

Project Title: Hospital Management System (HMS)

Deliverable 3: Development Phase 1: Minimum Viable Product (MVP) for Hospital Management System

Group Name: Geeky Techs

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Introduction:

This phase marks a significant step toward establishing a comprehensive Hospital Management System (HMS) designed to streamline hospital operations, enhance patient care, and ensure data security. Our MVP focuses on laying a solid foundation with core functionalities that address the critical aspects of healthcare management and patient service delivery.

Requirements:

The core requirements remain consistent, though a minor yet significant change in the database approach was agreed upon during our initial peer meeting for this deliverable. We'll detail this change in the corresponding section. Here, we outline the requirements for this phase:

User Registration and Login:

We have developed model classes for both patients and staff to facilitate their registration processes, creating database tables to capture their information securely. Registration and authentication processes are fully encrypted, ensuring no potential breaches in privacy.

Profile Management:

Patients and staff will have distinct profile structures. Patient profiles focus on personal details such as name, email, picture, location, and password. Staff profiles, on the other hand, contain more in-depth information, including contact numbers and professional identifiers. Despite the distinct nature of these profiles, both sets of data are unified in an authentication system, ensuring coherence and security.

Appointment Scheduling Interface:

A dedicated module has been introduced to facilitate the scheduling, monitoring, and management of appointments. This is aimed at reducing wait times and improving service delivery efficiency.

Basic Messaging system for patient – provider communication:

The implementation of EHR allows authorized personnel to access patient information in real time, significantly elevating the standard of care provided.

Basic Dashboard for patients and health care providers:

Patients will be having a dashboard which includes the patient profile, patient appointments and book my appointment. Doctors will be having a dashboard which includes profile information and appointment history of patients.

Basic Reporting for Administrative purposes:

SQL queries are used to retrieve data for the reports. These queries should aggregate and filter data as needed based on the reporting requirements. Format the retrieved data appropriately for presentation in the reports. This might involve transforming raw data into tables, charts, or other visualizations.

Basic Search and Filter Functionality for Healthcare Services:

Implement a PHP function to search for healthcare services based on user-entered keywords. Use MySQL to match keywords against service names, descriptions, or other relevant fields in the database. Return matching services as JSON data to be displayed on the frontend.

Emergency contact information:

Used AJAX to asynchronously send requests to the server for adding, updating, or deleting contacts without reloading the page. Create forms for users to input and edit emergency contact information.

Display the user's existing emergency contacts and provide options to add, edit, or delete contacts.

User Feedback Submission:

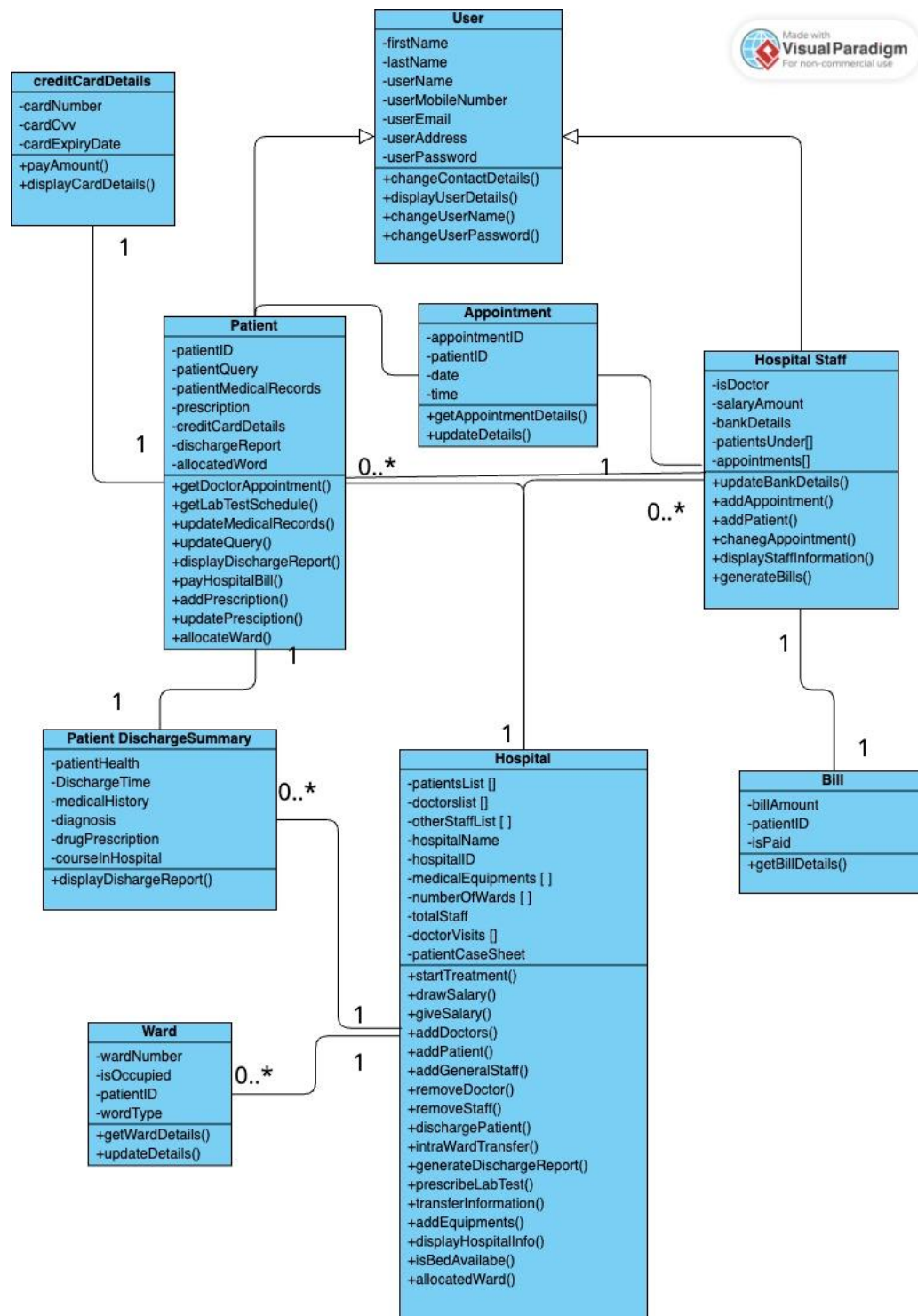
Create a form for users to input their feedback. Provide a text area or input field where users can type their feedback. Optionally, allow users to categorize their feedback (e.g., suggestion, complaint) or attach files.

