

Case Study
on

mediASSIST: Modernizing Healthcare
Management

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INTRODUCTION

- MediAssist is a **web-based Hospital Management System** designed to streamline healthcare operations.
- It digitizes key processes such as patient registration, appointments, prescriptions, and health monitoring.
- The system provides a secure, centralized platform connecting patients and hospital administration.
- MediAssist enhances efficiency and user experience by integrating modern web technologies and AI-based assistance.

ABSTRAT

- **MediAssist** is a web-based Hospital Management System developed to streamline and digitalize core healthcare operations.
- It enables efficient management of patients, appointments, prescriptions, and medical records through a centralized platform.
- MediAssist aims to improve operational efficiency, data accuracy, and overall user experience for both patients and administrators.
- This Project is developed with **MySQL, Spring boot for back end and web technologies.**

What we are going to build: **Client Requirement**

- The client requires a **Hospital Management System** that enables efficient management of patient details, appointments, medicines, prescriptions, and health records.
- The system should provide a centralized platform where patients and hospital administrators can interact seamlessly.
- Patients should be able to track their health information digitally, while administrators can manage hospital operations effectively.
- The solution should be secure, user-friendly, and scalable for future enhancements.

PROJECT OBJECTIVES

- To provide a secure and centralized platform for managing patient records, appointments, medicines, and prescriptions.
- To enable patients to **book appointments, track health details, and manage medical records** digitally.
- To assist hospital administrators in **monitoring patients, appointments, and notifications** effectively.
- To integrate **health analytics and visualization** for better understanding of patient health trends.
- To incorporate an **AI-based medical chatbot** for instant assistance and improved user engagement.

SCOPE OF PROJECT

- The project covers the **digital management of patient-related hospital activities**, excluding external hospital systems.
- It focuses on **single-hospital usage**, where patients and administrators interact within one platform.
- The system handles **appointment scheduling, prescription records, medicine tracking, and notifications** only within the application.
- Medical diagnosis and treatment decisions are **not automated** and remain the responsibility of healthcare professionals.
- The current implementation operates on a **local server environment**, intended for academic and prototype use.

Technologies Used

- **Frontend:** HTML, CSS, JavaScript
- **Backend:** Java, JDBC, Spring Boot Framework
- **Build Tool:** Maven
- **Database:** MySQL
- **IDE &Tools:** Eclipse/STS , Browser(Chrome)

