JNU HEALTHCARE INFORMATION SYSTEM

A project report is submitted to the Jawaharlal Nehru University in the partial fulfillment of the requirements for the award of the degree of

MASTER

OF

COMPUTER APPLICATIONS

BY

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SCHOOL OF COMPUTER AND SYSTEMS SCIENCES

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI - 110067

DECLARATION

This is to certify that the project entitled ***"JNU Healthcare Information System"*** is being submitted to the School of Computer and System Sciences, Jawaharlal Nehru University, New Delhi, in partial fulfillment of the requirements for the award of the degree of ***Master of Computer Applications***, is a record of bonafide work carried out by us.

This report or a similar report on this topic has not been submitted in part or full to any University or Institution for the award of any degree or diploma.

Amrita Sukul

Brijendra Yadav

Sarita Kumari

Shivani

CERTIFICATE BY PROJECT GUIDE

This is to certify that the Project entitled, **"JNU HEALTHCARE INFORMATION SYSTEM"** is a bonafide work done by **AMRITA SUKUL (20/10/JC/021), BRIJENDRA YADAV (20/10/JC/011), SARITA KUMARI (20/10/JC/024), SHIVANI (20/10/JC/002)** in partial fulfillment of MCA course and has been carried out under my direct supervision and guidance. It is certified that the declaration made by the students is correct to the best of my knowledge.

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Date:

Signature of the Supervisor

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ACKNOWLEDGEMENT

We have the honour of submitting this project report on **"JNU HEALTHCARE INFORMATION SYSTEM"** for the successful completion of my Master's Degree in Computer Applications (M.C.A) from **JAWAHARLAL NEHRU UNIVERSITY, New Delhi**. I am indebted to my lecturers and department for providing necessary cooperation. My special thanks are conveyed to Hon'ble Dean of the **School of Computer System and Sciences**, *Prof. T.V. Vijay Kumar*. His special interest in bringing up advancements in this corresponding department helped in concluding the project. An overwhelming thanks to our Supervisor *Dr. Piyush Pratap Singh*, who played a dynamic role in providing me his helping hand to give the project the complete meaning.

I wish to acknowledge my adorable and enthusiastic guide *Prof. V.B. Singh* who gave me expertise guidance and valuable cooperation throughout the work. His wise suggestions, mellow criticism and above all unflinching moral support acted as a catalyst in the development and completion of the project. My infinite thanks go to him for enumerable suggestions and helping ascent, guiding me in a right path to complete the project and giving it a final outlook.

Finally, thank one and all who helped us obviously or in disguise for preparation and completion of this work.

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INTRODUCTION

A **healthcare information system (HIS) enables health care organizations to collect, store, manage, analyze, and optimize patient treatment histories and other key data**. These systems also enable healthcare providers to easily get information which they can use for improving health service effectiveness and efficiency through better management at all levels of health services. This information can also be used to predict community health trends at macro level.

This information systems provide a common source of information about a patient's health history, and doctors schedule timing. The system has to keep data in a secure place and controls who can reach the data in certain circumstances.

PROBLEM DEFINITION

Since Hospital is associated with the lives of common people and their day-to-day routines so we decided to work on this project. In **JNU** we have a **semi-automatic system** for **healthcare facilities** and most of the work is done manually. The manual handling of the record is time consuming and highly prone to error.

1. Information about Patients is done by just writing the Patients name, age and gender. Whenever the Patient comes up his information is stored freshly.
2. Bills are generated by recording price for each facility provided to patient on a separate sheet and at last they all are summed up.
3. Diagnosis information to patients is generally recorded on the document, which contains Patient information. It is destroyed after some time period to decrease the paper load in the office.
4. Information about various diseases is not kept as any document. Doctors themselves do this job by remembering various medicines.

The **purpose of this project is to fully automate it and make online**, the process of day-to-day activities like

1. **Admission of New Patient (Registration)**
2. **Appointment for the doctor, Assign a doctor**
3. **OPD (Treatment or Refer)**
4. **Patient will get a doctor prescription**
5. **Patient will take medicine**
6. **Discharge of Patient**

7. **Finally, report will be generated** for a particular doctor with the details of patient, the doctor has treated and also the number of patients which has referred

8. **Patient login, Doctor login, Admin login** with different level of authorization

We have tried our best to make the complicated process JNU Healthcare Information System as simple as possible using **Structured & Modular technique**. We have tried to design the software in such a way that user may not have any difficulty in using this package & **further expansion is possible without much effort**. Even though we cannot claim that this work to be entirely exhaustive, the main purpose of our exercise is to perform each Hospital's activity in computerized way rather than manually which is time consuming.

We are confident that this software package can be readily used by non-programming personal avoiding human handled chance of error.

PROCESS MODEL

Here, the process model used for the automation of JNU Healthcare Center to JNU Healthcare Information System **(JHIS)** is **Prototype Model.**

The **Prototyping Model** is one of the most popularly used **Software Development Life Cycle Models (SDLC models).** This model is used when the customers do not know the exact project requirements beforehand. In this model, a prototype of the end product is first developed, tested and refined as per customer feedback repeatedly till a final acceptable prototype is achieved which forms the basis for developing the final product.

In this process model, the system is partially implemented before or during the analysis phase thereby giving the customers an opportunity to see the product early in the life cycle. The process starts by interviewing the customers and developing the incomplete high-level paper model. This document is used to build the initial prototype supporting only the basic functionality as desired by the customer. Once the customer figures out the problems, the prototype is further refined to eliminate them. The process continues until the user approves the prototype and finds the working model to be satisfactory.

The customers get to see the partial product early in the life cycle. This ensures a greater level of customer satisfaction and comfort.

New requirements can be easily accommodated as there is scope for refinement.

Missing functionalities can be easily figured out.

Errors can be detected much earlier thereby saving a lot of effort and cost, besides enhancing the quality of the software.

The developed prototype can be reused by the developer for more complicated projects in the future.

REQUIREMENT ANALYSIS

User Requirements:

- The dashboard will be accessible with all user types. Here they will perform respective tasks according to their permission levels.
- User needs to create an account to avail all the services.
- Must have a valid id and password for login.

System Requirements:

- **Hardware Requirements:**
  - Installed RAM: - 8 GB and above.
  - Processor: - Dual core, I3 and above.
  - System Type: - 64-bit operating system, x64-based processor
  - Processor Speed: - 2.4GHZ
  - Monitor: - Color Monitor
  - Hard disk: - 200 GB and above.
  - Cache: - 512 KB
  - Printer: - Laser Printer
  - Mouse, Keyboard
- **Software Requirements:**
  - Operating System: Windows 10 and above.
  - Tools: Django Framework (Python Language)
  - Database dbs2lite (Django built-in dB)
  - HTML, CSS, Bootstrap

Functional Requirements

It contains registration process, report generation and Database.

- Adding Patients
- Deleting Patients
- Information of the Patients
- Availability of medicine
- Mandatory Patient Information
- Updating information of the Patient

Non-functional Requirements

It contains security, performance, maintainability and reliability.

- **Security:**
  - Patient Identification: The system needs the patient to recognize herself or himself while login.
  - Login id and Password: Any users who makes use of the system need to hold a login id and password.
  - Modifications: Modifications like insert, delete or update in database can be synchronized quickly and executed.
  - Administrator Rights: The administrator can view as well as alter any information in the system.
- **Performance:**
  - Response Time: The system provides response in just one second.
  - Capacity: The system needs to support at least 1000 people at once.
  - User-Interface: The user interface acknowledges within five seconds.

- Conformity: The system needs to ensure that the guidelines of the Microsoft accessibilities are followed.

➢ **Maintainability:**

- Back up
- Errors

➢ **Reliability:**

- Availability: The system is available all the time.

DATA DICTIONARY

User:

Username, FirstName, LastName, Staff status

Appointments:

PatientId, DoctorId, PatientName, DoctorName, AppointmentDate, Description, A_data (Admit Date), Time

Doctors:

User, Profilepic, Address, Mobile, Department

Patient Discharge Details:

PatientId, PatientName, AssignedDoctorName, Address, MF(Medicine/Refer).

Patient:

User, Profilepic, Address, Mobile, Symptoms, Assigned DoctorId

PROJECT PLAN

Project Planning is part of the project management, which relates to the use of schedules such as Gantt charts to plan and subsequently report progress within the project environment. Initially the project scope is defined and the appropriate methods for completing the project are determined. Following this step, the duration for various tasks necessary to complete this project are listed and grouped into a breakdown structure. Once we examine that the product is feasible, we undertake project planning. The table below describes how we planned our project:

S.No.	Task Name	Duration	Start Date	Finish Date
1.	Planning	10 days	01/03/2022	10/03/2022
2.	Design	21 days	11/03/2022	31/03/2022
3.	Coding	50 days	01/04/2022	20/05/2022
4.	Testing	25 days	21/05/2022	14/06/2022
5.	Delivery	3 days	15/06/2022	18/06/2022

MODULES

Here in total, we have four modules on which we have done our work.

1. **Registration**
2. **OPD**
3. **Medicine Store**
4. **ChatBot**

But here we are focusing mainly on two modules:

Registration:

Admin registration

Doctor's registration

Patient registration

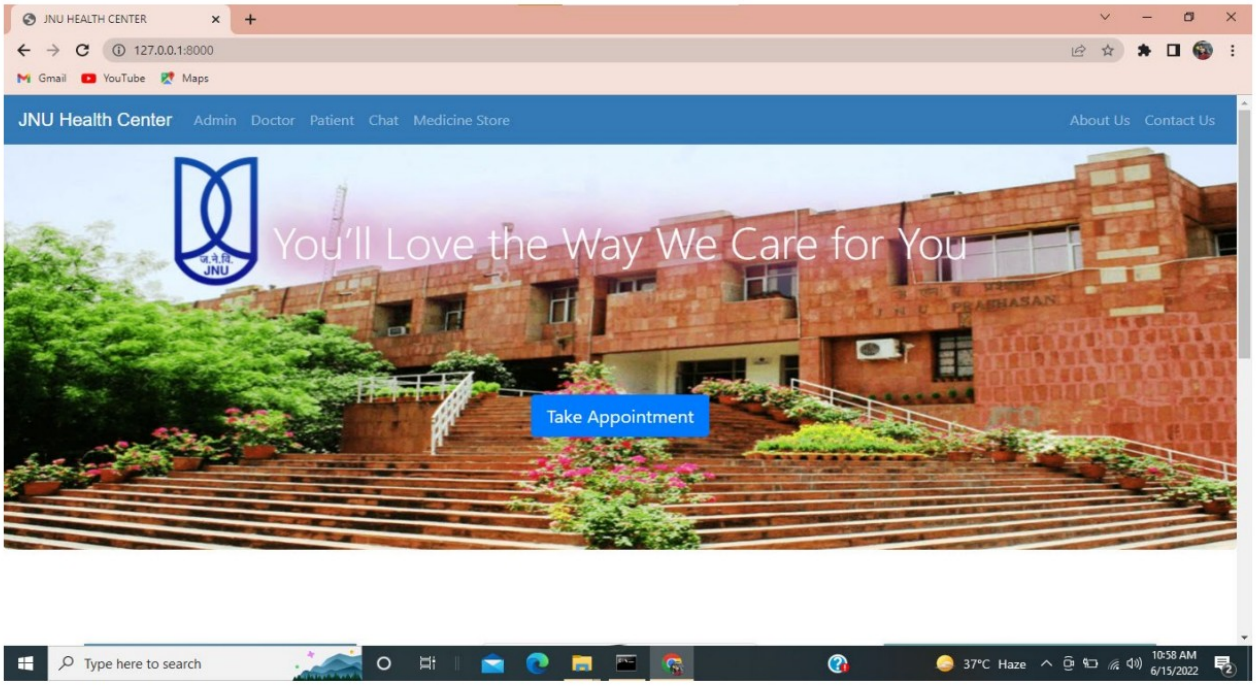
OPD:

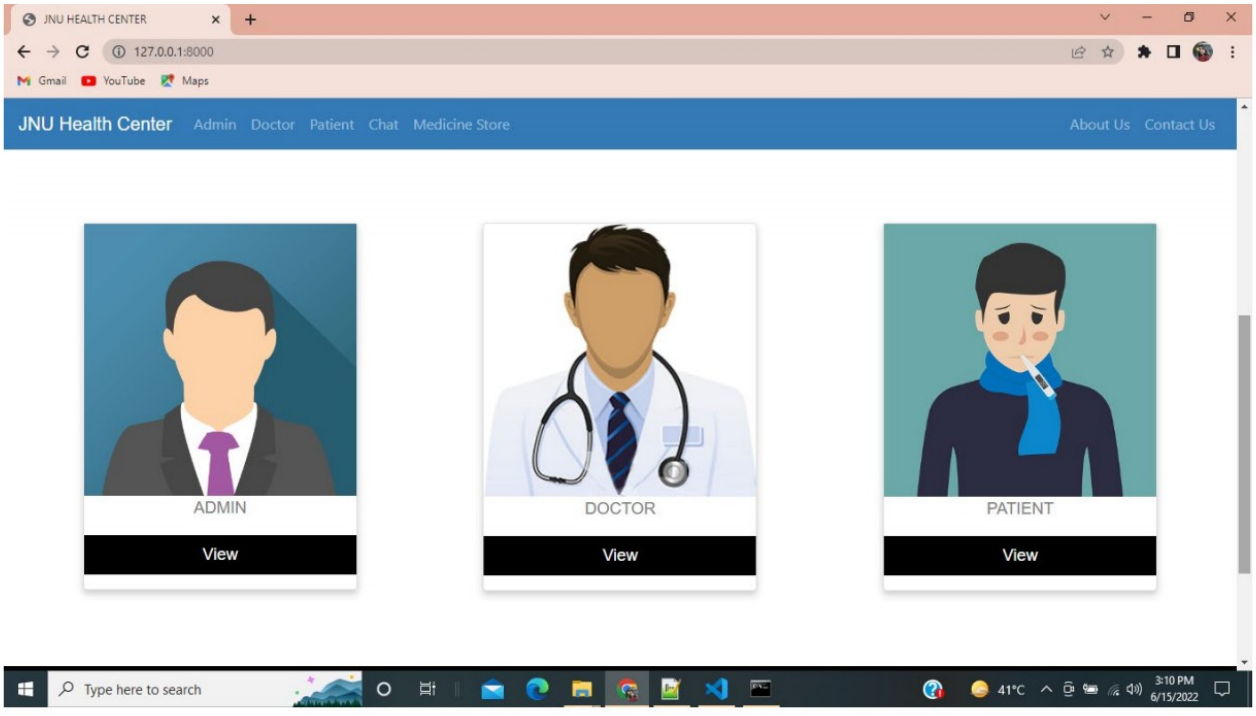
Book Appointment

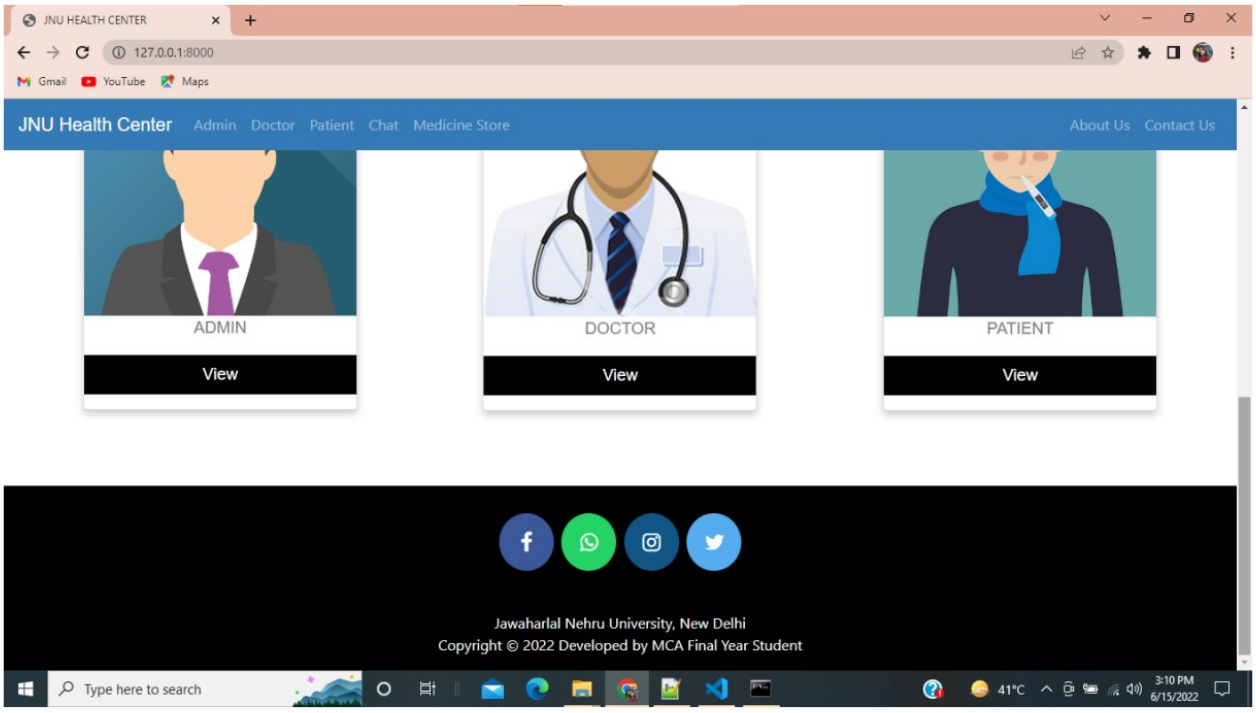
Generate Report (Refer or given medicine)

Live status of patient under a particular doctor etc.

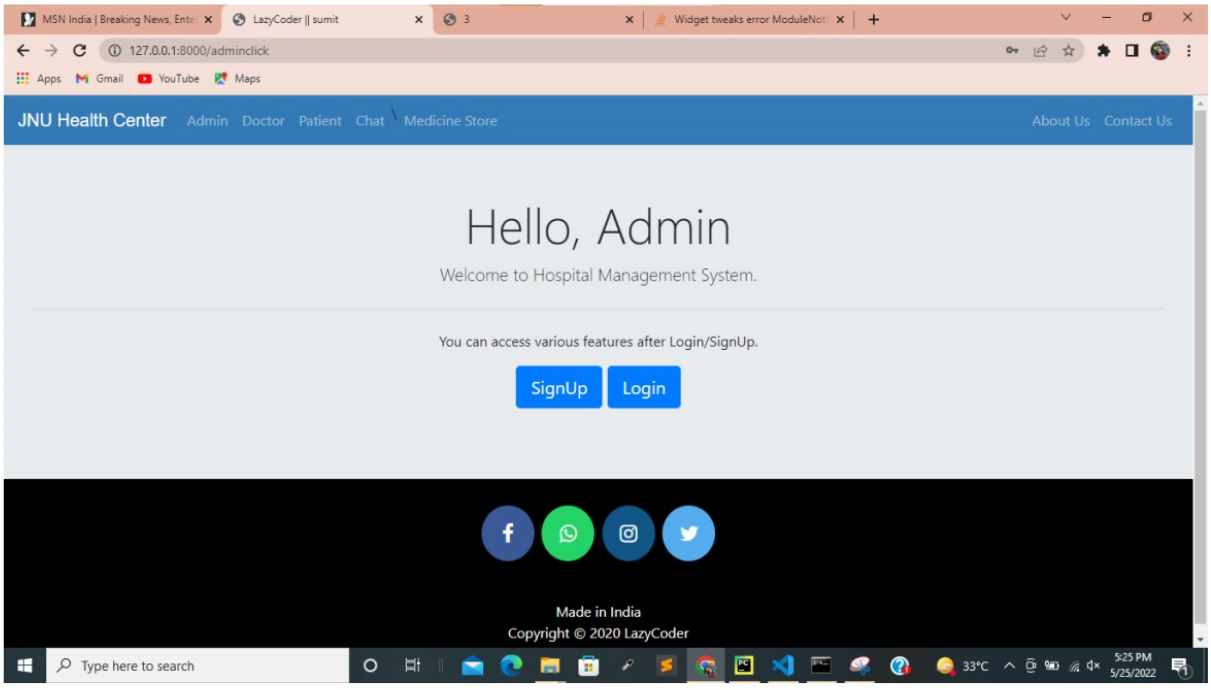
<u>Dashboard</u>: It is available to every type of users but they can **access their respective module only according to permission levels.**





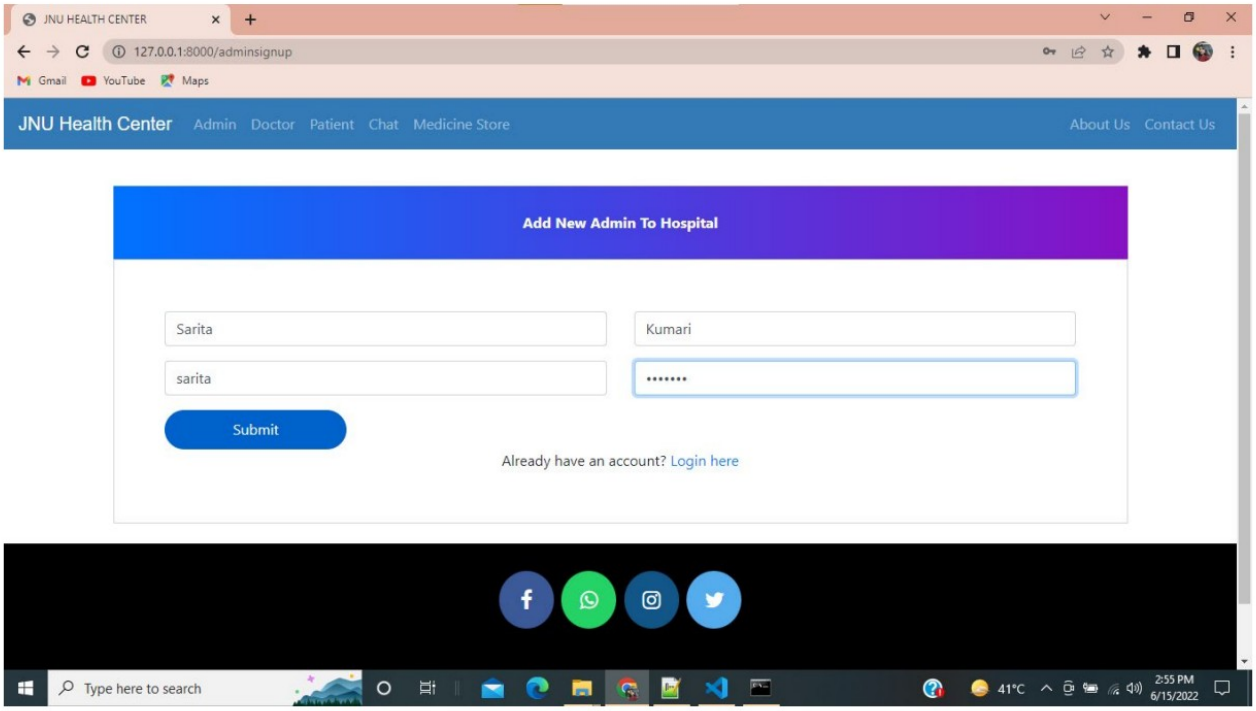


<u>Admin Click</u>: After clicking on admin, it is the first page which is opened and **ask for login/signup**.



