



YOUR HEALTH, OUR MISSION

HOSPITAL MANAGEMENT SYSTEM , IITG HOSPITAL

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Contents

01

Introduction

02

Problem Statement

03

Proposed Solution

04

Features and pages

05

ER Diagram and Design document

06

Conclusion



Introduction

Today, we introduce the Hospital Management System, our digital leap forward at IIT Guwahati Hospital. Designed to streamline complex processes and enhance patient experience, this system represents the synergy of healthcare and technology.

As we navigate through its key features and functionalities, we'll see how it simplifies the patient journey, empowers healthcare providers, and brings efficiency to the forefront of hospital management.



Problem Statement and Solution.....

Problem Statement

In the fast-paced environment of IIT Guwahati Hospital, managing a multitude of tasks—from patient registration to appointment scheduling—poses significant challenges:

- **Inefficiency in Registration:** Prolonged waiting times and paperwork lead to patient dissatisfaction and administrative bottlenecks.
- **Scheduling Conflicts:** Coordinating schedules for various specialists often results in overlaps, causing delays and frustration for both patients and doctors.
- **Access to Medical Records:** Quick access to accurate medical histories is hindered by fragmented systems, impacting the quality of care.
- **Financial Management:** Manual billing processes are error-prone and inefficient, delaying financial settlements and insurance claims.
- **Communication Gaps:** Essential information is sometimes lost in translation between departments, affecting service delivery and patient outcomes.



Proposed Solution

To address these challenges, IIT Guwahati Hospital introduces the Hospital Management System—a comprehensive solution designed to optimize hospital management:

- **Streamlined Registration** : A digital registration portal that speeds up the process while enhancing patient experience.
- **Smart Scheduling** : An advanced scheduling system that resolves conflicts, efficiently managing doctor availabilities and patient appointments.
- **Integrated Medical Records** : A centralized database allowing instant access to patients' medical histories, ensuring timely and accurate medical care
- **Automated Financial Management** : An automated billing system that accurately processes charges, reduces errors, and streamlines insurance workflows.
- **Seamless Communication** : A robust communication network that connects patients, healthcare providers, and administrative staff, promoting transparency and efficiency.



Technology Used:

- **PHP (Hypertext Preprocessor)**: Utilized for server-side scripting to construct the backbone of our portal, ensuring smooth data processing and application logic execution.
- **MySQL**: Chosen as our database management system for its reliability in storing, retrieving, and managing critical user data and health records with integrity and efficiency.
- **HTML5 and CSS3**: Employed to structure and design the front-end of the portal, providing a semantic foundation and visually engaging layouts that are both responsive and accessible.
- **JavaScript**: Integrated for client-side scripting, adding interactivity and dynamic features to our web pages, enhancing the user experience by allowing real-time content updates without needing to reload the page.

HTML



CSS



MySQL®

JS



Features and Pages.....

Home Page

- **Intuitive Navigation:** With a clear and concise top navigation bar, users can easily find their way to the services they need, including sections for Admin, Doctors, Patients, Labs, Pharmacy, and Contact information.
- **Engaging Visuals:** Featuring professional and welcoming imagery, our homepage reflects the hospital's commitment to providing a comforting and trustworthy environment for both patients and staff.
- **Immediate Access:** Prominent calls-to-action, such as 'Learn More' and 'Sign In', guide new and returning users to quickly engage with the system and access vital services.
- **Hospital Location Map:** An interactive map feature allows patients to find the exact location of IIT Guwahati Hospital, ensuring they can easily plan their visit.



Enhanced System Access and Security

Secure Authentication:

- Secure login processes for all users, utilizing username and password combinations, to protect against unauthorized access.

MD5 Password Hashing:

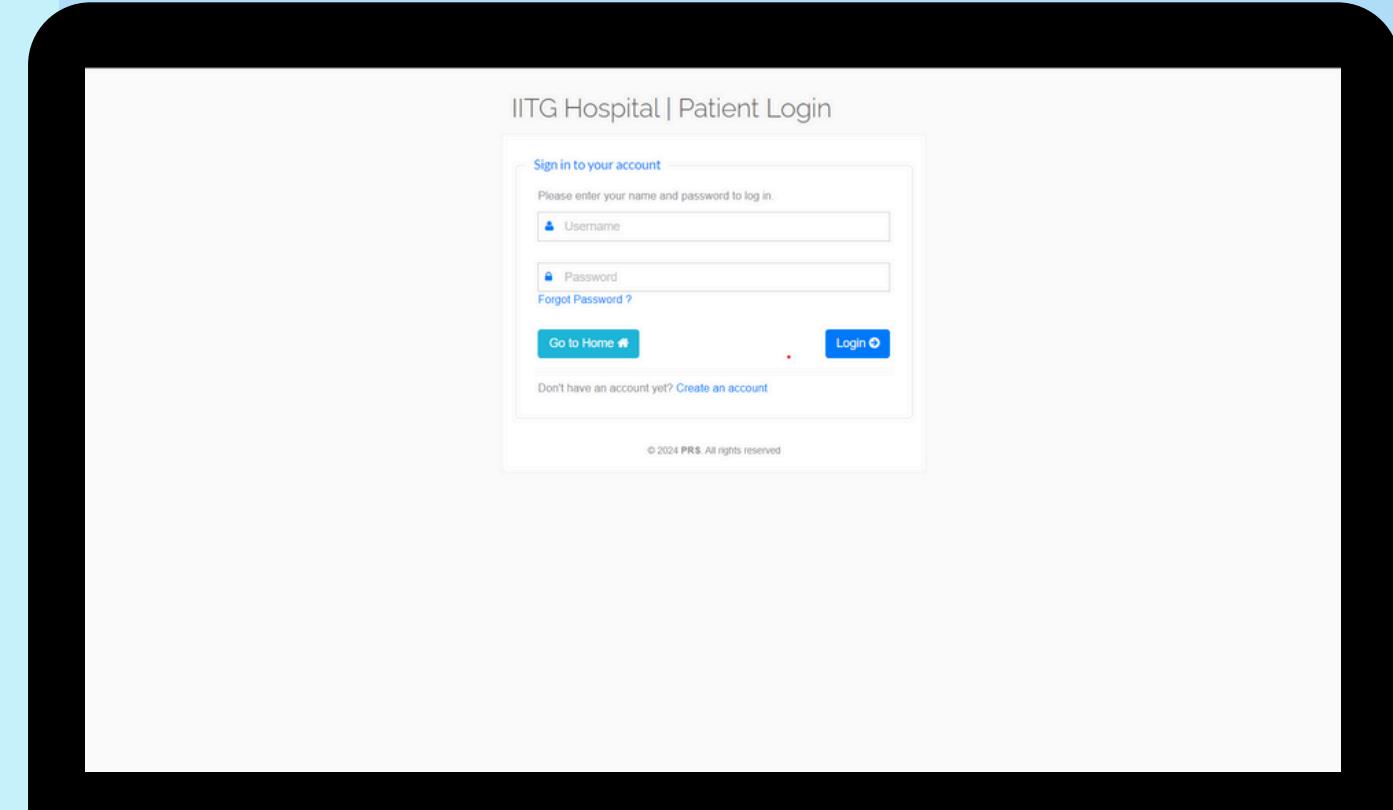
- Utilizes MD5 hashing for passwords to provide a basic level of security, ensuring that actual passwords are not stored in plain text in the system databases.