Mobile Responsiveness for Access from Various Devices:

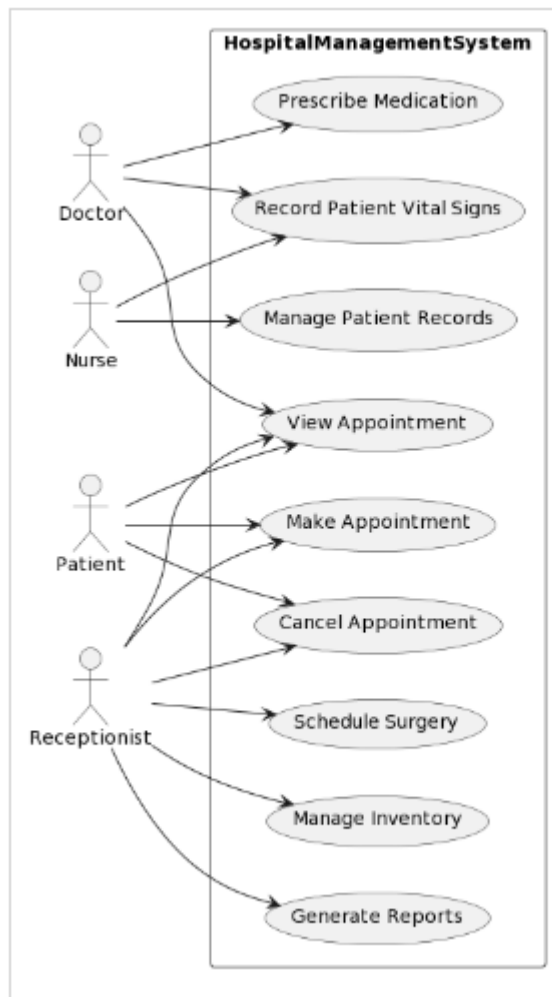
Utilize CSS media queries to apply different styles based on the screen width. Design fluid layouts that adjust dynamically to fit the available screen space. Prioritize content and functionality based on screen size to ensure a smooth user experience across devices.

UML Diagrams:

Class Diagram:

