



**DEPARTMENT OF COMPUTER SCIENCE
AND ENGINEERING**

PROJECT REPORT

SMART HOSPITAL MANAGEMENT SYSTEM

A PROJECT REPORT

Submitted by

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B.Tech CSE (IoT)

**Database Management Systems
Laboratory**

SHIV NADAR UNIVERSITY CHENNAI

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PROBLEM STATEMENT

In the current era of technology, there is a pressing need for the implementation of a hassle-free Hospital Management system to fulfil the requirements of a multi-specialty hospital. The existing manual method is ineffective, time consuming, vulnerable to mistakes, lacking in sufficient departmental integration, resulting in delays in patient treatment, creates misunderstandings, and also leads to the general inefficiency in hospital operations. Therefore, it is necessary to effectuate an HMS to mitigate all these discrepancies and bring about several other benefits too. The HMS provides a user-friendly and adaptable interface to both the Hospital management as well as the patients.

ABSTRACT

The Online Hospital Management System is a comprehensive software solution designed to streamline and enhance the management of healthcare facilities. This project, developed using PHP and mysql, aims to efficiently organize and manage the various aspects of hospital operations. The system includes modules for administration, doctor, patient, nurse, accountant, and pharmacist, providing a user-friendly interface for each role. Key features encompass streamlined patient management, prescription records, user-friendly profiles, payment history access, comprehensive report management, blood bank inventory, customizable settings, and notice management.

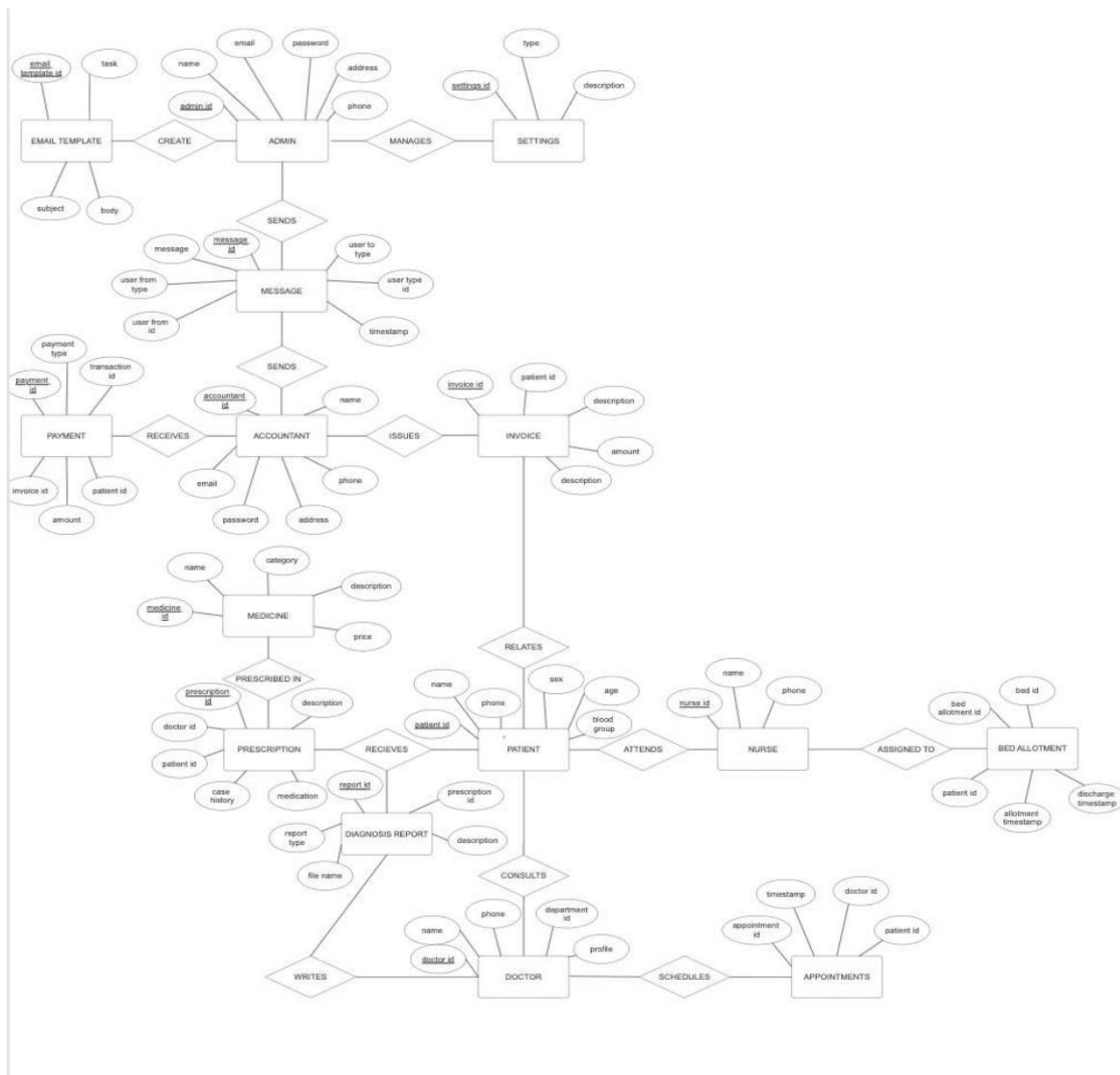
INTRODUCTION

In the dynamic landscape of modern healthcare, the Hospital Management System project emerges as an innovative and web-based application. It serves as a pivotal solution, poised to transform the management and operations of healthcare facilities. This project is driven by the imperative need for efficiency, accuracy, and enhanced patient care within the healthcare sector.

