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**Web development
on
"Hospital management system"**

Submitting a partial fulfilment of the requirements for the VI semester

BACHELOR OF COMPUTER APPLICATIONS

Submitted by

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Abstract

Title: Hospital Management System (HMS)

1. Introduction

In today's healthcare sector, efficient management of hospital resources, patient data, and appointments is essential. The Hospital Management System (HMS) is a web-based application designed to streamline hospital operations, improve patient care, and enhance administrative efficiency. This system provides an integrated solution for managing doctors, patients, and appointments with a user-friendly interface. The main objective of this project is to reduce paperwork, minimize errors, and provide real-time access to medical records and hospital information.

2. Objectives

- To develop a centralized system for managing patient records, doctor details, and appointments.
- To provide a user-friendly interface for hospital staff and administrators.
- To enhance data security and ensure authentication-based access.
- To facilitate smooth and efficient hospital workflow with automation.

3. Features of the System

3.1. User Authentication & Authorization

- Secure login system with role-based access (Admin, Doctor, and Patient).
- Password protection and encryption mechanisms.

3.2. Doctor Management

- Add, update, and delete doctor details.
- Assign specialization and contact details.

- View scheduled appointments and manage availability.

3.3. Patient Management

- Register new patients with personal and medical details.
- View and update patient history and medical records.
- Search patients using name or ID.

3.4. Appointment Scheduling

- Patients can book appointments with doctors based on availability.
- Doctors can approve, reschedule, or cancel appointments.
- Automatic notifications for scheduled appointments.

3.5. Reports & Dashboard

- Overview of total patients, doctors, and upcoming appointments.
- Generate reports on hospital performance and patient visits.

4. Technologies Used

- Frontend: HTML, CSS, Bootstrap (for responsive UI design)
- Backend Django (Python-based web framework for server-side logic)
- Database: SQLite (for storing patient, doctor, and appointment records)
- Authentication: Django's built-in authentication system
- Tools: VS Code, GitHub (for version control), and Postman (for API testing)

5. System Architecture

The HMS follows a *Model-View-Controller (MVC) architecture*:

- Model Defines the database structure for doctors, patients, and appointments.
- View: Handles the user interface and templates.
- Controller: Manages business logic and request handling.

6. Implementation & Workflow

1. User Login → Authentication based on user role (Admin, Doctor, Patient).
2. Dashboard Access → Different users access specific functionalities.
3. Data Management → Doctors manage schedules, patients manage appointments.
4. Report Generation → Admin generates hospital statistics and reports.

7. Advantages of the System

- Automation: Reduces paperwork and manual errors.
- Data Security: Ensures only authorized users access data.
- Efficiency: Faster patient management and doctor scheduling.
- Scalability: Can be expanded with additional features like billing and pharmacy integration.

8. Conclusion

The Hospital Management System (HMS) is an efficient and user-friendly solution for modern hospitals aiming to enhance their operational workflow. By integrating doctor, patient, and appointment management in a single platform, this system improves efficiency, reduces administrative burden, and ensures better healthcare delivery. Future enhancements may include AI-based patient diagnosis, real-time notifications, and cloud-based data storage for improved accessibility and scalability.

Keywords: Hospital Management System, Django, Web Application, Patient Management, Doctor Scheduling, Healthcare Automation.