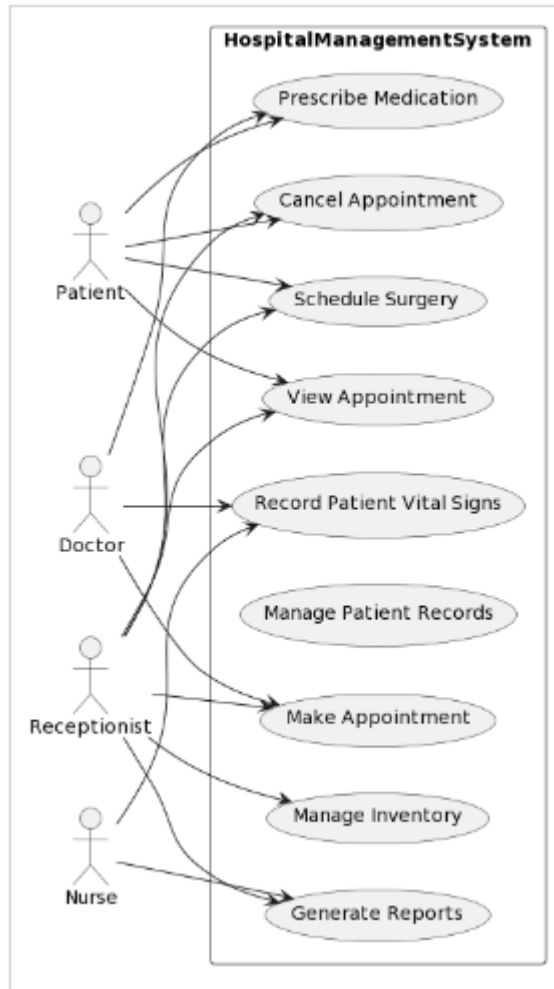


Use Case Diagram:

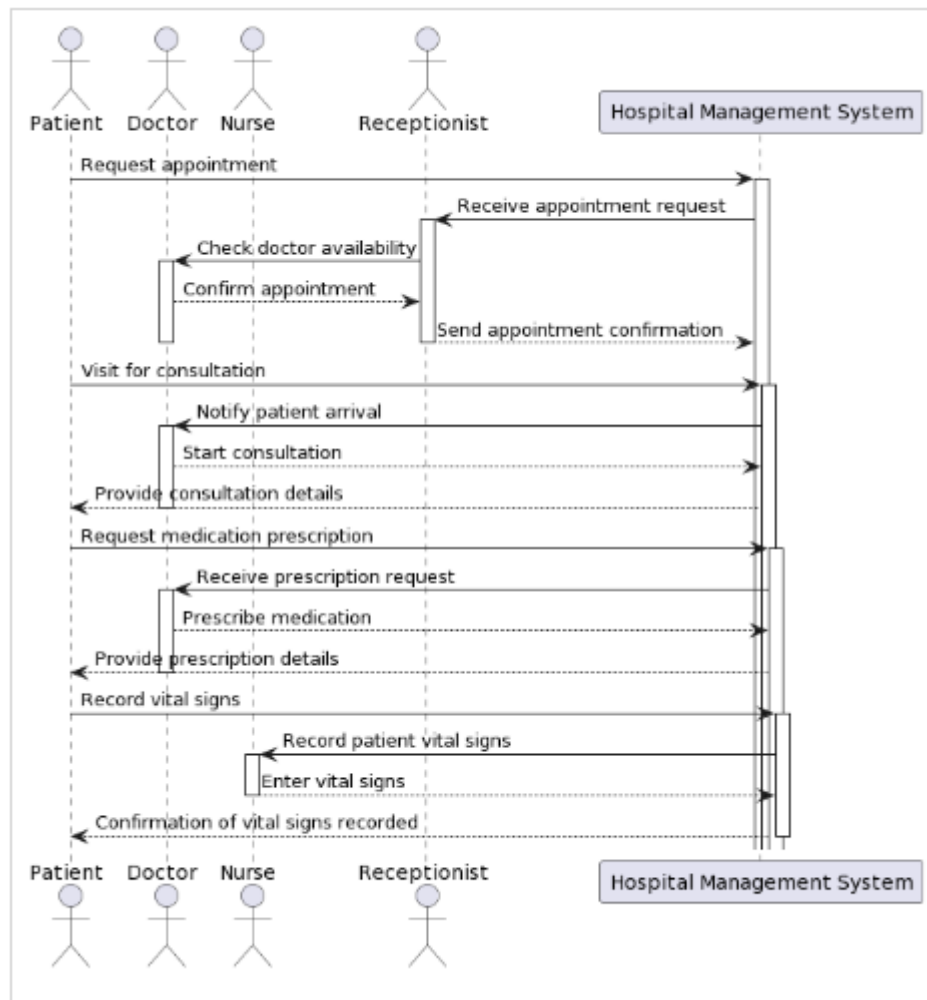


Use Case Error diagram:

In our project patient can't schedule a surgery, and can't prescribe medication and doctor can't make appointment. Nurse can't generate reports. Based on these scenarios we have drawn the use case diagram for error case.