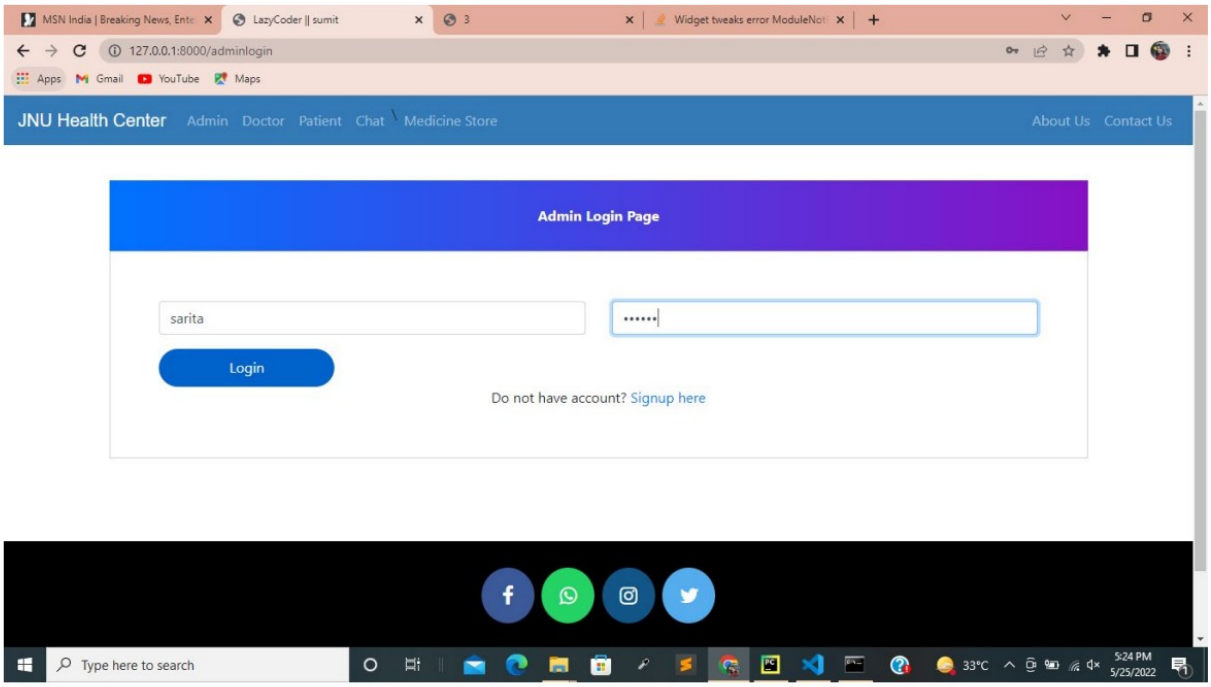
Admin Register: Here admin can be registered if he/she is not registered yet. While registration he/she needs to enter the following details:

- **Name** (First name + Last name)
- **Username**
- **Password**

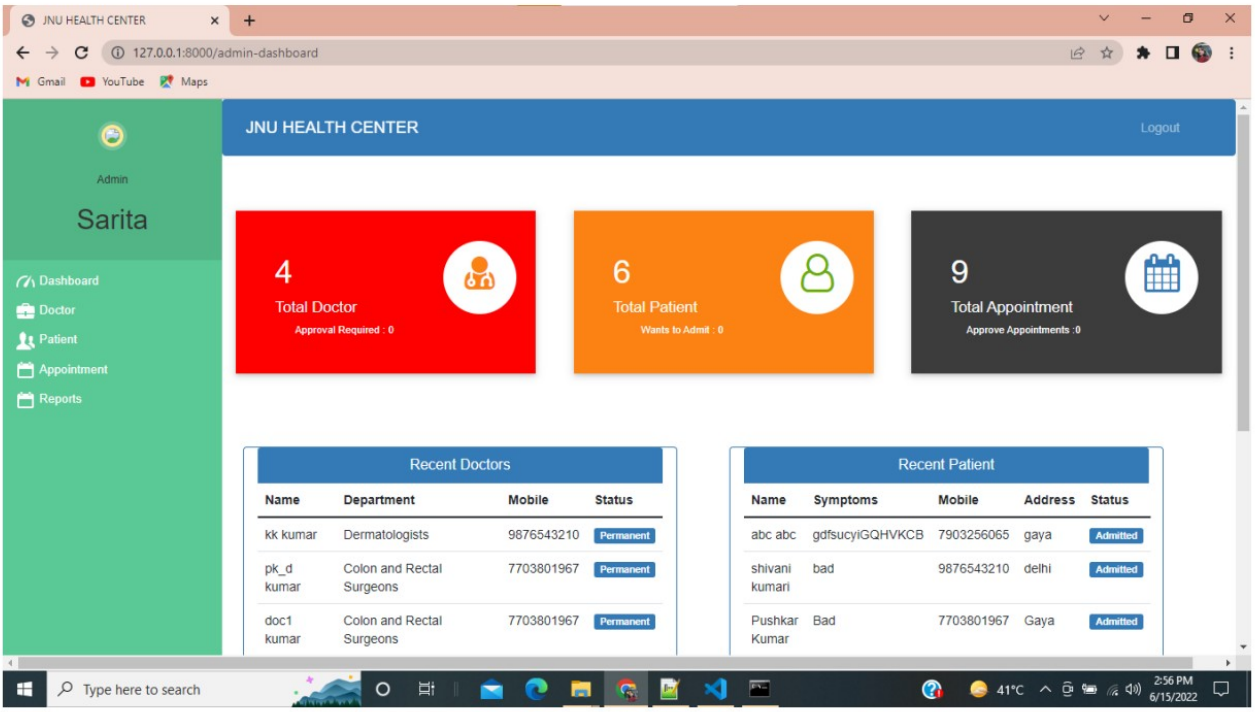


Admin Login: Here admin can login if it is existing user or else it can come here after signup. While login he/she has to enter following details:

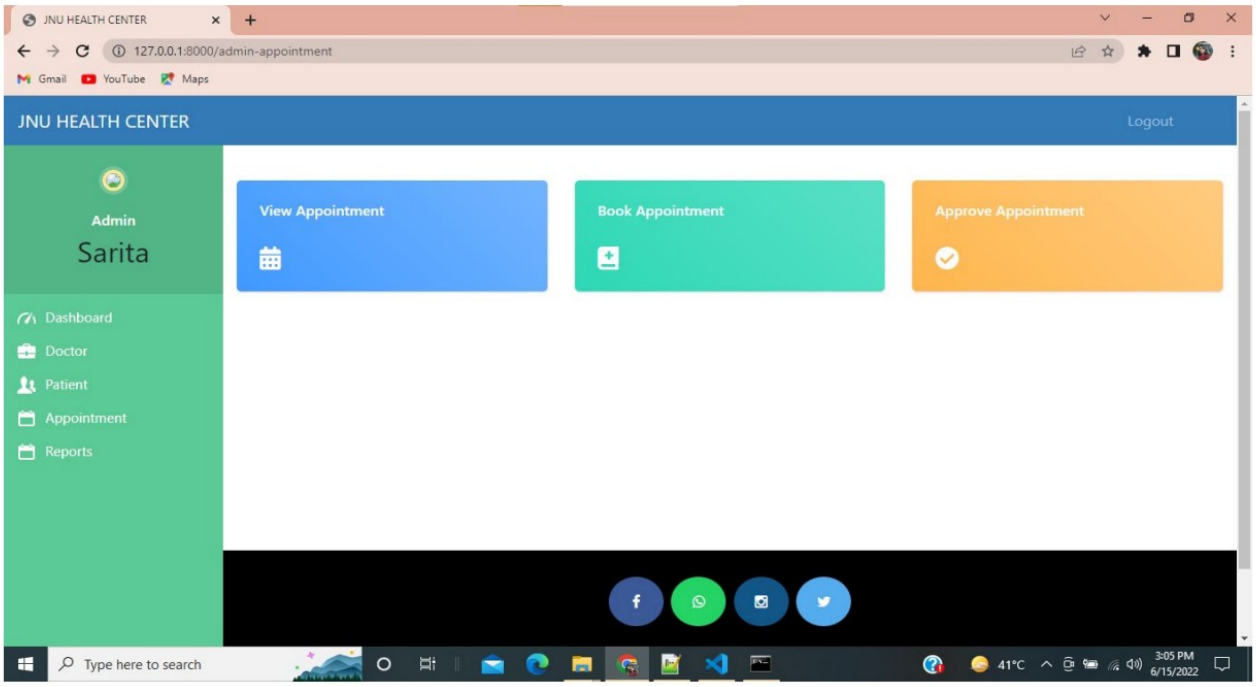
- **Username**
- **Password**



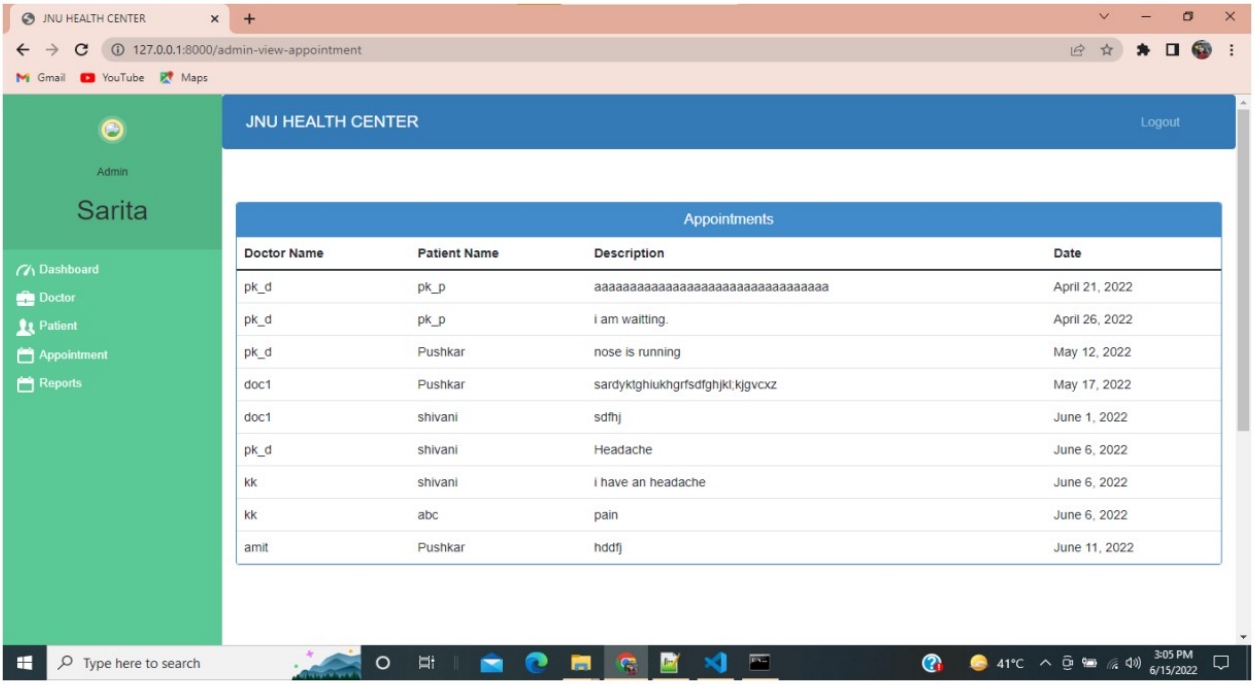
<u>Admin Dashboard</u>: After login this dashboard will open which tells about the **details of doctor, patient and appointments.**



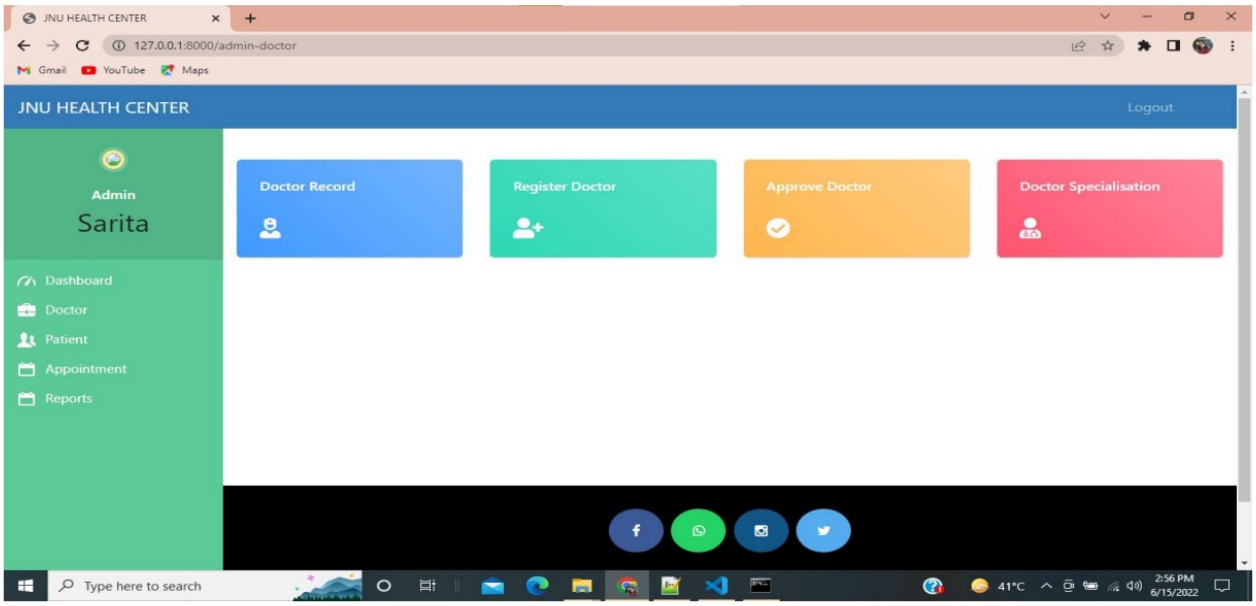
<u>Admin Appointment View</u>: In this part admin can **view, book and approve appointments.**



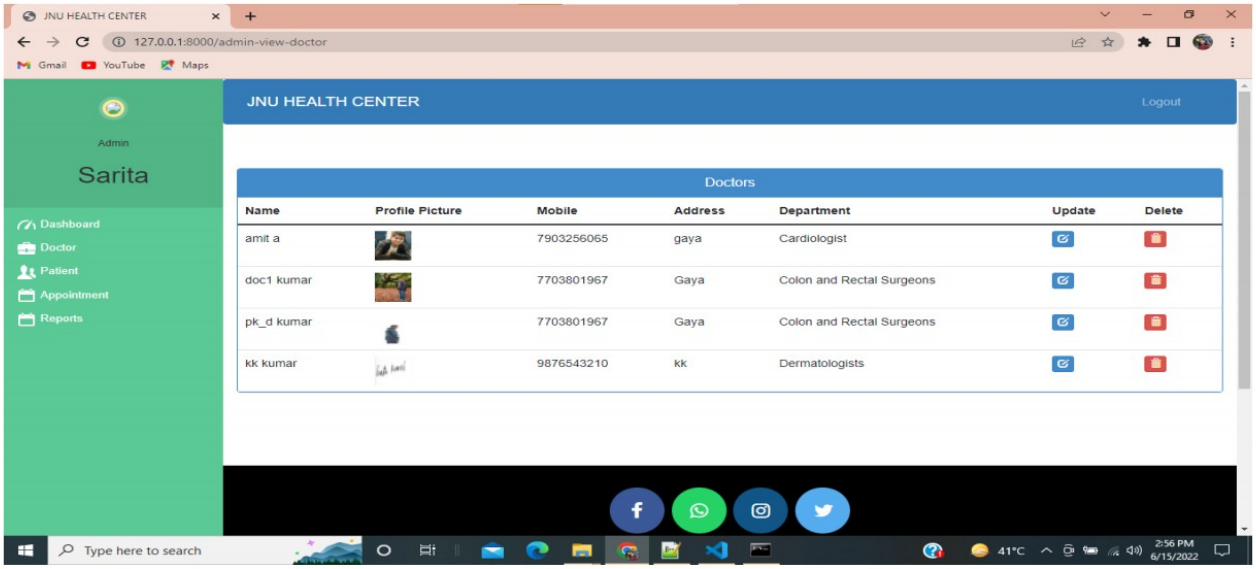
<u>Admin View Appointment:</u>



<u>Admin Doctor View</u>: Here admin can see **record of all the doctors, register or approve a new doctor.**

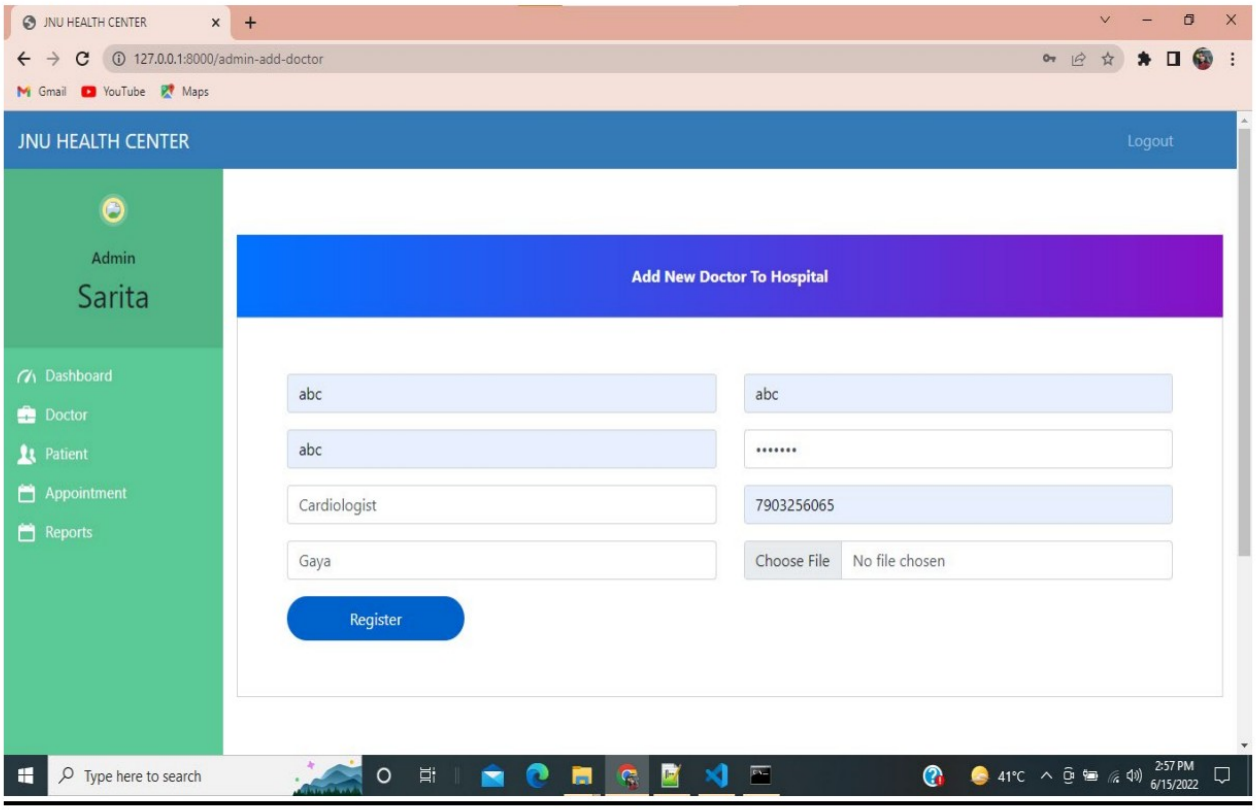


<u>Doctor Records</u>: Here admin will see the **list of doctors with details like name, photo, mobile no., address, department and the access to update or delete the doctor's profile.**

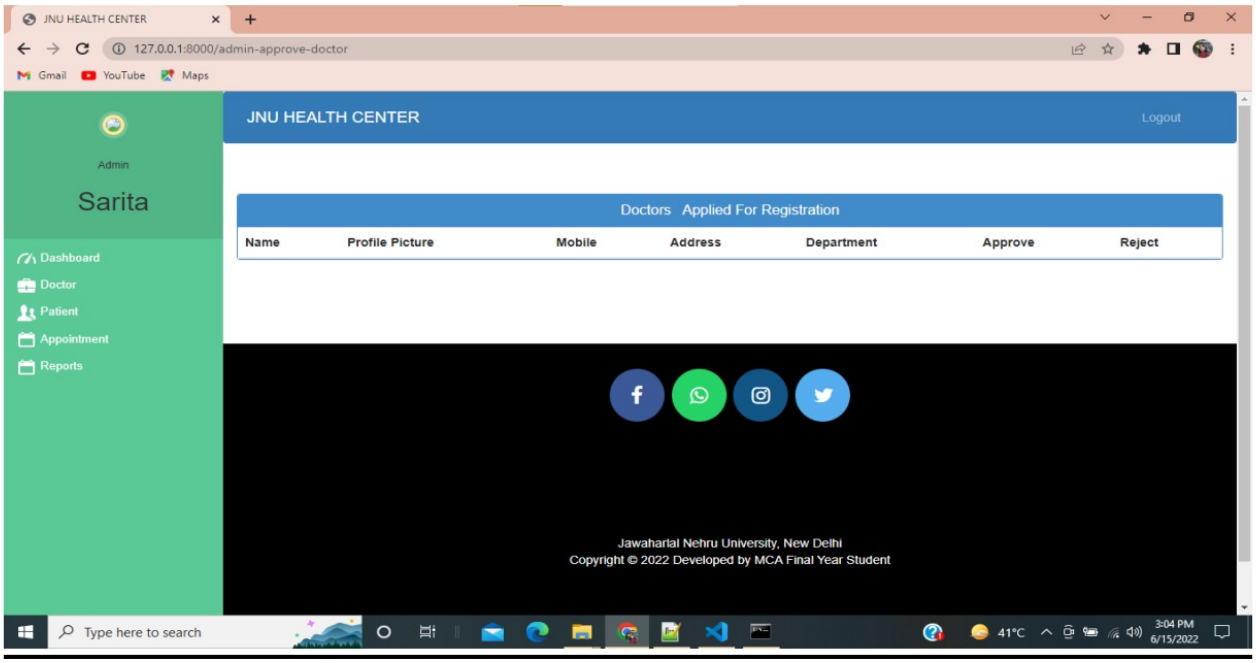


Register a doctor: Here admin registers a doctor itself. While registration admin has to enter the following details:

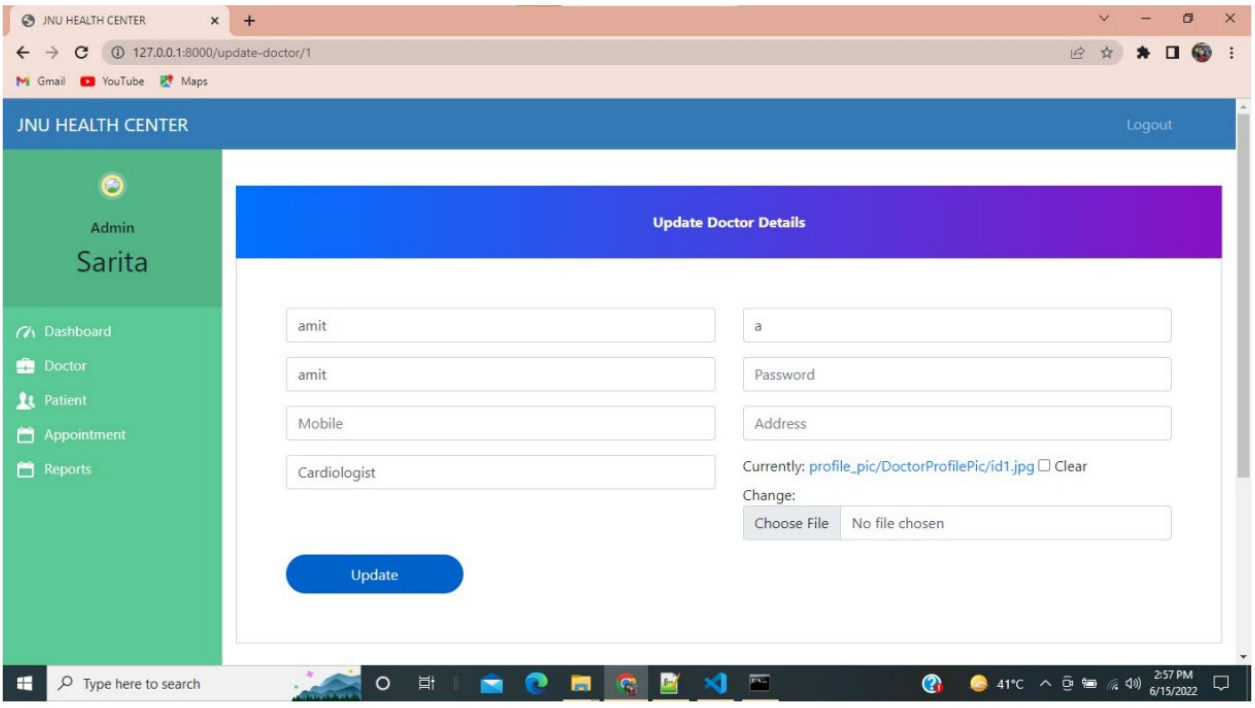
- **Name** (First name + Last name)
- **Username**
- **Password**
- **Department name**
- **Mobile no.**
- **Address**
- **Recent Photograph**



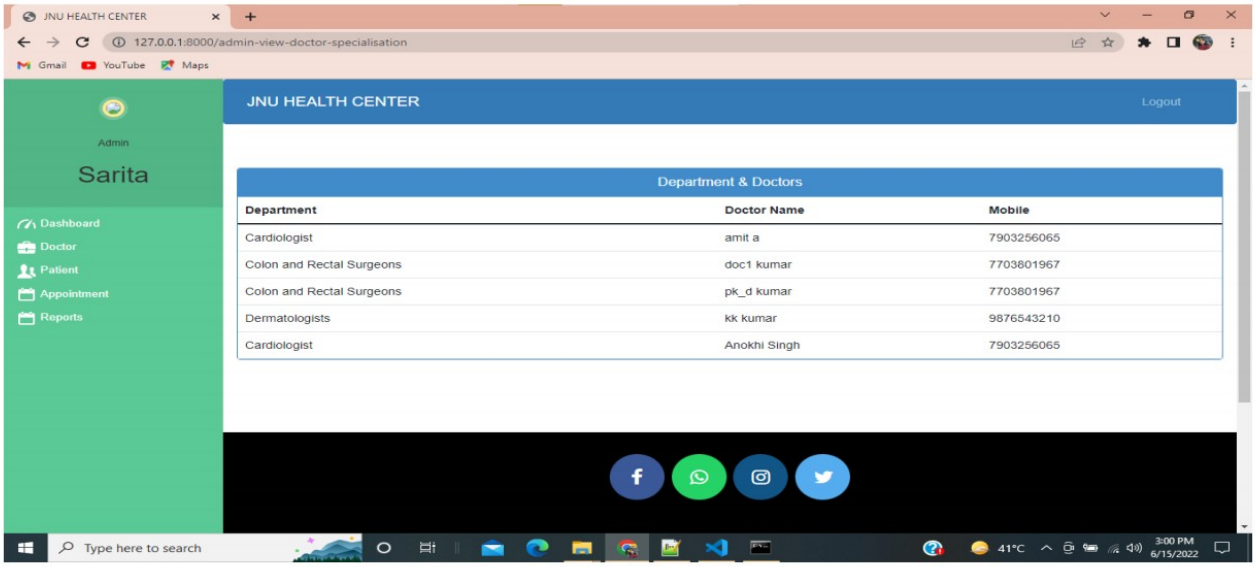
<u>Approve a doctor:</u> Here the admin will approve a doctor who **applied for registration in the JNU health center**.



