

INTRODUCTION TO DATABASE SYSTEMS

PROJECT

CAMPUS HEALTH NAVIGATOR

Group Members:

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OBJECTIVES:

Comprehensive Healthcare System: To develop a system for managing student health records and appointments.

Accessible Health Services: To create a user-friendly platform for students to find and schedule appointments with campus doctors.

Feedback Integration: To implement a feature for students to provide feedback on healthcare services, which will help in improving the quality.

Efficient Staff Management: To organize the information about patients and medical staff schedules.

Quality Improvement: To use the feedback from students to make improvements to the healthcare services and patient experiences.

FEATURES:

Student Profile Management: Stores the student details like their name, roll number, blood group, phone number and emergency contacts.

Appointment Management: Helps the students to easily book, reschedule or cancel appointments with the available healthcare providers with clear details on date and time.

Health Services Directory: Lists all health services available on the campus including descriptions, locations and timings.

Doctor and Staff Profiles: Provides detailed profiles for the campus doctors and reception staff like their qualifications, specializations, contact and availability.

So, it is easy for the students to connect with the right healthcare provider.

Feedback System: Collects feedback from students about the healthcare services to make improvements.

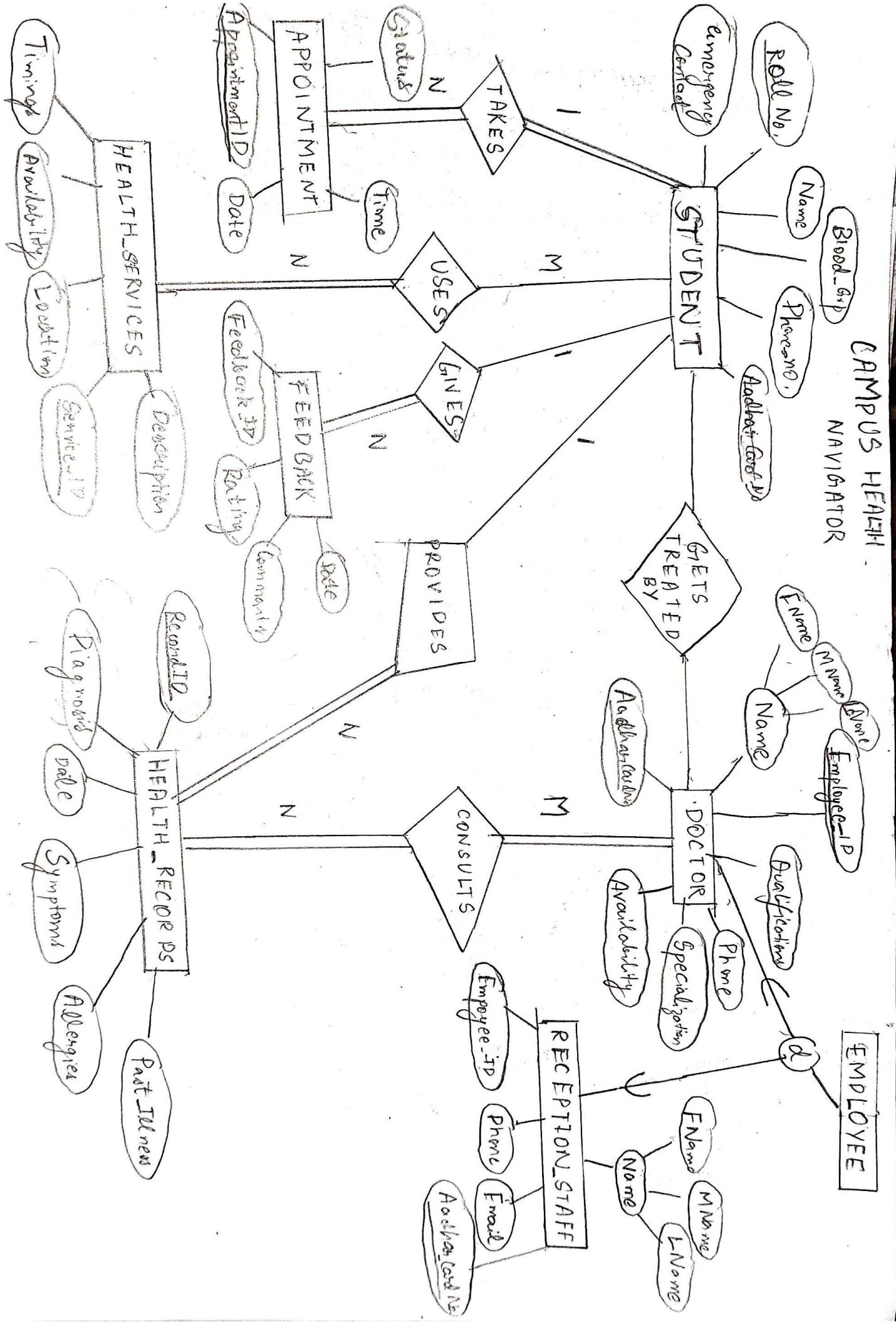
Health Records Management: Maintains a detailed health record for each student like their past illnesses, symptoms, allergies and treatments.

So, that helps in ensuring comprehensive care as there is a good medical history tracking.

We have kept each of these features to work together to create a cohesive healthcare management experience for both students and staff on the campus.

EER DIAGRAM:

CAMPUS HEALTH NAVIGATOR



RELATIONAL MODEL:

STUDENT

(PK) Roll No.	F Name	M Name	L Name	Blood Group	Phone No.
123	Rahul	null	Sharma	O+	9782**
111	Rohit	Mohit	Singh	A+	94**
117	Nihal	null	Singh	A-	99**
:					

DOCTOR

Employee ID	F Name	M Name	L Name	Qualifications	Phone	Specialty
100	Shaun	null	Murphy	M.D., MBBS	977**	Cardiology
101	Neil	null	Melendez	M.BBS	97**	Neurology
102	Claire	null	Bronze	M.D	99**	FR
103	Jared	null	Kahn	M.D	972*	ER
104	Aaron	null	Glassman	MP	977**	Neurology

HEALTH SERVICES						
Service ID	Service Name	Description	Availability	Location	Location	Availability
100	General Checkup	Routine health checkup and Analysis	Monday to Friday, 9AM to 5PM	A Block	A Block	Monday to Friday, 9AM to 5PM
101	Mental Health Support	Counselling and Mental Health advice	By Appointment	A-Block Center	A-Block Center	By Appointment
102	Nutrition Consultation	Personalized dietary guidance	Wednesday, 2PM-6PM	Nutrition Center	Nutrition Center	Wednesday, 2PM-6PM
103	Vaccination Clinic	Immunization Service	Tuesday & Thursday, 10AM-3PM	Health Center B- Block	Health Center B- Block	Tuesday & Thursday, 10AM-3PM
104	Physical Therapy	Rehabilitation and Injury Recovery	Monday & Friday, 1PM-4PM	Sports Complex	Sports Complex	Monday & Friday, 1PM-4PM

HEALTH RECORDS

(PK) Record ID	(FK) RollNo.	(FK) EmployeeID	(FK) ServiceID	Date	Symptoms
1	101	201	1	2024-02-10	Headache, Fatigue
2	102	202	2	2024-02-12	Weight Loss
3	103	203	3	2024-02-15	Anxiety, Stress
4	104	204	4	2024-02-18	Nausea
5	105	205	5	2024-02-20	Joint Pain, Muscle Stiffness

RECEPTION STAFF

Employee-ID	Phone	Email	FName	MName	LName
101	977...	abc@...	Rahul	null	Datta
102	982...	xyz@...	Rohit	null	Malhotra
103	992...	pqr@...	Siddhant	null	Walia

APPOINTMENT

Appointment ID	RollNo.	EmployeeID	ServiceID	Date	Timing	Status
1	101	201	1	2024-02-10	10:30 AM	Completed
2	102	202	3	2024-02-12	02:00 PM	Canceled
3	103	203	2	2024-02-15	11:15 AM	Scheduled
4	104	204	4	2024-02-18	03:45 PM	Completed
5	105	205	5	2024-02-20	01:30 PM	Scheduled

FEEDBACK

Feedback ID	Roll No.	Employee ID	Rating	Comments	Date
1	101	201	4.5	The Doctor was very Helpful	2024.02.11
2	102	202	3.0	Had to wait too long for my appointment	2024.02.13
3	103	203	5.0	Excellent Counselling Service	2024.02.16
4	104	204	4.0	Quick & Efficient Process	2024.02.19
5	105	205	4.5	Physical therapy sessions were effective	2024.02.21

Overview:

Our SQL code provides the backend structure for the Student Health Navigator project.

It includes tables for managing: employees like doctors and receptionists, health services, health records and appointments.

Additionally, we have also included triggers and a stored procedure to automate some tasks and for data retrieval.

Tables:

employee:

Manages the employee details like ID, username, password, email, role, and specialty.

admintb:

Manages the administrator accounts, linked with the employee table via emp_id.

appointmenttb:

Tracks appointments between patients and doctors, capturing various details including status.

contact:

Stores messages or inquiries sent through a contact form.

doctb:

Contains details about registered doctors, linked with the employee table via emp_id.

patreg:

Manages patient registration details for healthcare services.

prestb:

Stores prescription details provided by doctors to patients.

