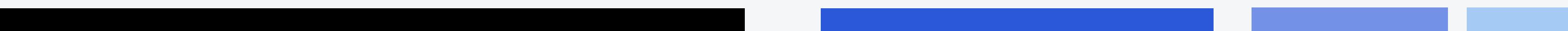
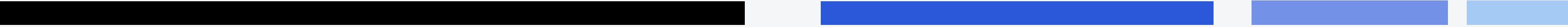

AI Based Smart Hospital Management System



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1. Introduction & Objectives
 2. System Architecture & Modules
 3. Core Management Features
 4. AI-Enhanced Functionalities
 5. System Integrity & Benefits
 6. Future Directions & Summary

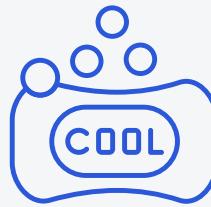
Agenda



3.

Introduction & Objectives

Introduction



Healthcare Data Overload

Hospitals manage vast patient, appointment, and billing data



Manual Systems Cause Inefficiency

Errors, delays, and poor resource use are common



AI-Driven Smart Solutions

Our system integrates AI to streamline hospital operations

Project Objectives

Digitize Hospital Operations

Streamline all workflows for greater efficiency.

Seamless Management of Core Functions

Integrate patients, doctors, appointments, billing, and pharmacy.

AI-Driven Risk Prediction & Monitoring

Leverage AI for real-time alerts and smarter decisions.

Minimize Manual Errors

Automate processes to reduce mistakes and delays.



6.

System Architecture & Modules

Technologies at a Glance

Robust Backend with Python Flask

Ensures reliable server-side processing and API management.

Structured Data with MySQL

Relational database for secure and organized data storage.

Modern Frontend: HTML & Tailwind CSS

Delivers a responsive and user-friendly interface.

Integrated AI Modules

Powers risk prediction, diagnosis, monitoring, and smart bed allocation.



Key System Modules

Comprehensive Hospital Modules

Manage patients, doctors, departments, and appointments

End-to-End Operational Coverage

Includes admissions, laboratory, pharmacy, billing, and payments

AI-Driven Features

AI diagnosis, health monitoring, and smart system logs

Full CRUD Functionality

Each module supports create, read, update, and delete operations

Database Structure

Relational Database Structure

Centralized database: ai_smart_hospital

Comprehensive Table Design

Key tables: patients, doctors, departments, appointments, admissions, lab_tests, medicines, invoices, payments, ai_diagnosis, health_monitoring, system_logs

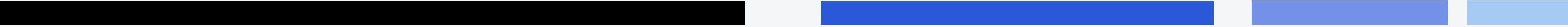
Data Integrity & Connectivity

Tables linked via foreign keys for robust data relationships



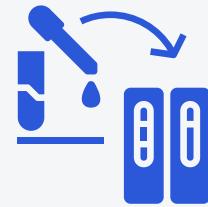
10.

Core Management Features



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Patient Management Features



Centralized Patient Information

Securely stores name, contact, DOB, blood group, and address.



Effortless Record Management

Easily add, view, and delete patient records as needed.



Enhanced Data Security

All patient data is protected within the hospital database.

Doctor & Department Management



Doctors Linked to Departments

Each doctor is assigned to a specific department for better organization.

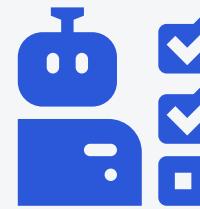
Detailed Doctor Profiles

Profiles include specialization, experience, contact info, and AI-assisted status.

Departmental Categorization

Departments such as Cardiology, Neurology, Emergency, and Orthopedics group doctors by expertise.