Login and Logout Tracking:

- Every login and logout action is logged with details such as user ID, timestamp, and IP address. This creates a comprehensive audit trail that aids in security monitoring and forensic analysis.

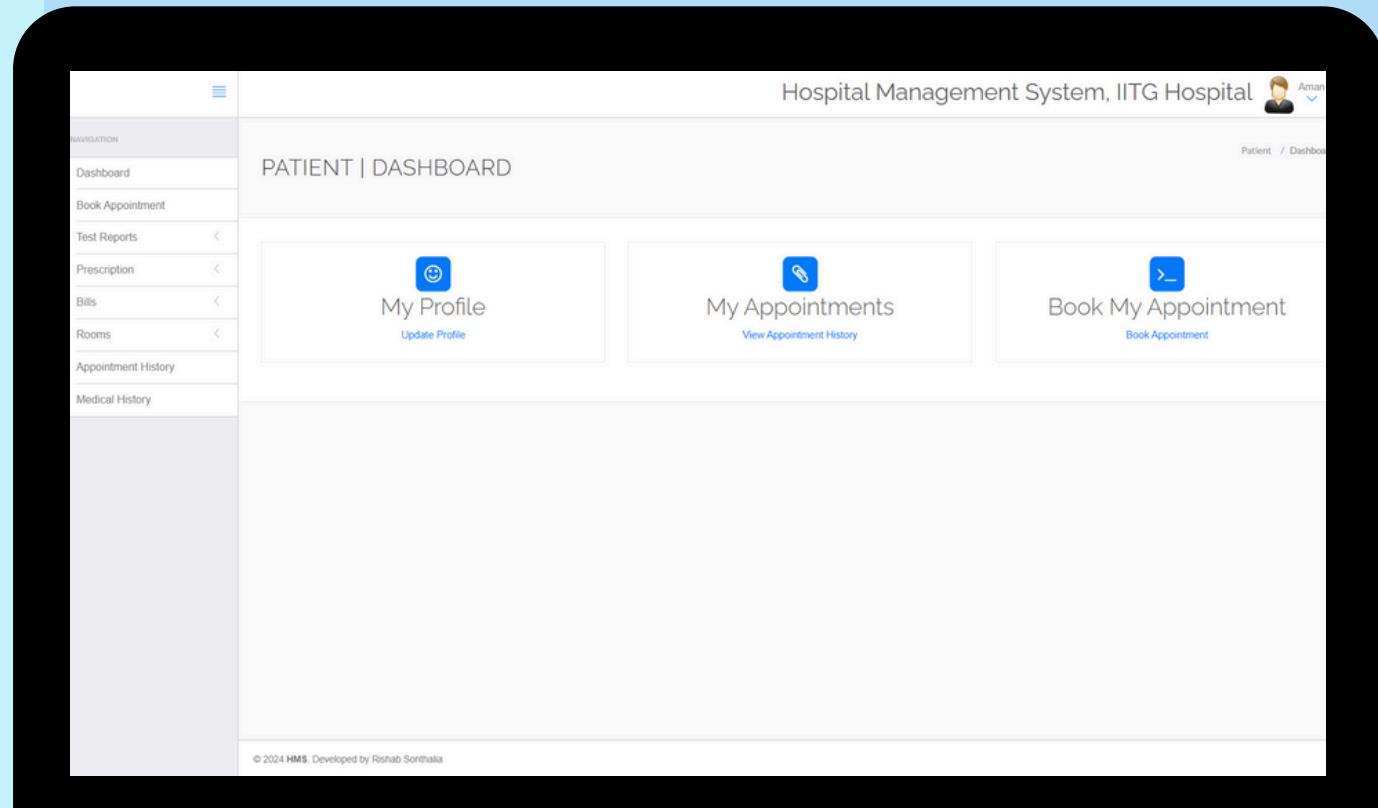
Administrative Monitoring of User and Doctor Activities:

- The system allows administrators to view detailed logs of user activities, including the doctors' interaction histories with the system. This feature helps in overseeing user behavior, ensuring compliance with hospital policies, and aids in the quick identification and resolution of any operational issues.



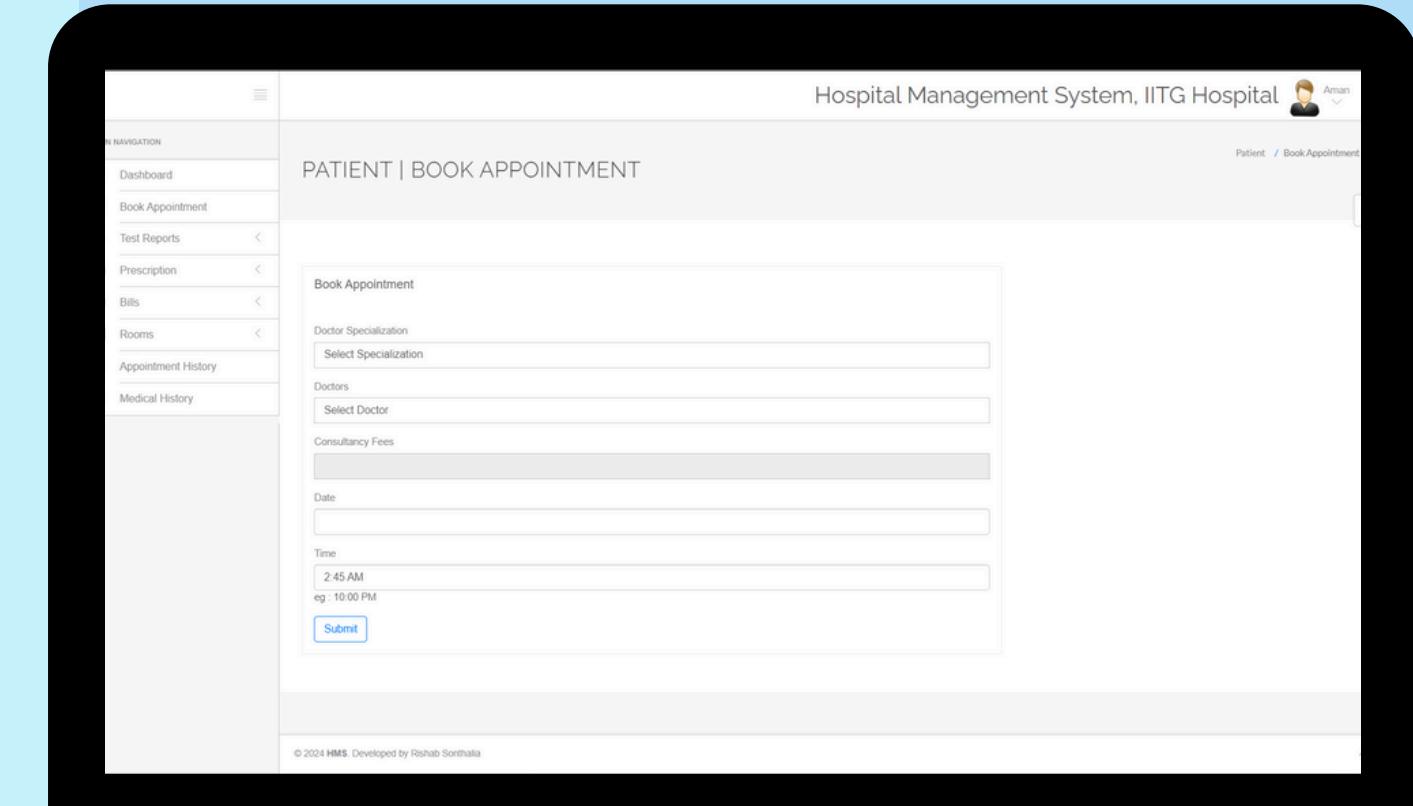
Patient Management

- **Streamlined Online Registration:** Our digital registration form simplifies the patient onboarding process. Patients can enter their details once, and our system will auto-populate relevant fields in the future, saving time during future visits.
- **Personalized Patient Dashboard:** Upon registration, patients gain access to a user-friendly dashboard. Here they can monitor their appointment schedules, view and update medical records, and manage their personal information with ease.
- **Comprehensive Medical History Access:** The system ensures that the patient's medical history, including past treatments and diagnoses, is meticulously recorded and easily accessible to authorized healthcare providers, allowing for informed decision-making.