Triggers:

check_doc_fees:

Ensures that the doctor fees do not exceed 1000 before inserting into the doctb table.

doctor_to_employee:

Automatically inserts the employee details when a new doctor is added to the doctb table.

receptionist_to_employee:

Automatically inserts employee details when a new receptionist is added to the admintb table.

delete_doctor_to_employee:

Deletes the corresponding employee details when a doctor is removed from the doctb table.

`delete_receptionist_to_employee:`

Deletes corresponding employee details when a receptionist is removed from the admintb table.

Stored Procedure:

`disp_table:`

Allows the dynamic table display by accepting table names as input and then executes a SELECT query to retrieve the table content.

Foreign Key Constraints and Relationships:

T

Tables are interconnected through foreign key constraints to maintain data integrity and relationships.

For example:

`doctor_id` in `health_services` references `emp_id` in `doctb`.

`service_id` in `appointmenttb` references `service_id` in `health_services`.

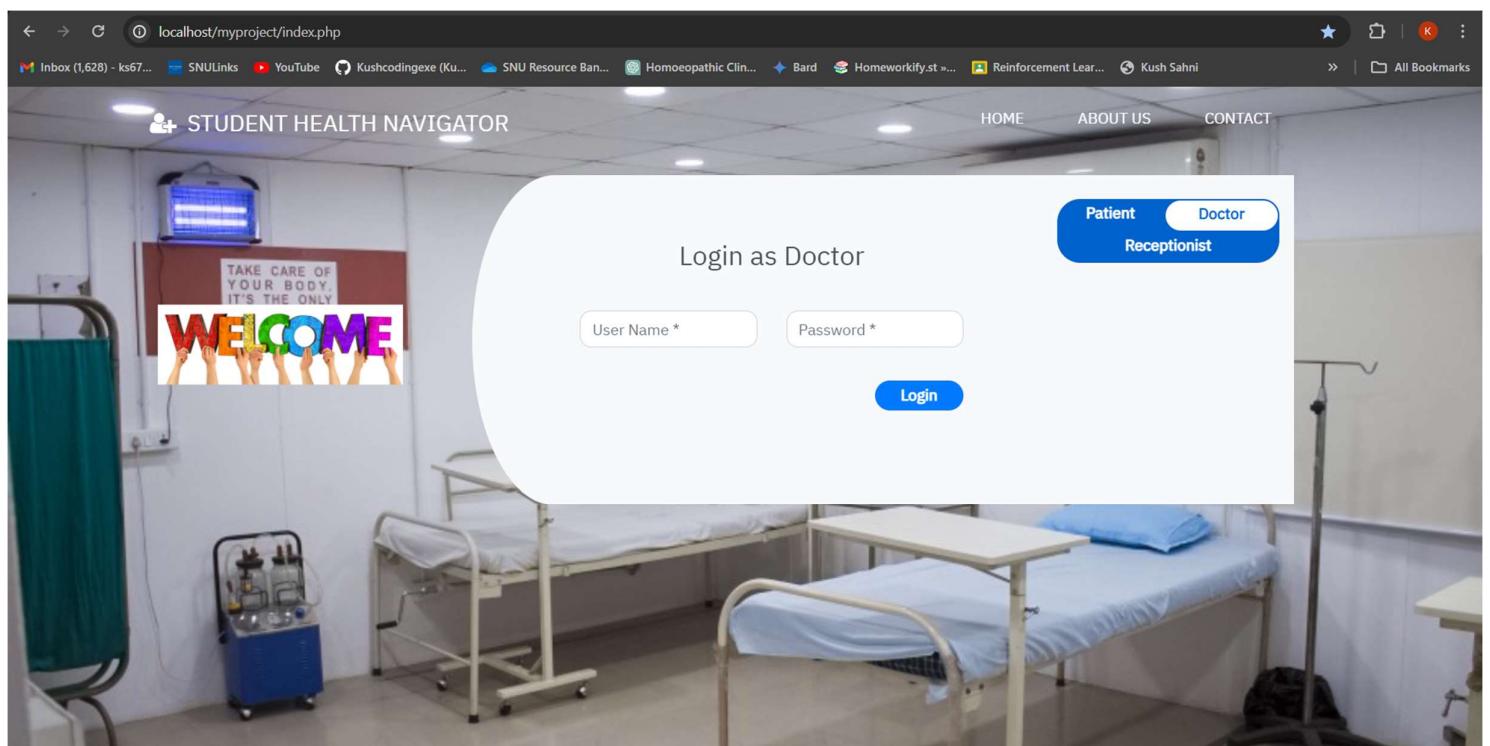
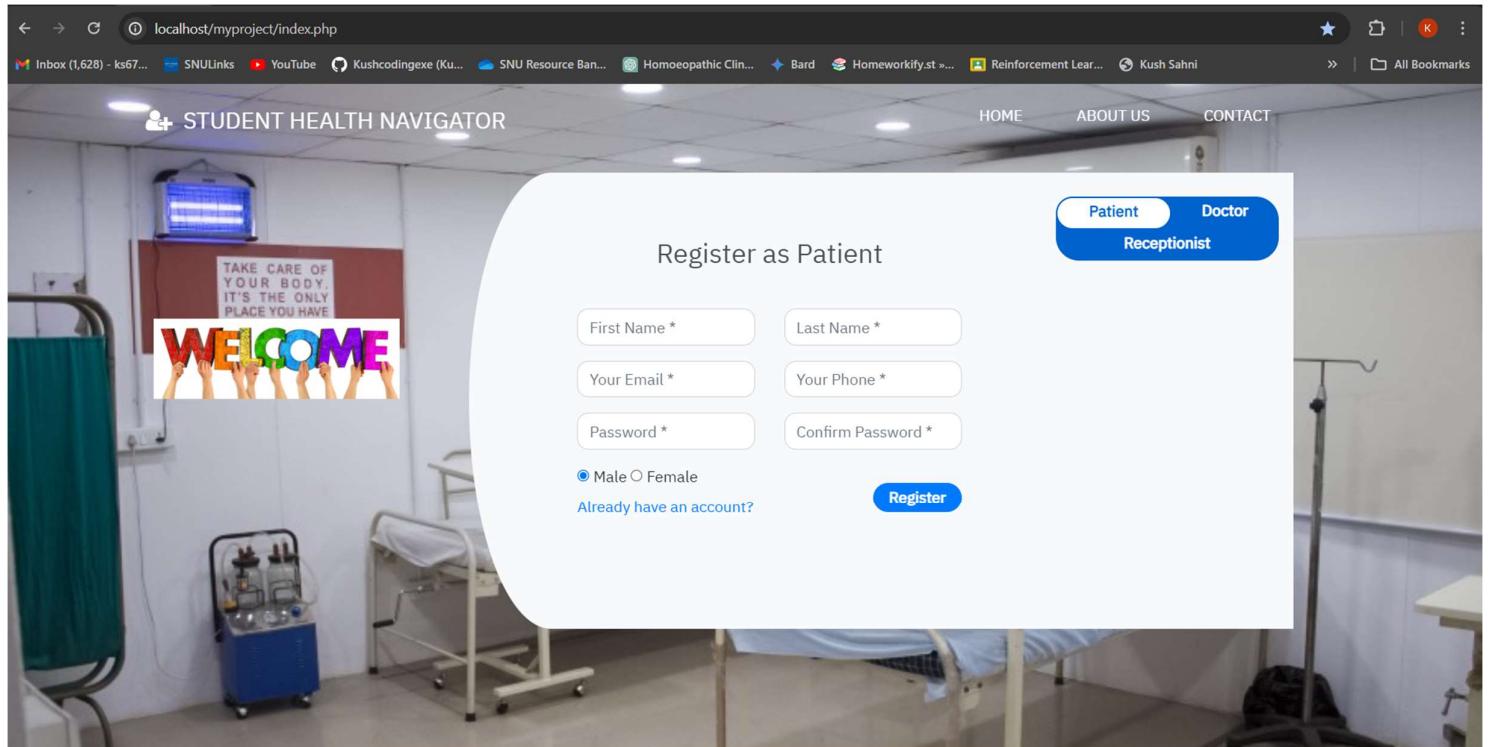
`pid` in `prestb` and `appointmenttb` references `pid` in `patreg`.