The Hospital Management System project is a comprehensive web-based platform designed to address the multifaceted challenges faced by healthcare institutions. It seeks to revolutionize hospital administration, with a focus on patient-centric care, resource optimization, and streamlined operations.

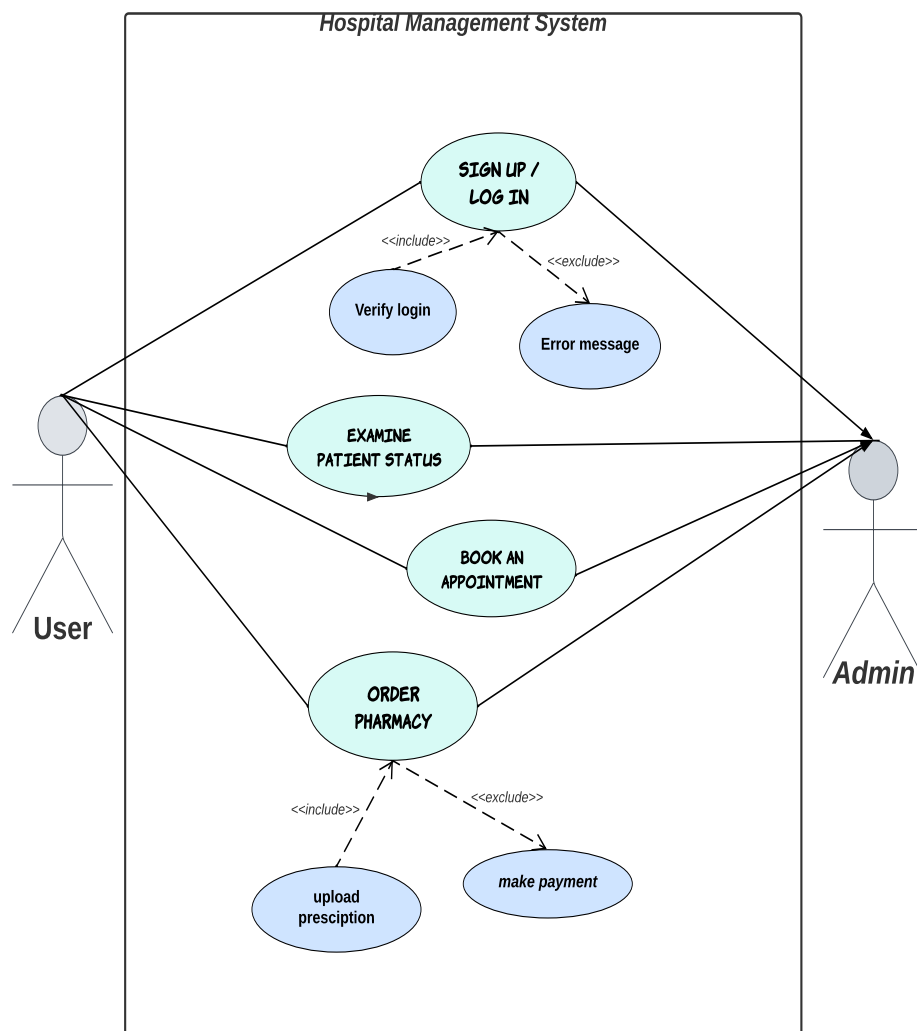
In the healthcare sector, where every moment counts, this project is of paramount significance. It is a reflection of the growing importance of digitization and streamlined processes in healthcare management. The project aims to simplify and enhance the way hospitals are managed, offering a comprehensive solution that empowers administrators, medical staff, and patients.