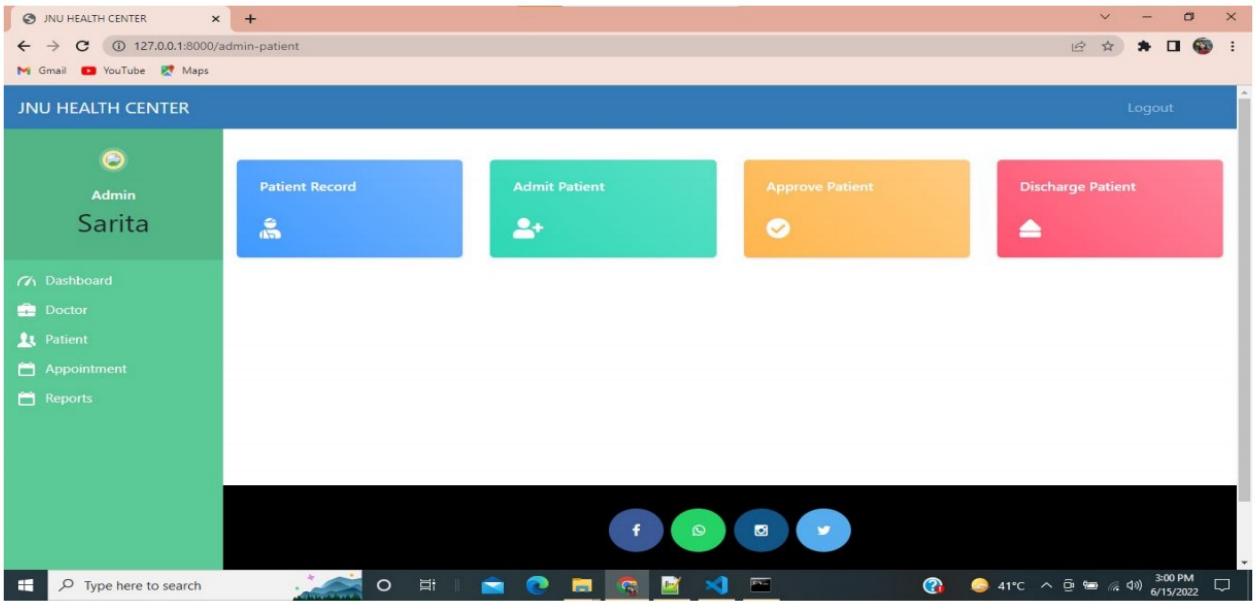
<u>Update a doctor:</u> Here **admin updates the doctor details**.



<u>Doctor Specialization</u>: Here admin will see the **list of doctors highlighted with their specializations and the contact number.**

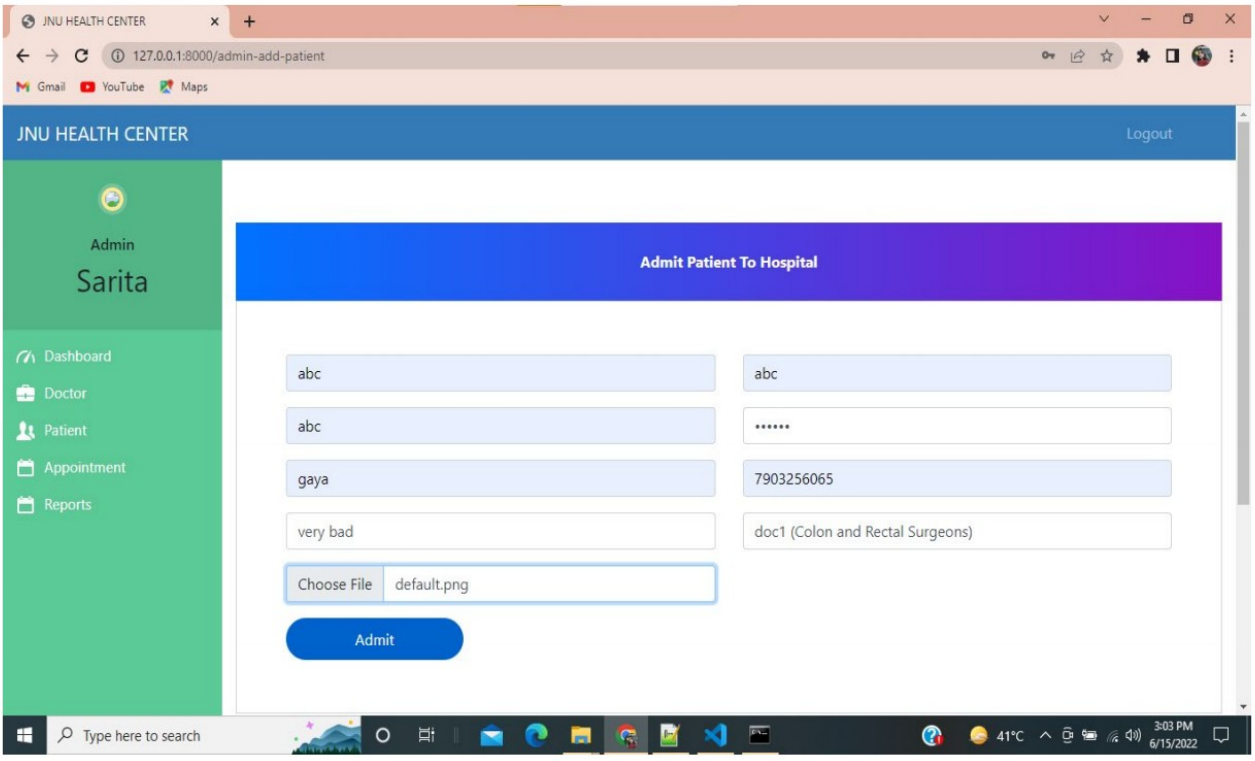


<u>Admin Patient View</u>: Here admin can **view all the records of patient, admit or discharge the patient and can approve a patient.**

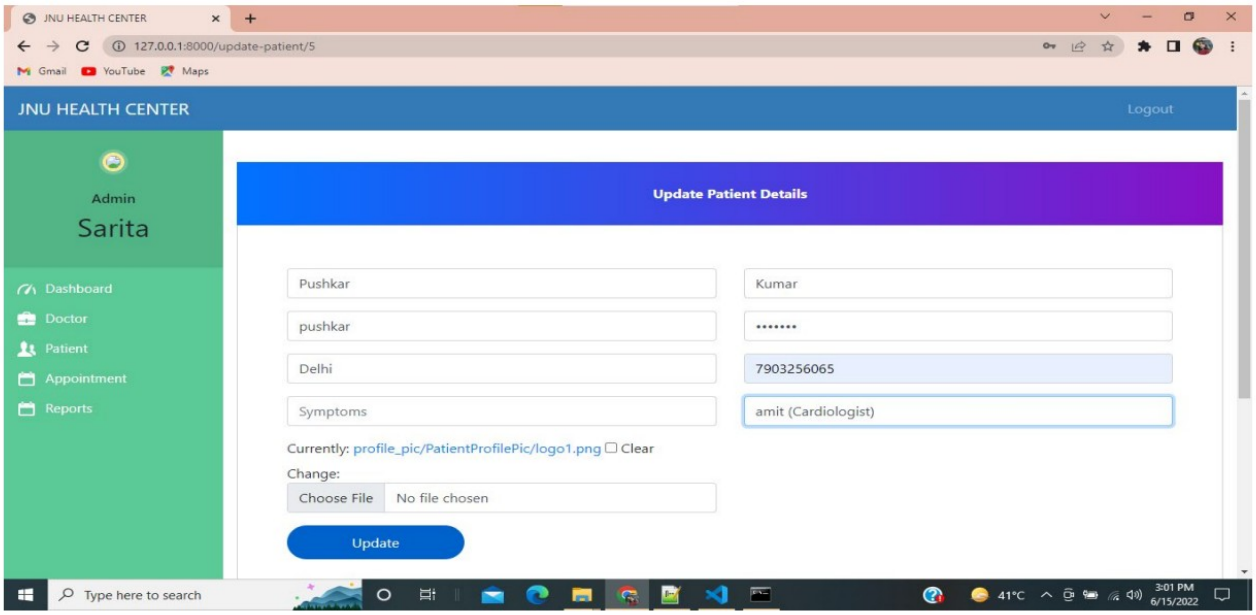


<u>Admin register a Patient</u>: Here admin registers a patient and while registration admin has to enter the following details:

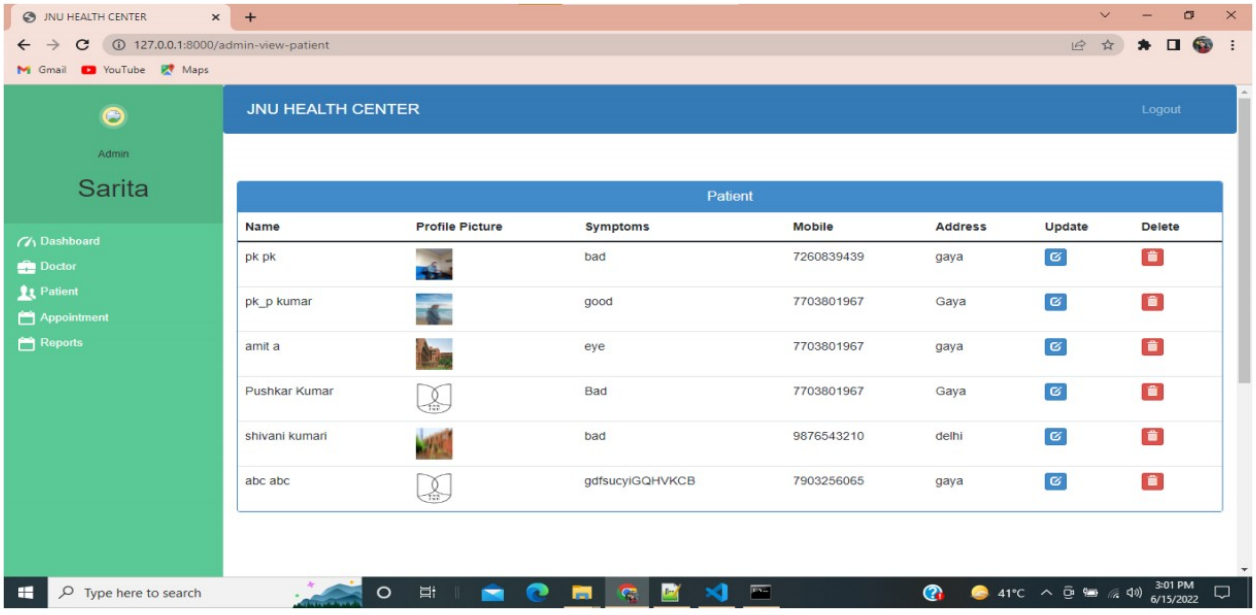
- **Name** (First name + Last name)
- **Username**
- **Password**
- **Symptoms**
- **Related Department**
- **Recent Photograph**



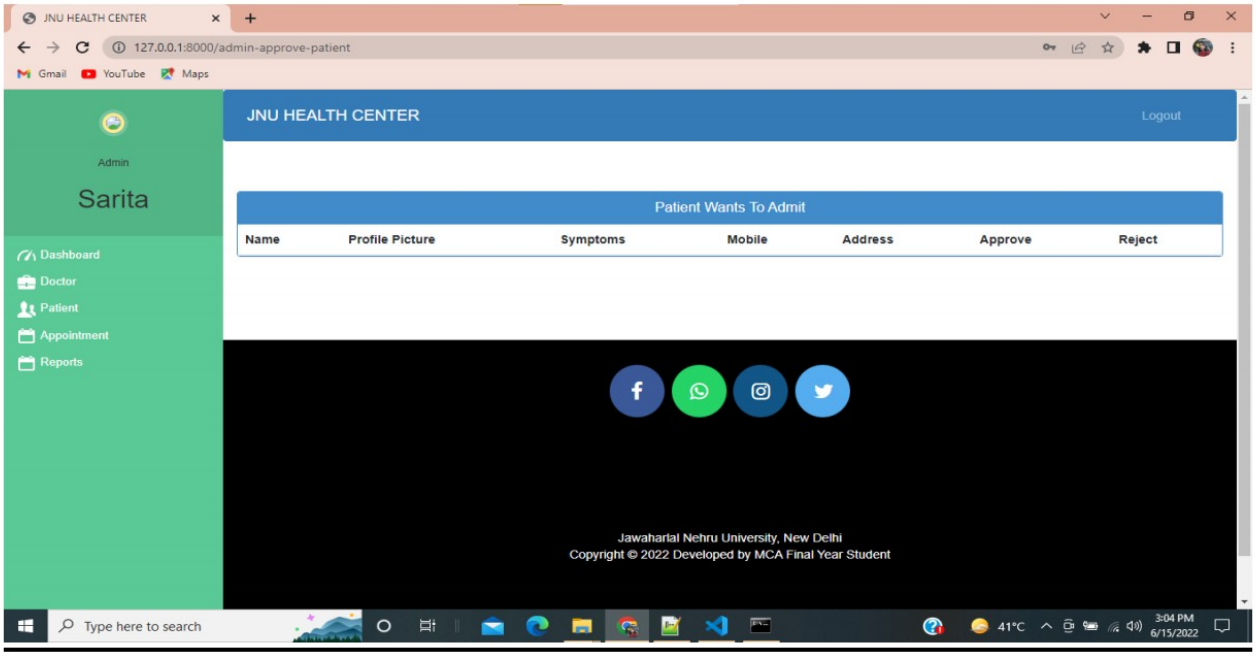
<u>Update a Patient</u>: Here admin can update the patient details.



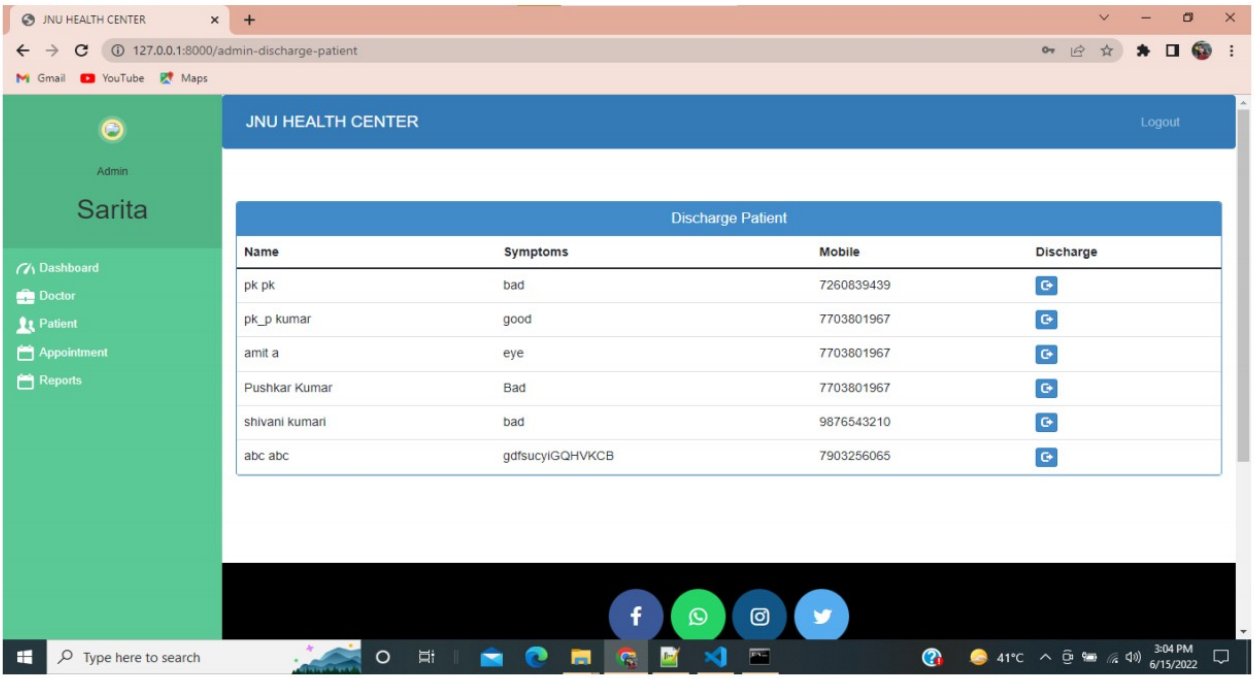
<u>Patient List</u>: Here admin will see the **list of patients with details like name, photo, symptoms, mobile no., address, and the option to update or delete.**



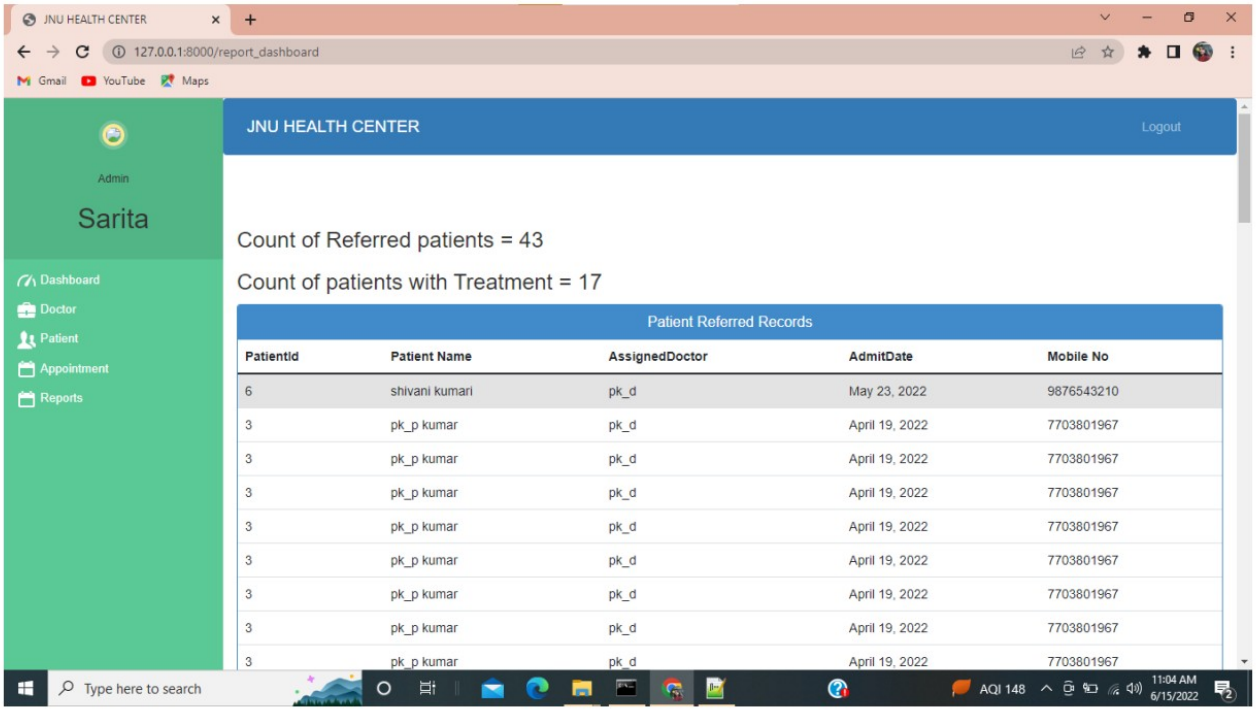
<u>Admit Patient:</u> Here **admin can approve/reject the request made by patient to admit.**

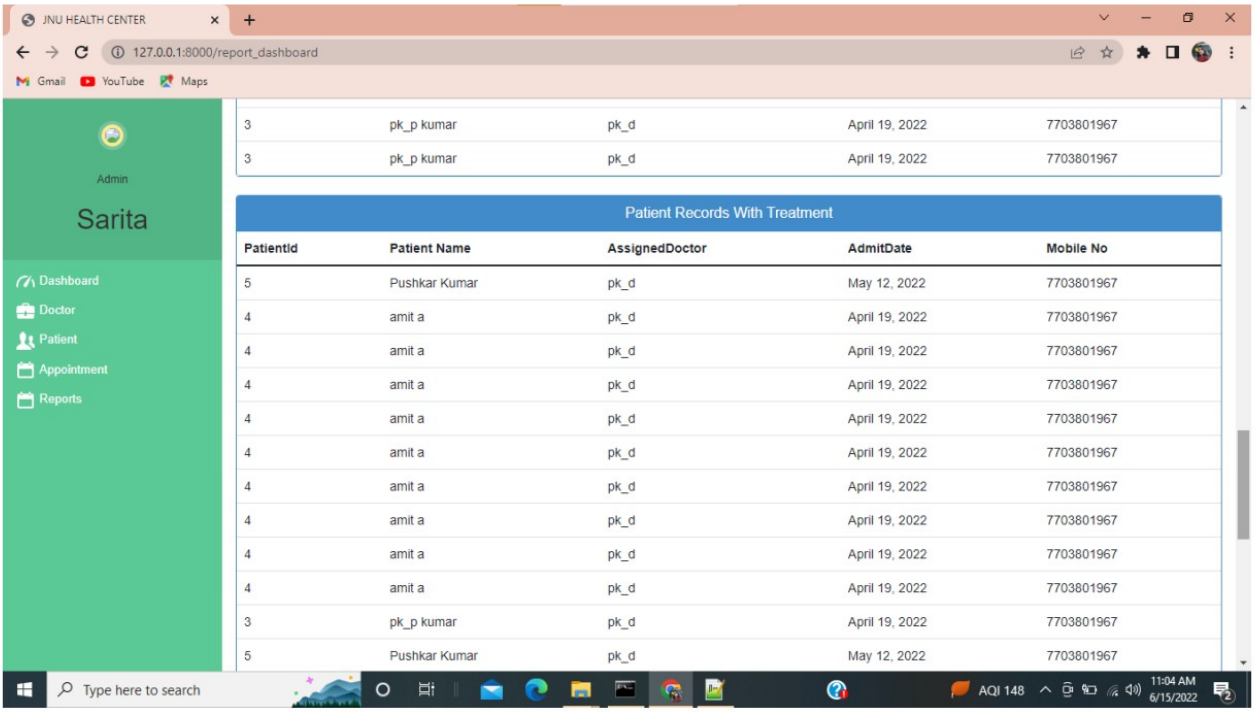


<u>Discharge Patient:</u> Here admin will discharge a patient.