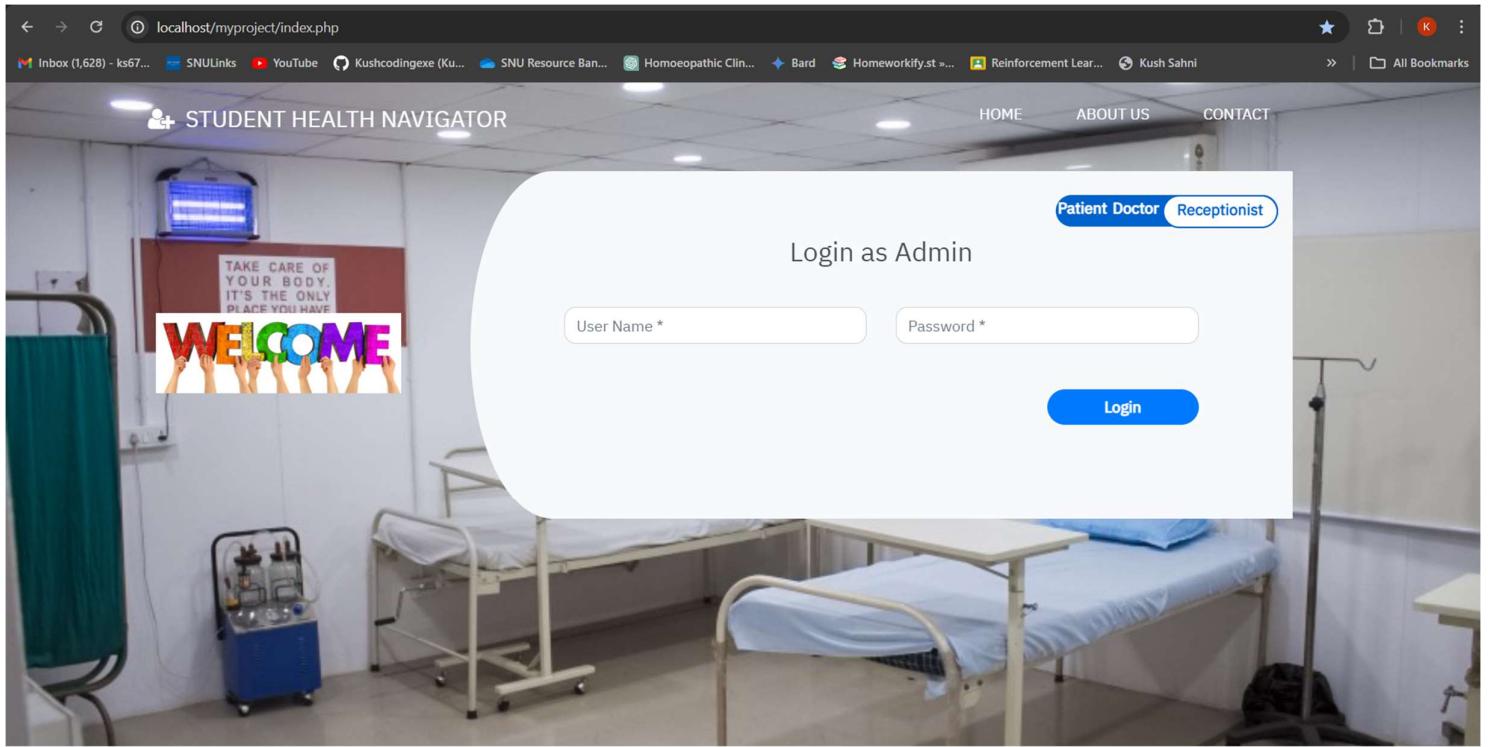
Auto-Increment:

`service_id` in `health_services` is set to auto-increment from 101 to make sure that there is unique identification for each health service.

FRONTEND

The Student Health Navigator Management System implemented in PHP and MySQL includes a homepage where patients, doctors, and administrators can access their accounts by switching between the tabs designed for each user type.

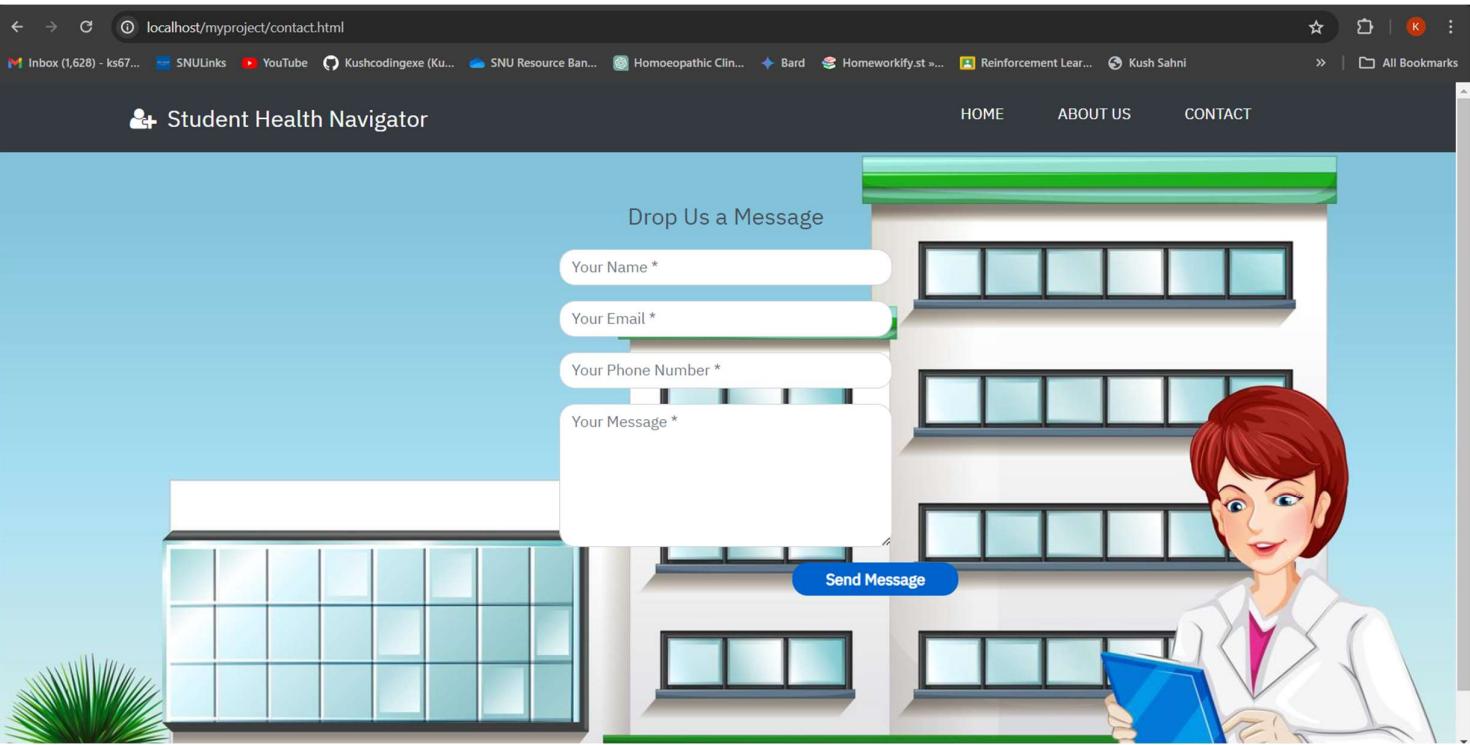




The "About Us" page provides additional details regarding the health center's quality standards and services, which allows the visitors to gain a deeper understanding of the institution.

A screenshot of a web browser showing the "Student Health Navigator" services page. The header includes a logo and links for "HOME", "ABOUT US", and "CONTACT". The main content features a green background with a portrait of a smiling female doctor wearing a white coat and blue stethoscope. On the left, there are three bullet points with checkmarks: "Hygenic Premium healthcare service for all", "Choose your favourite services", and "Only use friendly environment". Each point has a brief description below it. A "LEARN MORE >" button is located at the bottom of the list.

The feedback page on the health center's website offers visitors the opportunity to share their experiences, suggestions and comments to help in improving the services provided.



FUNCTIONALITIES OF OUR FRONTEND WEB DESIGN:

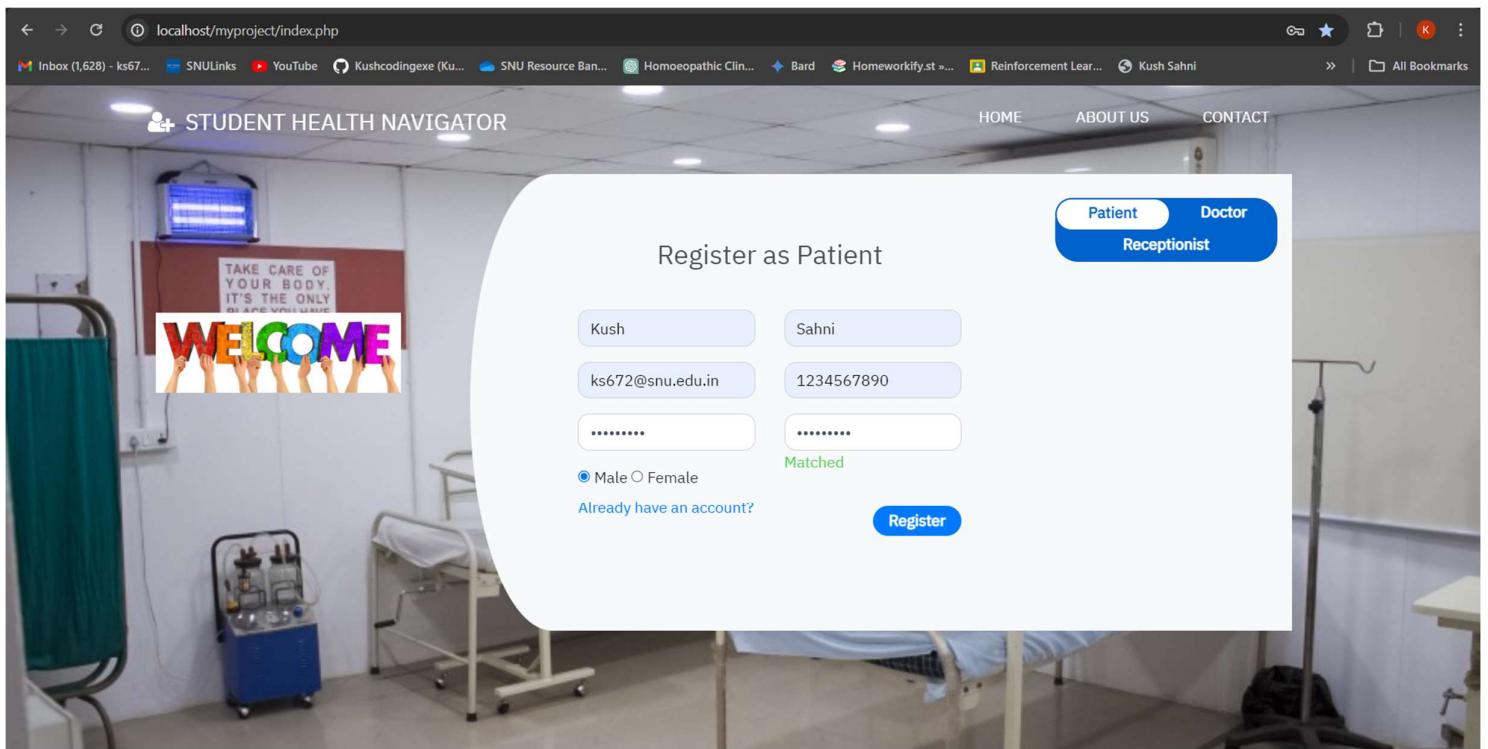
The 'Home' page has three distinct modules:

1. Patient Module
2. Doctor Module
3. Receptionist Module

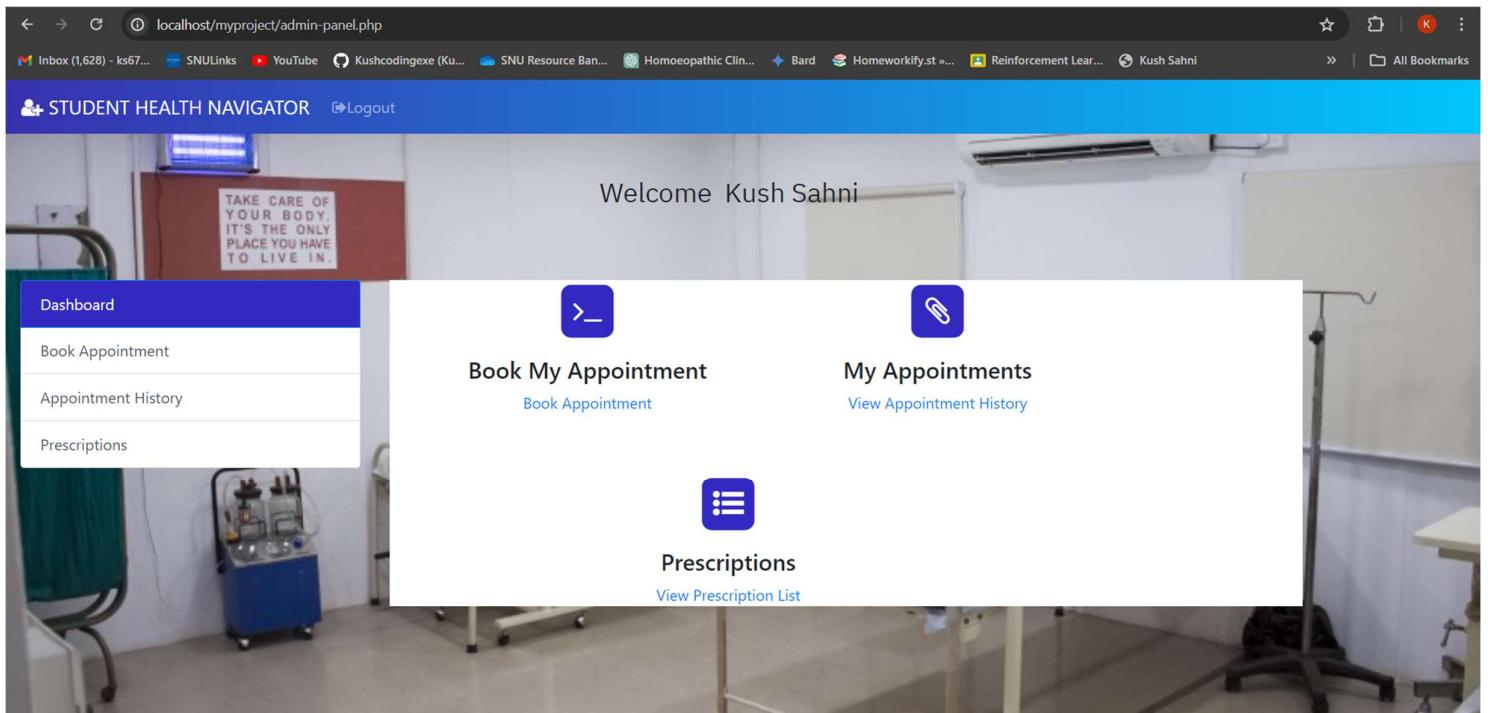
The Patient Module enables individuals to register accounts, schedule appointments with physicians, and view their appointment history.

Within the registration section on the homepage, patients are prompted to input their First Name, Last Name, Email Address, Contact Number, Password, and select their gender using radio buttons.

Creating a new Patient (Kush Sahni) and filling all the necessary details for First time registration:



Upon clicking the 'Register' button and completing the account creation process, the patient will be automatically redirected to their personalized dashboard.



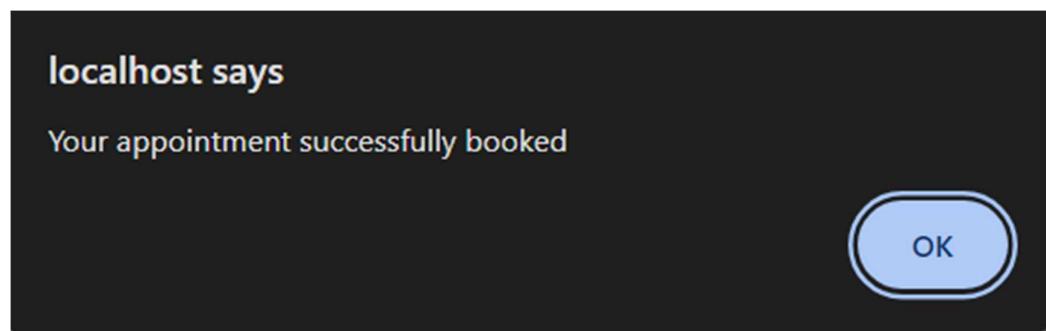
The Dashboard page offers patients the ability to perform two main functions:
Schedule an appointment:

In this section, patients can schedule appointments to meet with a doctor of their choice. The appointment form prompts patients to select their preferred doctor, desired date and time for the appointment.

The consultation fee will be displayed based on the doctor's predetermined rate.

A screenshot of a web-based application titled "STUDENT HEALTH NAVIGATOR". The main header says "Welcome Kush Sahni". On the left, there is a sidebar with options: "Dashboard" (white), "Book Appointment" (blue, currently selected), "Appointment History" (white), and "Prescriptions" (white). The main content area has a title "Create an appointment". It contains several input fields: "Specialization" dropdown set to "Dermatologist", "Doctors" dropdown set to "johnsmith", "Consultancy Fees" input field set to "850", "Appointment Date" input field set to "23-04-2024", and "Appointment Time" dropdown set to "10:00 AM". At the bottom is a blue button labeled "Create new entry". The background shows a clinical setting with medical equipment and a sign that reads "TAKE CARE OF YOUR BODY, IT'S THE ONLY PLACE YOU HAVE".

Upon clicking the 'Create new entry' button, the patient will receive a notification confirming the successful booking of their appointment.



Now as you can see in below figure, accessing the Appointment History feature allows patients to view their past appointments, including details such as the doctor's name, consultation fee, appointment date and time.

Welcome Kush Sahni

Doctor Name	Consultancy Fees	Appointment Date	Appointment Time	Current Status	Action
johnsmith	850	2024-04-28	10:00:00	Active	<button>Cancel</button>

Within the Doctor Module, doctors can access their accounts by switching tabs from 'Patient' to 'Doctor'.

The Screenshot below displays the login form designed for doctors.

The registration of doctor accounts is exclusively managed by the receptionist, it is a topic that will be elaborated upon in the Receptionist Module discussion.