Sequence Diagram:



Test Cases:

Functionality	Input	Output	Expected
Patient Sign Up	Valid Credentials	Successful Signup	Successful Signup
Patient Sign Up	Non-Unique Credentials	Sign-up error	Sign-up error
Login	Wrong Credentials	Error	Credentials Error
Login	Authorized Credentials	Redirect to Patient Dashboard	Redirect to Patient Dashboard
Add Doctor	Input the Doctor's details with some empty fields	Error	A prompt indicating the exact missing fields
Add Doctor	Input the Doctor's details with	Doctor Successfully Added	Doctor Successfully added
Doctor Login	Fill all fields	Successfully product logged in	Doctor successfully logged in
Doctor Login	Fill in invalid credentials	Error	An error indicating either the username or password are invalid
Add Patient	Input the Patient details with some empty fields	Error indicating the missing fields	Error indicating the missing fields
Add Patient	Input the Patient details with all the correct details	A prompt indicating a patient has been successfully added	A prompt indicating a patient has been successfully added

Book appointment	Select specialization with no registered doctor	The list of doctors will be empty	The list of doctors under that category or specialization to be empty
Book Appointment	Select the specialization with registered doctors	A list of doctors appears.	A list of doctors to appear for the chose specialization
Book Appointment	Try to book appointment for the same doctor date and time	Both appointments are successfully booked.	An error indicating that the time allocation is not available.
Reports	Choose previous dates	A list of patient records appears for those added within the selected period	A list of patients' records added within the selected period
Patient Search	Input random search words unrelated to any patient	An output indicating no records founds for unrelated search words	An output indicating no records founds for unrelated search words
Patient Search	Input random search words related to a patient	An output indicating the records founds for related search words	An output indicating the records founds for related search words

Interface Test:

The functionalities of various interfaces were tested. Each interface was checked for proper functioning and appearance. The pages were selected randomly, however, the functionalities of each were tested in detail. These tests were limited to Phase 1 requirements and more detailed tests will be done in the subsequent phases. The images below show various interfaces and the output.

Image 1: The Patient Dashboard

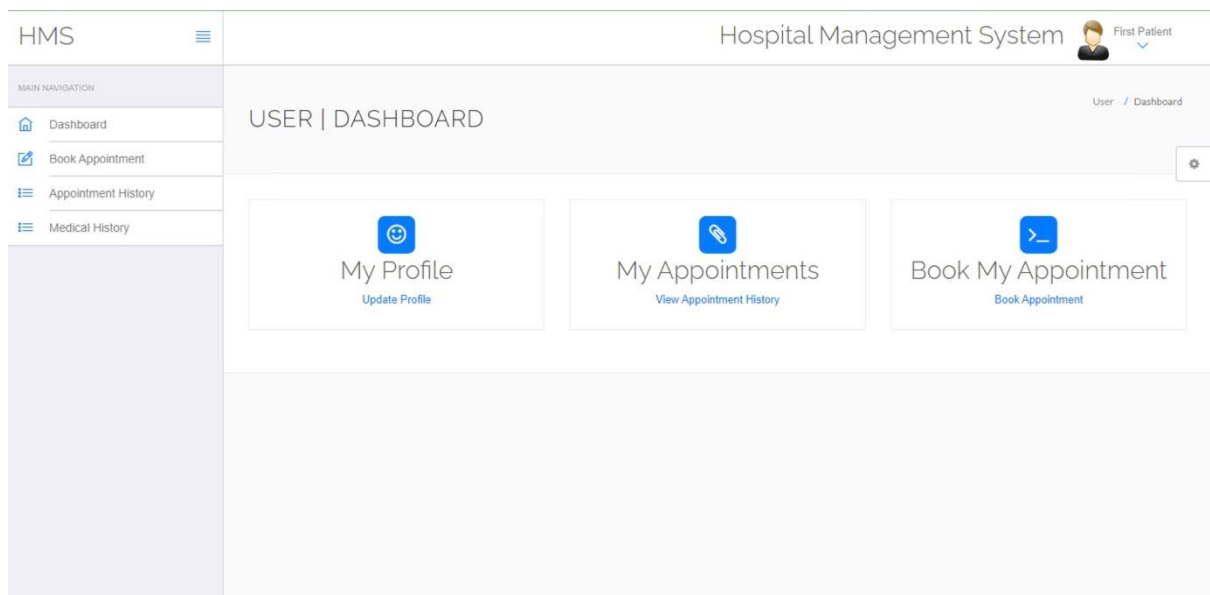


Image 2: The patient registration

HMS | Patient Registration

Sign Up

Enter your personal details below:

Gender

☒ Female ☐ Male

Enter your account details below:

Email available for Registration .

☒ I agree

Already have an account? [Log-in](#)

Submit

Image 3: The Add Doctor Page

HMS

MAIN NAVIGATION

- Dashboard
- Doctors
- Users
- Patients
- Appointment History
- Consults Queries
- Doctor Session Logs
- User Session Logs
- Reports
- Pages
- Patient Search