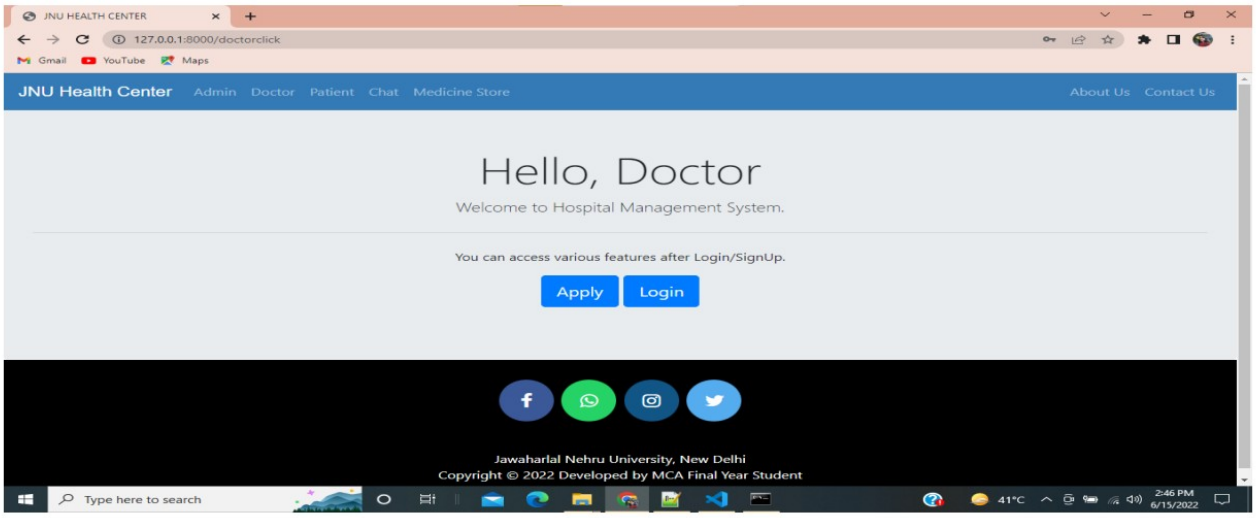


<u>Referred/Admitted Patient</u>: Here **admin can see the record of admitted and referred patient.**



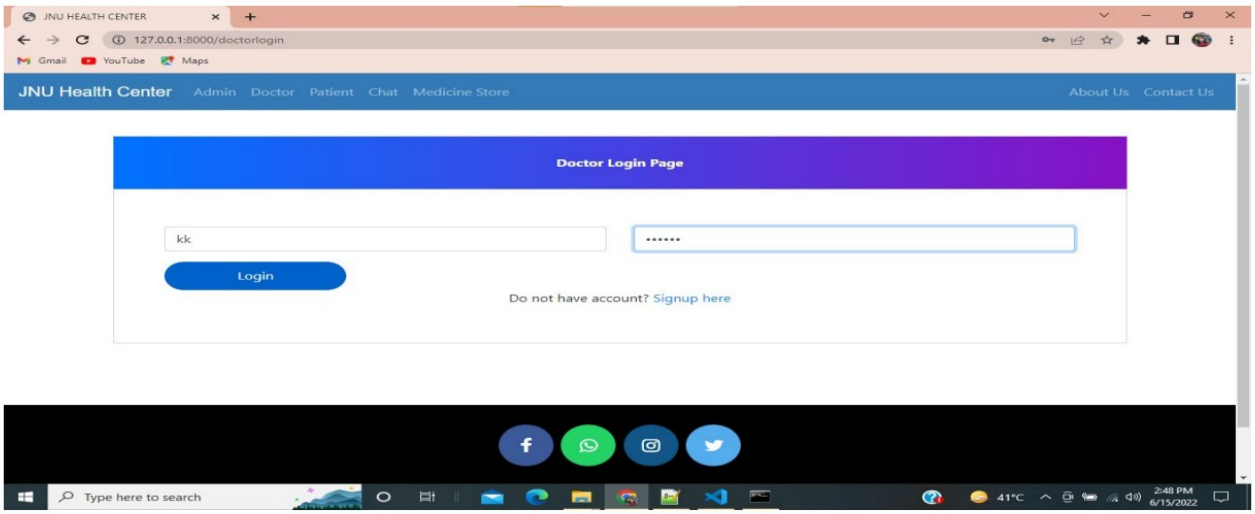


Doctor Click: After clicking on doctor, it is the first page you will see and it **asks for apply or login**.



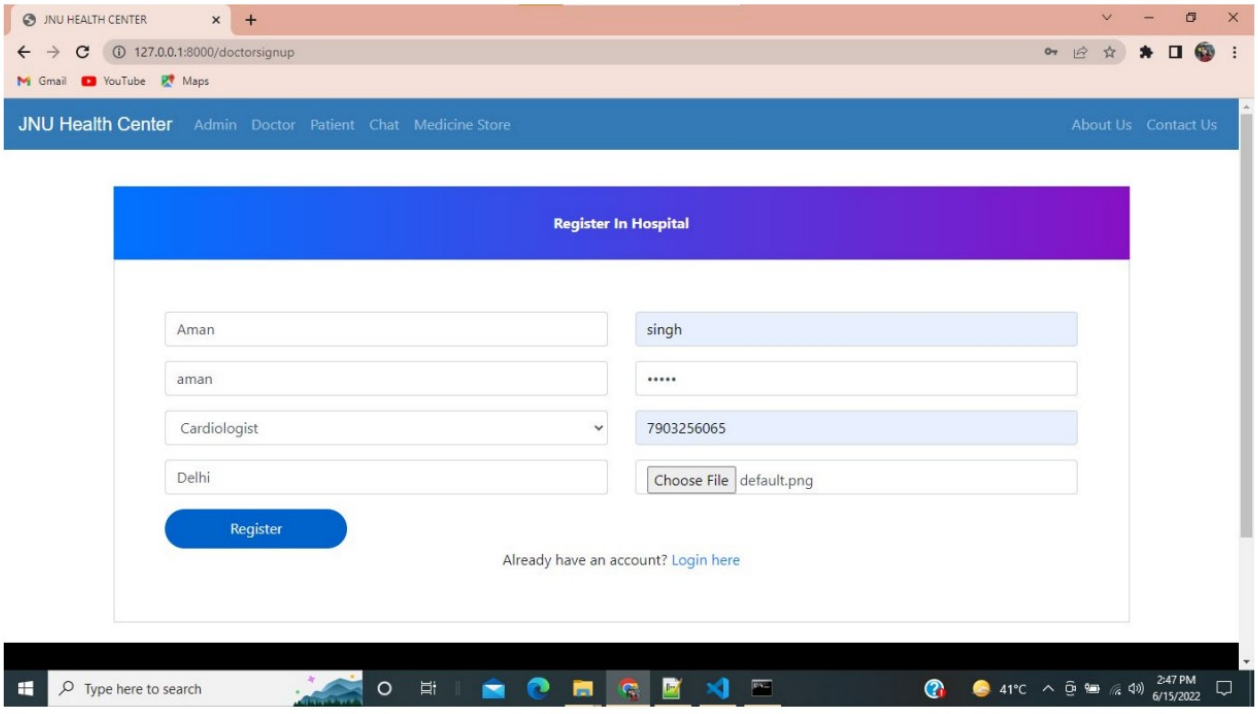
Doctors Login View: Here doctor can login if he is already registered or else, he/she can sign up. While login doctor needs to enter following details:

- **Username**
- **Password**

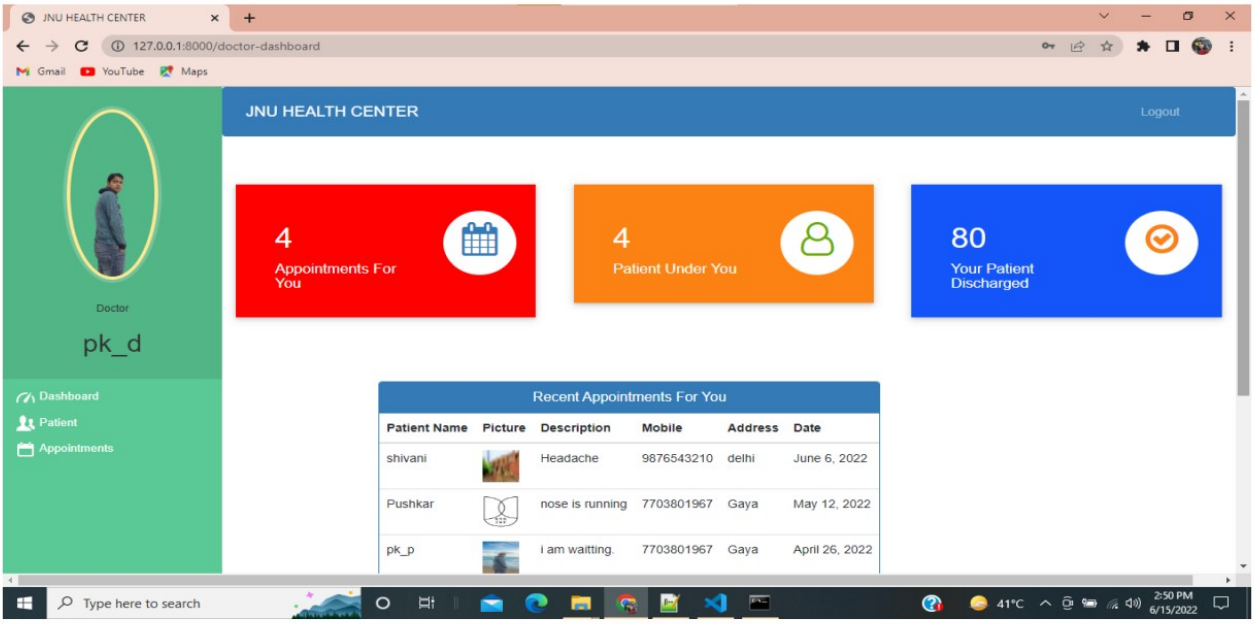


<u>Doctor Registration View</u>: Here a doctor can register if he/she has not registered yet and can login if approved by admin. While registration he/she needs to enter the following details:

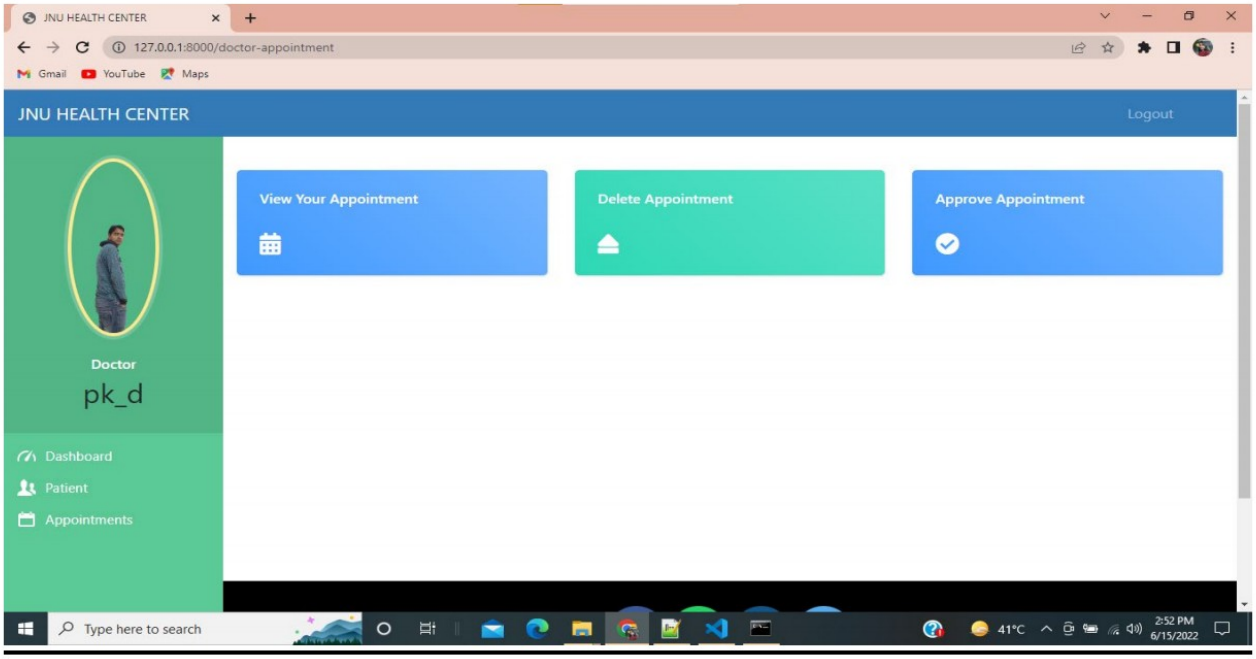
- **Name** (First name + Last name)
- **Username**
- **Password**
- **Department name**
- **Mobile no.**
- **Address**
- **Recent Photograph**



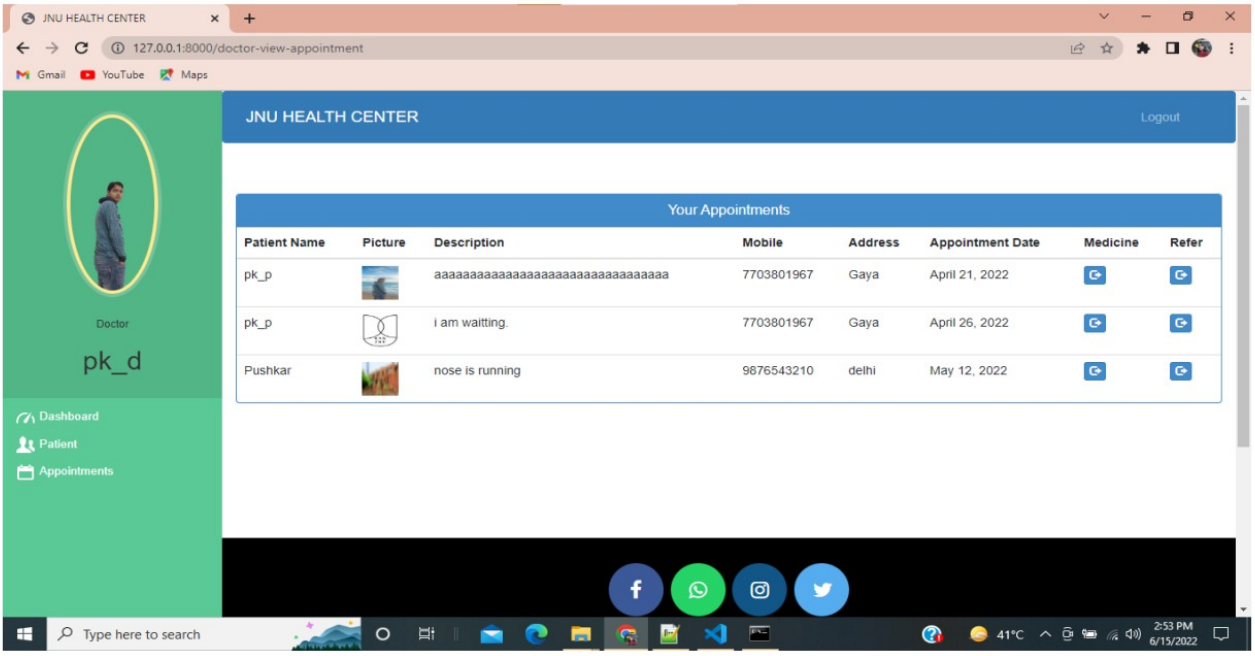
Doctor Dashboard: After login such a dashboard will open. It shows the **appointments and patient history allotted under him.**



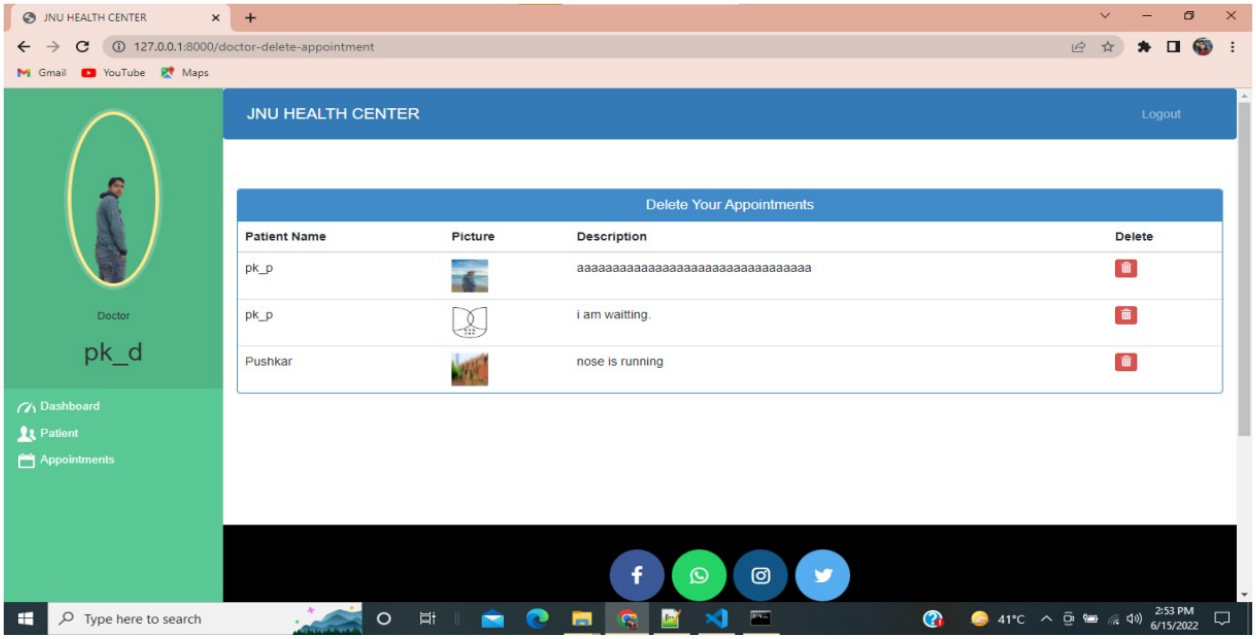
Doctor Appointments:



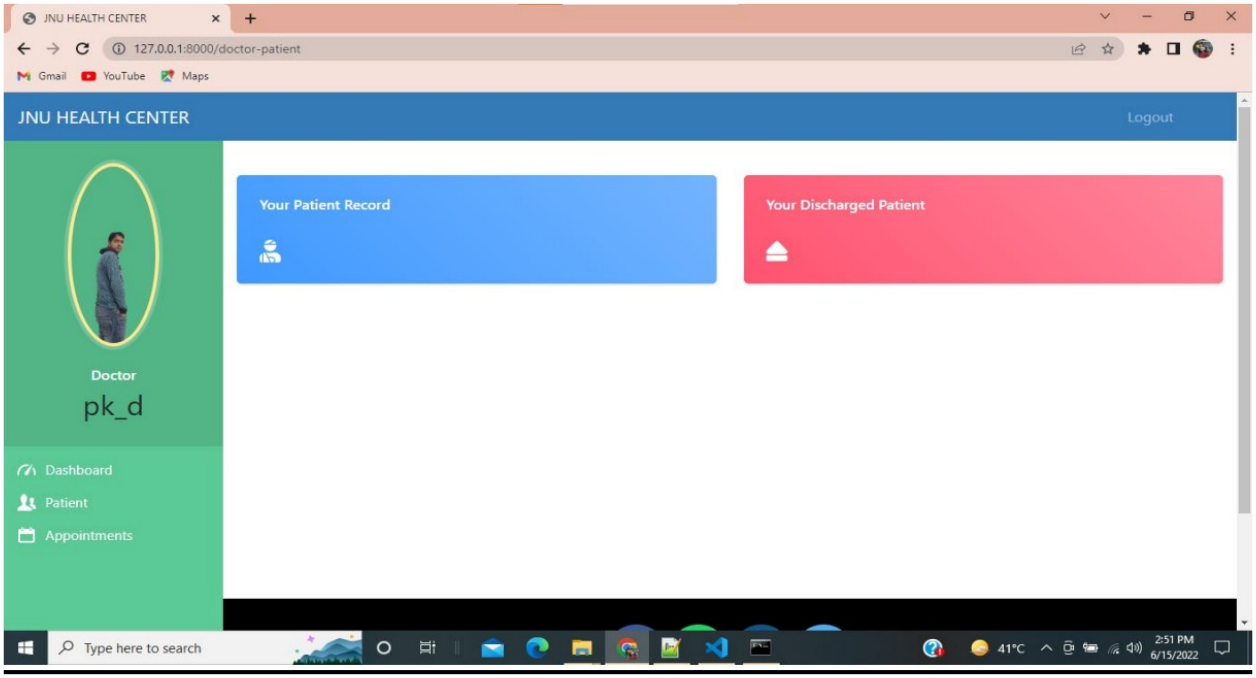
<u>Doctor View Appointments</u>: Here doctor will see the **appointments allocated under him**.



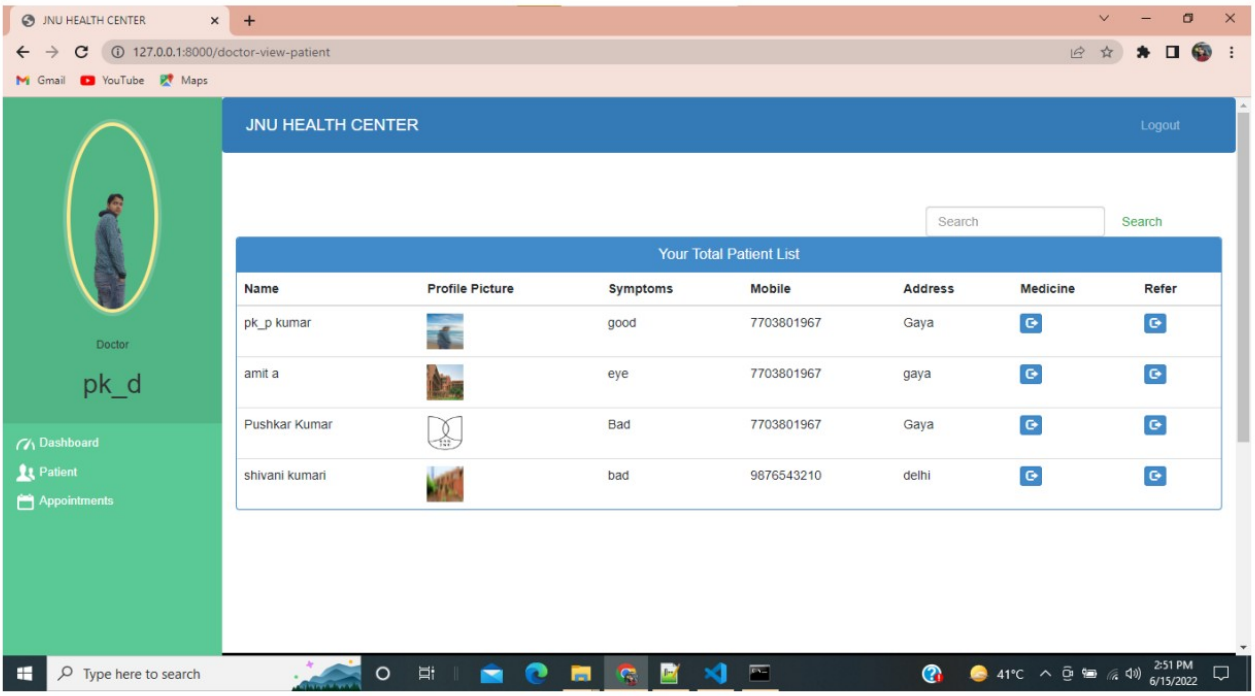
<u>Doctor Delete Appointments</u>: Here doctor can **delete the appointments** if he is not available.



