

1. Project Overview

The Hospital Management System is a Django-based web application designed to manage patients, doctors, appointments, and reports efficiently. It supports role-based access for Admin, Doctor, and Patient, with features like appointment management, analytics, notifications, and report generation.

2. Database Models

User Model

- Fields: username, email, password, role (Admin / Doctor / Patient)
- Role-based authentication and access control

Patient

- Fields: id, user (FK to User), name, age, gender, contact, disease_type

Doctor

- Fields: id, user (FK to User), name, specialization, contact

Appointment

- Fields: id, patient (FK), doctor (FK), date, status (Scheduled / Cancelled / Completed), remarks

Report

- Fields: id, patient (FK), doctor (FK), diagnosis, prescription, date
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3. Pages & Features

Login / Register

- Role-based login for Admin, Doctor, Patient
- Registration forms for Patient & Doctor
- Secure password hashing using Django authentication

Patient Dashboard

- Book appointment
- View appointments (current & history)
- Cancel appointment
- View reports & history of doctor visits

Doctor Dashboard

- View scheduled appointments
- Update appointment status (Complete / Cancel)
- View patients assigned to them
- Add prescription/report for patient

Admin Dashboard

- Manage patients & doctors
 - View all appointments
 - Generate & export reports (PDF / Excel)
 - Show charts: appointments per day/week/month, doctor availability, patient count
 - Search & filter: patients by disease type, doctors by specialization
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4. Analytics & Notifications

- Charts using Chart.js
 - Notifications via email or dashboard alerts for upcoming appointments
 - Search and filter functionality for patients and doctors
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5. Implementation Steps

1. Setup Django project & apps
 2. Create models: Users, Patients, Doctors, Appointments, Reports
 3. Run migrations & register models in admin panel
 4. Implement role-based login & registration pages
 5. Build Patient Dashboard: book, view, cancel appointments + history
 6. Build Doctor Dashboard: view appointments, update status, add reports
 7. Build Admin Dashboard: manage all data, charts, export options
 8. Implement search & filter functionality
 9. Add notifications for upcoming appointments
 10. Integrate charts & analytics
 11. Add PDF/Excel export functionality for reports
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6. Additional Features

- Patient type (disease) tracking
 - Doctor specialization tracking
 - Appointment management with cancel/reschedule options
 - Role-based dashboards for Admin, Doctor, Patient
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7. Tools & Libraries

- Django (Backend & Authentication)
 - SQL (Database)
 - Bootstrap (Frontend Styling)
 - Chart.js / Plotly.js (Analytics)
 - xhtml2pdf / WeasyPrint (PDF Export)
 - django-import-export (Excel Export)
 - Email (SMTP for notifications)
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8. Notes

- All features are designed to be modular for easy expansion.
 - Bootstrap ensures responsive and user-friendly design.
 - Step-by-step development allows testing each module before moving to next.
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9. Summary

This document provides a complete blueprint for developing a full-featured Hospital Management System in Django with SQL, Bootstrap, analytics, notifications, and report export functionality.