Hospital Management System

Admin

ADMIN | ADD DOCTOR

Admin / Add Doctor

Add Doctor

Doctor Specialization

Select Specialization

Doctor Name

Enter Doctor Name

Doctor Clinic Address

Enter Doctor Clinic Address

Doctor Consultancy Fees

Enter Doctor Consultancy Fees

Doctor Contact no

Enter Doctor Contact no

Image 4: The Doctor Dashboard

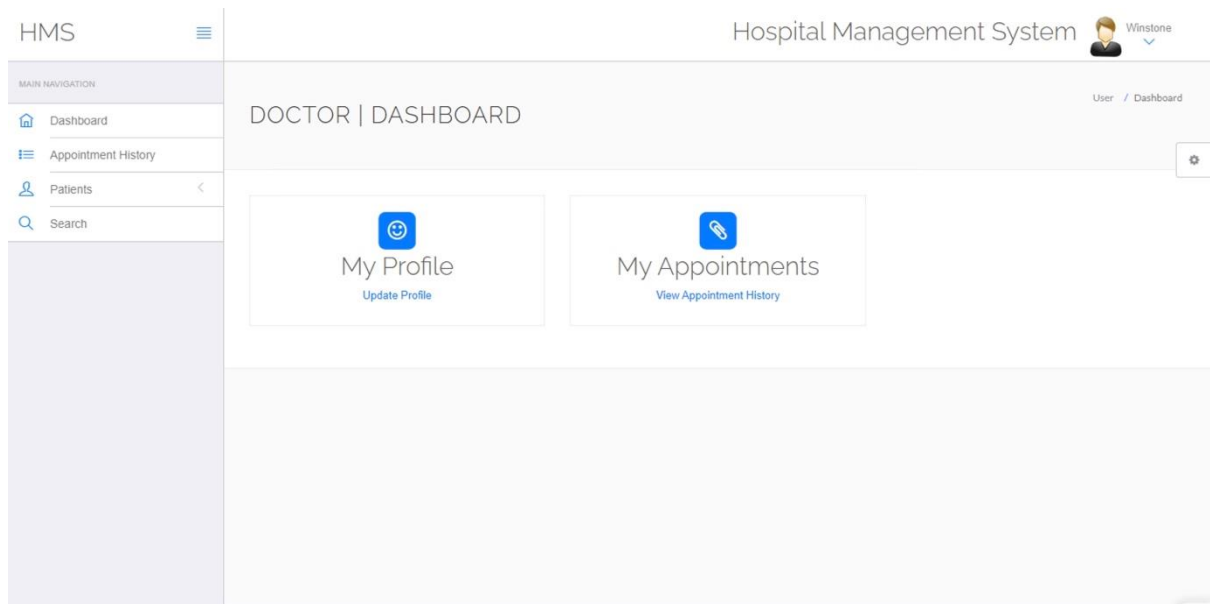


Image 5: The Add Patient Page

The screenshot shows the 'Add Patient' form within the 'HMS' interface. The sidebar and header are identical to Image 4. The main content area contains a form with the following fields: 'Patient Name', 'Patient Contact no', 'Patient Email', 'Gender' (with radio buttons for Female and Male), 'Patient Address', 'Patient Age', and 'Medical History'. Each text field has a placeholder 'Enter Patient [field name]'. The 'Medical History' field includes the placeholder 'Enter Patient Medical History(if any)'. A blue 'Add' button is located at the bottom left of the form.

Image 6: The Book Appointment Interface

The screenshot displays a web application interface for booking an appointment. On the left is a sidebar with a 'MAIN NAVIGATION' menu containing 'Dashboard', 'Book Appointment', 'Appointment History', and 'Medical History'. The top header shows 'USER | BOOK APPOINTMENT' and a user profile icon. The main content area is titled 'Book Appointment' and contains a form with the following fields: 'Doctor Specialization' (text input with 'General Surgery'), 'Doctors' (a dropdown menu with 'Select Doctor' and 'Winstone' options), 'Date' (text input), and 'Time' (text input with '7:15 PM' and an example 'eg: 10:00 PM'). A 'Submit' button is located at the bottom of the form. A settings gear icon is visible on the right side of the main content area.