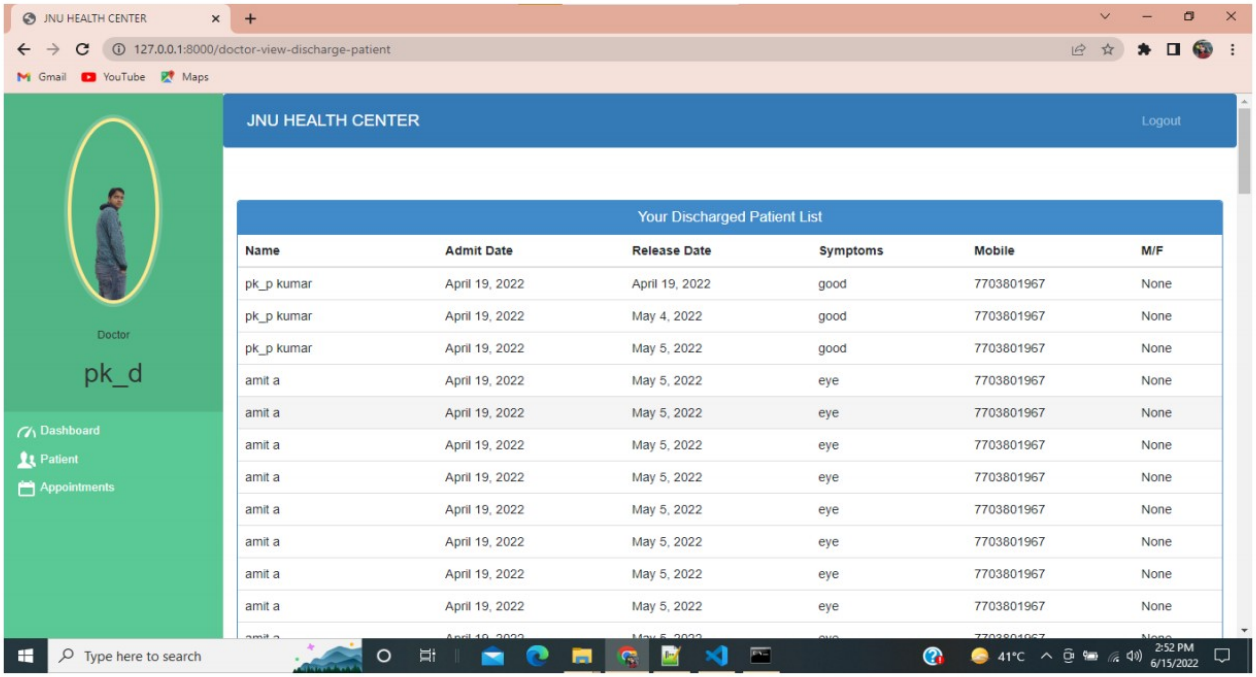
<u>Doctor Patient view:</u> Here doctor can see **patient records**.



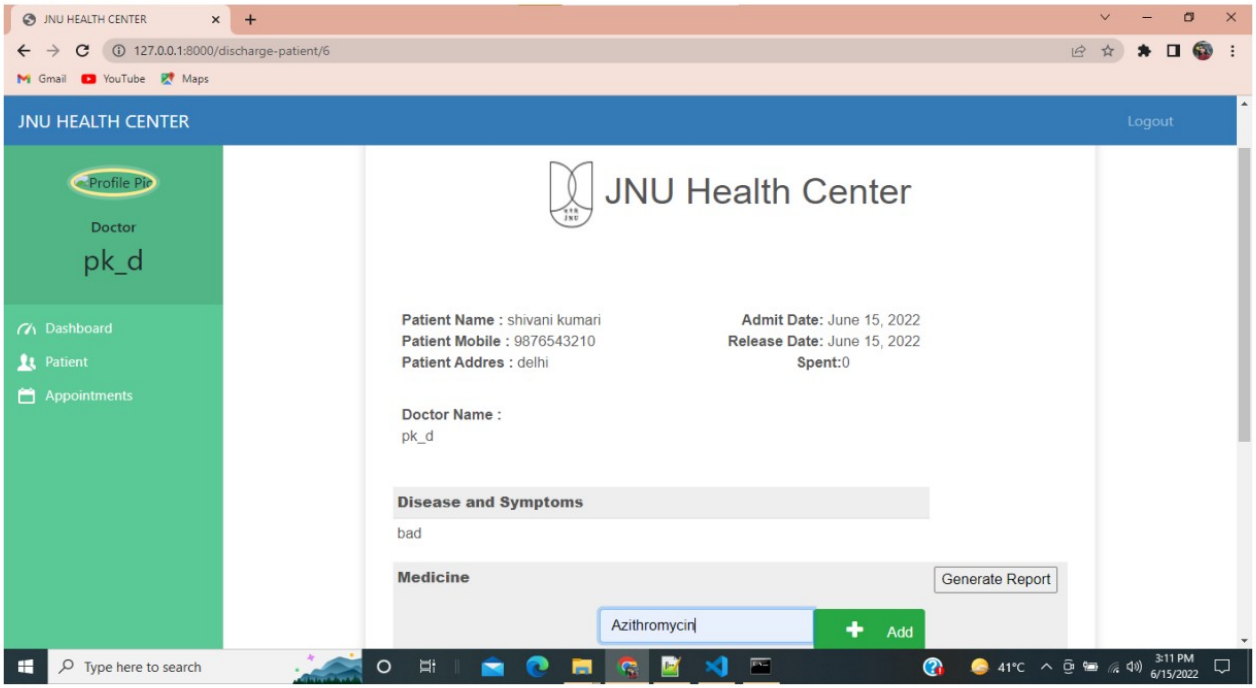
<u>Doctor View Patient List</u>: Here doctor will see the **list of all the patient's admitted under him.**



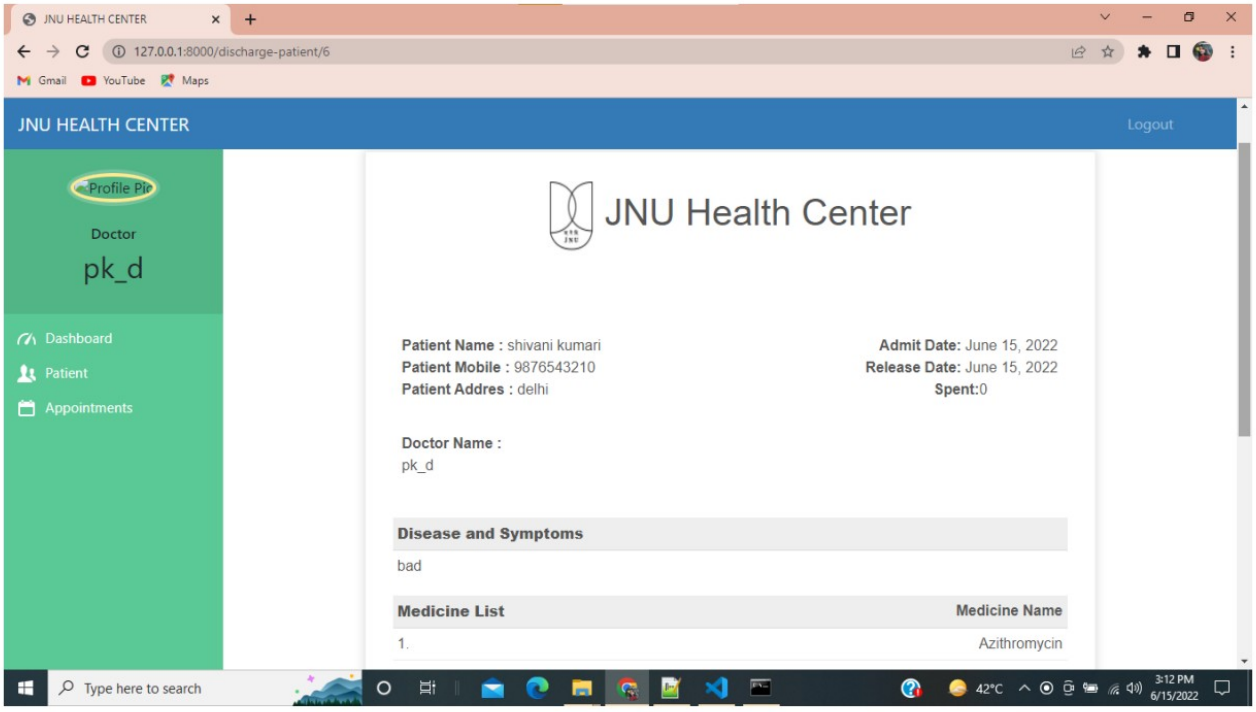
Doctor Discharged Patient List:



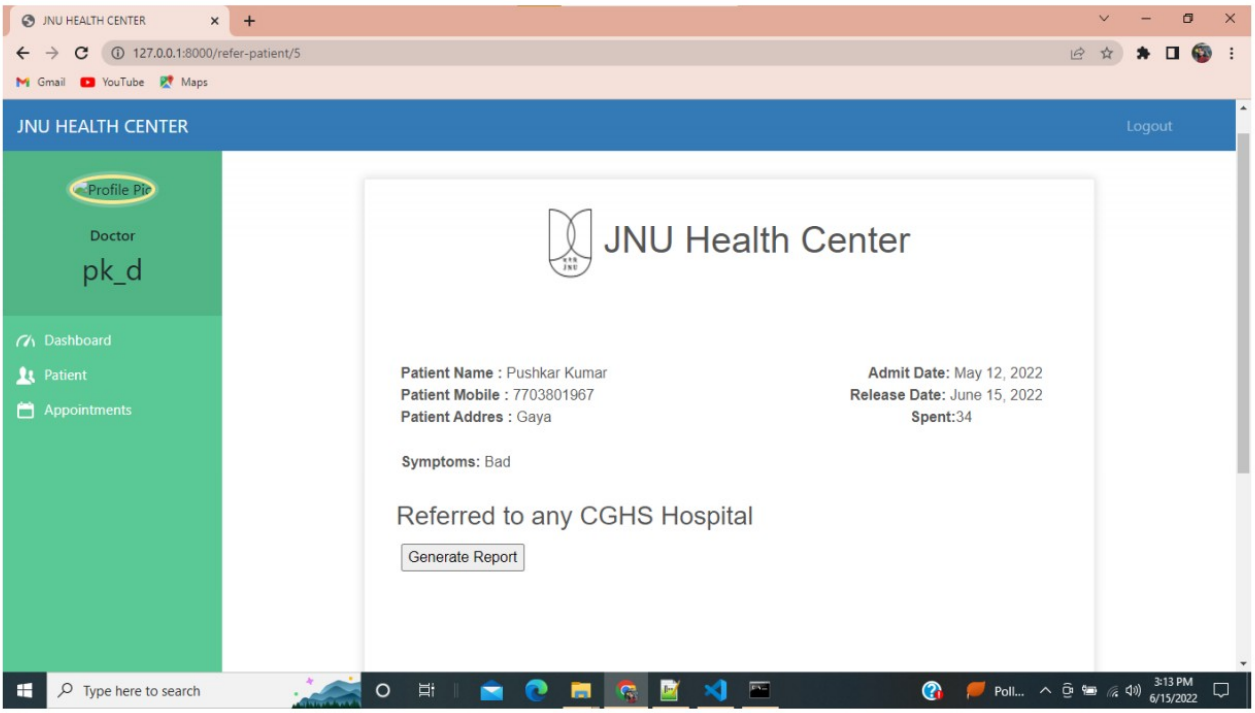
Doctor Gives Medicine to Patient: Here doctor will **write the medicine to a patient.**



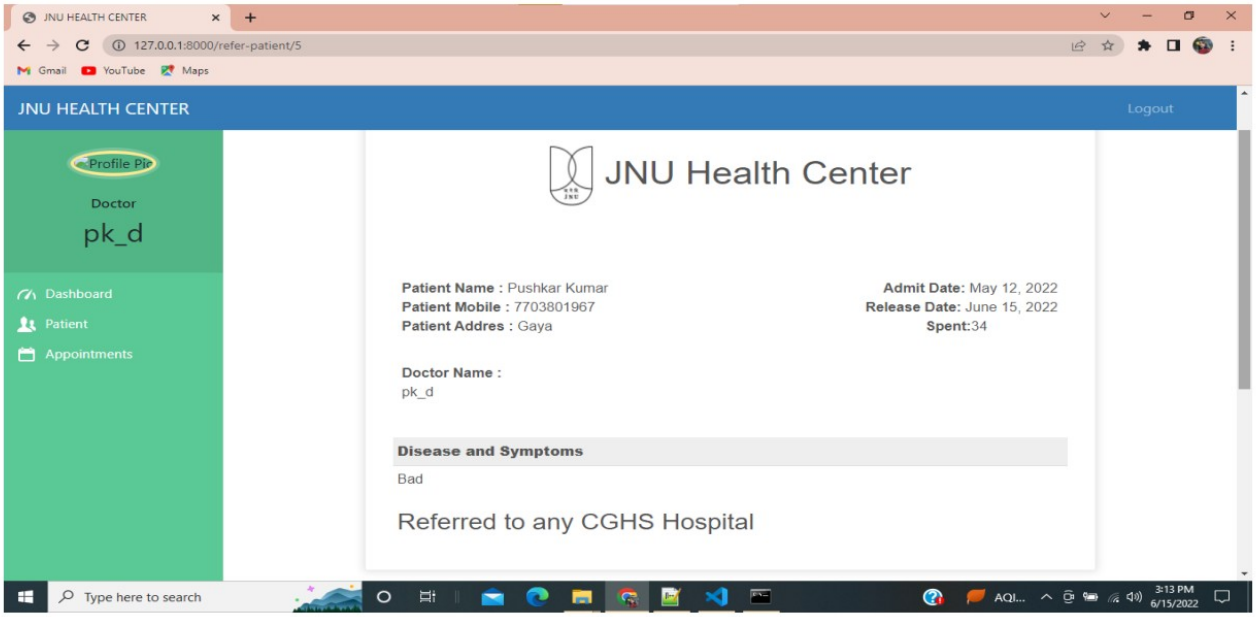
Doctor Generate Report:



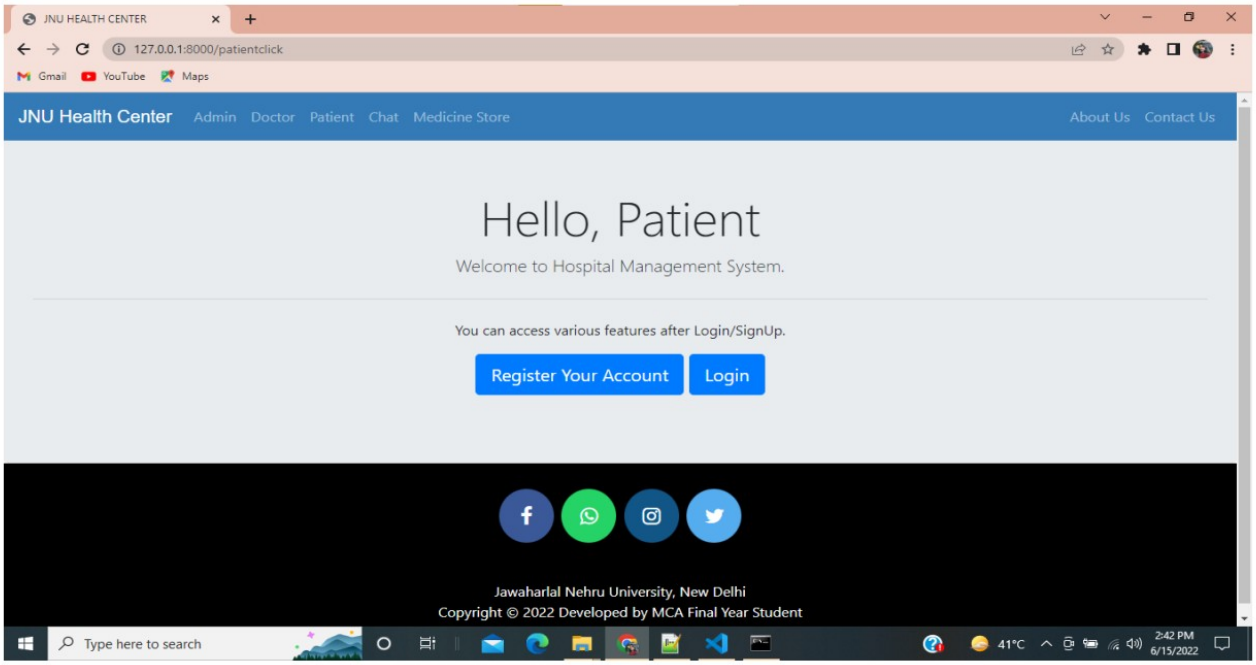
Doctor Refer a Patient: Here doctor can refer a patient.



<u>Doctor Generated Referral</u>: Referral by a doctor for any other hospital.

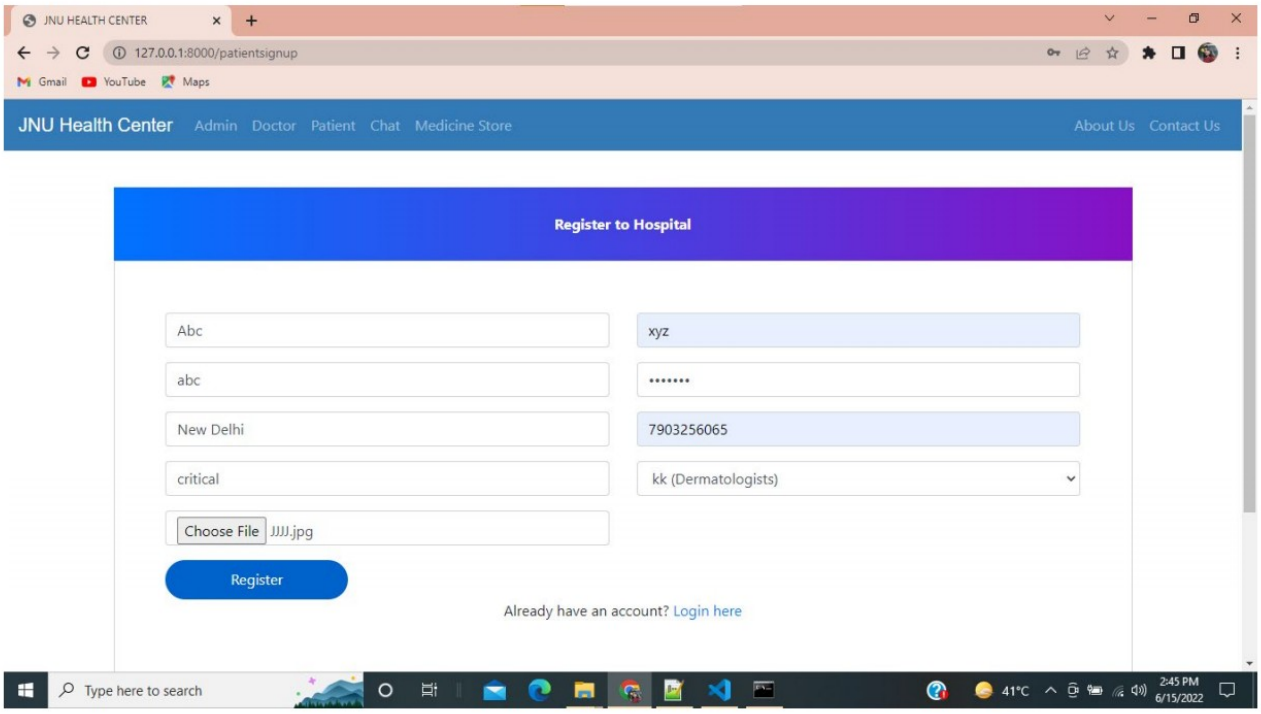


<u>Patient click</u>: After clicking on patient, it is the first page and ask for **register your account/login**.