ER DIAGRAM

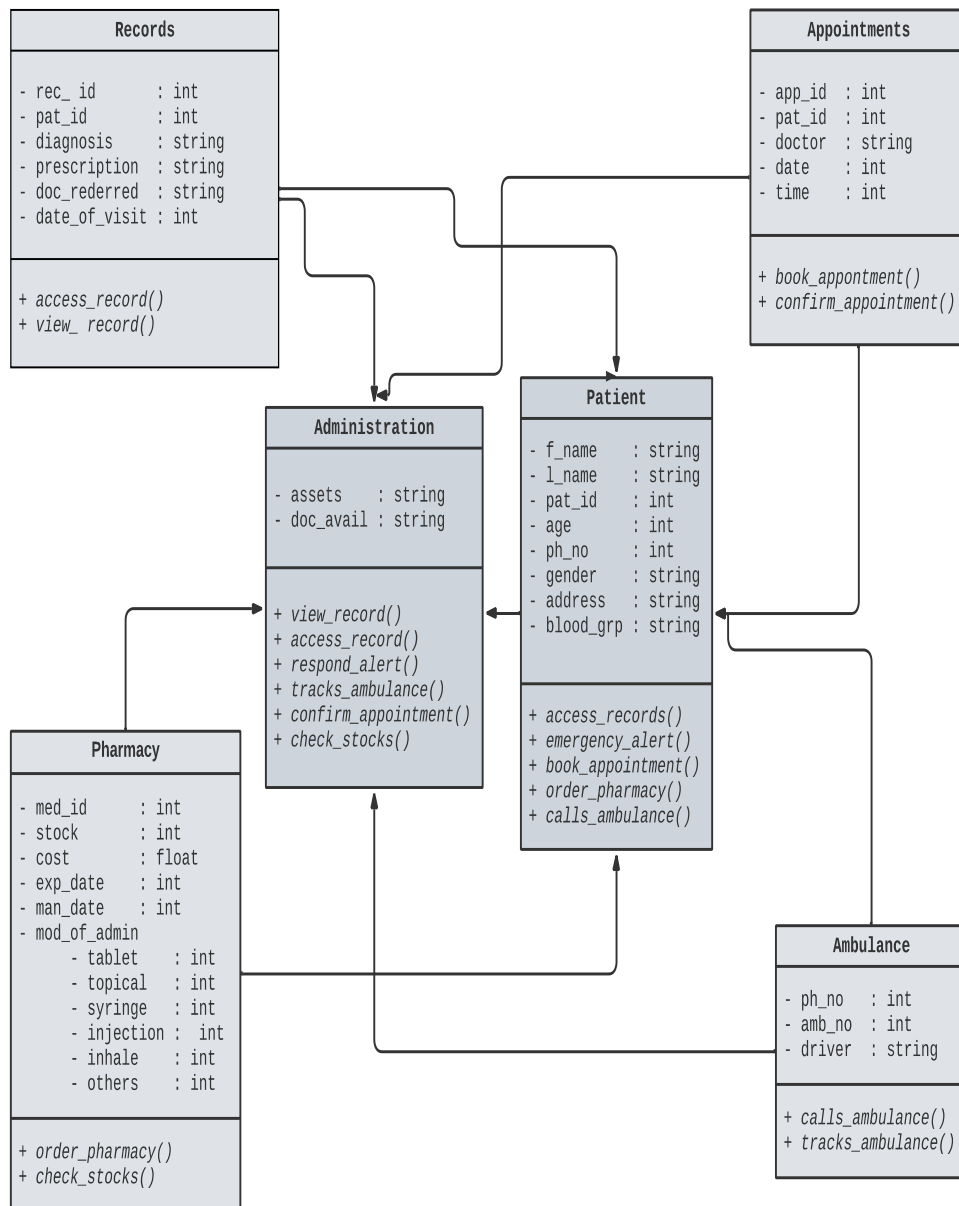


UML DIAGRAM

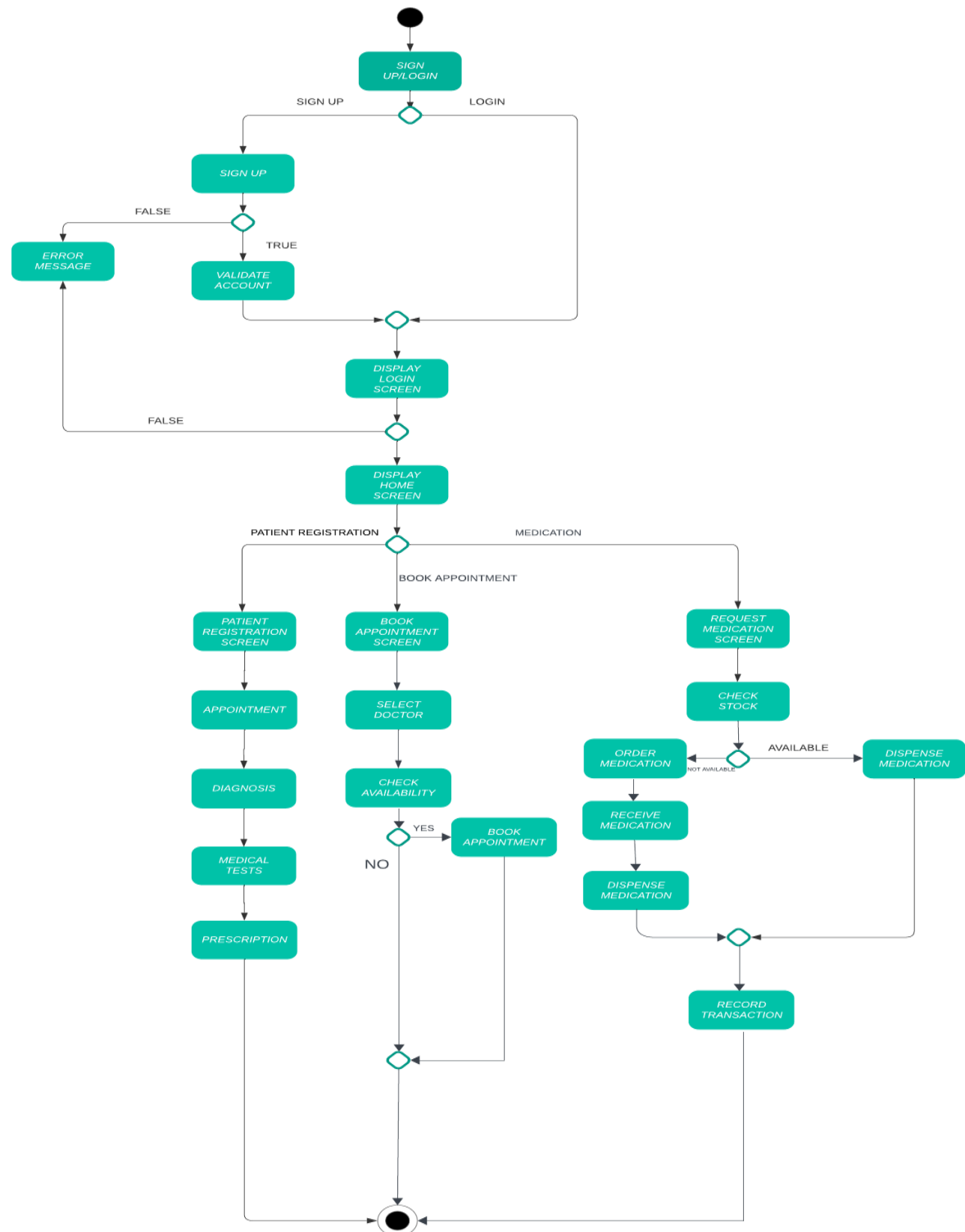
Use case :