AI-Powered Appointments



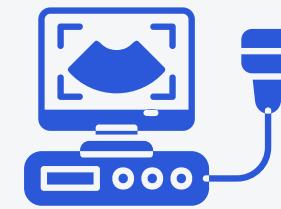
AI-Driven Appointment Scheduling

Patients book appointments through a digital interface



Automated Risk Assessment

AI assigns risk scores and priority levels to each case



Faster Response for High-Risk Cases

Enables emergency prioritization and rapid treatment

Smart Admissions & Bed Allocation



Automated Ward & Bed Assignment

System allocates beds and wards based on real-time availability



Live Bed Status Monitoring

Tracks occupancy and updates bed status instantly



AI-Driven Bed Optimization

AI calculates optimal bed allocation scores for efficiency

15.

AI-Enhanced Functionalities

AI Lab Test Analysis

AI-Driven Lab Test Interpretation

Automated analysis of lab results using AI modules

Risk Flagging System

Results categorized as Normal, Warning, or Critical

Rapid Clinical Decision Support

Enables doctors to act quickly on abnormal findings



Smart Pharmacy Management



Automated Medicine Inventory

Tracks stock levels, expiry dates, and pricing in real time.



AI-Driven Stock Prediction

Forecasts medicine demand and optimizes inventory replenishment.



Low Stock Alerts

Instant notifications for medicines below threshold levels.

Billing & Payment Solutions

AI-Driven Billing Estimates

Automated calculation of billing amounts using AI.

Comprehensive Payment Tracking

Monitors final payments and payment status in real time.

Multiple Payment Methods Supported

Accepts UPI, card, and cash for seamless transactions.

Complete Financial Recordkeeping

Maintains secure and organized billing and payment records.



AI Diagnosis Support

Captures Patient Symptoms

Records detailed symptom data for each patient.

AI Disease Prediction

Suggests likely diseases with confidence scores.

Treatment Recommendations

Provides suggested treatments based on AI analysis.

Supports Clinical Decisions

Helps doctors make informed, data-driven choices.

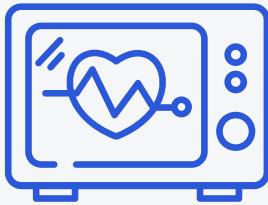


Real-Time Health Monitoring



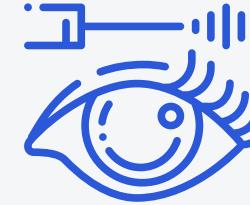
Continuous Vital Sign Tracking

Monitors heart rate, blood pressure, oxygen, and temperature



AI-Driven Status Alerts

Automatically flags patient status as Normal, Warning, or Critical

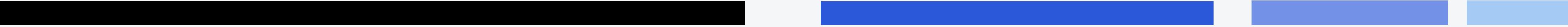


Immediate Response for Critical Cases

Enables rapid intervention for high-risk patients

21.

System Integrity & Benefits



System Logs & Transparency



Comprehensive Activity Logging

Tracks every add and delete action across all modules



Detailed Record Tracking

Logs module name, record ID, and exact timestamp for each operation



Enhanced Transparency & Accountability

Provides a reliable audit trail for all system changes

System Advantages

Streamlined Hospital Operations

Automates workflows and minimizes manual paperwork

AI-Driven Clinical Support

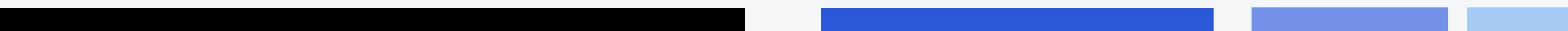
Enables faster, more accurate medical decisions

Secure & Organized Records

Ensures efficient, reliable data management

24.

Future Directions & Summary



Looking Ahead: Future Scope

Integrate Advanced AI and Machine Learning

Deploy real AI models for smarter predictions

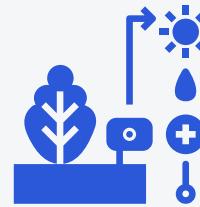
Launch Online Patient Portals

Enable remote access and instant notifications

Implement Role-Based Access & Cloud Deployment

Enhance security and scalability for hospital data

Key Takeaways



Streamlined Hospital Operations

Digitizes workflows for seamless management



AI-Driven Healthcare

Integrates AI for smarter, safer patient care



Enhanced Efficiency & Accuracy

Reduces manual errors and supports real-time monitoring