Image 7: An example of an alert

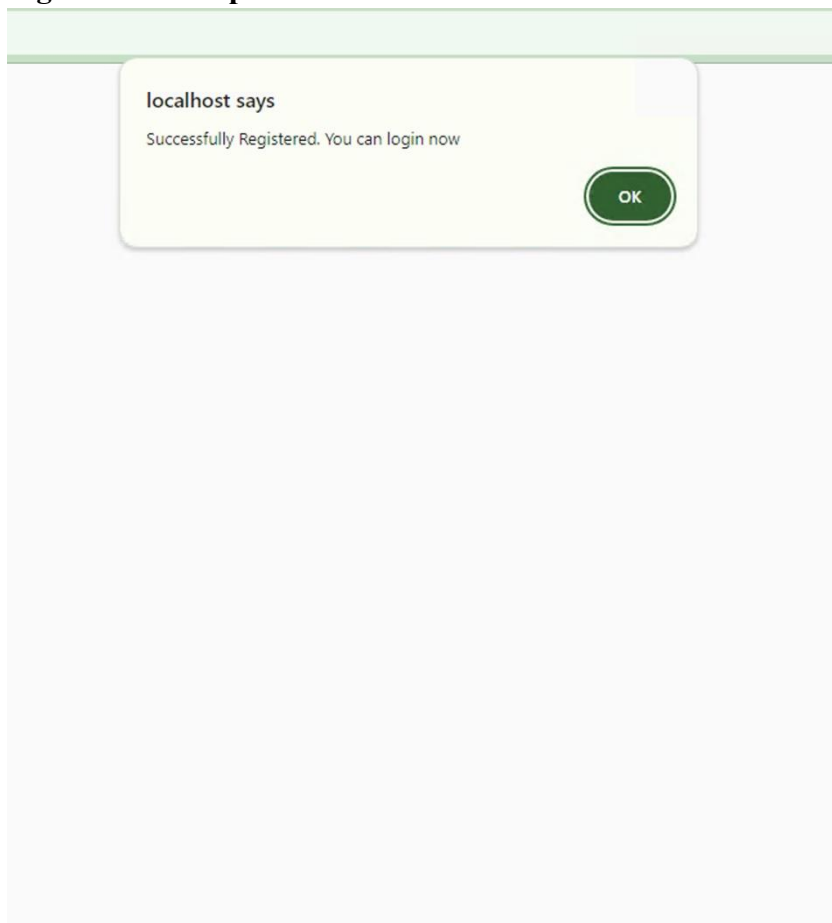
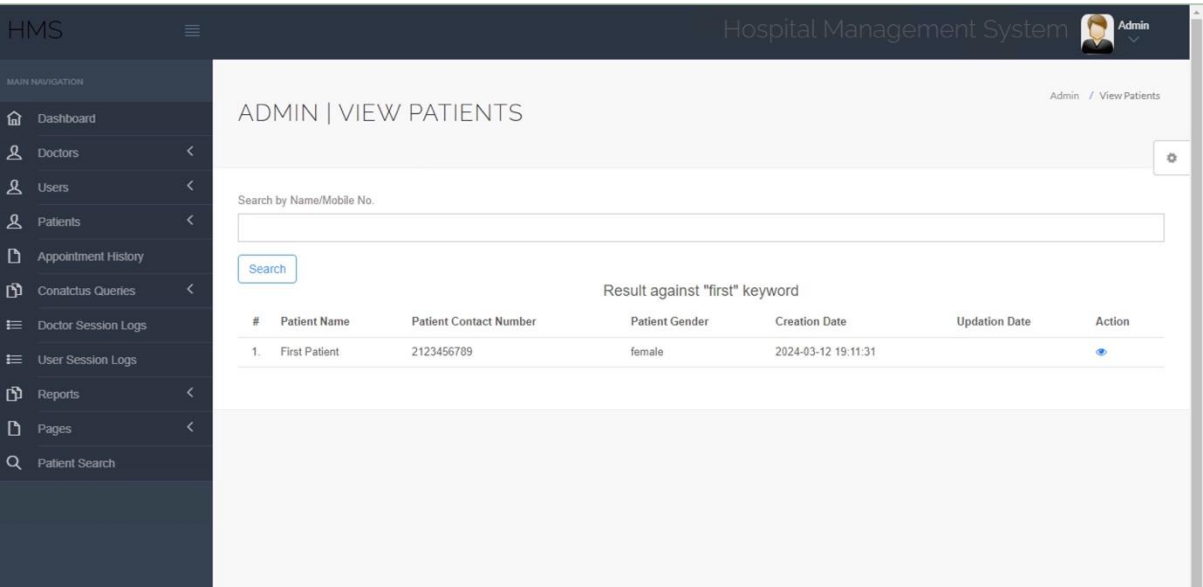


Image 8: The Admin Panel – View Patients Interface



User Manual:

How to Use the Program.

General:

Every user interacting with the Hospital Management System must have an account with unique credentials. These include a unique username or email address and a unique password.

The Admin creates the accounts for Doctors while the patients create their own accounts.

Moreover, each user has a dashboard adapted to the category they belong to, that is the Doctor, Administrator and the Patient categories have different dashboards.

The URL <http://localhost/hospital/hospital/> redirects to the HMS landing. From the landing page, each user takes a different path based on the category and privilege.