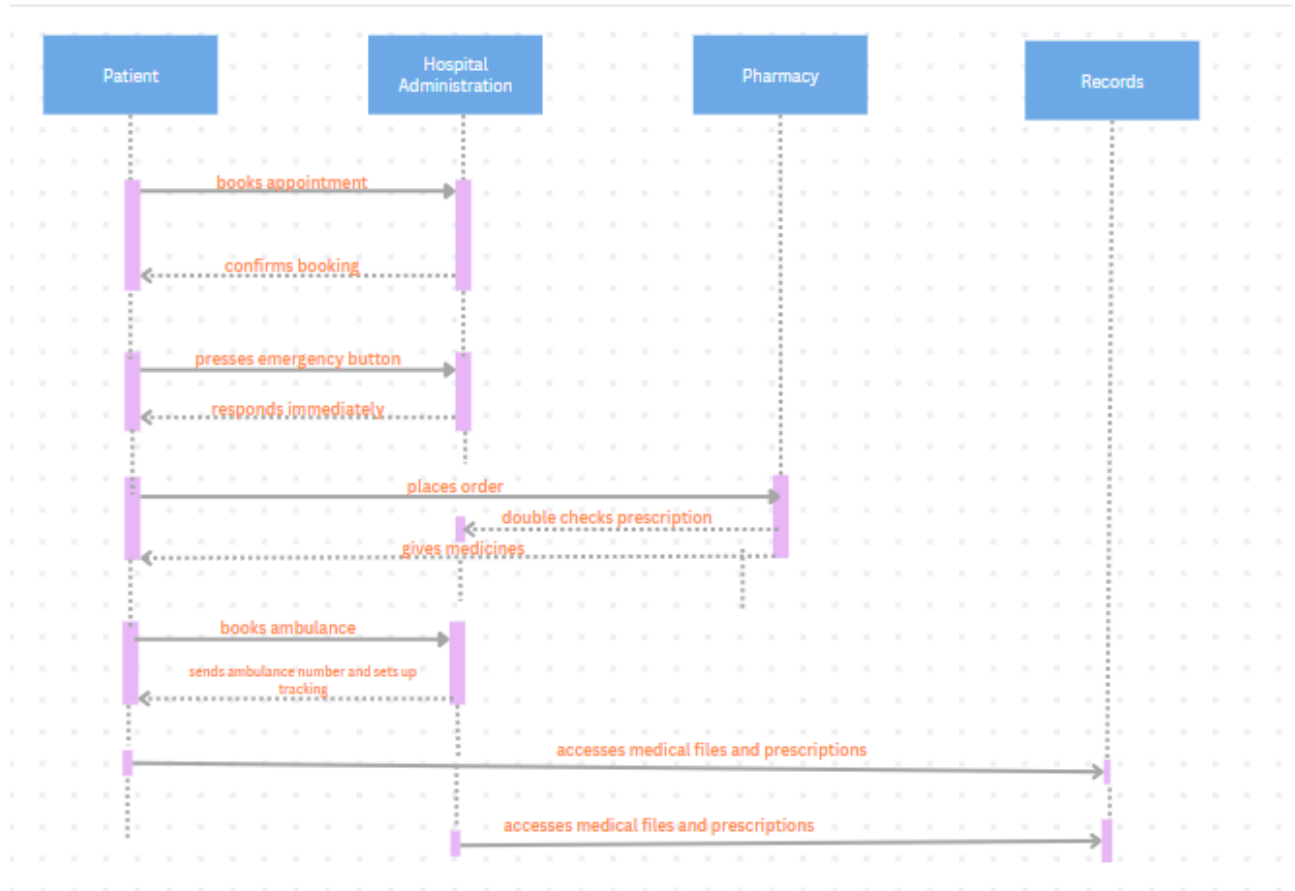
Class :



Activity :



Sequence:



METHODOLOGY OF PROJECT

The methodology for developing this project includes the following key components:

Database Design: The system employs a well-structured database to store and manage data related to doctors, patients, nurses, pharmacists, accountants, appointments, prescriptions, medical records, and more. This database design forms the foundation of the entire system.