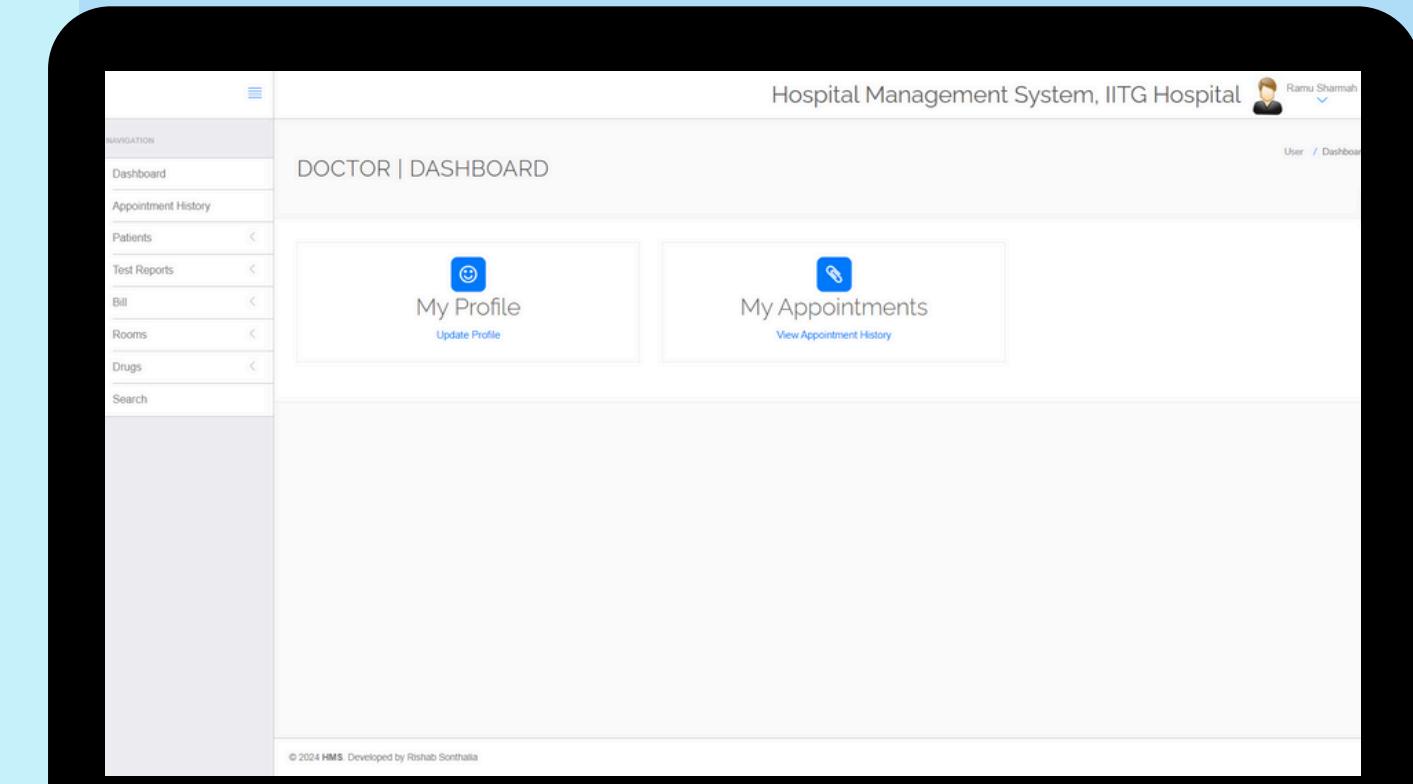
Appointment Scheduling

- **Specialization-Based Booking:** Patients can effortlessly book appointments with the appropriate specialists through a filter-based search, which displays available doctors by their area of expertise and ratings.
- **Dynamic Real-Time Scheduling :** The system's real-time updates ensure that any cancellations or reschedules are immediately reflected, preventing double bookings and optimizing doctor schedules.
- **Automated Notifications :** Our system automatically sends appointment confirmations and reminders via SMS and email, reducing no-shows and ensuring that patients stay informed about their upcoming appointments.