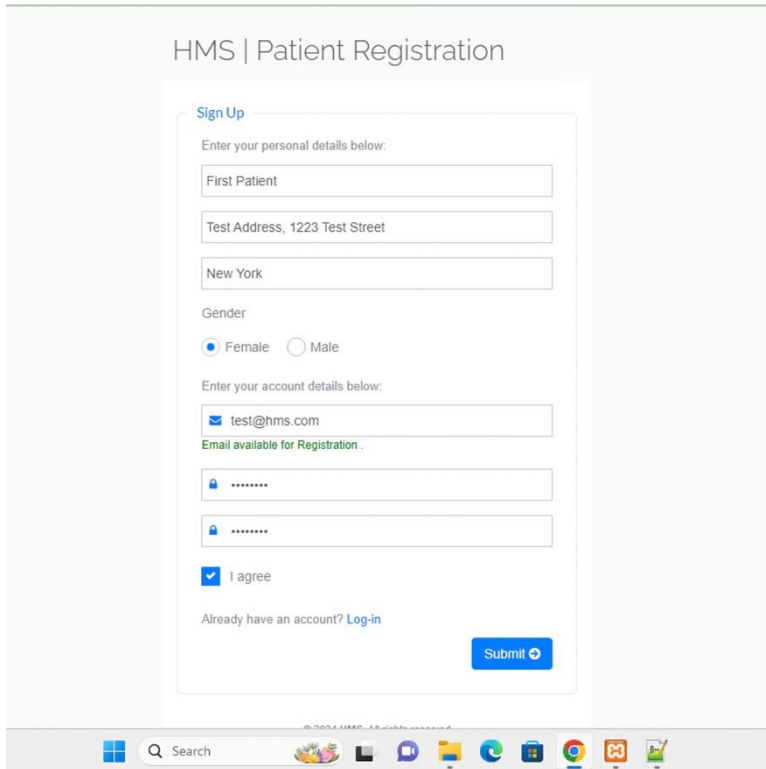
The Patient

How to Login:

1. In the Logins section, click on the Click Here button in the Patient Login section.
2. In the Patient Login page, enter the email address and password
3. Click on the Login button

How to Sign up:

1. In the Logins section, click on the Click Here button in the Patient Login section.
2. On the Patient Login page, click on the text “Create an account”
3. Fill in the required details and click on the Submit button

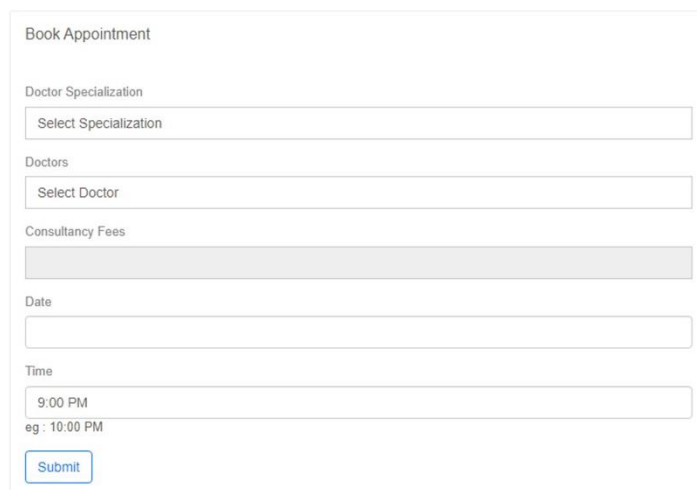


The screenshot shows a web browser window displaying the 'HMS | Patient Registration' page. The main heading is 'Sign Up'. Below it, there's a section 'Enter your personal details below:' with three text input fields: 'First Patient', 'Test Address, 1223 Test Street', and 'New York'. Below these is a 'Gender' section with two radio buttons: 'Female' (selected) and 'Male'. Another section 'Enter your account details below:' follows, with three input fields: an email field containing 'test@hms.com' with a green message 'Email available for Registration .', a password field with masked characters, and a confirmation password field also with masked characters. There is a checked checkbox for 'I agree' and a link for 'Log-in' for existing users. A blue 'Submit' button is at the bottom right of the form. The browser's taskbar is visible at the bottom.

How to Make Appointments.

1. In the Patient Dashboard, select Book Appointment in the Menu on the Left
2. Fill in the required details then select submit.

USER | BOOK APPOINTMENT



The screenshot shows a 'Book Appointment' form. It contains several input fields: 'Doctor Specialization' with a dropdown menu showing 'Select Specialization', 'Doctors' with a dropdown menu showing 'Select Doctor', 'Consultancy Fees' with a greyed-out input field, 'Date' with a date picker, and 'Time' with a time picker showing '9:00 PM' and an example 'eg : 10:00 PM'. A blue 'Submit' button is located at the bottom left of the form.

Cancel Appointment:

- 1. To cancel appoint, navigate to the Appointment History option in the Menu on the Left
- 2. In the Appointments listed click on the Cancel option on the right end of the chosen appointment.
- 3. Choose OK option in the alert that appears on top of the page.
- 4. An alert appears in Red to show the success fo the operation.

USER | APPOINTMENT HISTORY

User / Appointment History

#	Doctor Name	Specialization	Consultancy Fee	Appointment Date / Time	Appointment Creation Date	Current Status	Action
1.	Winstone	General Surgery	200	2024-03-14 / 7:15 PM	2024-03-12 19:17:58	Active	Cancel
2.	Winstone	General Surgery	200	2024-03-14 / 7:15 PM	2024-03-12 19:19:31	Active	Cancel

localhost says

Are you sure you want to cancel this appointment ?