Logging in to Doctor's Dashboard (John Smith):

STUDENT HEALTH NAVIGATOR

HOME ABOUT US CONTACT

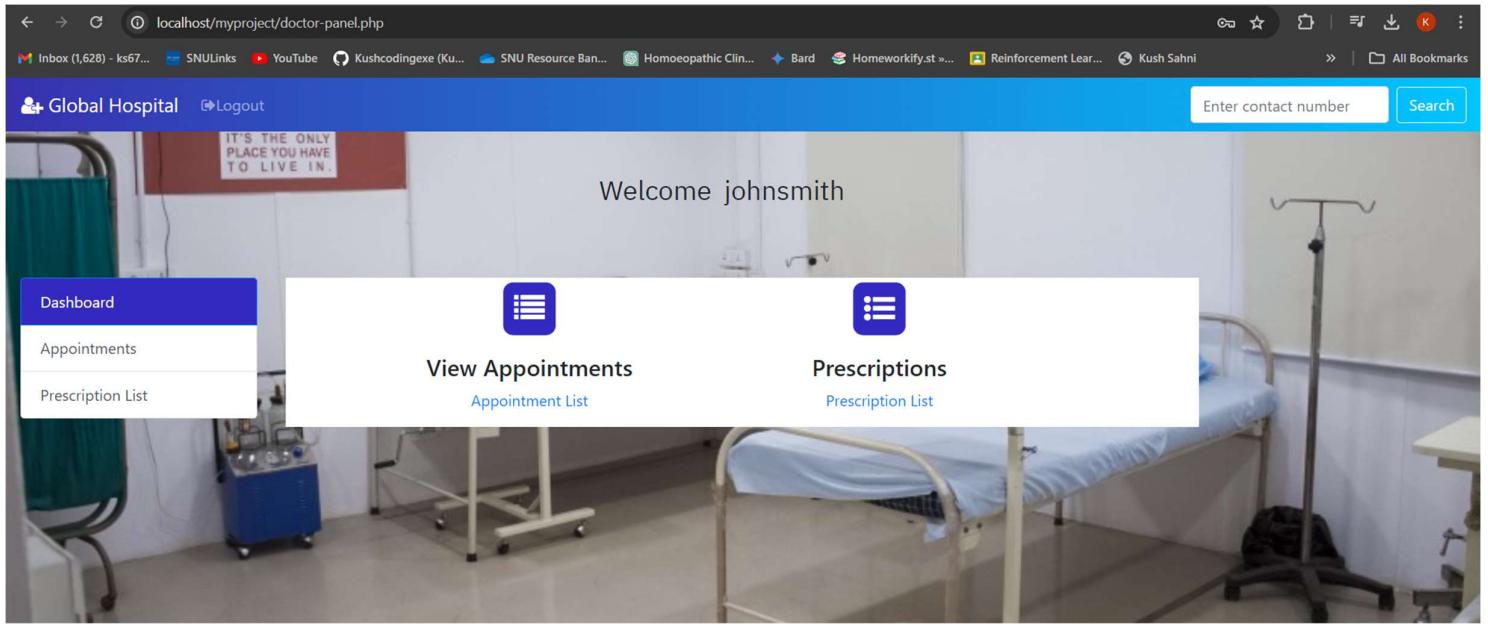
Patient Doctor Receptionist

Login as Doctor

johnsmith

Login

Upon clicking the 'Login' button, doctors will be directed to their dedicated dashboard, as depicted in below Screenshot:



On this page, doctors can view appointments booked by patients.

The Screenshot below illustrates an appointment for the doctor 'John Smith' scheduled by the patient 'Kush Sahni.' So, this indicates that 'John Smith' is scheduled to meet 'Kush Sahni' on April 24, 2024, at 10 AM.

In practice, doctors often manage many appointments, making it important to facilitate easy searching.

To streamline this process, a 'Search' box is integrated into the navigation bar where doctors can search for patients using their contact numbers.

Patient ID	Appointment ID	First Name	Last Name	Gender	Email	Contact	Appointment Date	Appointment Time	Current Status	Action	Prescribe
111	1007	Kush	Sahni	Male	ks672@snu.edu.in	1234567890	2024-04-23	10:00:00	Active	<button>Cancel</button>	<button>Prescribe</button>

Also, doctors can provide their prescriptions to their patients by clicking on the Prescribe Button or else they can cancel if something feels as inappropriate.

localhost/myproject/prescribe.php?pid=111&ID=1007&fname=Kush&lname=Sahni&appdate=2024-04-23&apptime=10:00:00

Inbox (1,628) - ks67... SNULinks YouTube Kushcodingexe (Ku... SNU Resource Ban... Homoeopathic Clin... Bard Homeworkify.st ... Reinforcement Lear... Kush Sahni All Bookmarks

STUDENT HEALTH NAVIGATOR Logout Back

Welcome johnsmith

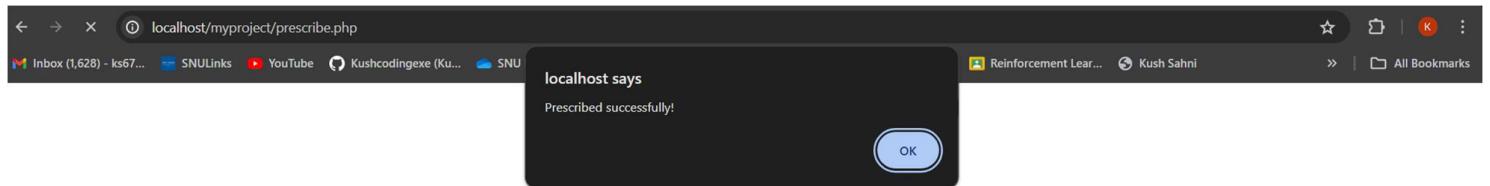
Disease: rash on skin

Allergies: None

Prescription: Apply Calendula Ointment twice a day

Prescribe

Upon clicking the Prescribe button, we are prompted by a notification telling us if the prescription process went successfully or not.



The Doctors can then view their Prescription History for confirmation.

The screenshot shows a patient dashboard titled "Global Hospital". On the left, there's a sidebar with links: "Dashboard", "Appointments", and "Prescription List" (which is highlighted in blue). The main area displays a prescription table with the following data:

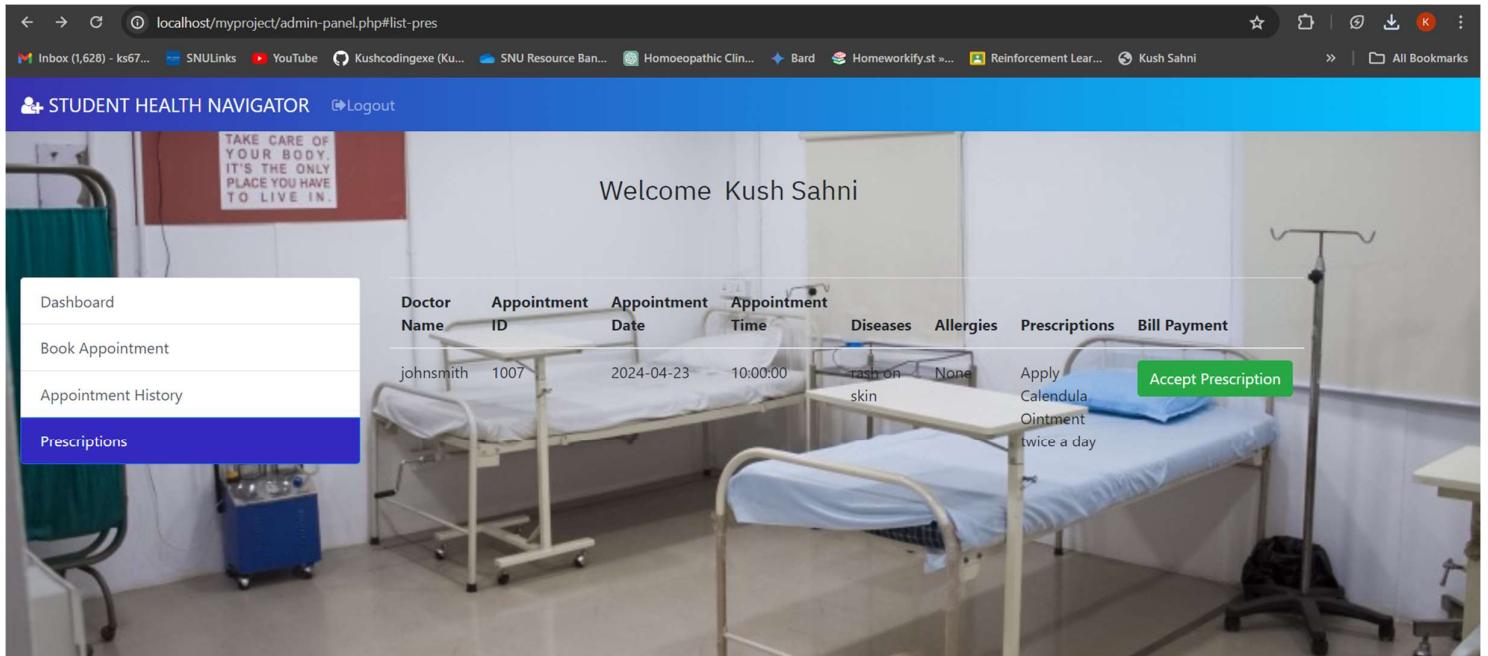
Patient ID	First Name	Last Name	Appointment ID	Appointment Date	Appointment Time	Disease	Allergy	Prescribe
111	Kush	Sahni	1007	2024-04-23	10:00:00	rash on skin	None	Apply Calendula Ointment twice a day

The background of the dashboard is a photograph of a hospital room with two beds and medical equipment.

Once the patient has logged out of his account, if he wants to go into his account again, he can login his account instead of registering to his account again. The snippet below shows the login page. Clicking on 'Login' button will then redirect the patient to his dashboard page, which we have seen earlier.

The screenshot shows a "Patient Login" form overlaid on a photograph of a hospital room. The login form includes fields for "Email-ID" (containing "ks672@snu.edu.in") and "Password" (containing "*****"), and a "Login" button. The background image shows a hospital room with two beds, medical equipment, and a sign that says "TAKE CARE OF YOUR BODY, IT'S THE ONLY PLACE TO".

The Patient (Kush Sahni) now sees the Prescription given by Dr. Will Smith and can accept the same in order to get a pdf document for the prescription.