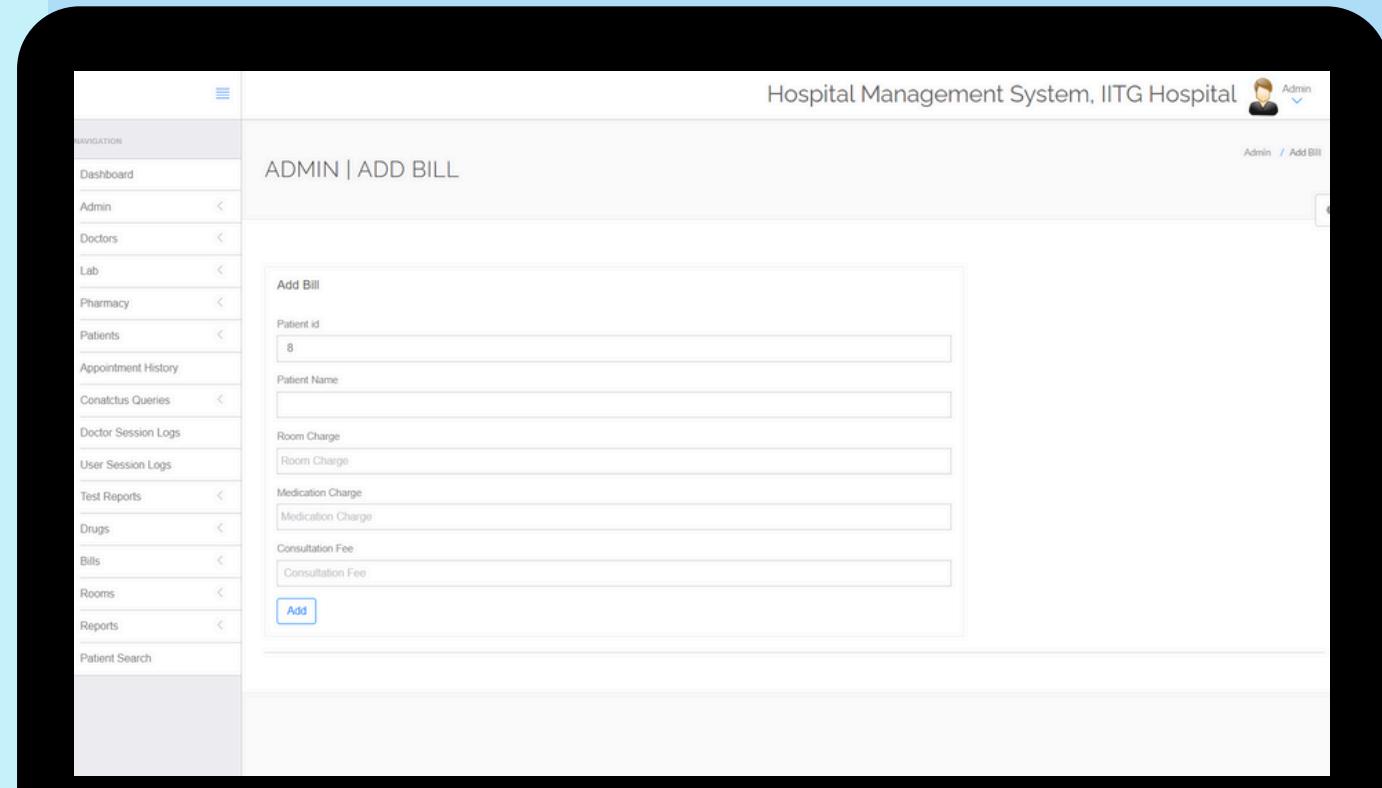
Doctor Management

- **Detailed Doctor Profiles:** Each doctor has a comprehensive profile listing their qualifications, areas of specialization, consultation hours, and direct communication channels for appointments.
- **Intuitive Schedule Management :** Doctors can easily manage their schedules, view patient lists, and adjust their availability, all within an interface designed to minimize administrative tasks and maximize patient-facing time.
- **Access to Patient Information:** Before consultations, doctors can review patients' medical histories and previous notes, ensuring they are well-prepared for each appointment.
- **Streamlined Operation :**
 - Quickly generate prescriptions, which sync with the pharmacy module.
 - Allocate rooms instantly based on patient condition and availability.
 - Review test reports within moments of them being uploaded by the lab.



Integrated Billing System

- **Automated Billing:** With each patient visit or treatment, charges are automatically compiled into a detailed bill, reflecting room charges, medications, and consultation fees, streamlining the payment process.
- **Insurance Handling:** The system is equipped to manage insurance details, automatically calculating the payable amount after insurance contributions, simplifying the financial experience for patients.
- **Consolidated Financial Records:** All billing information is integrated into the patient's profile, allowing for easy tracking of past payments and outstanding balances, enhancing transparency for both patients and hospital staff.
- **Payment Gateway:** Our system integrates a dummy payment gateway that simulates the financial transactions for training and demonstration purposes. This feature allows staff to familiarize themselves with the payment process without conducting real transactions.



Medical Prescription

- Electronic Prescription Creation:** The system allows doctors to quickly create electronic prescriptions during patient visits, which are immediately saved to the patient's digital health record.
- Easy Prescription Access:** Patients can view their current and past prescriptions through their personal dashboard, making it easy to track their medication schedules and details.
- Pharmacy Integration:** Prescriptions are electronically transmitted to the hospital's pharmacy module, enabling pharmacists to prepare medications in advance of patient pick-ups.
- Medication History Review:** Both doctors and patients can review medication histories to monitor ongoing treatments and avoid potential drug interactions, improving overall treatment safety and efficacy.
- Printable Prescriptions:** For added convenience, the system offers the ability to print prescriptions if a physical copy is needed for external pharmacies or personal records.

 Prescription

Prescription Details

Attribute	Value
Prescription ID	15
Name	Aman
Blood Pressure	70/120
Blood Sugar	80/120
Weight	72Kg
Temperature	97 F
Date	2024-04-20 17:41:12

Prescription Notes

1) Drug 1 - 1 tab/day - 1 week

2) Drug 2 - 1 tab/day - 30 days

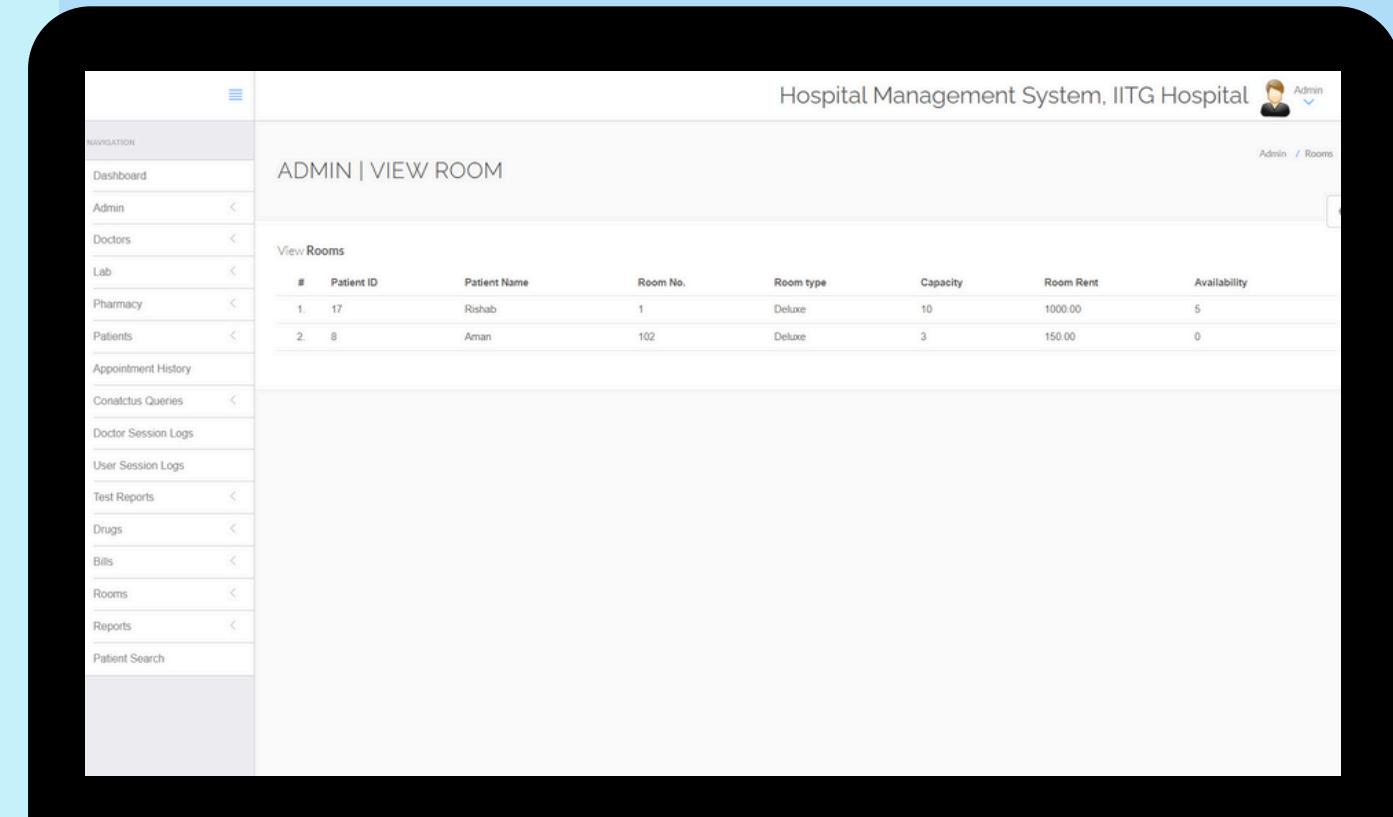
3) Drug 3 - 10 ml / day - 20 days

Notes : Take rest properly and also ensure 10 hr sleep daily.