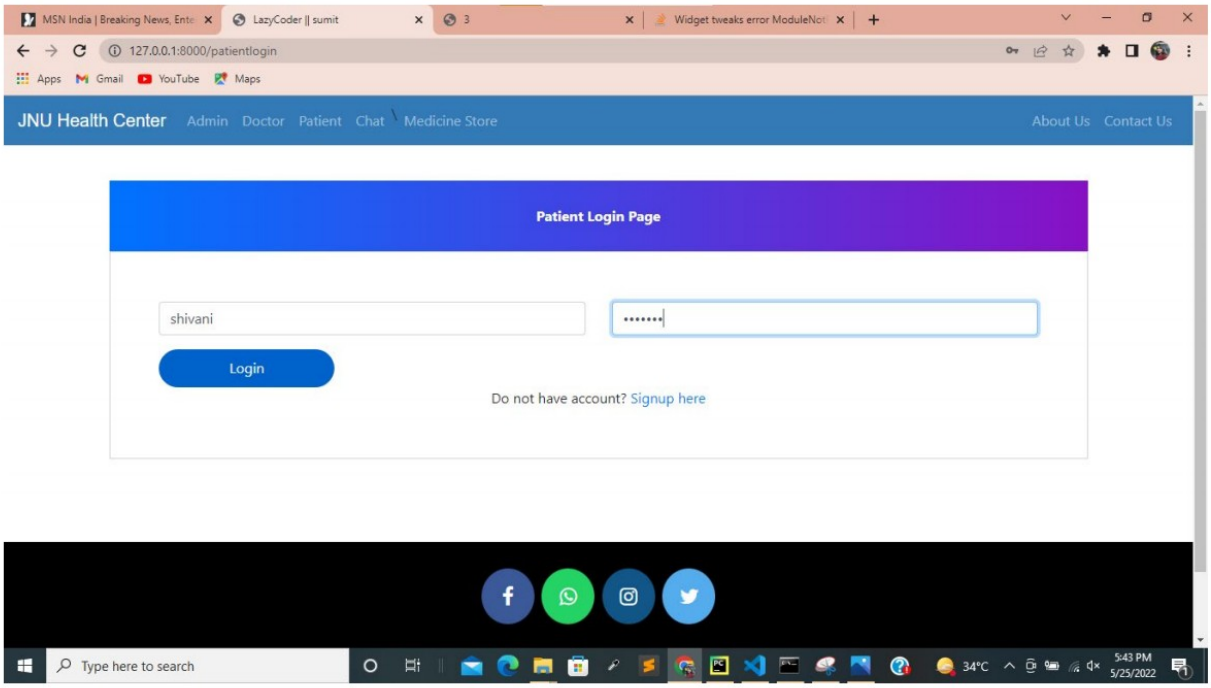
<u>Patient Registration View</u>: Here a new patient can register itself if he/she is first-time user here or else he/she can login directly. While registration he/she needs to enter the following details:

- **Name** (First name + Last name)
- **Username**
- **Password**
- **Symptoms**
- **Related Department**
- **Recent Photograph**

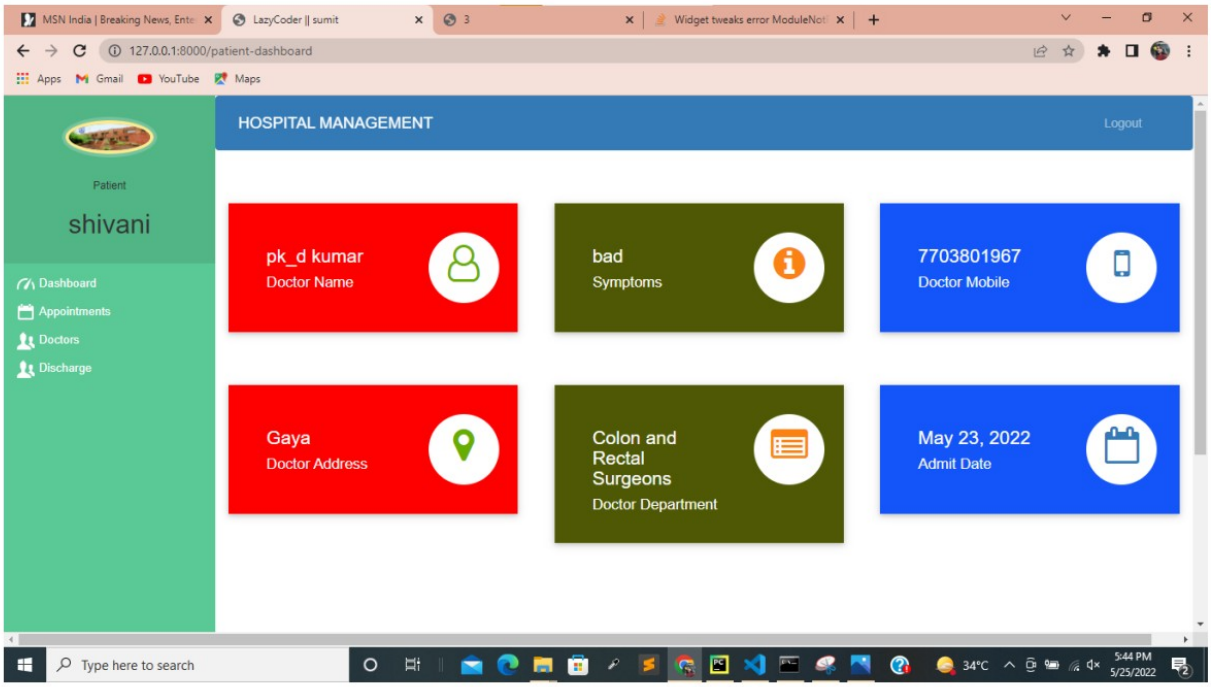


Patient Login View: Here patient can login if he/she is already registered or else he/she can go to sign up. While login the patient needs to enter following details:

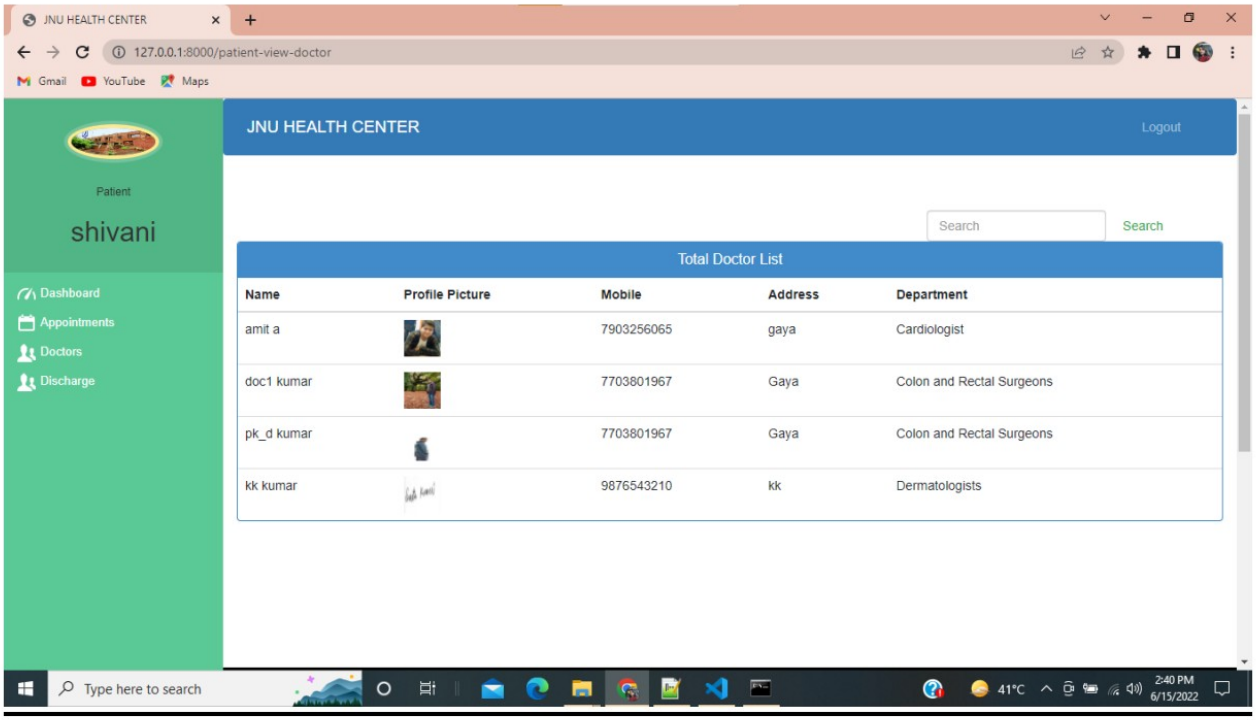
- **Username**
- **Password**



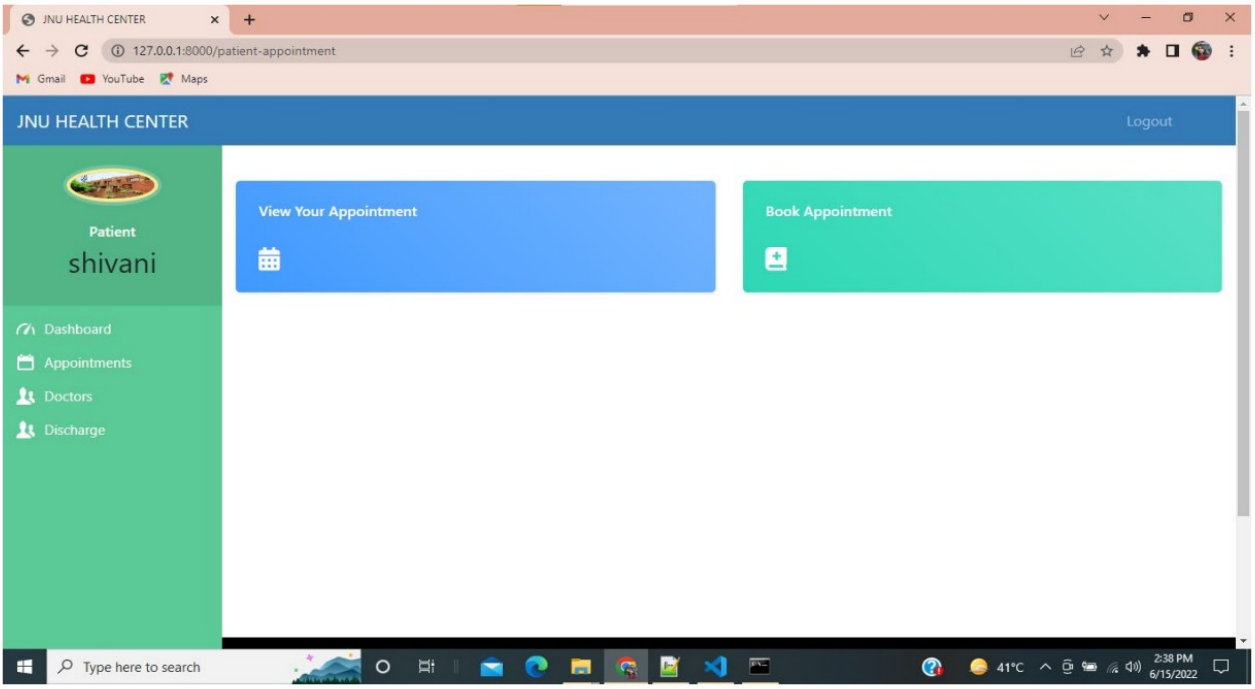
Patient Dashboard: This dashboard will open after patient login successfully and here all the **details related to that patient will be shown like mobile no., address, admit date, symptoms, assigned doctor name and his department.**



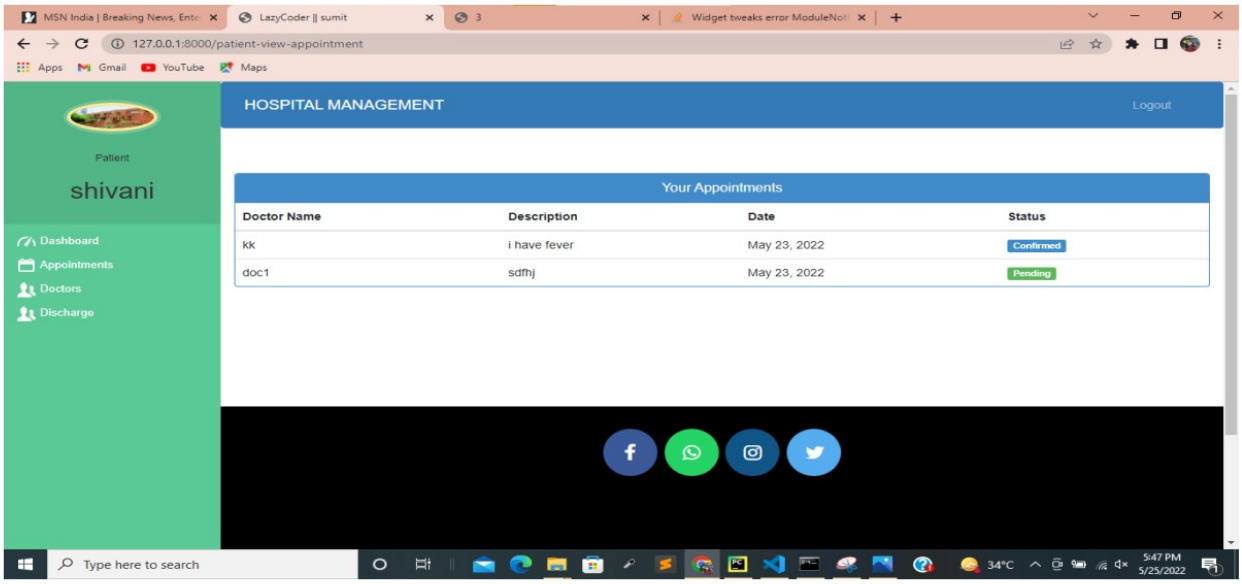
Patient view Doctor: Here patient views doctor list.



<u>Patient Appointment Details</u>: Here patient can view all the details related to appointments **like status of appointment whether it is approved or not and also, he can book a new appointment.**

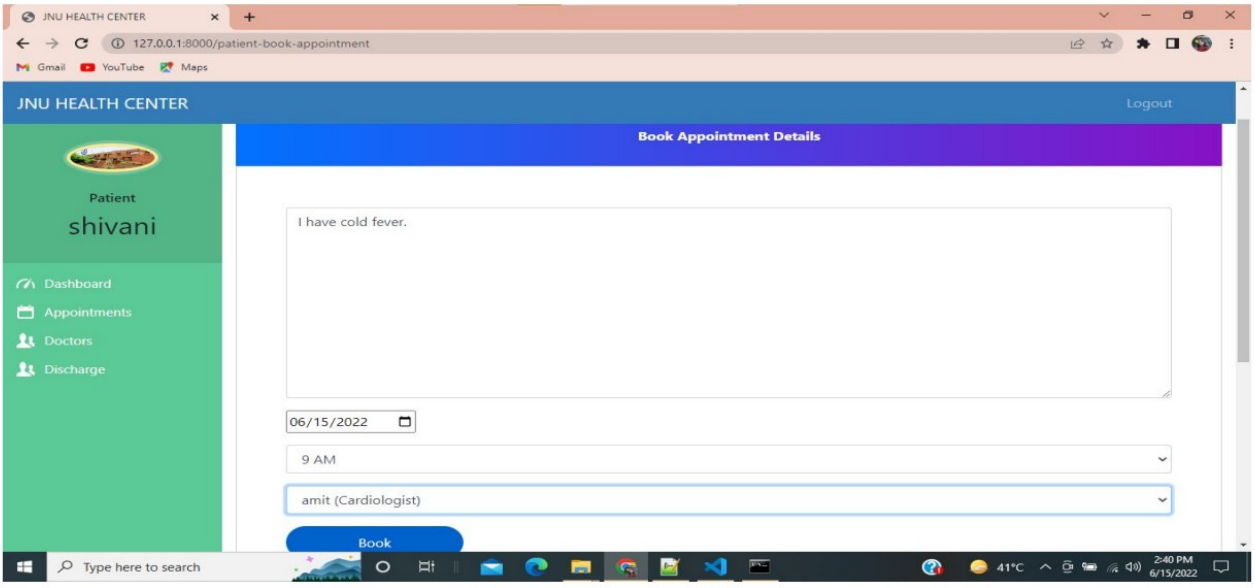


<u>Patient Own View Appointment Status</u>: Here the **status of patient appointment** is shown whether it is **confirmed or pending.**

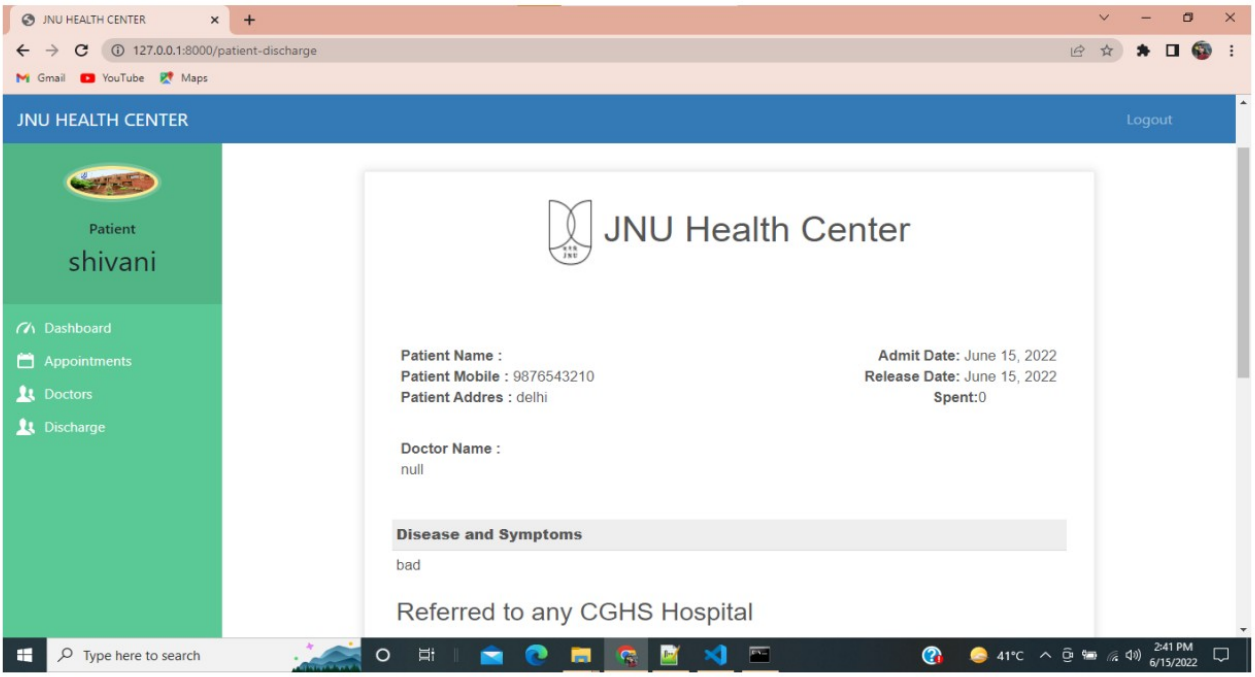


<u>Patient Book Appointment</u>: Here patient **can book an appointment** by entering the following details:

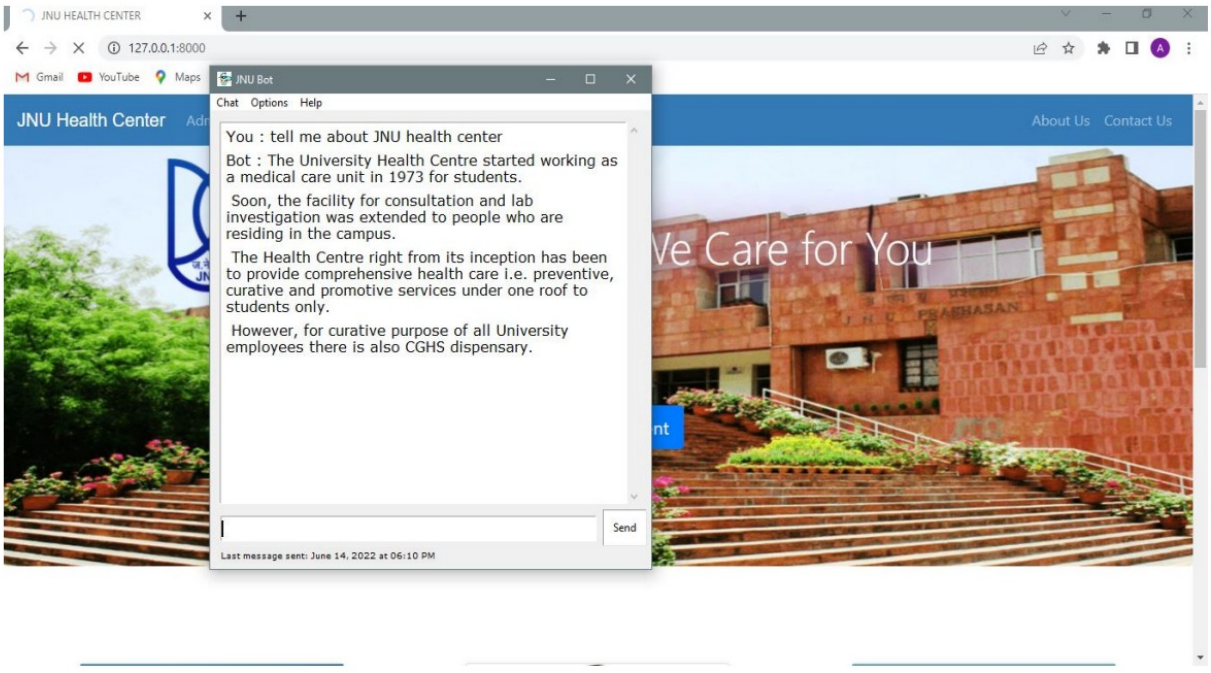
- **Symptoms**
- **Date**
- **Time**
- **Corresponding Doctor**



<u>Patient Own View Discharge Report</u>: Here patient can view the **discharge summary of itself**.



<u>Chat Bot</u>: Here the user can **ask for queries related to the JNU health center.**



What is a chatbot?

A chatbot can be defined as an AI based computer program that simulates human conversations. They are also known as digital assistants that understand human capabilities. Bots interpret the user intent, process their requests, and give prompt relevant answers.

Why Chatbot: -

In our project of JNU medical system automation it is quite possible that the users of the system have some queries regarding health center timings, payments, contact number and many other things.

This chatbot will assist them to resolve their queries quickly and guide them in an interactive manner. This chatbot can be their virtual assistant on demand.

About this Chatbot: -

This chatbot is based on machine learning model. It first uses the natural language processing concepts like tokenization, stemming and bag of words to generate the vector and then fetch the result by using neural network.

Technologies used: -

Programming language- Python 3.9

Main libraries used:

- Torch

- NLTK
- Tkinter (front end)

Features:

Unlike regular chatbots, this software has some additional features.

- **Personalization:** From the 'options' menu in the menu bar we can choose multiple fonts style and themes to customize our experience of using the bot.

  It currently has five font style and five themes.

- **Text-to-speech features:** In the 'chat' menu in menu bar there is an option 'speak'.

  This will convert all texts which are in the chat window to speech. This feature will make the chatbot easily accessible to anybody.

- **Other features:** This chatbot also have some other unique features like displaying the time of last sent message, clearing the overall chat window. There is also a feature which tells about this chatbot.

Queries:

This bot can detect various text patterns and generate the relevant information.

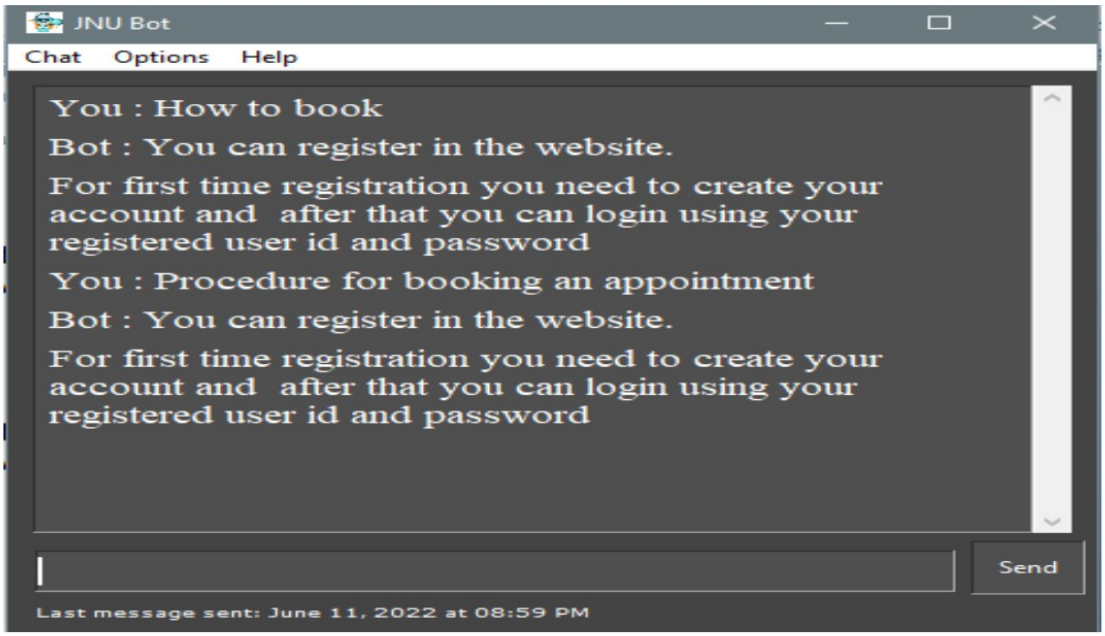
- **Greetings:**

This bot can detect various types of greetings from user and can generate multiple responses.