System Requirements

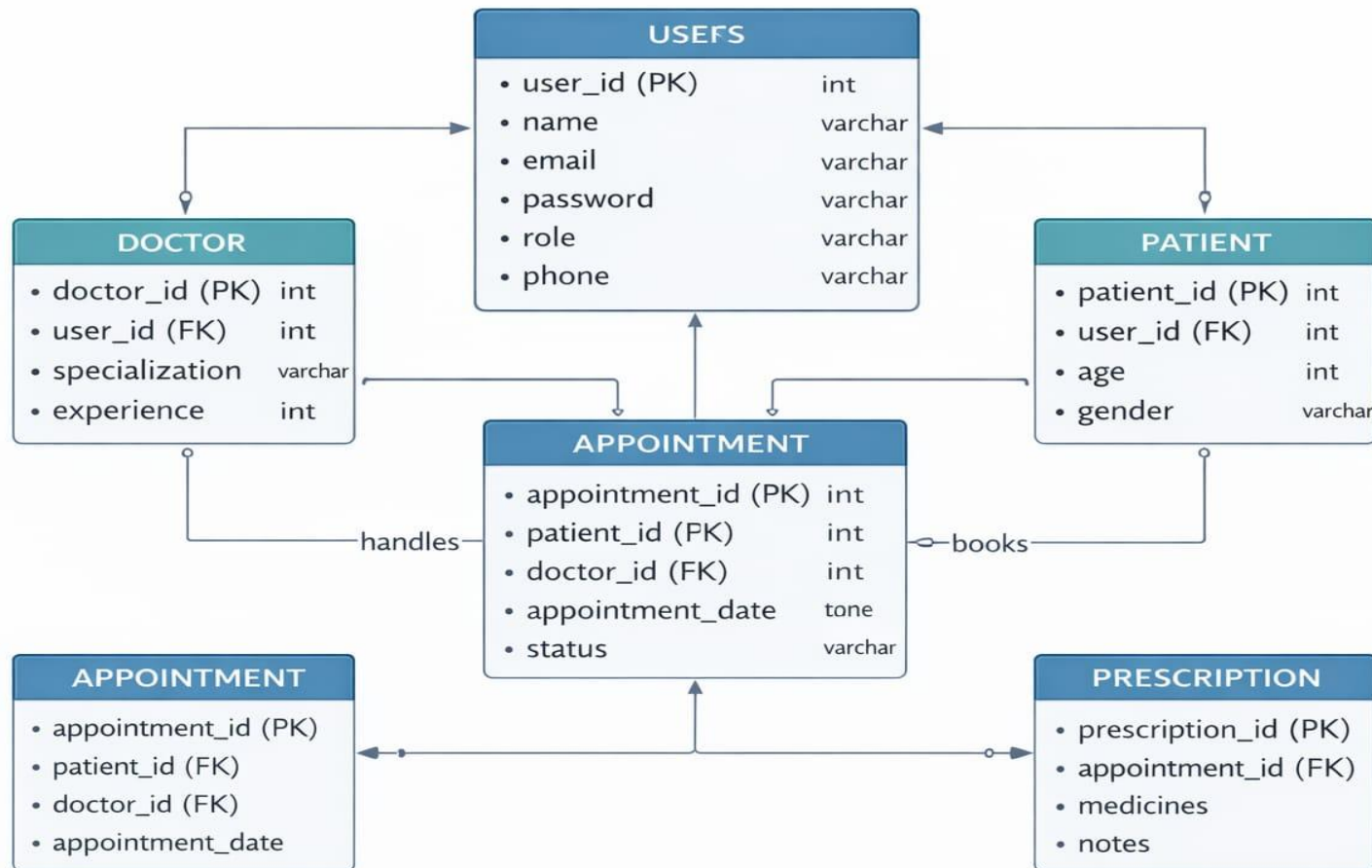
- **Operating System:** Window/Linux
- **Backend Environment:** Java 17 with Spring Boot
- **Database Server:** MySQL
- **Web Server:** Apache Tomcat(embedded)
- **Browser:** Google Chrome

PROJECT MODULE

- User (Patient) Module
- Admin Module
- Appointment Management Module
- Medicine Management Module
- Prescription Management Module
- Dashboard & Analytics Module
- Notification Module
- AI Chatbot (mediBot) Module