Page 1/1

Room Management

- **Automated Room Assignment:** Upon patient admission, the system automatically suggests room assignments based on the patient's care requirements and room availability, streamlining the admission process.
- **Room Status Tracking:** The system keeps real-time tabs on room occupancy, clearly displaying which rooms are occupied, which are available, and when occupied rooms are due to become available again.
- **Room Details and Management:** Each room's details, including type (such as general, semi-private, private), capacity, and associated costs, are meticulously managed within the system, allowing for transparent billing and accommodation planning.
- **Room Allocation History:** For in-depth patient care and administrative review, the system maintains a log of patient room history, providing insights into room utilization patterns and patient stays.
- **Integration with Other Modules:** Room management is fully integrated with the billing system to automatically include room charges in patient bills, as well as with the appointment and discharge systems to optimize hospital bed management.



The screenshot shows a user interface for a hospital management system. At the top right, it says "Hospital Management System, IITG Hospital" and "Admin / Rooms". On the left, there's a sidebar titled "NAVIGATION" with links like Dashboard, Admin, Doctors, Lab, Pharmacy, Patients, Appointment History, Conatus Queries, Doctor Session Logs, User Session Logs, Test Reports, Drugs, Bills, Rooms, Reports, and Patient Search. The main area is titled "ADMIN | VIEW ROOM" and "View Rooms". It has a table with columns: #, Patient ID, Patient Name, Room No., Room type, Capacity, Room Rent, and Availability. There are two rows: Row 1 has Patient ID 17, Patient Name Rishab, Room No. 1, Room type Deluxe, Capacity 10, Room Rent 1000.00, and Availability 5. Row 2 has Patient ID 8, Patient Name Aman, Room No. 102, Room type Deluxe, Capacity 3, Room Rent 150.00, and Availability 0.

#	Patient ID	Patient Name	Room No.	Room type	Capacity	Room Rent	Availability
1.	17	Rishab	1	Deluxe	10	1000.00	5
2.	8	Aman	102	Deluxe	3	150.00	0

Diagnostic Reports

- Rapid Upload and Availability:** Immediately after lab tests are completed, results are uploaded to the system. This enables healthcare providers and patients to view results without delay, supporting timely medical decisions.
- Direct Link to Patient Profiles:** Each test result is linked directly to the respective patient profiles, keeping a consolidated record that facilitates comprehensive health monitoring and historical analysis.
- Accessible and Downloadable Reports:** Patients and doctors can not only view but also download reports directly from the system. This allows for easy sharing with external specialists or for personal record-keeping, enhancing the portability and utility of medical data.
- Streamlined Communication with Labs:** Efficient channels between lab technicians and medical staff ensure that any critical results are quickly communicated, enabling rapid response to patient needs.

 TEST REPORT

Report Details

Attribute	Value
REPORT ID	9
PATIENT NAME	Aman
PATIENT ID	8
TEST TYPE	Complete Blood Count (CBC)
TEST DATE	2024-04-19

REPORT NOTES

- White Blood Cells (WBC) $5.2 \times 10^3/\mu\text{L}$ 4.0 - $10.0 \times 10^3/\mu\text{L}$
- Red Blood Cells (RBC) $4.89 \times 10^6/\mu\text{L}$ 4.7 - $6.1 \times 10^6/\mu\text{L}$
- Hemoglobin (HGB) 13.5 g/dL 13.8 - 17.2 g/dL
- Hematocrit (HCT) 40.4% 40.7 - 50.3%
- Platelets $250 \times 10^3/\mu\text{L}$ 150 - $450 \times 10^3/\mu\text{L}$

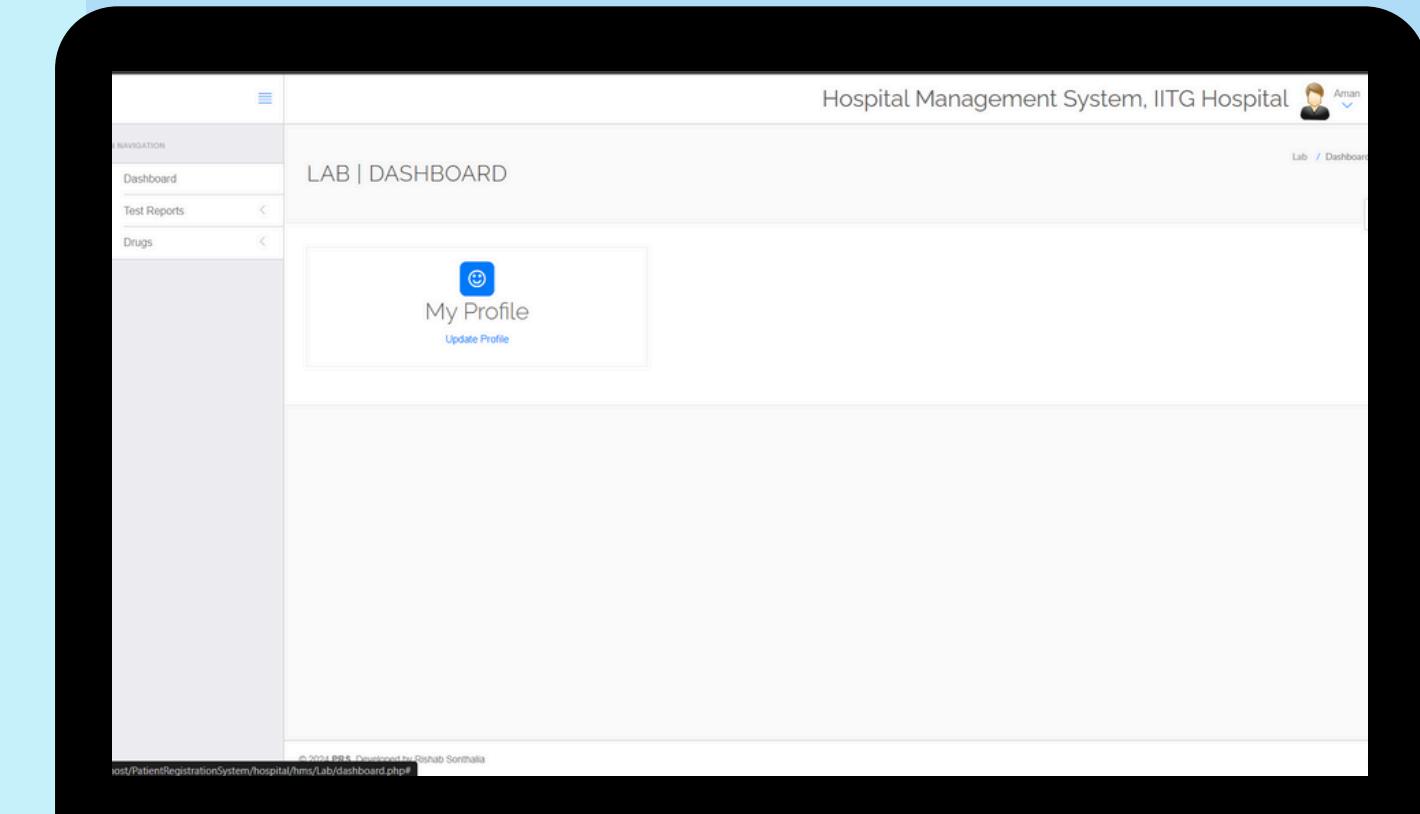
RESULT

- White Blood Cells (WBC) - Normal
- Red Blood Cells (RBC) - Normal
- Hemoglobin (HGB) - Slightly Low
- Hematocrit (HCT) - Normal
- Platelets - Normal