User Interface: The user interface is designed to be intuitive and user-friendly, with separate panels for administrators, doctors, patients, nurses, accountants, and pharmacists. This approach simplifies navigation and improves user experience.

Functionality Development: Extensive coding has been done to implement features like patient management, appointment scheduling, prescription management, bed allocation, report generation, and more. These functionalities have been thoroughly tested for reliability and accuracy.

Integration of Billing and Payment: The system incorporates an accounting module to manage billing and payment tracking, ensuring financial transactions are streamlined and accurate.

Data Security: Security measures are implemented to protect patient data and maintain privacy. This includes encryption and user authentication.

RESULTS:

Front-end interface

1) Login portal

Hospital Management System

Select Language

Hospital Management System

Login Panel

--- Select Account Type ---

Email

Password

Login

Forgot Password?

Hospital Management System

Select Language

Hospital Management System

Login Panel

--- Select Account Type ---

--- Select Account Type ---

Admin

Doctor

Patient

Nurse

Pharmacist

Laboratorist

Accountant

Forgot Password?

© 2023 Hospital Management System - Developed by
John Sokpo

2) Admin tab

Hospital Management System admin panel Select Language Account

HMS Admin Dashboard

Doctor 6 Patient 5 Nurse 5 Pharmacist 2 Laboratorist 2 Accountant 1

- Dashboard
- Department
- Doctor
- Patient
- Nurse
- Pharmacist
- Laboratorist
- Accountant
- Monitor Hospital
- Settings
- Profile

Doctor
 Patient
 Nurse
 Pharmacist
 Laboratorist
 Accountant

Appointment
 Payment
 Blood Bank
 Medicine
 Operation Report
 Birth Report

Death Report
 Bed Allotment
 Noticeboard
 Settings
 Language
 Backup

Calendar Schedule

month week day

October 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21

Noticeboard

3) Doctor tab

Hospital Management System doctor panel Select Language Account

HMS Doctor Dashboard

Doctor 6 Patient 5 Nurse 5 Pharmacist 2 Laboratorist 2 Accountant 1

- Dashboard
- Patient
- Manage Appointment
- Manage Prescription
- Bed Allotment
- View Blood Bank
- Manage Report
- Profile

Patient
 Appointment
 Prescription
 Bed Allotment
 Blood Bank
 Manage Report

Calendar Schedule

month week day

October 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

Noticeboard

Hospital Management System

patient panel

Select Language

Account

HMS

Dashboard

View Appointment

View Prescription

View Doctor

View Blood Bank

Admit History

Operation History

View Invoice

Payment History

Profile

View Doctor

Doctor List

Search:

Show 10 entries

#	Doctor Name	Department
1	Dr.Indira Venkatraman	Obstetrician/Gynecologists
2	Dr.Aditya Shah	Gastroenterologists
3	Dr.Archana	Nephrologists
4	Dr.Joy	Infectious disease doctors
5	Dr.Kunal Patel	Orthopedic Surgeons
6	Dr.Meera Ramesh	Ophthalmologists

Showing 1 to 6 of 6 entries

First

Previous

1

Next

Last

4) Patient tab

Hospital Management System

patient panel

Select Language

Account

HMS

Dashboard

View Appointment

View Prescription

View Doctor

View Blood Bank

Admit History

Operation History

View Invoice

Payment History

Profile

Patient Dashboard

Doctor

Appointment

Prescription

Admit History

Blood Bank

View Invoice

Calendar Schedule

month

week

day

October 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

Noticeboard

5) Appointments tab

Hospital Management System

admin panel

Select Language

Account

HMS

View Appointment

Doctor

6

Patient

5

Nurse

5

Pharmacist

2

Laboratorist

2

Accountant

1

Dashboard

Department

Doctor

Patient

Nurse

Pharmacist

Laboratorist

Accountant

Monitor Hospital

View Appointment

View Payment

View Bed Status

View Blood Bank

View Medicine

View Operation

View Birth Report

View Death Report

View Appointment

Search:

Show 10 entries

#	Time	Doctor	Patient
1	29 Apr, 2022		
2	28 Apr, 2022		Harini.M
3	28 Apr, 2022		Bhavani.A.S

Showing 1 to 3 of 3 entries

First

Previous

1

Next

Last

6) Blood bank

Hospital Management System

admin panel

Select Language

Account

HMS

View Blood Bank

Doctor

6

Patient

5

Nurse

5

Pharmacist

2

Laboratorist

2

Accountant

1

Dashboard

Department

Doctor

Patient

Nurse

Pharmacist

Laboratorist

Accountant

Monitor Hospital

View Appointment

View Payment

View Bed Status

View Blood Bank

View Medicine

View Operation

View Birth Report

View Death Report

Bed Allotment

Bed List

Search:

Show 10 entries

#	Bed Type	Patient	Allotment Date	Discharge Date
1	ward	Harini.M	2022-04-29	2022-05-11
2	ward	Bhavani.A.S	2022-04-28	2022-05-02

Showing 1 to 2 of 2 entries

First

Previous

1

Next

Last

7) Profile managing

Hospital Management System

patient panel Select Language Account

Doctor 6 Patient 5 Nurse 5 Pharmacist 2 Laboratorist 2 Accountant 1

HMS

Dashboard
View Appointment
View Prescription
View Doctor
View Blood Bank
Admit History
Operation History
View Invoice
Payment History
Profile

Manage Profile

Name: Athira George
Email: athira@mail.com
Address: 7775 Kelambakkam
Phone: 7450002650

Update Profile

Change Password

Password:
New Password:

8) Report managing

Hospital Management System

doctor panel Select Language Account

Doctor 6 Patient 5 Nurse 5 Pharmacist 2 Laboratorist 2 Accountant 1

HMS

Dashboard
Patient
Manage Appointment
Manage Prescription
Bed Allotment
View Blood Bank
Manage Report
Profile

Manage Report

Operation Birth Death Other Add Report

Search: Show 10 entries

#	Description	Date	Patient	Doctor	Options
1	Op104	28 Apr.2022	Harini.M		

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Back-end database in phpMyAdmin

1) Admin table

+ Options

	admin_id	name	email	password	address	phone
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1	Liam Moore	admin@mail.com	Password@123	117 Blecker Street	7410696969

☐ Check all With selected: ☐ Edit ☐ Copy ☐ Delete ☐ Export

☐ Show all Number of rows: 25 Filter rows: Search this table

2) Doctor table

+ Options

	doctor_id	name	email	password	address	phone	department_id	profile
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1	Dr.Indira Venkatraman	indira@mail.com	indira	52 Annanagar	3240006965	9	none
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	2	Dr.Aditya Shah	aditya@mail.com	aditya	8 Greams Road	7777777777	12	none
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	3	Dr.Archana	archana@mail.com	archana	15 C Street	4589998888	13	Test
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	4	Dr.Joy	joy@mail.com	joy	17 TNagar	3545557777	5	Test
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	5	Dr.Kunal Patel	kunal@mail.com	kunal	23 Nungambakkam	8888885547	22	Test
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	6	Dr.Meera Ramesh	meera@mail.com	meera	24 Adyar	1458745877	8	Test




☐ Check all With selected: ☐ Edit ☐ Copy ☐ Delete ☐ Export

3) Patient table










+ Options





	patient_id	name	email	password	address	phone	sex	birth_date	age	blood_group	account_opening_timestamp
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1	Kalyani Krishna	kalyani@mail.com	kalyani	44 Padi	2354547878	female	10/10/2004	19	O+	1448984171
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	3	Athira George	athira@mail.com	athira	7775 Kelambakkam	7450002650	female	11/30/2004	19	O+	1620900518
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	4	Darshini	darshini@mail.com	darshini	114 Besant Nagar	7774441144	female	12/14/2003	20	A-	1651060241
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	5	Bhavani.A.S	bhavani@mail.com	bhavani	33 TNagar	2365554500	female	04/14/2003	20	AB+	1651084360
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	6	Harini.M	harini@mail.com	harini	54 Nungambakkam	3332221450	female	04/06/2004	19	B+	1651084418

4) Nurse table





+ Options			nurse_id	name	email	password	address	phone
<input type="checkbox"/>	 Edit	 Copy	 Delete	13	Roopa	roopa@mail.com	roopa	61 George Street 2545552210
<input type="checkbox"/>	 Edit	 Copy	 Delete	14	Diya	diya@mail.com	diya	24 Annanagar 7850001111
<input type="checkbox"/>	 Edit	 Copy	 Delete	15	Shreya	shreya@mail.com	shreya	17 Adyar 3245554580
<input type="checkbox"/>	 Edit	 Copy	 Delete	16	Rhea	rhea@mail.com	rhea	27 Padi 1258887878
<input type="checkbox"/>	 Edit	 Copy	 Delete	17	Neha	neha@mail.com	neha	22 Tnagar 3479545450

5) Appointment table

+ Options			appointment_id	appointment_timestamp	doctor_id	patient_id
<input type="checkbox"/>	 Edit	 Copy	 Delete	7	1651183200	8 8
<input type="checkbox"/>	 Edit	 Copy	 Delete	6	1651096800	11 6
<input type="checkbox"/>	 Edit	 Copy	 Delete	5	1651096800	8 5