DATABASE SCHEMA

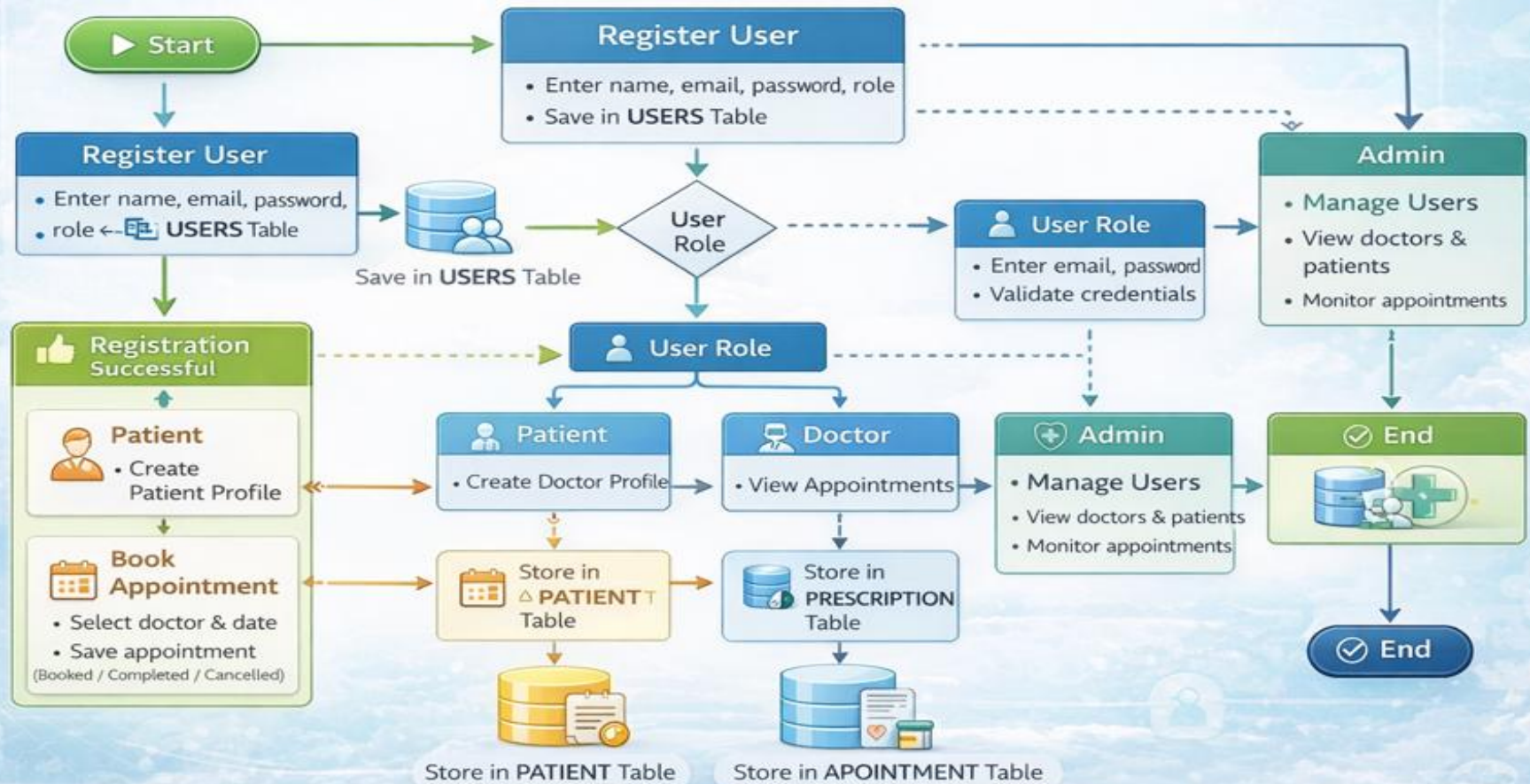
MediAssist – Database Schema



SYSTEM ARCHITECTURE



MediAssist – System Flowchart



ADMIN MODULE

- **Admin Login:**
Provides secure authentication to allow only authorized administrators to access and manage the system.
- **User Management:**
Allows the admin to view, manage, and monitor registered patient records.
Admin can maintain accurate user information within the system.
- **Appointment Control:**
Enables the admin to schedule, reschedule, and cancel patient appointments.
Helps manage doctor availability and ensures smooth hospital operations.

USER MODULE

Login & Registration:

- Allows users to securely create an account and access the system using valid credentials.

Dashboard:

- Provides an overview of health information, appointments, and system updates in a single view.

Appointments:

- Enables users to book, view, and track appointment status with doctors.

Prescriptions:

- Allows users to upload, view, and manage digital prescription records.

AI Chatbot:

- Assists users with basic medical queries and system guidance through interactive responses.

AUTHENTICATION

Secure Login:

Ensures that only authorized users can access the system by validating credentials against the database.

Controller-Based Validation:

Authentication logic is handled in backend controllers to verify user details securely.

Role-Based Routing:

Directs users to appropriate pages based on their role, such as admin or patient.

LOGIN & REGISTER

Login

Email

Password

Login

New user? [Register here](#)

Patient Registration

Sharathika Renganathan

sharathika@gmail.com

.....