Page 1/1

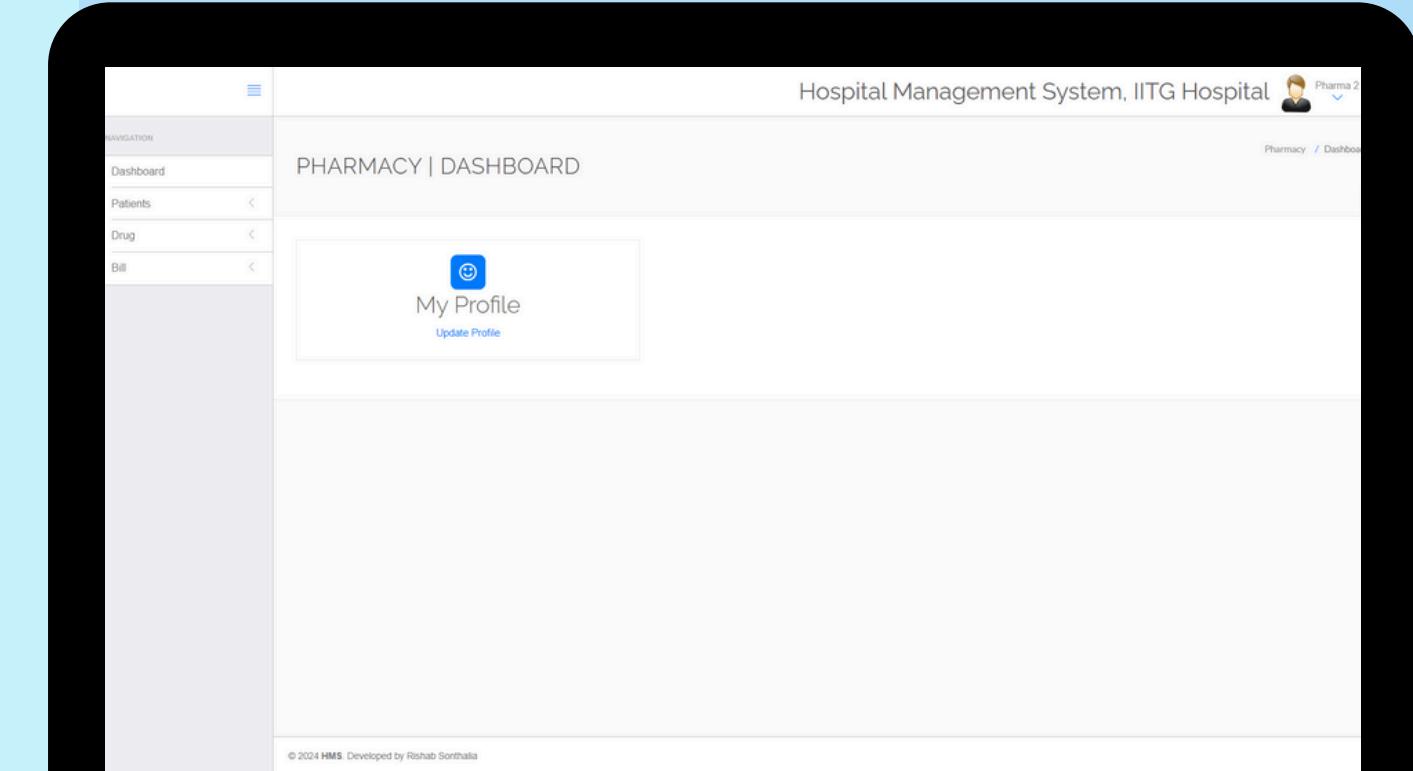
Laboratory Services Management:

- **Test Order Processing:** The laboratory module efficiently handles the processing of test orders. Once a test is requested by a doctor, the lab receives an automated notification to ensure prompt action.
- **Result Entry and Access:** As tests are completed, lab technicians enter the results directly into the system. These results are then immediately accessible to the prescribing doctor and, if appropriate, to the patient, ensuring timely diagnosis and treatment.
- **Communication Efficiency:** The system fosters improved communication between lab staff and medical personnel, which is critical for discussing critical test outcomes and coordinating care.



Pharmacy Services Integration

- **Prescription Processing:** When a doctor writes a prescription, it is electronically sent to the pharmacy module. The pharmacy staff is alerted and can prepare the medication ahead of the patient's arrival, which minimizes wait times and enhances patient satisfaction.
- **Inventory Management:** The pharmacy module keeps a real-time track of medication stock levels. It automatically updates inventory as prescriptions are filled and can alert staff when stock levels are low, ensuring that the pharmacy is well-stocked and able to meet patient needs without delay.
- **Drug Dispensing and Billing:** Integrated directly with the billing system, the pharmacy ensures that all dispensed medications are accurately billed and recorded, streamlining the payment process and reducing administrative burdens.