The Prescription document is thereby generated following the clicking on Accept Prescription button by the Patient.

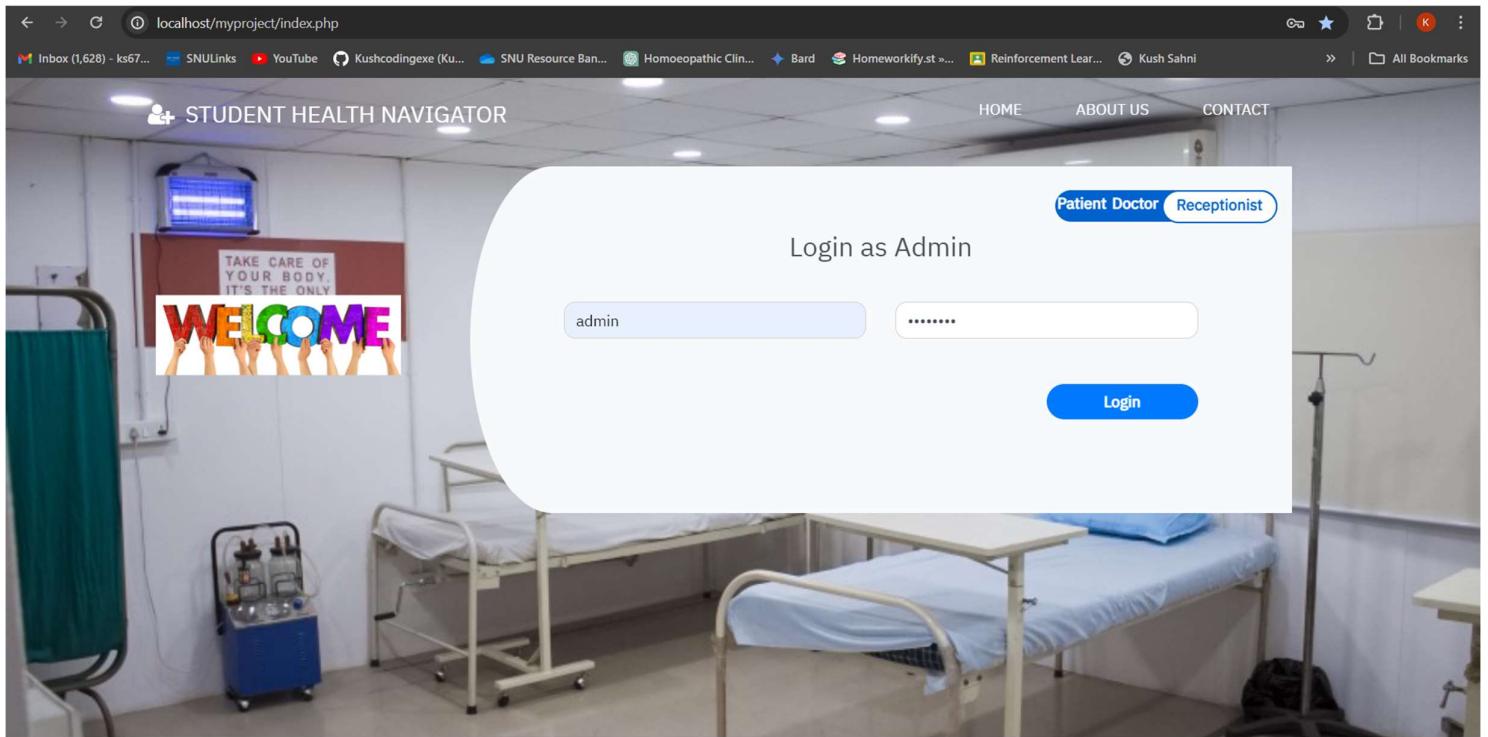
The screenshot shows a generated prescription document titled "STUDENT HEALTH NAVIGATOR Prescription". The document contains the following details:

Patient ID : 111
Appointment ID : 1007
Patient Name : Kush Sahni
Doctor Name : johnsmith
Appointment Date : 2024-04-23
Appointment Time : 10:00:00
Disease : rash on skin
Allergies : None
Prescription : Apply Calendula Ointment twice a day
Fees Paid : 850

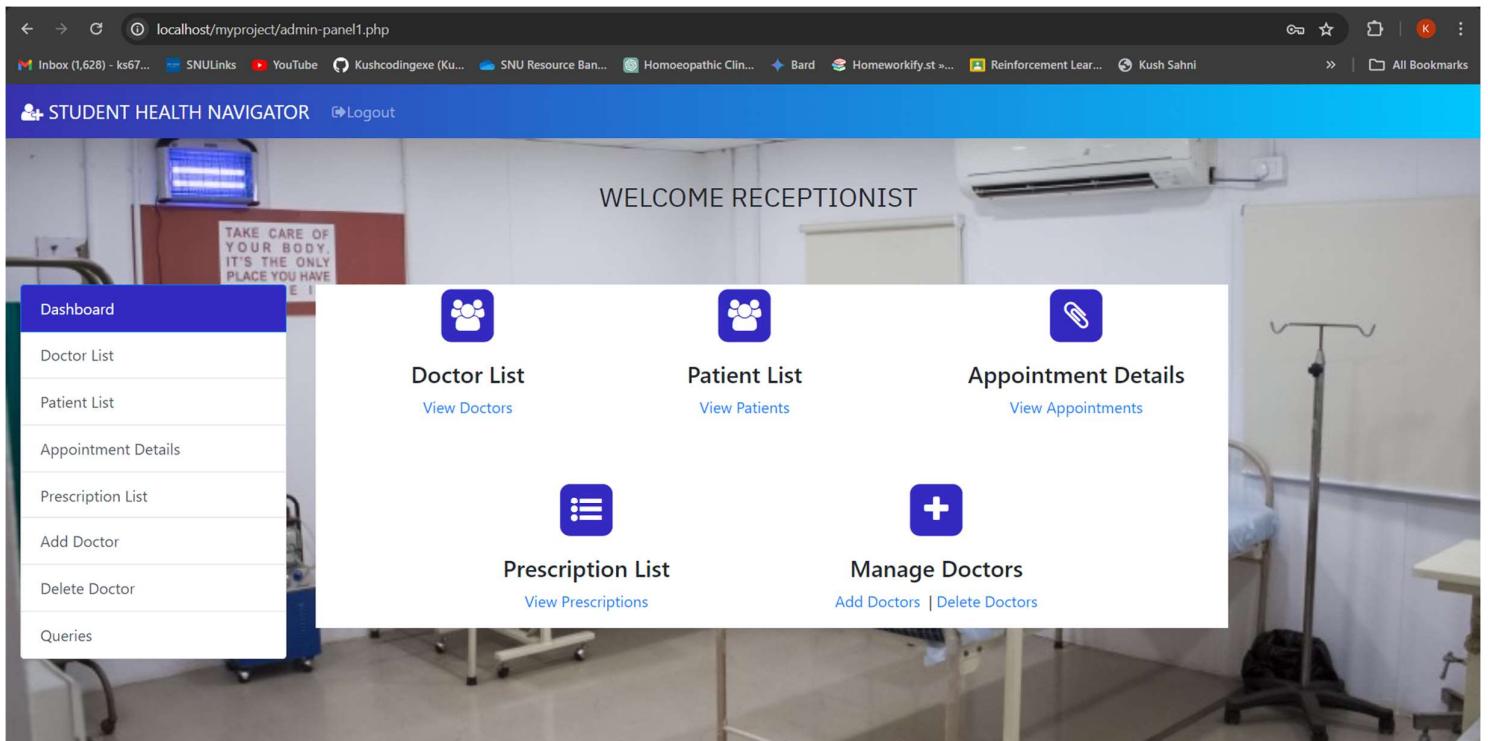
The Receptionist Module serves as the central component of our project, providing administrators with access to comprehensive lists of patients, doctors, appointments and feedbacks/queries received from the 'Contact' page. Additionally, administrators have the ability to ADD or DELETE doctors.

Logging into the admin account is achieved by switching to the admin tab on the Home page. The screenshot below illustrates the admin login page with the credentials: username - admin, password - admin123.

Logging in as Receptionist (Username: admin Password: admin123):



Upon clicking the 'Login' button, the admin will be directed to their personalized dashboard, depicted in the screenshot below:



This module empowers the Receptionist to execute five key operations:

Access the complete list of registered patients:

The Receptionist can view all registered patients, including their First Name, Last Name, Email ID, Contact Number, and Password (refer to Figure 1.15).

Similar to the doctor module, the admin can utilize the search box to find a patient by their contact number.

The screenshot shows a web-based application titled "STUDENT HEALTH NAVIGATOR". The main header says "WELCOME RECEPTIONIST". On the left, there's a sidebar with links: Dashboard, Doctor List, Patient List (which is highlighted in blue), Appointment Details, Prescription List, Add Doctor, Delete Doctor, and Queries. The main content area has a search bar labeled "Enter Contact" with a "Search" button. Below it is a table with columns: Patient ID, First Name, Last Name, Gender, Email, Contact, and Password. The table contains 8 rows of sample data. The background of the page shows a hospital room with beds and medical equipment.