08925788330

Register

Already registered? [Login](#)

DASHBOARD

 mediASSIST

Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

Good Afternoon, Sharathika

Thursday, 18 Dec 2025



Health Score

95%



Active Meds

3



Pending Today

2



Upcoming Appts

1

Monthly health progress

Last 6 Months ▾



Up Next

[View All](#)

06:30 PM

Appt: Dr. Vani

Pcod

08:30

Take Calcium Citrate

1 (After Food)

22:00

Take Ginette 35

1 (After Food)

DASHBOARD



Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

Good Evening, Renganathan

Thursday, 18 Dec 2025



Health Score

88%



Active Meds

2



Pending Today

2



Upcoming Appts

1

Monthly health progress

Last 6 Months



Up Next

[View All](#)

20:30

Take Dolo 650

1 (After Food)

20:30

Take Dextromethorphan

1 (After Food)

MEDICINES

mediASSIST

Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

Medicines

Daily medicine overview and schedule

+ Add Medicine

NEXT DOSE

10:00 PM

MEDICINES TODAY

3

TAKEN

1

REMAINING

2

Today's Medicines

8:30 AM

Weekly

Done (Weekly)

ferrous bisglycinate

1 • Ion Tablet

After Food

8:30 AM

Daily

Take

Calcium Citrate

1 • Calcium

After Food

10:00 PM

Daily

Take

Ginette 35

1 • Pcod Problem

After Food

Medicine Stock

Brand Name	Problem/Usage	Dosage	Instruction	Stock Left	Status	Actions
Ginette 35	Pcod Problem	1	After Food	21 units	In Stock	<a>Edit <a>Del

mediASSIST

Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

Medicines

Daily medicine overview and schedule

+ Add Medicine

NEXT DOSE

10:00 PM

MEDICINES TODAY

3

TAKEN

1

REMAINING

2

Today's Medicines

8:30 AM

Weekly

Done (Weekly)

ferrous bisglycinate

1 • Ion Tablet

After Food

8:30 AM

Daily

Take

Calcium Citrate

1 • Calcium

After Food

10:00 PM

Daily

Take

Ginette 35

1 • Pcod Problem

After Food

Medicine Stock

Brand Name	Problem/Usage	Dosage	Instruction	Stock Left	Status	Actions
Ginette 35	Pcod Problem	1	After Food	21 units	In Stock	<a>Edit <a>Del

Add New Medicine

Brand Name

e.g. Dolo 650

Problem / Usage

e.g. Fever, Headache

Frequency

Daily

Instruction

After Food

Dosage

e.g. 1 Tablet

Time

--:--

Total Stock Added

Number of tablets/days

Cancel

Add Medicine

PRESCRIPTION

+ mediASSIST

Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

My Medical Records

Digital records of your medical history

+ Upload New

Upload Prescription



Click to upload image

Supports JPG, PNG (Max 5MB)

Doctor Name

Dr.

Problem / Diagnosis

e.g. Fever, Fracture

Hospital / Clinic

Hospital Name

Date of Prescription

18-12-2025

Notes (Optional)

e.g. Fever medication

Hospital Name

18-12-2025

Notes (Optional)

e.g. Fever medication

Cancel

Save Prescription

+ mediASSIST

Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

60 year old female with
is a known case of Asthma
COVID pneumonia, with
fibrosis. He requires oxygen