☐ Check all With selected:  Edit  Copy  Delete  Export







6) Pharmacist table

			pharmacist_id	name	email	password	address	phone
<input type="checkbox"/>	 Edit	 Copy	 Delete	1	Raj	raj@mail.com	raj	13 Adyar 1458965785
<input type="checkbox"/>	 Edit	 Copy	 Delete	3	Rahul	rahul@mail.com	rahul	75 Padi 8885554470

7) Medicine table

+ Options			medicine_id	name	medicine_category_id	description	price	manufacturing_company	status
<input type="checkbox"/>	 Edit	 Copy	 Delete	1	Aber C 500	2	Vitamin C 500gm	25	Company Cipla 50
<input type="checkbox"/>	 Edit	 Copy	 Delete	2	Benzonatate	5	Benzonatate is a non-narcotic cough medicine. Ben...	44	TESSALON 112
<input type="checkbox"/>	 Edit	 Copy	 Delete	3	Cephalexin	5	Cephalexin is a cephalosporin (SEF a low spor in) ...	27	Lupin Pharmaceuticals 68
<input type="checkbox"/>	 Edit	 Copy	 Delete	4	Lisinopril	4	Lisinopril is used to treat high blood pressure (h...	30	Apotex 110
<input type="checkbox"/>	 Edit	 Copy	 Delete	5	Methotrexate	4	Methotrexate is used to treat leukemia and certain...	9	Bristol Myers Squibb 80

8) Laboratorist table

+ Options			laboratorist_id	name	email	password	address	phone
<input type="checkbox"/>	 Edit	 Copy	 Delete	5	Nanda	nanda@mail.com	nanda	82 Greams road 7125896565
<input type="checkbox"/>	 Edit	 Copy	 Delete	6	Pranav	pranav@mail.com	pranav	29 Tiruporur 7145552450

9) Accountant table

+ Options




























































			accountant_id	name	email	password	address	phone	
<input type="checkbox"/>	Edit	Copy	Delete	3	Heeral	heeral@mail.com	heeral	62 Adyar	6458886980
	<input type="checkbox"/> Check all	With selected:		Edit	Copy	Delete	Export		

☐ Show all

Number of rows: 25

Filter rows:

10) Department table

+ Options						
 			department_id	name	description	
<input type="checkbox"/>	 Edit	 Copy	 Delete	1	Anesthesiology	Anesthesiology
<input type="checkbox"/>	 Edit	 Copy	 Delete	3	Physical Therapy	Physical Therapy
<input type="checkbox"/>	 Edit	 Copy	 Delete	5	Infectious disease doctors	Infectious disease doctors specialize in diseases ...
<input type="checkbox"/>	 Edit	 Copy	 Delete	6	Dermatologists	Dermatologists focus on diseases and conditions of...
<input type="checkbox"/>	 Edit	 Copy	 Delete	7	Allergists	An allergist or immunologist focuses on preventing...
<input type="checkbox"/>	 Edit	 Copy	 Delete	8	Ophthalmologists	Ophthalmologists specialize in eye and vision care...
<input type="checkbox"/>	 Edit	 Copy	 Delete	9	Obstetrician/Gynecologists	For female health conditions: female reproductive ...
<input type="checkbox"/>	 Edit	 Copy	 Delete	10	Cardiologists	Cardiologists focus on the cardiovascular system, ...
<input type="checkbox"/>	 Edit	 Copy	 Delete	11	Endocrinologists	Endocrinologists treat hormone-related conditions ...
<input type="checkbox"/>	 Edit	 Copy	 Delete	12	Gastroenterologists	Gastroenterologists focus on the digestive system....
<input type="checkbox"/>	 Edit	 Copy	 Delete	13	Nephrologists	A nephrologist focuses on kidney care and conditio...
<input type="checkbox"/>	 Edit	 Copy	 Delete	14	Urologists	Urologists treat conditions of the urinary tract i...
<input type="checkbox"/>	 Edit	 Copy	 Delete	17	Neurologists	A neurologist treats conditions of the nerves, spi...
<input type="checkbox"/>	 Edit	 Copy	 Delete	18	Psychiatrists	A psychiatrist is a doctor who treats mental healt...
<input type="checkbox"/>	 Edit	 Copy	 Delete	19	Oncologists	Oncologists treat cancer and its symptoms. During ...
<input type="checkbox"/>	 Edit	 Copy	 Delete	20	Radiologists	A radiologist specializes in diagnosing and treati...
<input type="checkbox"/>	 Edit	 Copy	 Delete	21	General Surgeons	General surgeons perform surgical procedures on ma...
<input type="checkbox"/>	 Edit	 Copy	 Delete	22	Orthopedic Surgeons	An orthopedic surgeon specializes in diseases and ...
<input type="checkbox"/>	 Edit	 Copy	 Delete	23	Cardiac Surgeons	Cardiac surgeons perform heart surgery and may wor...