Patient ID	First Name	Last Name	Gender	Email	Contact	Password
101	John	Doe	Male	john.doe@example.com	9876543210	john123
102	Jane	Smith	Female	jane.smith@example.com	8765432109	jane456
103	Michael	Johnson	Male	michael.johnson@example.com	7654321098	michael789
104	Emily	Williams	Female	emily.williams@example.com	6543210987	emily123
105	David	Brown	Male	david.brown@example.com	5432109876	david456
106	Sarah	Taylor	Female	sarah.taylor@example.com	4321098765	sarah789
107	Matthew	Anderson	Male	matthew.anderson@example.com	3210987654	matthew123
108	Olivia	Martinez	Female	olivia.martinez@example.com	2109876543	olivia456

Access the complete list of registered doctors:

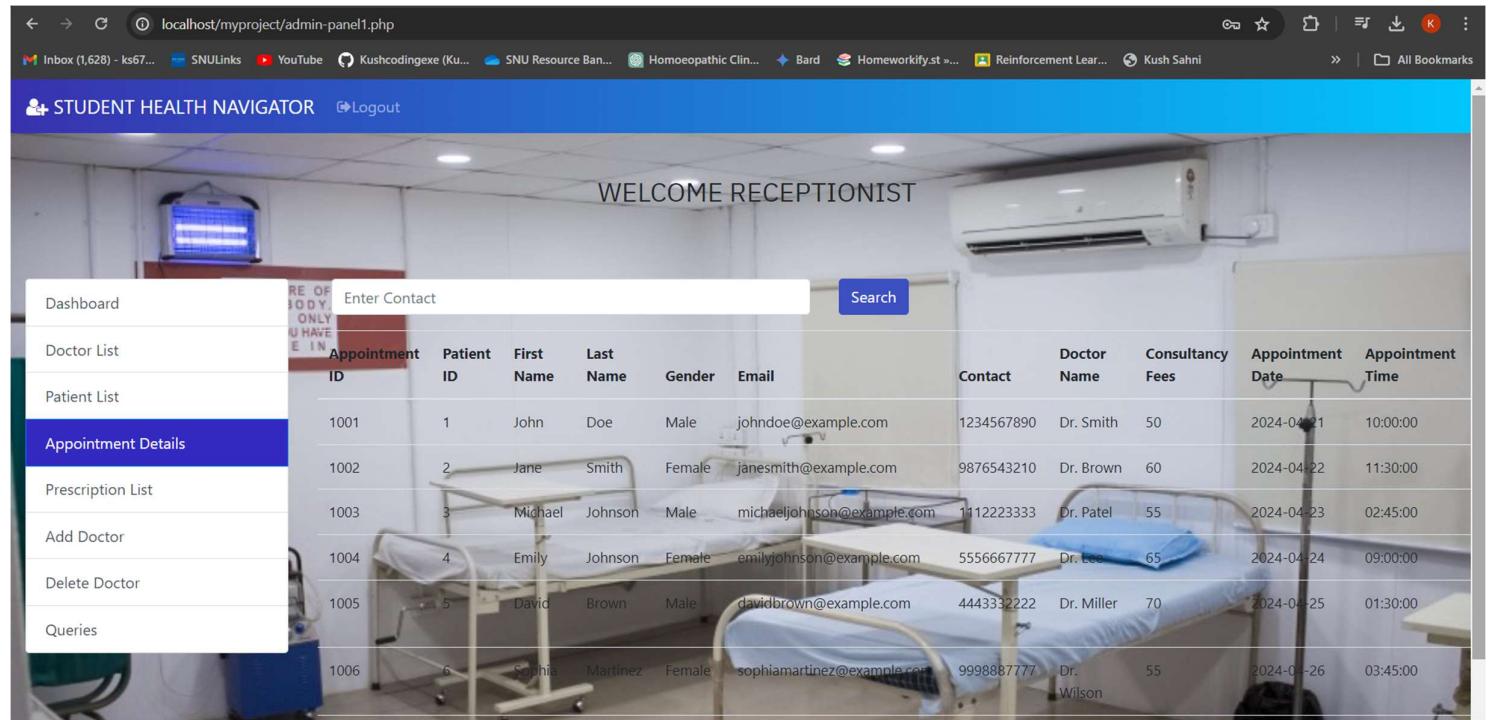
The Receptionist has the capability to view details of all registered doctors, which include their Name, Password, Email, and Consultancy fees, as shown in the screenshot below. To find a specific doctor, the admin can utilize the search box by entering the doctor's Email ID.

The screenshot shows the same "STUDENT HEALTH NAVIGATOR" application. The sidebar now has a link for "Doctor List" (highlighted in blue). The main content area features a search bar labeled "Enter Email ID" with a "Search" button. Below it is a table with columns: Doctor Name, Specialization, Email, Password, and Fees. The table contains 8 rows of sample data. The background shows a hospital room setting.

Doctor Name	Specialization	Email	Password	Fees
johnsmith	Dermatologist	john.smith@example.com	john123	850
janedoe	Psychiatrist	jane.doe@example.com	jane456	950
drjohn doe	Neurologist	dr.john.doe@example.com	john.doe	900
drjan smith	Cardiologist	dr.jane.smith@example.com	jane.smith	1100
drlisajohnson	Oncologist	dr.lisa.johnson@example.com	lisa.johnson	980
drsmith	Pediatrician	dr.smith@example.com	smith123	700
drjackson	Orthopedic Surgeon	dr.jackson@example.com	jackson456	1200
drwilson	Dentist	dr.wilson@example.com	wilson456	600

Access the Appointment lists:

The Receptionist can also view comprehensive details of appointments, showcasing appointment information for patients with their respective doctors. This information includes the First Name, Last Name, Email, and Contact Number of patients, the doctor's name, Appointment Date, Time and Consultancy Fees.



The screenshot shows a web-based application titled "STUDENT HEALTH NAVIGATOR". The main header includes a user icon, "STUDENT HEALTH NAVIGATOR", and a "Logout" link. Below the header, a banner reads "WELCOME RECEPTIONIST". On the left, a sidebar menu lists "Dashboard", "Doctor List", "Patient List", "Appointment Details" (which is highlighted in blue), "Prescription List", "Add Doctor", "Delete Doctor", and "Queries". The central content area displays a table titled "Enter Contact" with columns: Appointment ID, Patient ID, First Name, Last Name, Gender, Email, Contact, Doctor Name, Consultancy Fees, Appointment Date, and Appointment Time. The table contains six rows of sample data. The background of the page shows a photograph of a medical office interior with a patient bed and medical equipment.

Appointment ID	Patient ID	First Name	Last Name	Gender	Email	Contact	Doctor Name	Consultancy Fees	Appointment Date	Appointment Time
1001	1	John	Doe	Male	johndoe@example.com	1234567890	Dr. Smith	50	2024-04-21	10:00:00
1002	2	Jane	Smith	Female	janesmith@example.com	9876543210	Dr. Brown	60	2024-04-22	11:30:00
1003	3	Michael	Johnson	Male	michaeljohnson@example.com	1112223333	Dr. Patel	55	2024-04-23	02:45:00
1004	4	Emily	Johnson	Female	emilyjohnson@example.com	5556667777	Dr. Lee	65	2024-04-24	09:00:00
1005	5	David	Brown	Male	davidbrown@example.com	4443332222	Dr. Miller	70	2024-04-25	01:30:00
1006	6	Sophia	Martinez	Female	sophiamartinez@example.com	9998887777	Dr. Wilson	55	2024-04-26	03:45:00

Only the Receptionist has the authority to add a new doctor, as allowing anyone to register as a doctor could lead to potential issues.

The form for adding a doctor requests details such as the Doctor's Name, Email ID, Password, and Consultancy Fees.

Adding a New Doctor named Will Smith:

localhost/myproject/admin-panel1.php

STUDENT HEALTH NAVIGATOR [Logout](#)

WELCOME RECEPTIONIST

Doctor Name:	Will Smith
Specialization:	Neurologist
Email ID:	willsmith@gmail.com
Password:	*****
Confirm Password:	*****
Consultancy Fees:	850

[Add Doctor](#)

Add Doctor

Matched

localhost says

Doctor added successfully!