Dr. Shalini

Ishwarya

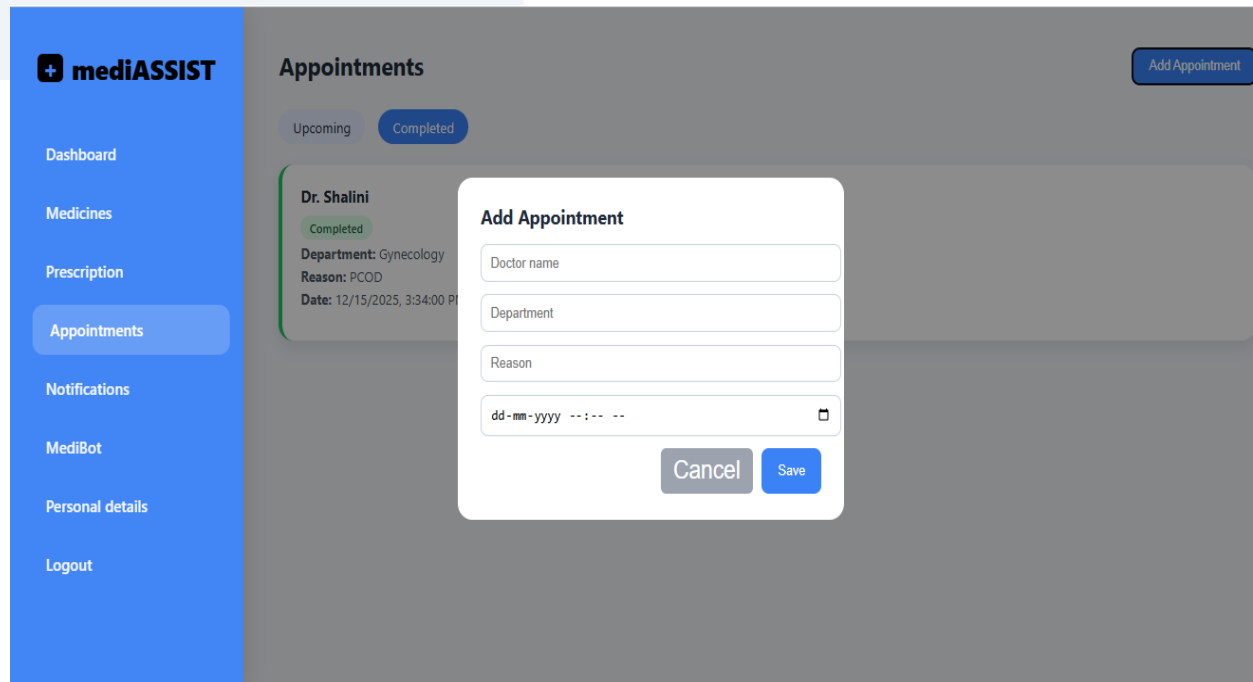
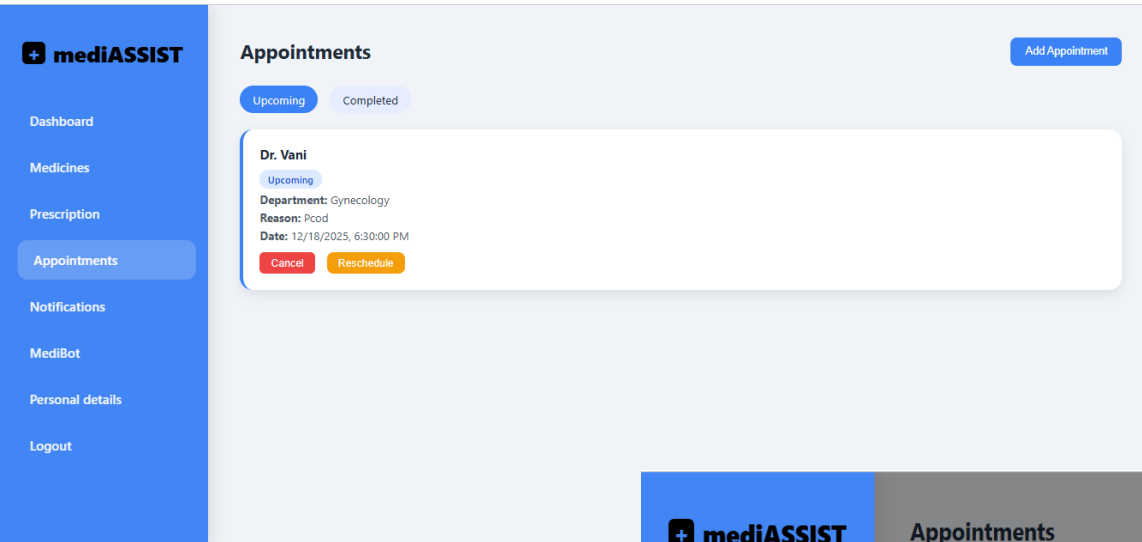
PCOD

Date: 17 December 2025

[View Details](#)



APPOINTMENTS



NOTIFICATIONS



Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

Notifications

Alerts, reminders and updates



Low Stock Alert

You are running low on **Calcium Citrate**. Only 4 units left.