Font- Default **Theme- Default**

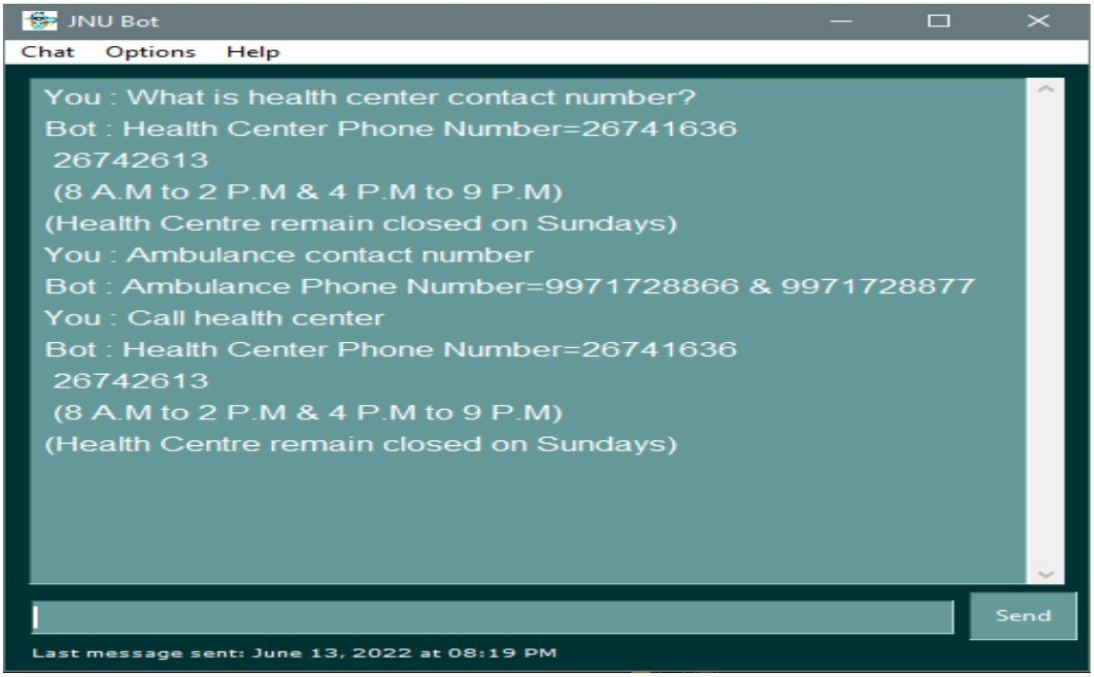
- **<u>General queries:</u>**

Font- Times **Theme- Grey**



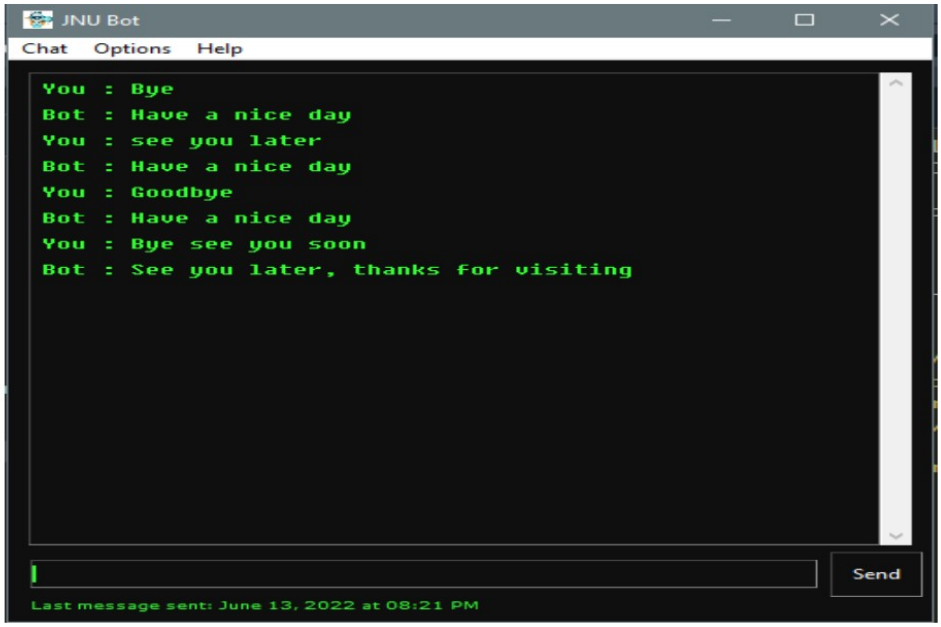
Font- System Theme- Blue

Font- Helvetica Theme- Torque



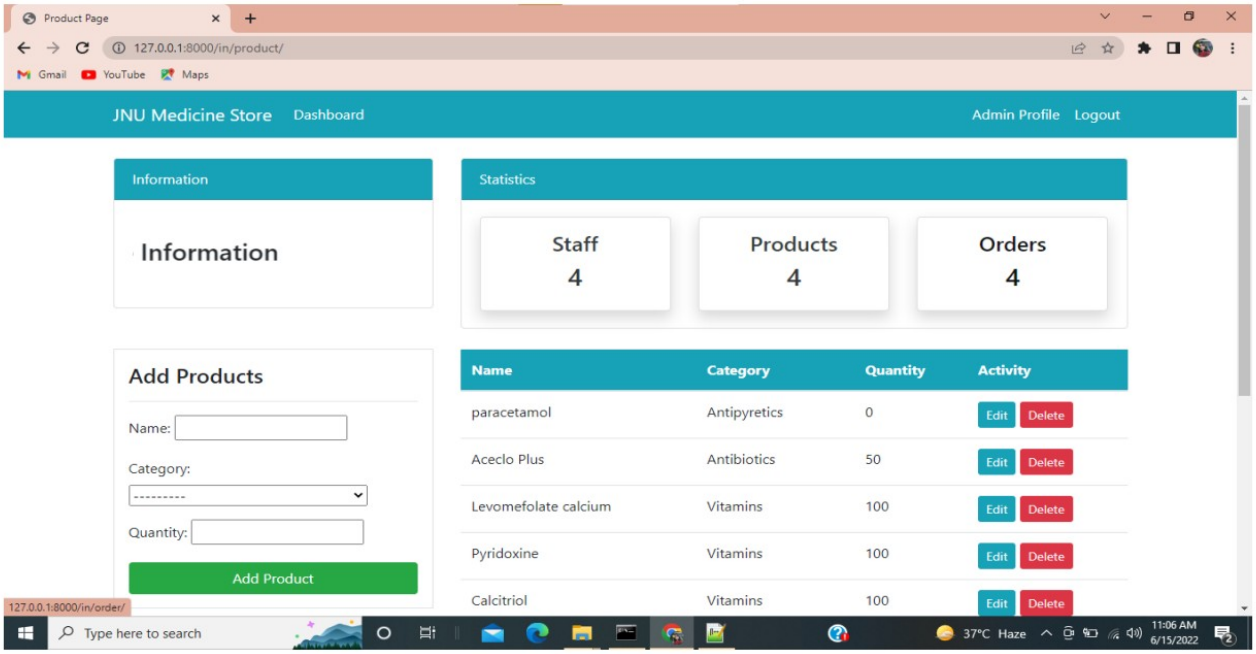
- **Bye:**

Font- Fixedsys Theme- Hacker

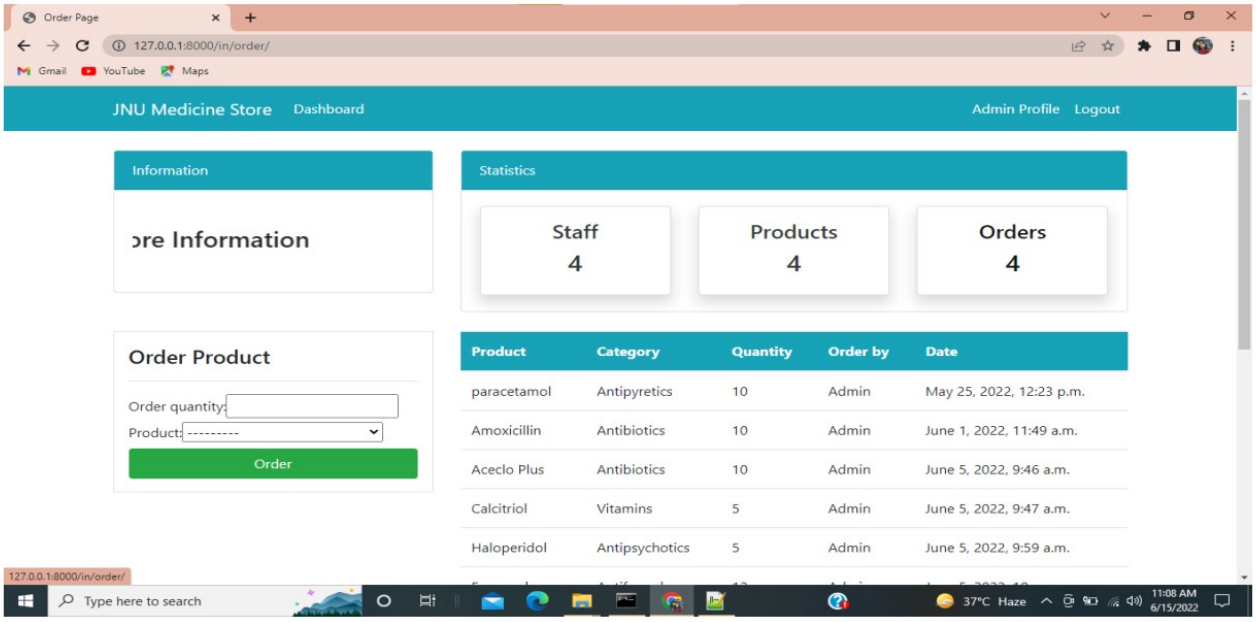


- **For unknown queries:** If there a query occurs where the chatbot does not have any response, it will provide a link to the official site of the JNU health center through another widget in which a user can click to visit.

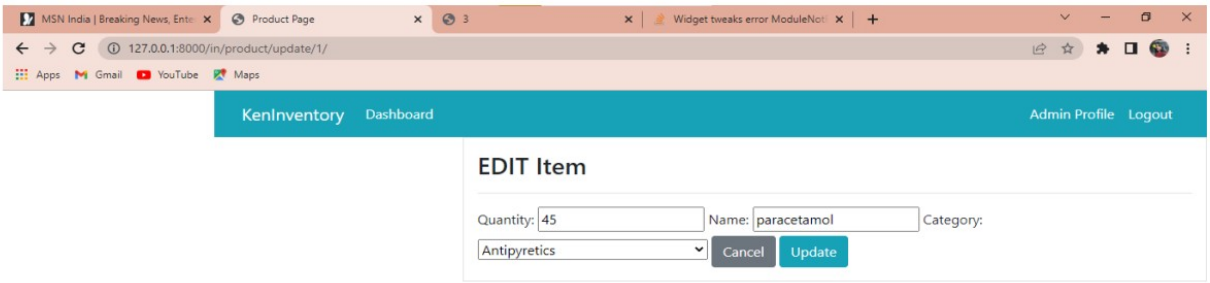
<u>Medicine Inventory</u>: Here medicine is **added, deleted, updated** into the database.



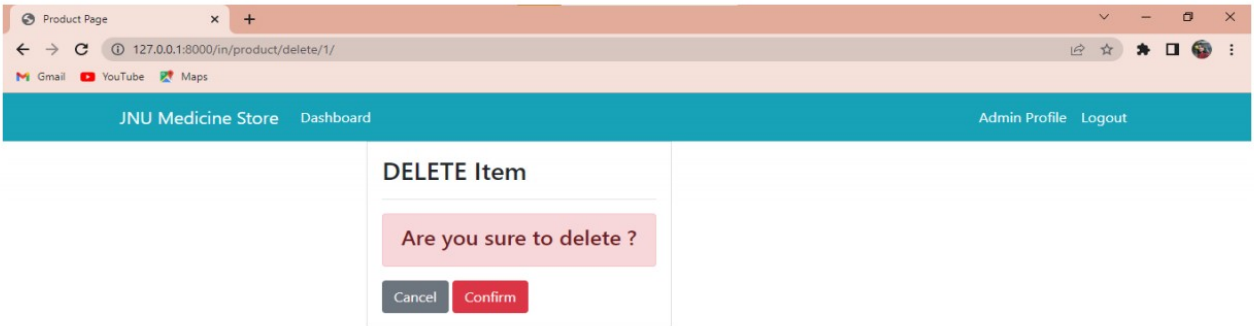
<u>Medicine Order</u>: Here a record is maintained **how much medicine is ordered and by whom.**



<u>Medicine Update</u>: Here the medicine provider is **updating all the medicines manually.**

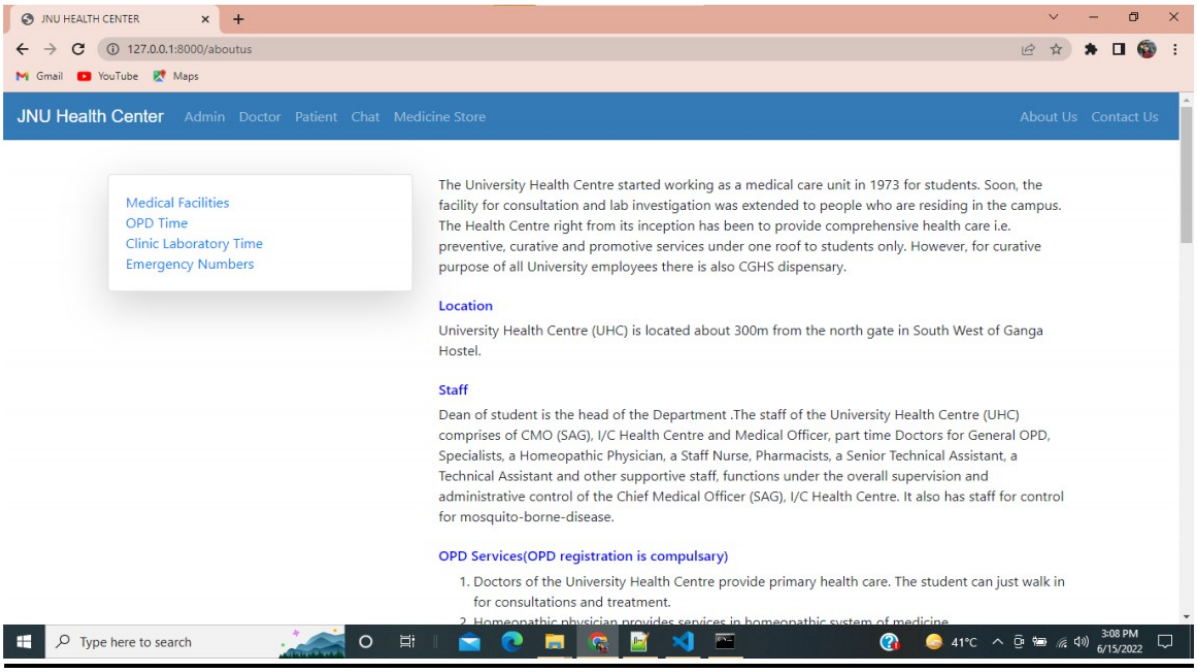


<u>Medicine Delete:</u> Here a medicine is **deleted manually**.

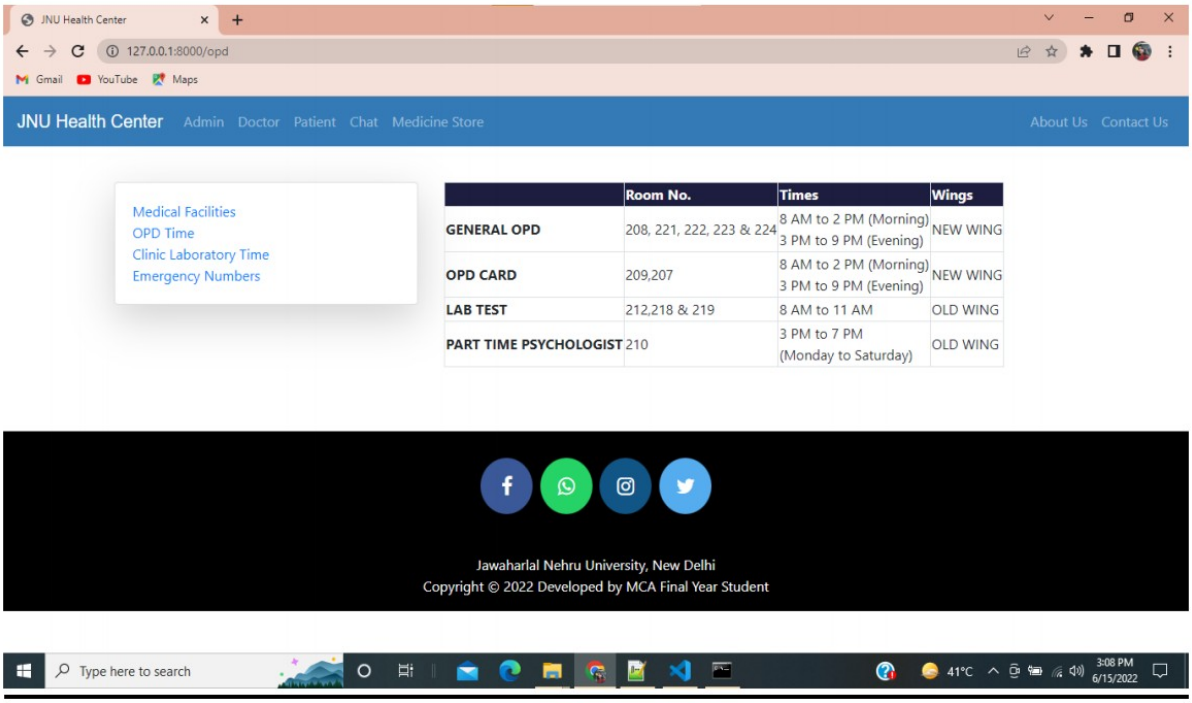


About Us: Upon clicking About Us you will get the information about the JNU health center.

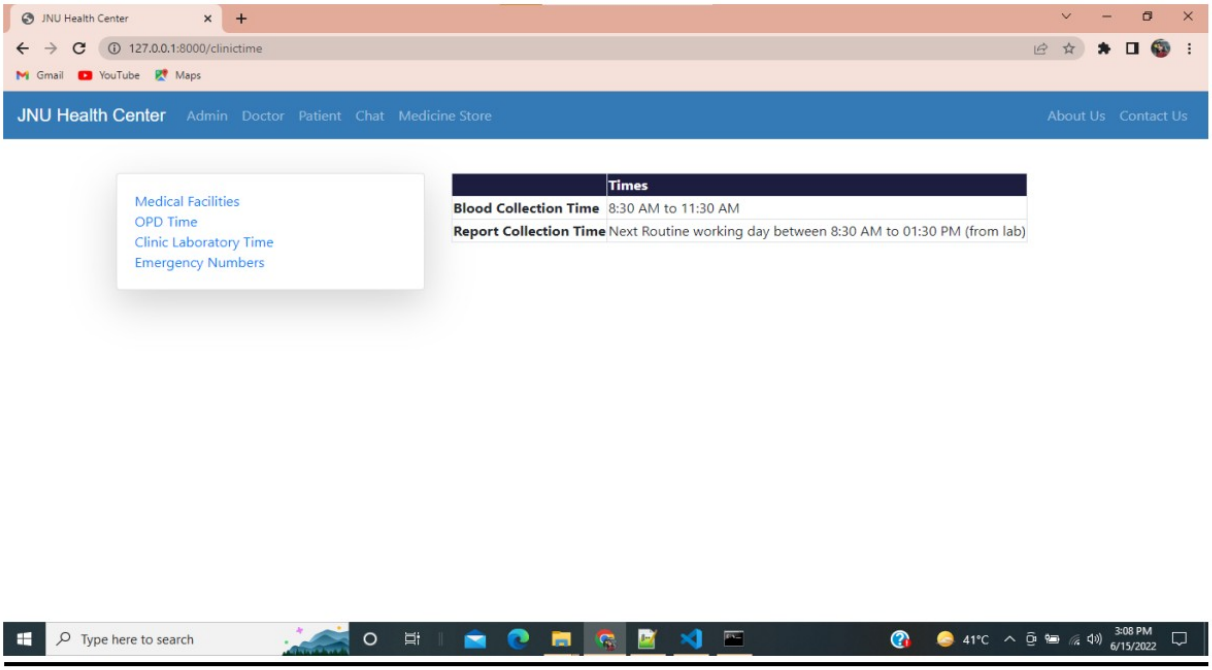
- **Medical Facilities:** Here you will get to know about the **medical facilities available in the JNU and procedure how to avail it.**



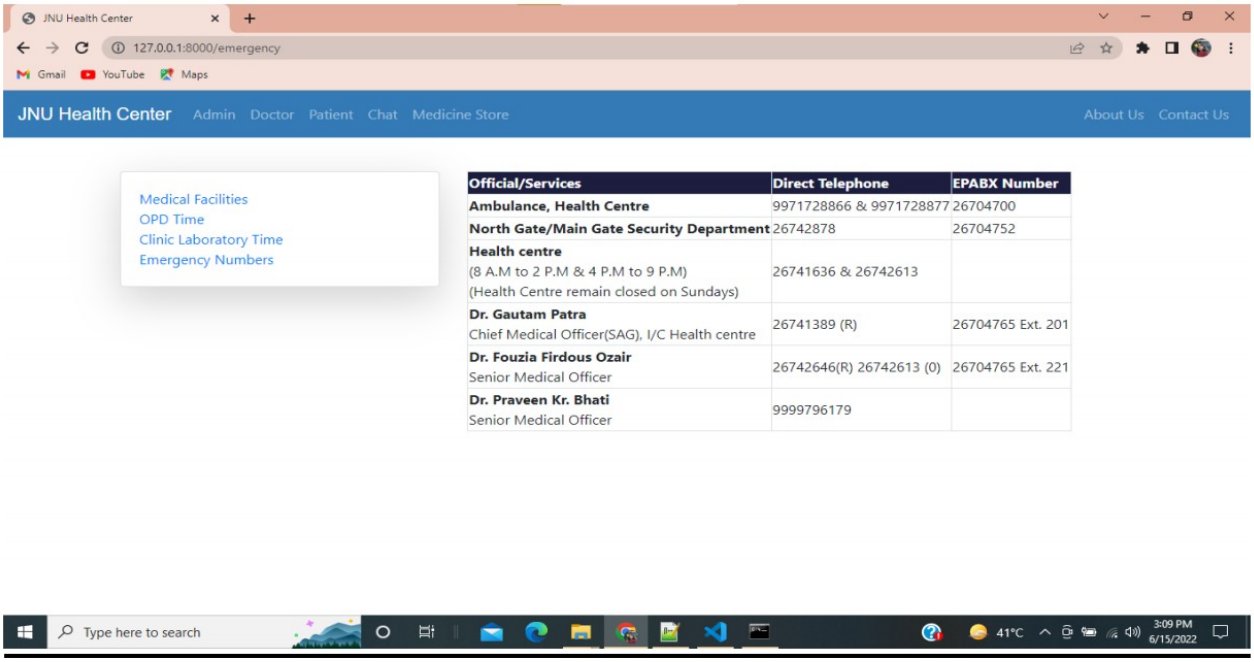
- **OPD:** Here you will get to know about the **corresponding room numbers department wise.**



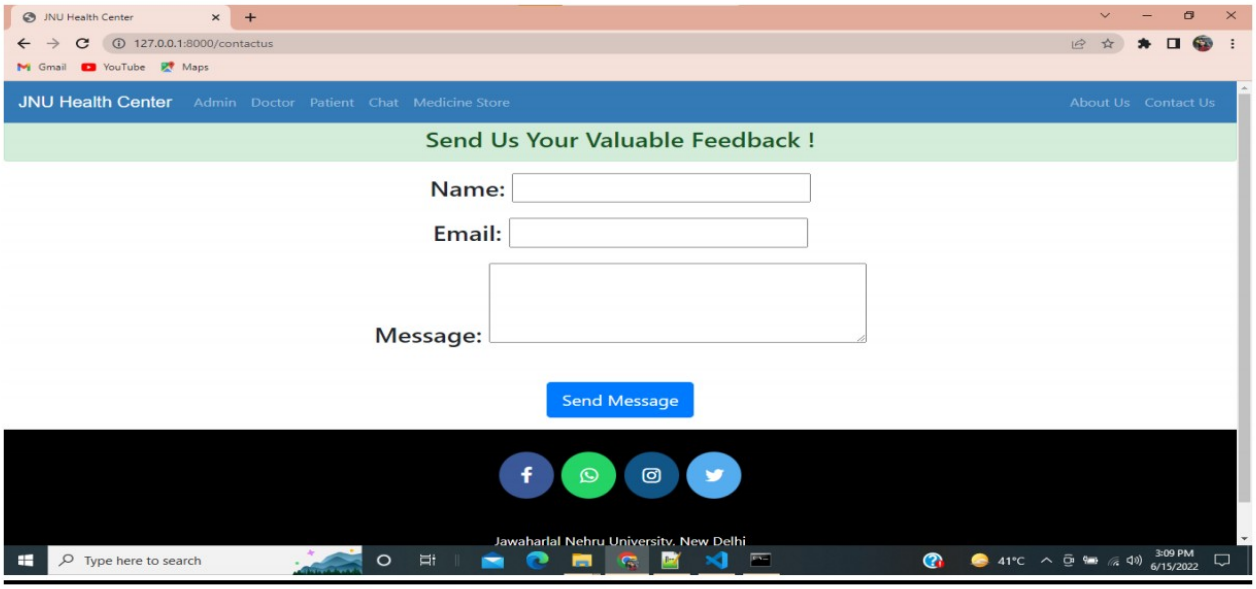
➢ **<u>Clinic Laboratory Time:</u>** Here you will get to know the **timing of blood sample and report collection time.**