OK

Doctor is added to Employee table as well due to Trigger (doctor_to_employee)

Showing rows 0 - 0 (1 total, Query took 0.0005 seconds.)

```
SELECT * FROM `employee`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 ▾ Filter rows: Search this table

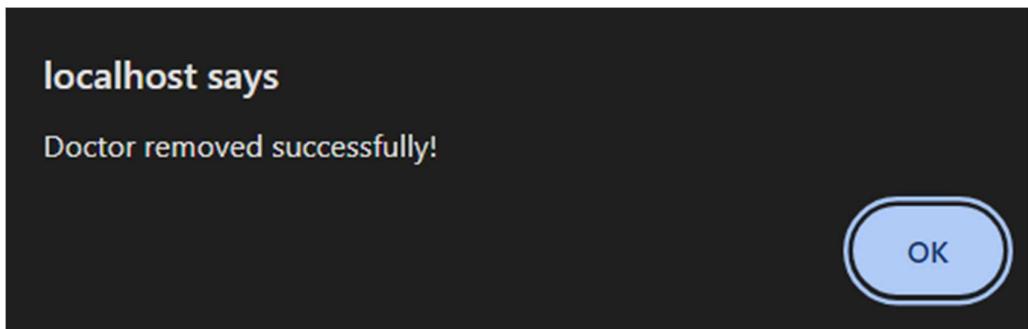
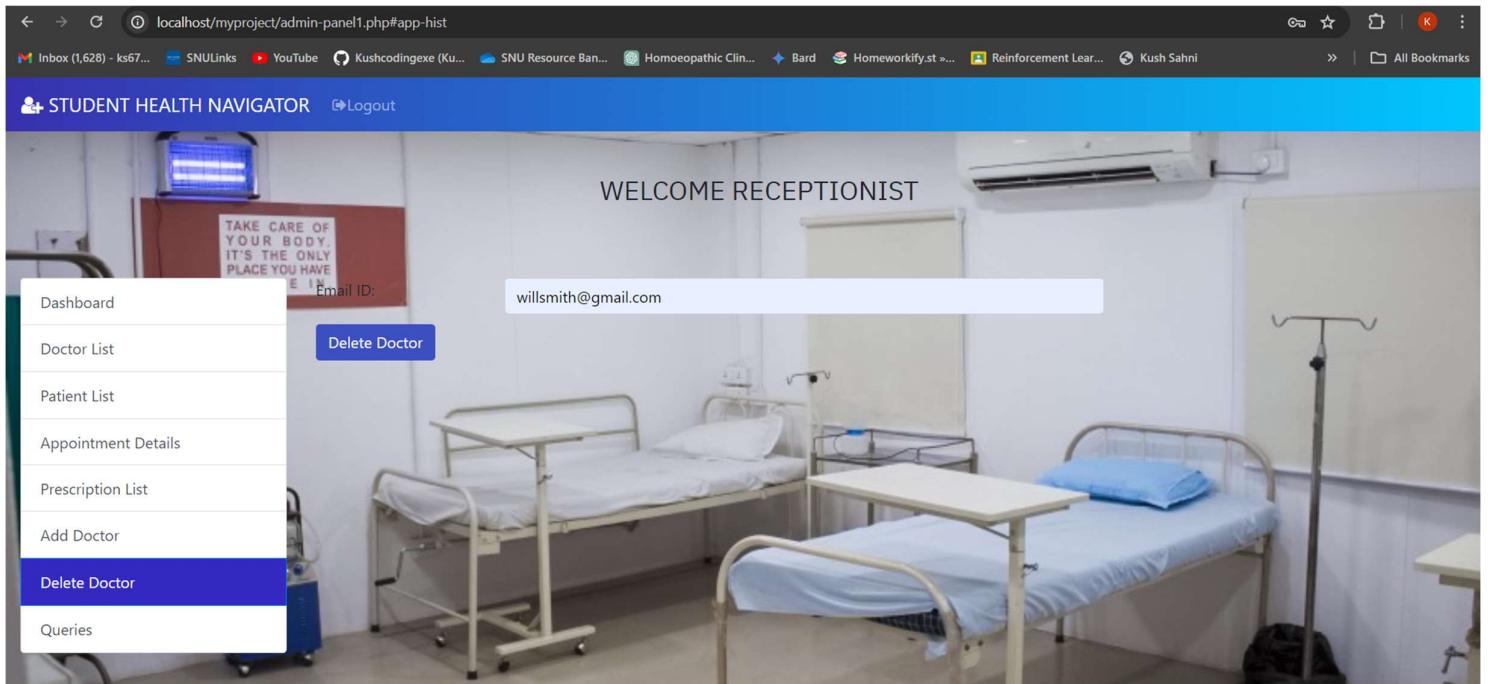
Extra options

	emp_id	username	password	email	role	specialty
<input type="checkbox"/>	1	Will Smith		willsmith@gmail.com	Doctor	Doctor

[Edit](#) [Copy](#) [Delete](#)

Only the admin has the authority to DELETE a new doctor, as allowing anyone to register as a doctor could lead to potential issues.

The form for deleting a doctor requests only the Email Id of the Doctor.



Doctor is removed from Employee table due to Trigger (delete_doctor_to_employee)

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0025 seconds.)

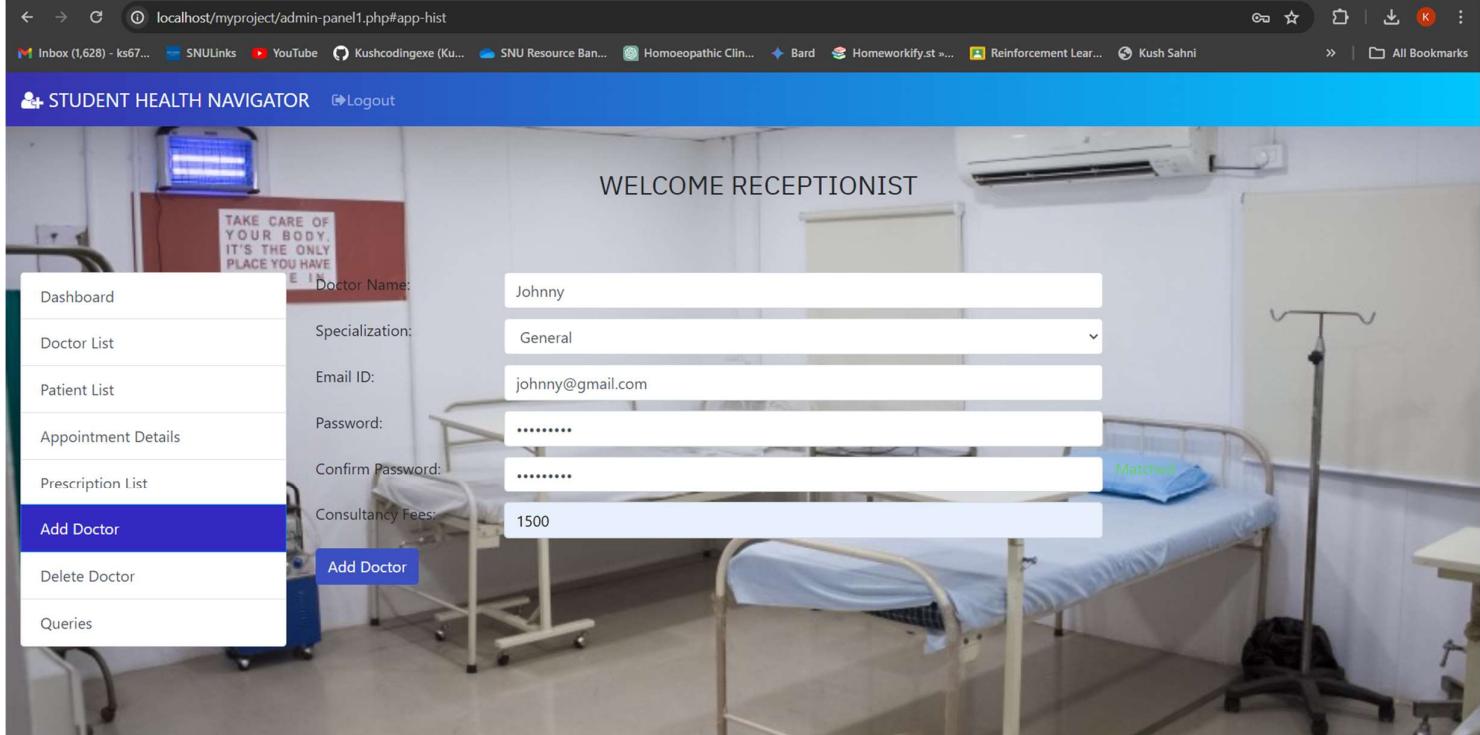
```
SELECT * FROM `employee`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

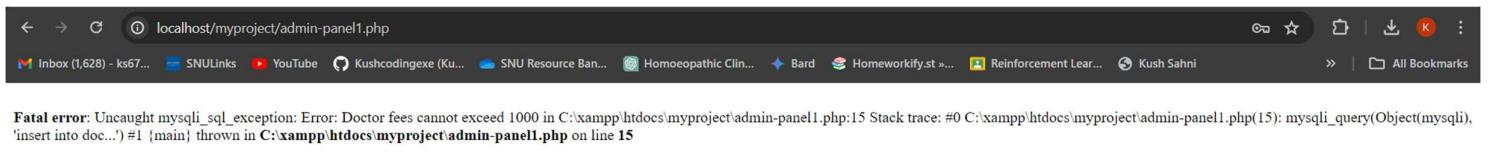
emp_id	username	password	email	role	specialty	docFees	department
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Query results operations

Adding a doctor who charges Fees above 1000:



Error is thrown due to Trigger (check_doc_fees)



Limitations:

- Presently, the system supports only two roles: Doctor and Admin. Future changes can be made by adding more roles like the Nurse or Manager to have a range of healthcare professionals.
- While our system can capture important details like the patient and contact information, adding validation checks for email formats or phone numbers can improve the data accuracy.
- The current appointment system does not allow for the rescheduling or cancellation by patients. So by implementing these features, there can be more flexibility to both the doctors and patients.

Conclusion:

This database project is made to maintain the management of appointments, doctor-patient interactions and health services within the campus of our university.

It allows the tracking of appointments and storing the details of doctors and patients to make a comprehensive system for healthcare in our campus.

We will be open to work on improving based on the feedback received.

Acknowledgement:

We would like to express our heartfelt gratitude to Dr. Sonia Khetarpaul ma'am for her guidance and support throughout the development of this project.

Her teachings and insights have been very helpful for us in making this project.

Thank you for providing us this opportunity to work as we all got to learn a lot!