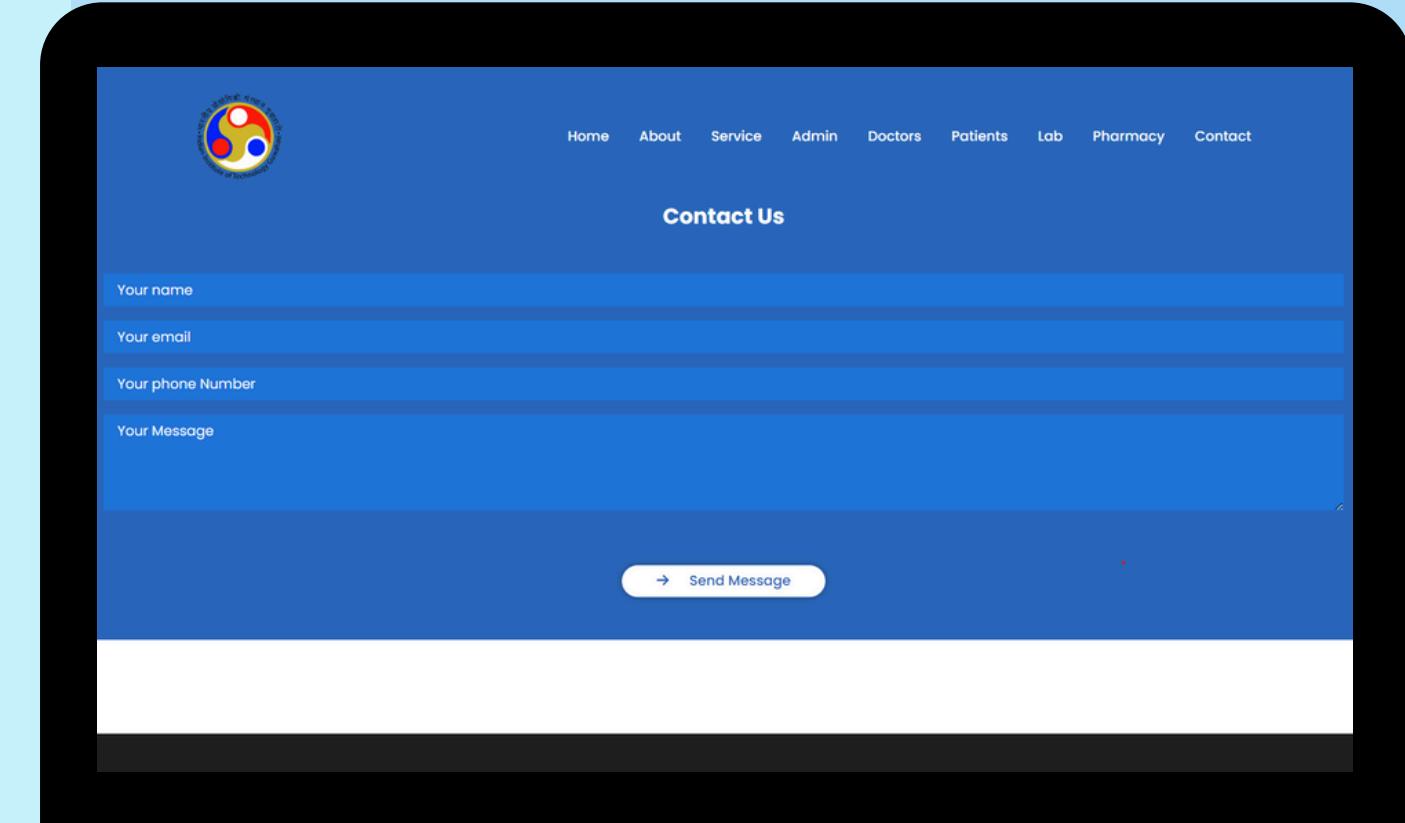
Communication

Direct Messaging Capabilities:

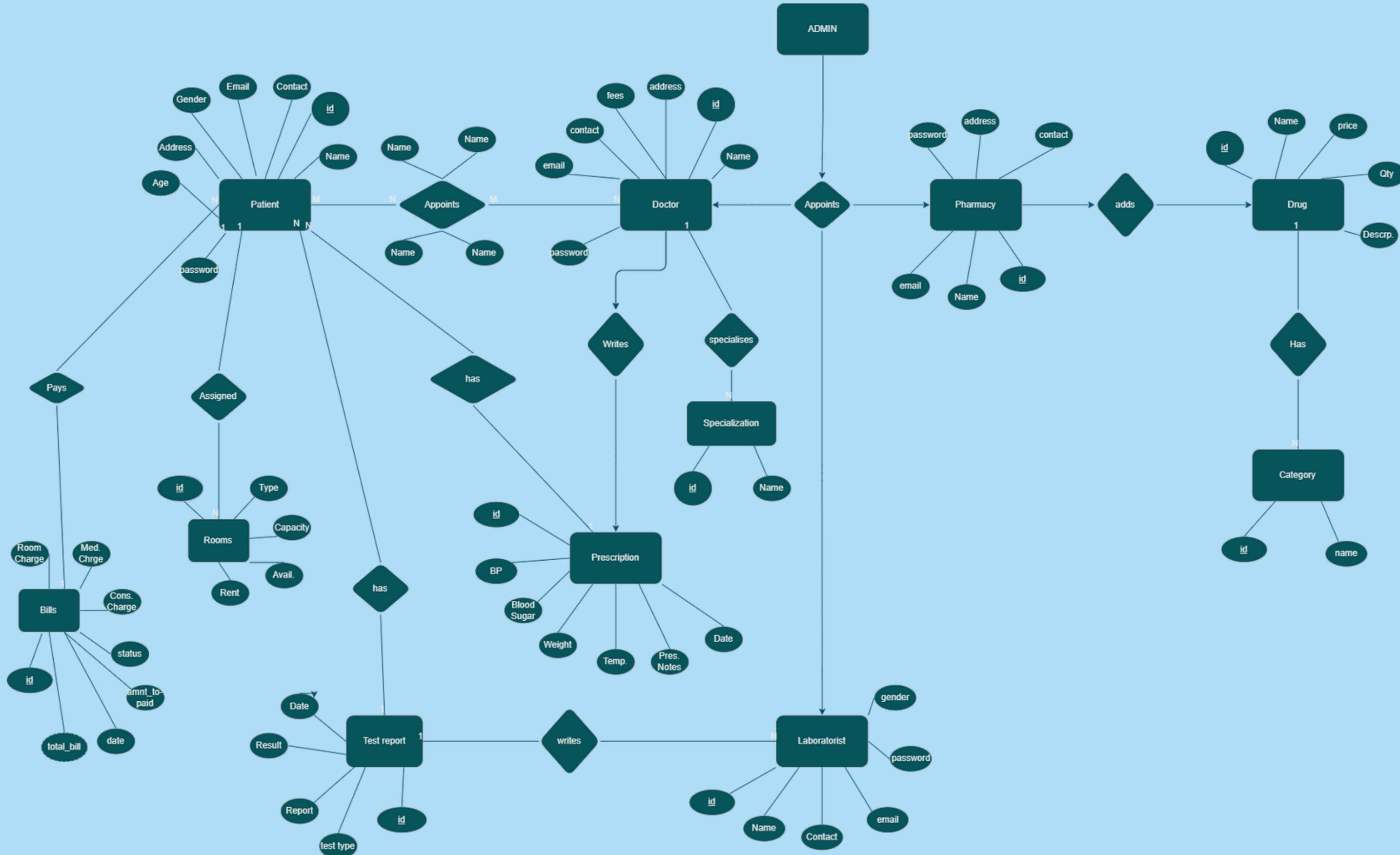
- The system features an integrated messaging platform that enables direct and secure communication between patients and healthcare providers. This facilitates immediate consultations, follow-ups, and clarifications, enhancing the continuity and personalization of care.

Feedback System:

- Patients are encouraged to use the system's feedback module to leave comments regarding their experiences with hospital services. This feedback is crucial for identifying areas of success and those needing improvement.
- The system automatically routes feedback to relevant departments and management personnel, ensuring that it is reviewed and acted upon promptly. This process helps in maintaining high service standards and in making continuous improvements.