Stock Check



Medicine Reminder

Time to take **ferrous bisglycinate** (After Food)

Scheduled: 8:30 AM



Medicine Reminder

Time to take **Calcium Citrate** (After Food)

Scheduled: 8:30 AM



Appointment Today

You have an appointment with **Dr. Vani** today!

Time: 6:30 PM

MEDIBOT

 **mediASSIST**

Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

 **MediAssist Bot**

EN

Hello! I am your AI Medical Assistant. How can I help you today?
Try saying "I have a headache"

i have fever

Monitor your temperature. Drink plenty of fluids. Take rest. If temperature exceeds 102°F, visit a doctor immediately.

i have cold

Drink warm water and take steam inhalation. Vitamin C helps. Rest well.



Type or speak a symptom...



PERSONAL DETAILS

mediASSIST

Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

Sharathika

ID: P-1024

2006-04-13

B+

Edit Profile

Clinical Vitals

BLOOD PRESSURE

120/80

mmHg

HEART RATE

72

bpm

BODY WEIGHT

52

kg

HEIGHT

157

cm

SUGAR (FASTING / PP)

95/140

mg/dL

Demographics & Contact

Age

19 Years

Gender

Female

Phone

8925788330

Email

sharathika@gmail.com

Address

chennai, Tamil Nadu

mediASSIST

Dashboard

Medicines

Prescription

Appointments

Notifications

MediBot

Personal details

Logout

52

kg

157

cm

SUGAR (FASTING / PP)

95/140

mg/dL

Medical History

Allergies

None

Chronic Conditions

None

Last Vital Checkup

2024-01-01

Insurance Coverage

Provider

Not-Added

Policy No

-

Type

Comprehensive

Valid Until

ADMIN

 **mediASSIST**

All Appointments

Logout

Patient Appointments Controller

+ Schedule Appointment

Roshan

nathan.sharu@gmail.com

Date: 12/26/2025, 10:30:00 AM

Dept: Artho | **Reason:** leg pain

Reschedule

Cancel

Salim

selfdrivegr@gmail.com

Date: 12/22/2025, 5:53:00 PM

Dept: cardio | **Reason:** heart pain

Reschedule

Cancel

Vani

sharathika@gmail.com

Date: 12/18/2025, 6:30:00 PM

Dept: Gynecology | **Reason:** Pcod

Reschedule

Cancel

ADMIN CONTROLLER

+ mediASSIST

All Appointments

Logout

Patient Appointments Controller

+ Schedule Appointment

Roshan

Date: 12/26/2025, 10:30:00

Dept: Artho | Reason: leg

Reschedule

Cancel

nathan.sharu@gmail.com

Salim

Date: 12/22/2025, 5:53:00

Dept: cardio | Reason: hea

Reschedule

Cancel

selfdrivegr@gmail.com

Vani

Date: 12/18/2025, 6:30:00

Dept: Gynecology | Reason

Reschedule

Cancel

sharathiika@gmail.com

Schedule Appointment

Patient Email

Select Patient

Doctor Name (e.g. Dr. Smith)

Department (e.g. Cardiology)

Reason

dd-mm-yyyy --:-- --



Cancel

Save

ADMIN DATABASE

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- amazon
- college
- company
- crud
- employee_db
- eshop
- flipkart
- mediassist_db
 - Tables
 - admins
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
 - users
 - Views
 - Stored Procedures
 - Functions

Administration Schemas

Information

No object selected

mediassist

Limit to 2000 rows

```
15 CREATE TABLE admins (  
16     admin_id INT AUTO_INCREMENT PRIMARY KEY,  
17     email VARCHAR(100) UNIQUE,  
18     password VARCHAR(100)  
19 );  
20  
21 -- Insert the default admin  
22 INSERT INTO admins (email, password) VALUES ('admin@mediassist.com', 'admin123');  
23 INSERT INTO admins (email, password) VALUES ('adminmediassist@gmail.com', 'admin123');  
24 select * from admins;
```