OK

Cancel

tor Name	Specialization	Consultancy Fee	Appointment Date / Time	Appointme
stone	General Surgery	200	2024-03-14 / 7:15 PM	2024-03-12
stone	General Surgery	200	2024-03-14 / 7:15 PM	2024-03-12

Your appointment canceled !!

#	Doctor Name	Specialization	Consultanc
1.	Winstone	General Surgery	200
2.	Winstone	General Surgery	200

The Doctor

How to Login:

1. In the Logins section, click on the Click Here button in the Doctors Login section.
2. In the Doctors Login page, enter the email address and password
3. Click on the Login button

HMS | Doctor Login

[Sign in to your account](#)

Please enter your name and password to log in.

You have successfully logout

 Username

 Password

This field is required.

[Forgot Password ?](#)

Login 

HOSPITAL MANAGEMENT SYSTEM

How to Add Patients:

1. In the Doctors Dashboard, Add Patient in the Menu on the Left
2. Fill in the required details then select Add.

HMS Hospital Management System

MAIN NAVIGATION

- Dashboard
- Appointment History
- Patients
- Search

Add Patient

Patient Name
Enter Patient Name

Patient Contact no
Enter Patient Contact no

Patient Email
Enter Patient Email id

Gender
☐ Female ☐ Male

Patient Address
Enter Patient Address

Patient Age
Enter Patient Age

Medical History
Enter Patient Medical History(if any)

Add

Instructions:

This project was developed and tested using Xampp web server

Environment setup and to install the system, follow these steps:

1. First, download a PHP-enabled web server such as Xampp from the given link.
<https://www.apachefriends.org/download.html> click on next on all the pop-ups and then click on finish.
2. Then open the Xampp and Ensure the Apache server and SQL server runs by clicking on start.
3. Clone the code from github and copy the Source_code_Phase1 folder.
4. Then in local disk C open xampp then navigate to htdocs then paste the Source_Code_Phase1 folder in htdocs.
5. Now click on Admin on MySQL in Xampp then it will redirect to phpMyAdmin then create a new database hms by clicking on New.
6. Then open database hms that you have created and import the hms.sql file which is present in backend folder in Source_Code_Phase1 (Path: Source_Code_Phase1/Backend).
7. Now open Xampp and click Admin on Apache or Mysql then enter this URL
http://localhost/Source_Code_Phase1 to run the project.

Peer Review:

At the start of this Deliverable we have initiated a group meeting to discuss on the development phase 1 functionalities. Here we decided to go with PHP because of its better performance and good interface to our project. As PHP is a fast executed language with webserver Apache. As we were also using the same webserver So, we decided to use PHP and for Database we have used the mysql. As our all team members were know the basics of PHP but we could be able to learn and implement as it is easy to grab quickly. During this meeting all team members were assigned with tasks on different functionalities development.

Then, We had another meeting to go through the progress of the work that we have assigned during our first meeting. Then we have gone through the loop wholes that are effecting our coding standards and the database structures. Then we thought of some ways to implement the code to meet the standards.

During our last meeting we have planned to see the efficiency and working of the code to make sure that all test cases are passed. As far we have developed the functionalities of phase1.

Reflections:**What has been accomplished:**

We have developed the functionalities of our development phase - 1 which we have mentioned in deliverable 2.

What went well:

Team coordination and support. Everyone supported and involved in learning PHP and using it to develop initial phase of our project.

What could be improved:

There is some miscommunication happened in our understandings. We need to improve that in order to have good implementation.

Member Contribution Table:

Member Name	Contribution Description	Overall Contribution(%)	Note: if applicable
Anusha	Worked on development of front - end interface of patient, doctor and admin. And could be able to integrate different code functionality modules in to single application. I wrote Requirements as part of the report.	100%	
Vishwitha	Worked on development of Back - end for patient, doctor and admin portals. And have done data binding of front end portals with back end. I wrote testcases as part of the report.	100%	
Dinesh	Worked on front end dashboards of patient, doctor and also appointment scheduling interface. I have drawn usecase	100%	

	normal and error case diagrams.		
Deepak	Worked on front end, back end for admin portal. Have created dashboard for admin and doctor session and user session logs. I wrote Reflections, peer review as part of the report.	100%	
Divya Anusha	Worked on implementing the search functionality for both admin and doctor portals. I have drawn sequence diagram as part of the report.	100%	
Pavan	Worked on patient profile database and appointment database management. I wrote User manual and instructions as part of the report.	100%	
Jaswanth	Worked on front end interface of reports and pages and contact queries of the admin portal. Worked on	100%	

	connecting the contact queries with backend communication. I wrote introduction as part of the report.		
Tejaswi	Worked on front end interface of home page which includes services which we are offering and description on about us and I have drawn class diagram as part of the report.	100%	