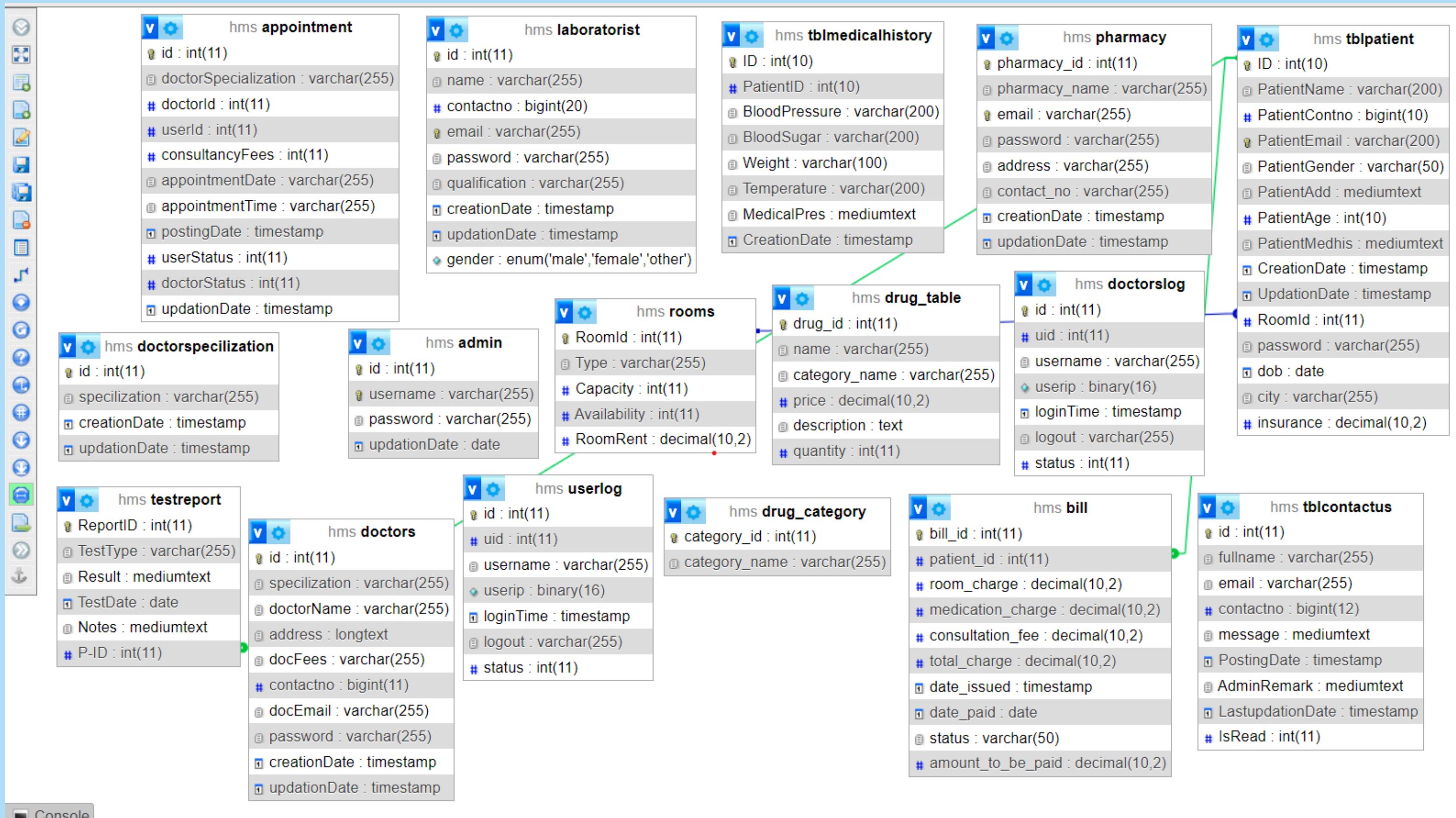
ER Diagram



Database Snapshot

	Table	Action	Browse	Structure	Search	Insert	Empty	Drop	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/>	admin		Browse	Structure	Search	Insert	Empty	Drop	1	InnoDB	latin1_swedish_ci	32.0 KiB	-
<input type="checkbox"/>	appointment		Browse	Structure	Search	Insert	Empty	Drop	7	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/>	bill		Browse	Structure	Search	Insert	Empty	Drop	11	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/>	doctors		Browse	Structure	Search	Insert	Empty	Drop	5	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/>	doctorslog		Browse	Structure	Search	Insert	Empty	Drop	24	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/>	doctorspecialization		Browse	Structure	Search	Insert	Empty	Drop	9	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/>	drug_category		Browse	Structure	Search	Insert	Empty	Drop	4	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	drug_table		Browse	Structure	Search	Insert	Empty	Drop	6	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	laboratorist		Browse	Structure	Search	Insert	Empty	Drop	3	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/>	pharmacy		Browse	Structure	Search	Insert	Empty	Drop	2	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/>	rooms		Browse	Structure	Search	Insert	Empty	Drop	6	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	tblcontactus		Browse	Structure	Search	Insert	Empty	Drop	3	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/>	tblmedicalhistory		Browse	Structure	Search	Insert	Empty	Drop	3	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/>	tblpatient		Browse	Structure	Search	Insert	Empty	Drop	8	InnoDB	latin1_swedish_ci	64.0 KiB	-
<input type="checkbox"/>	testreport		Browse	Structure	Search	Insert	Empty	Drop	5	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/>	userlog		Browse	Structure	Search	Insert	Empty	Drop	31	InnoDB	latin1_swedish_ci	16.0 KiB	-
16 tables		Sum							128	InnoDB	utf8mb4_general_ci	384.0 KiB	0 B

Schema



Hospital Management System, IITG Hospital

Patient / Dashboard

My Profile

Book My Appointment

My Appointments

PATIENT | DASHBOARD

More Navigation

- Dashboard
- Book Appointment
- Test Reports
- Prescription
- Bills
- Rooms
- Appointment History
- Medical History

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IIT GUWAHATI HOSPITAL

Hospital Management System

Learn More

Sign In



Home About Service Admin Doctors Patients Lab Pharmacy Contact

Lorum ipsum dolor sit amet consectetur adipisicing elit. Totam, nulla odit esse necessitatibus corporis voluptatem?

IITG Hospital | Patient Login

Sign in to your account

Please enter your name and password to log in.

Username

Password

Forgot Password ?

Go to Home

Create an account

Login

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Hospital Management System, IITG Hospital

Admin / Dashboard

Manage Doctors

Total Doctors: 5

Appointments

Total Appointments: 8

New Queries

Total New Queries: 5

Manage Patients

Total Patients: 9

ADMIN | DASHBOARD

MAIN NAVIGATION

- Dashboard
- Admin
- Doctors
- Lab
- Pharmacy
- Patients
- Appointment History
- Consultus Queries
- Doctor Session Logs
- User Session Logs
- Test Reports
- Drugs
- Bills
- Rooms
- Reports
- Patient Search

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Hospital Management System, IITG Hospital

Patient / Manage Patients

PATIENT | MANAGE PATIENTS

Manage Patients

Patient Details

Patient Name	Aman	Patient Email	aman@gmail.com
Patient Mobile Number	9876543244	Patient Address	XYZ
Patient Gender	male	Patient Age	13
Patient Medical History(if any)		Patient Reg Date	2024-04-05 22:54:29

Medical History

#	Blood Pressure	Weight	Blood Sugar	Body Temperature	Visit Date	Prescription
1	70/110	72	89/120	97deg	2024-04-10 22:17:57	Download Prescription
2	70/120	72kg	80/120	97 F	2024-04-20 17:41:12	Download Prescription
3	70	72kg	90	97 F	2024-04-20 22:09:31	Download Prescription

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Payment Gateway

Payment Method

Card

Card Number

203956743455

CVV

1222

Amount

9200.00

Enter OTP

122

Verify OTP

Conclusion

As we reach the end of our presentation, it's clear that our Hospital Management System is changing things for the better at IIT Guwahati Hospital. It's like we've built a new, faster road that connects patients to doctors and health services more directly than ever before. This system isn't just about cutting down on paperwork or wait times—it's about making sure that everyone who comes to us for help gets it quickly and smoothly.

With every step we've taken in developing this system, we've had one goal in mind: to make healthcare better, more straightforward, and more reliable. Now that we're here, looking at how far we've come, we're excited to keep moving forward, improving how we look after our community's health.



Thank
you very
much!