Result Grid

	admin_id	email	password
1	1	admin@mediassist.com	admin123
2	2	adminmediassist@gmail.com	admin123
*	NULL	NULL	NULL

admins 2

Apply Revert Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 1	12:41:04	USE mediassist_db	0 row(s) affected	0.000 sec
✓ 2	12:41:11	select * from users LIMIT 0, 2000	10 row(s) returned	0.000 sec / 0.000 sec
✓ 3	12:41:48	select * from admins LIMIT 0, 2000	2 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

USER DATABASE

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help



Navigator

SCHEMAS

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 - Stored Procedures
 - Functions
- org123
- sathyabama
- saturday
- student

Administration Schemas

Information

No object selected

mediassist x



Limit to 2000 rows

```
1 • CREATE DATABASE mediassist_db;
2 • SHOW DATABASES;
3 • USE mediassist_db;
4
5 • CREATE TABLE users (
6     user_id INT AUTO_INCREMENT PRIMARY KEY,
7     name VARCHAR(100),
8     email VARCHAR(100) UNIQUE,
9     password VARCHAR(100),
10    phone VARCHAR(15)
11 );
12 • select * from users;
13 • USE mediassist_db;
14
15 • CREATE TABLE admins (
16     admin_id INT AUTO_INCREMENT PRIMARY KEY,
17     email VARCHAR(100) UNIQUE,
18     password VARCHAR(100)
```


USER LIST

SCHEMAS

Filter objects

- amazon
- college
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- mediassist_db**
 - Tables
 - admins
 - users
 - Views
 - Stored Procedures
 - Functions
- org123
- sathyabama
- saturday
- student

Administration Schemas

Information

Limit to 2000 rows

```
6 user_id INT AUTO_INCREMENT PRIMARY KEY,  
7 name VARCHAR(100),  
8 email VARCHAR(100) UNIQUE,  
9 password VARCHAR(100),  
10 phone VARCHAR(15)
```

Result Grid

Filter Rows:

Edit:

Export/Import:

Wrap Cell Content:

	user_id	name	email	password	phone
▶	1	Sharathika Renganathan	sharathika@gmail.com	sharu	8925788330
	2	Moni	monisha@gmail.com	moni	63007896543
	5	dharunya	dharunya@gmail.com	dharuns	6345678902
	7	dharini	dharu@gmail.com	dharani	6345678902
	8	dharinis	dharus@gmail.com	dharuu	6345678902
	9	sharu	sharu7@gmail.com	Sharu	9443915574
	13	kavya	kavya@gmail.com	kavs	7098564321
	14	jovitha	jovitha@gmail.com	jovi	9688188470
	15	Renganathan	nathan.sharu@gmail.com	nathan	9444706202
	16	Gopi Natarajan	selfdrivegr@gmail.com	gopi	9688188470
*	NULL	NULL	NULL	NULL	NULL

No object selected

FUTURE ENHANCEMENTS

Payment Gateway Integration: Enables secure online payments for services such as appointment booking and medicine purchases.

AI-Based Prescription Processing: Automatically extracts medicine details from uploaded prescriptions using inbuilt AI features and adds them to the medicine schedule.

Email / SMS Alerts: Sends automated notifications for appointment reminders, medicine intake alerts, and important health updates.

Cloud Deployment: Deploys the application on cloud platforms to ensure scalability, reliability, and global accessibility.

CONCLUSION

- MediAssist successfully provides a digital solution for managing hospital operations in an efficient and organized manner.
- The system simplifies patient management, appointment scheduling, prescription handling, and health monitoring through a centralized platform.
- By integrating modern web technologies and AI-based features, MediAssist enhances usability, accuracy, and patient engagement.
- The modular and scalable design makes the system adaptable for future advancements in healthcare management.

LINKS

GITHUB :

https://github.com/Sharathika/Sharathika_43130731

CAPSTONE PROJECT VIDEO:

https://drive.google.com/file/d/1ZC-NHIR09j3-U_zL9erK0DeZoBbGsqQ0/view?usp=drivesdk

THANK YOU