11) Medicine category table

+ Options

		medicine_category_id	name	description
<input type="checkbox"/>	Edit Copy Delete	1	Allergy Liquids	Allergic medicines
<input type="checkbox"/>	Edit Copy Delete	2	Vitamins Tablets	Vitamins tablets only
<input type="checkbox"/>	Edit Copy Delete	3	Liquid	A liquid may also be called a 'mixture', 'solution...
<input type="checkbox"/>	Edit Copy Delete	4	Tablet	The active ingredient is combined with another sub...
<input type="checkbox"/>	Edit Copy Delete	5	Capsules	The active part of the medicine is contained insid...
<input type="checkbox"/>	Edit Copy Delete	6	Topical medicines	These are creams, lotions or ointments applied dir...
<input type="checkbox"/>	Edit Copy Delete	7	Drops	These are often used where the active part of the ...
<input type="checkbox"/>	Edit Copy Delete	8	Inhalers	The active part of the medicine is released under ...
<input type="checkbox"/>	Edit Copy Delete	9	Injections	There are different types of injection, in how and...
<input type="checkbox"/>	Edit Copy Delete	10	Implants or patches	These medicines are absorbed through the skin, suc...

12) Diagnosis table

+ Options

		diagnosis_report_id	report_type	document_type	file_name	prescription_id	description	timestamp	laboratorist_id
<input type="checkbox"/>	Edit Copy Delete	3	Test Report	image	sample_image.jpg	4	This is a demo test	1651168181	6

13) Blood bank table

+ Options

		blood_group_id	blood_group	status
<input type="checkbox"/>	Edit Copy Delete	1	A+	55
<input type="checkbox"/>	Edit Copy Delete	2	A-	42
<input type="checkbox"/>	Edit Copy Delete	3	B+	98
<input type="checkbox"/>	Edit Copy Delete	4	B-	63
<input type="checkbox"/>	Edit Copy Delete	5	AB+	47
<input type="checkbox"/>	Edit Copy Delete	6	AB-	65
<input type="checkbox"/>	Edit Copy Delete	7	O+	28
<input type="checkbox"/>	Edit Copy Delete	8	O-	64

☐ Check all With selected: Edit Copy Delete Export

14) Bed table

Sort by key: None ▼

+ Options

				bed_id	bed_number	type <small>ward, cabin, ICU</small>	status	description
<input type="checkbox"/>	Edit	Copy	Delete	1	W1	ward	0	Ward Number 1
<input type="checkbox"/>	Edit	Copy	Delete	2	W2	ward	0	Ward Number 2
<input type="checkbox"/>	Edit	Copy	Delete	3	ICU1	icu	0	ICU 1
<input type="checkbox"/>	Edit	Copy	Delete	4	CB1	cabin	0	Cabin Number 1

☐ Check all With selected: Edit Copy Delete Export

15) Bed allotment table

+ Options

					bed_allotment_id	bed_id	patient_id	allotment_timestamp	discharge_timestamp
<input type="checkbox"/>	Edit	Copy	Delete		7	2	6	2022-04-29	2022-05-11
<input type="checkbox"/>	Edit	Copy	Delete		6	1	5	2022-04-28	2022-05-02

☐ Check all With selected: Edit Copy Delete Export

APPLICATIONS:

The Online Hospital Management System has numerous applications and benefits, including:

Streamlined Patient Management:

The project simplifies the entire patient management process, from admissions to bed allocation. This ensures that patients receive timely and organized care while reducing administrative burden.

Efficient Staff Management:

Hospital staff, including doctors, nurses, pharmacists, and accountants, benefit from the streamlined processes provided by the project. It allows them to focus on their core responsibilities, ultimately enhancing healthcare services.

Billing and Financial Management:

It simplifies the billing and accounting process, generating invoices and tracking payments transparently. This results in better financial management and the overall financial health of the hospital.

User-Friendly Profiles:

Online appointment scheduling and bed allotment make it more convenient for patients to access healthcare services. This, in turn, improves the overall patient experience.

Blood Bank Inventory Management:

Ensuring a steady supply of blood for medical emergencies is crucial. The project's blood bank management feature addresses this critical need.

Medicine and Prescription Management:

Managing medicine categories and prescription history supports the safe and effective administration of medication

INFERENCE:

The Online Hospital Management System is a robust and versatile tool for hospitals and healthcare facilities. It offers a centralized platform for efficient hospital management, enabling healthcare providers to focus on patient care. The system streamlines administrative tasks, improves the accuracy of medical records, and enhances patient services, ultimately contributing to better patient outcomes.

FUTURE WORKS:

The project can be expanded and improved in several ways:

AI-Based Diagnosis Assistance: Explore the integration of artificial intelligence for diagnosis assistance. AI can aid healthcare providers in analyzing patient data and offering diagnostic suggestions.

IoT for Monitoring: Utilize Internet of Things (IoT) devices for remote patient monitoring. These devices can track vital signs and alert healthcare providers in real-time in case of critical changes in a patient's condition.

Data Analytics and Predictive Analysis: Implement data analytics and predictive analysis tools to identify trends, optimize resource allocation, and enhance patient outcomes.

Ambulance Location Tracking: Implement a real-time ambulance location tracking system. This feature can help hospitals track the precise location of ambulances, ensuring faster response times and improved emergency patient transportation.

Emergency Buttons in Patient Beds: Integrate emergency call buttons in patient beds, enabling patients to quickly alert healthcare providers in case of emergencies. These buttons should be linked to the hospital's communication system for immediate response.