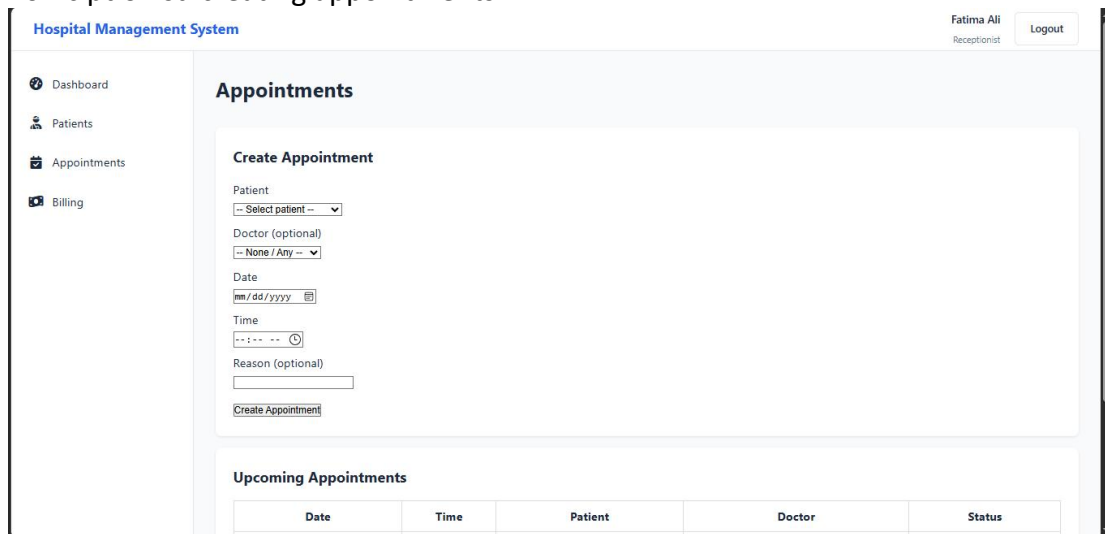
8.Log in as Receptionist



9. Receptionist registering patients



10. Receptionist creating appointments



11.Receptionist generating patients bill

Hospital Management System

Fatima Ali
Receptionist

Logout

Dashboard

Patients

Appointments

Billing

Billing

Create Invoice

Patient

-- Select patient --

Items

Description	Amount
<div></div>	<div>Remove</div>

Add item

Create Invoice

Recent Invoices

ID	Patient	Total	Created
1	Abdullah	5,000.00	2025-12-28 18:46:28