➢ **<u>Emergency:</u>** Here this page shows **all the emergency numbers like ambulance, security, CMO number etc.**

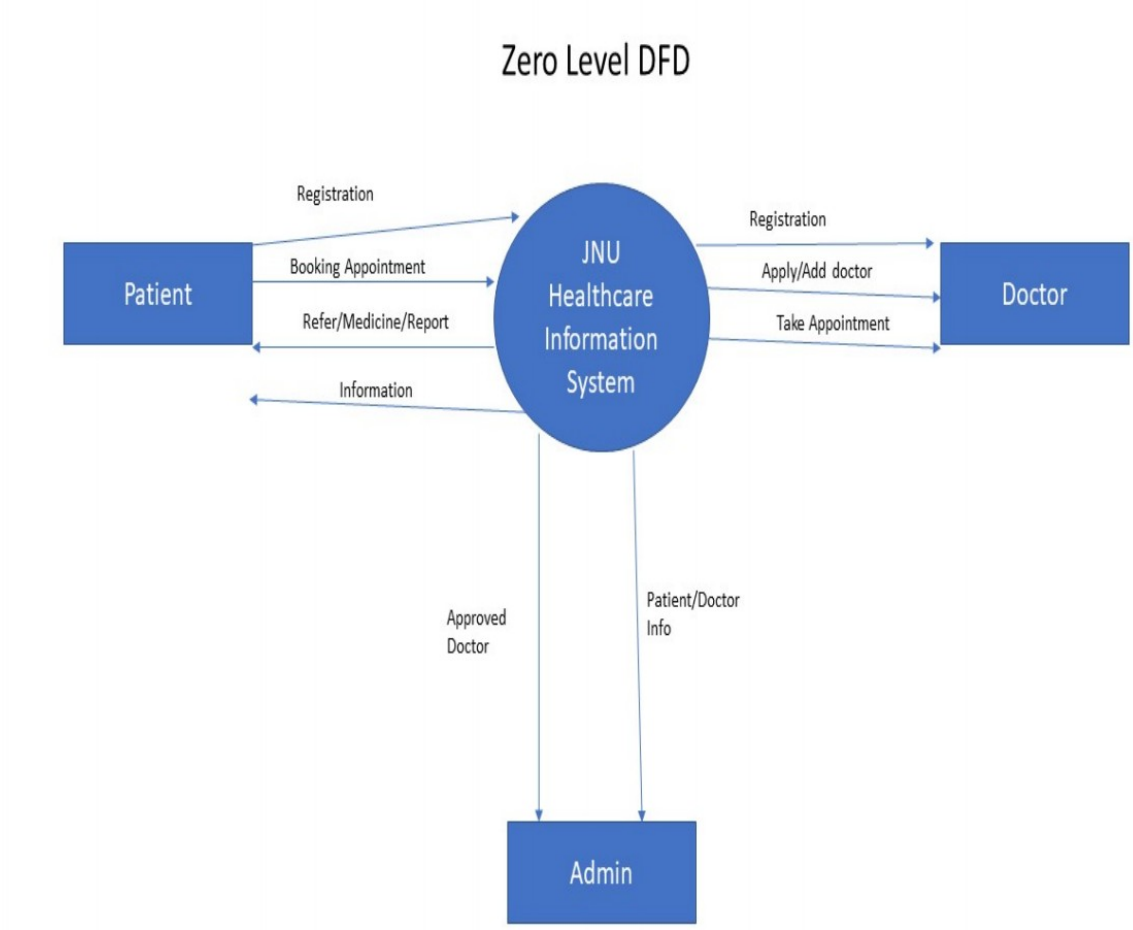


<u>Contact Us:</u> Here you can give **feedback to the JNU center on his medical facilities** just by entering your name and email id.

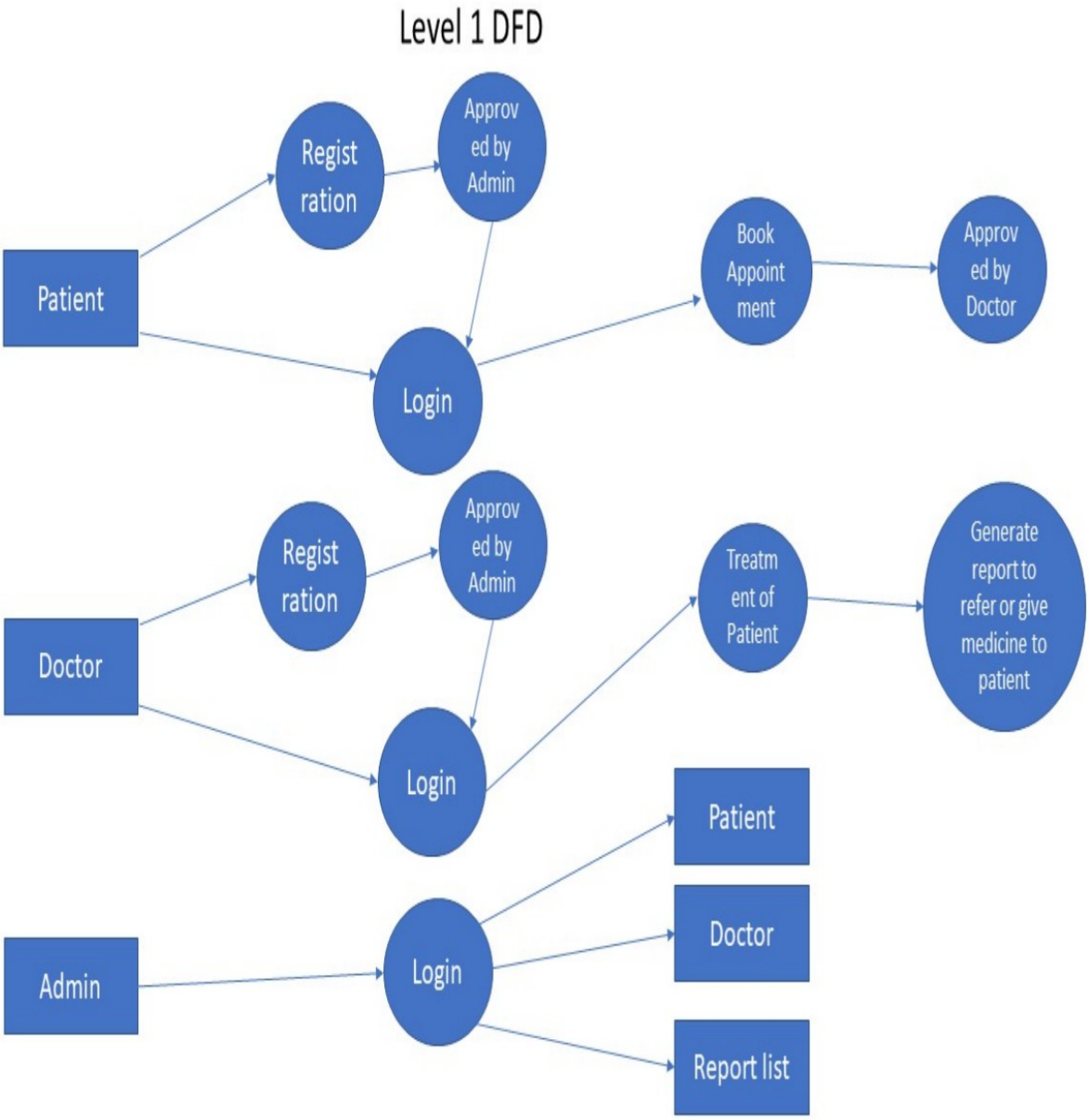


DATA FLOW DIAGRAM

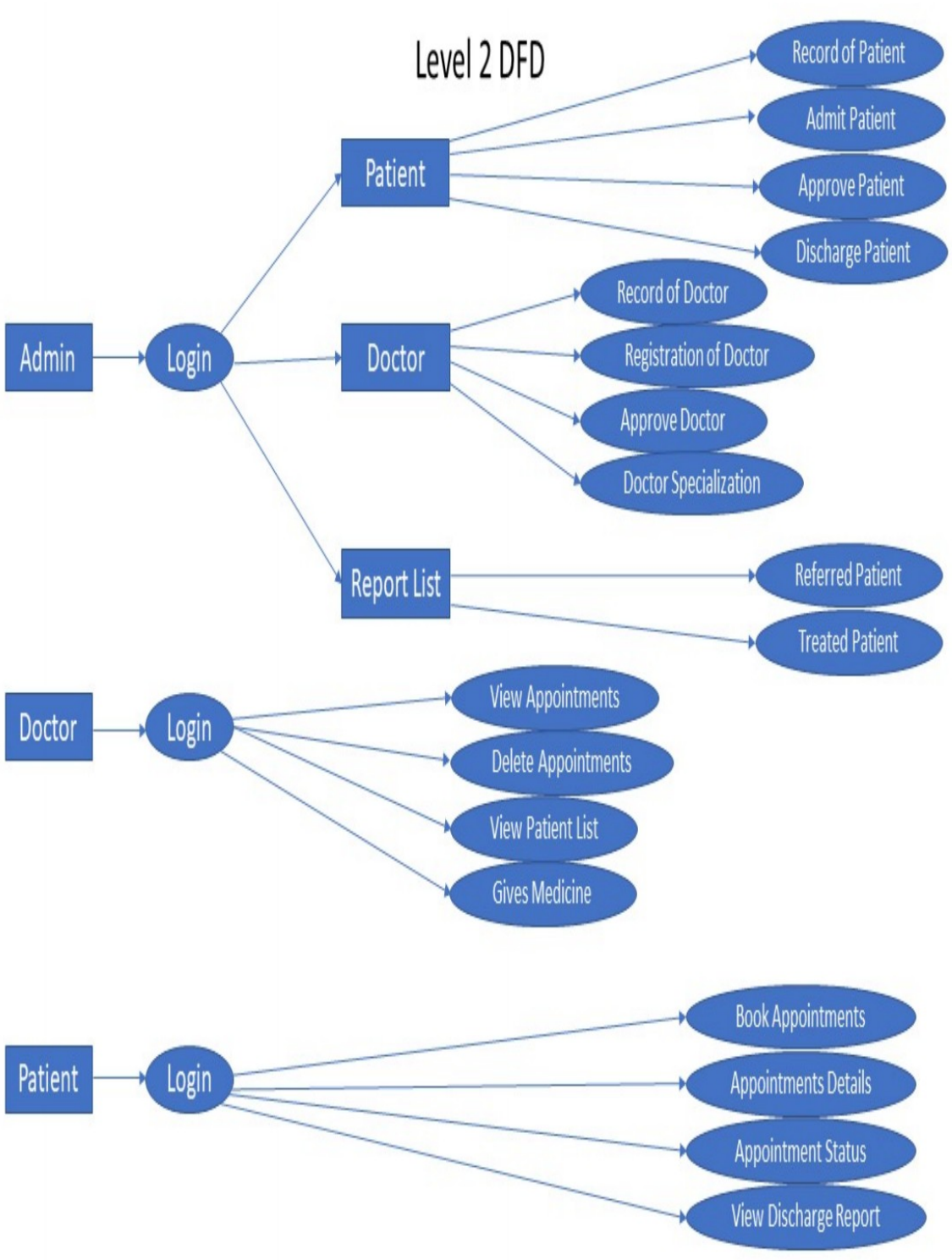
ZERO LEVEL DFD:



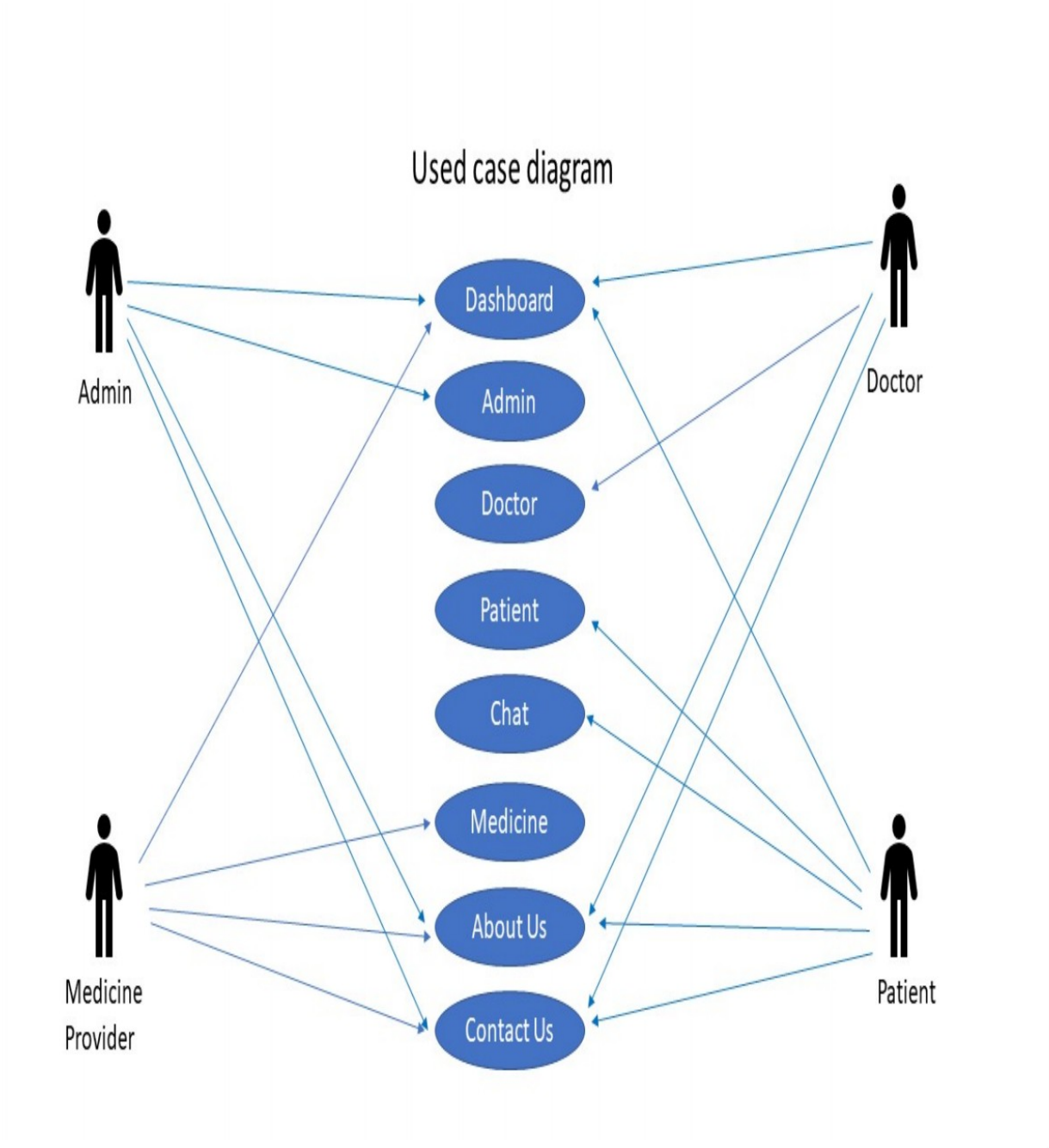
LEVEL ONE DFD:



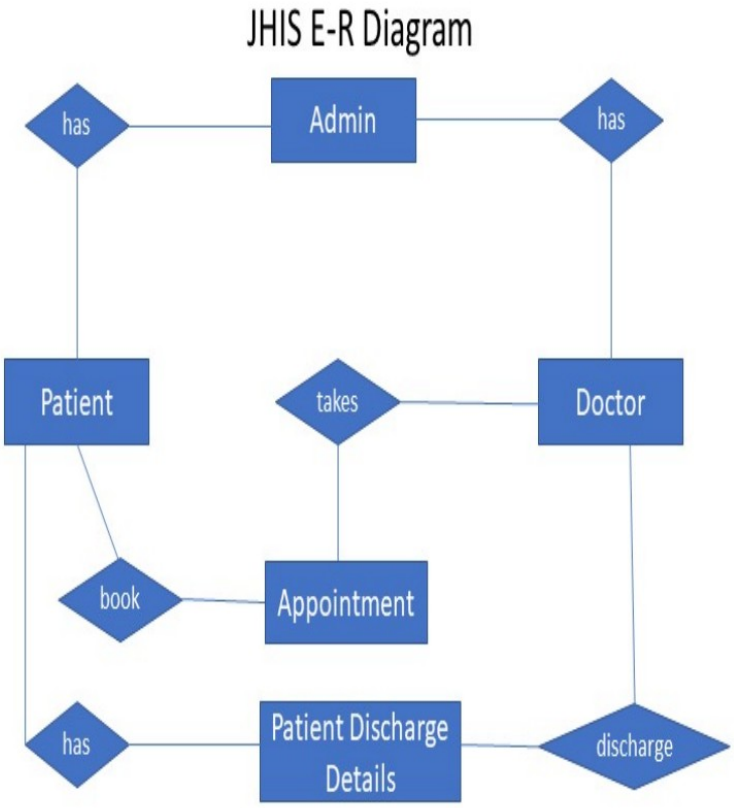
LEVEL TWO DFD:



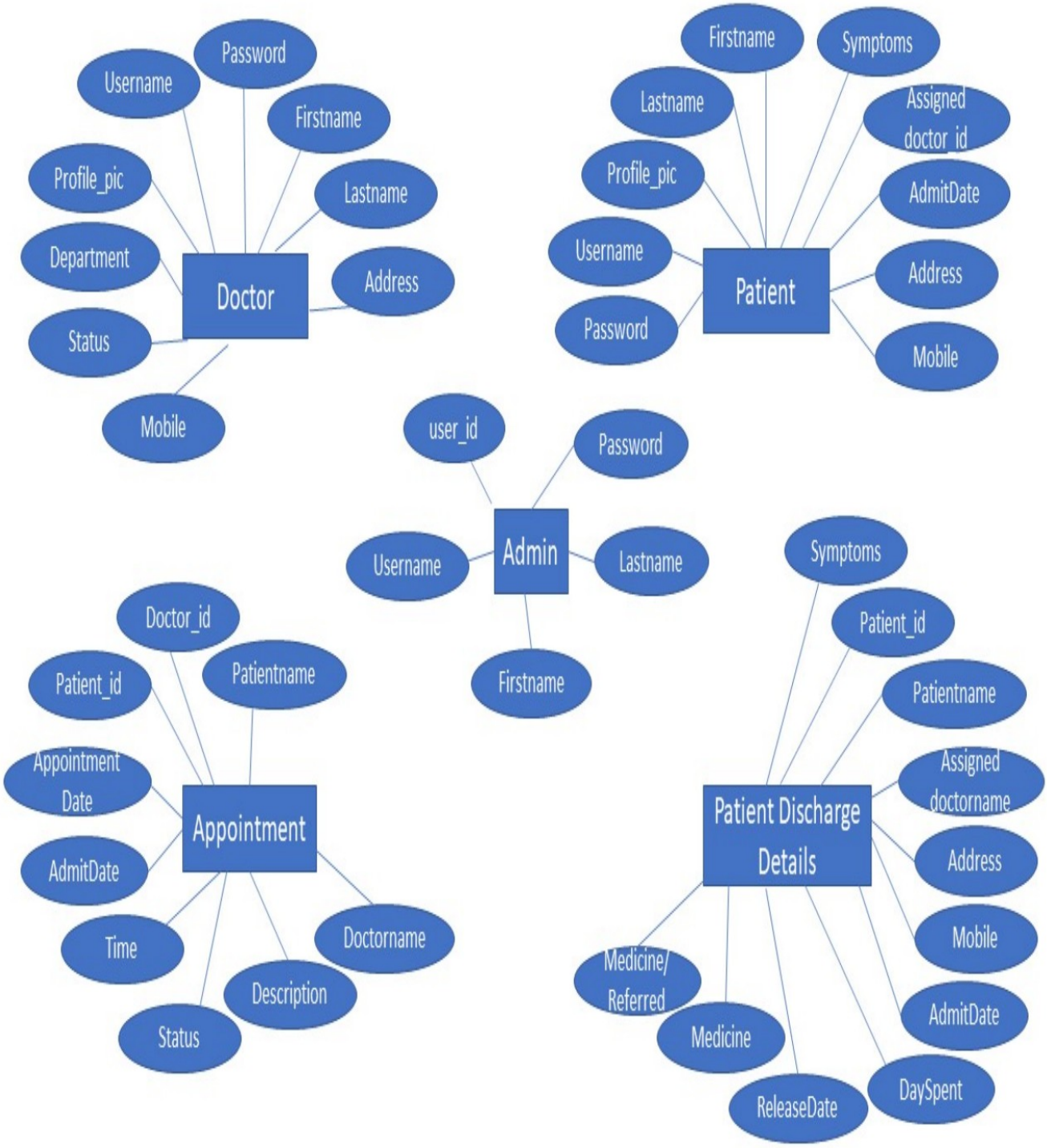
USED CASE DIAGRAM:



E-R DIAGRAM


JHIS E-R Diagram
has
Admin
has
Patient
takes
Doctor
book
Appointment
has
Patient Discharge Details
discharge

Entities with their corresponding attributes:



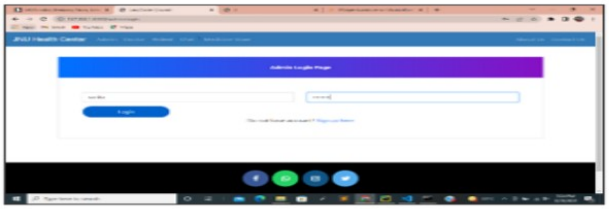
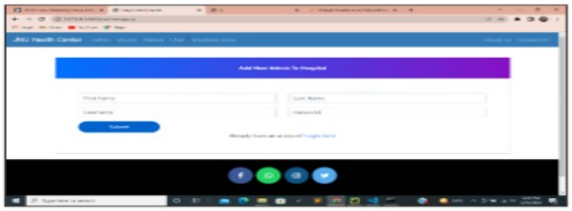
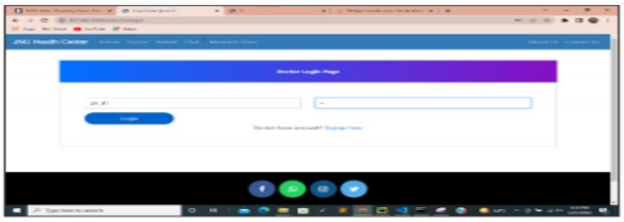
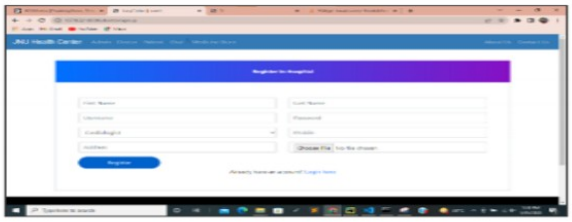
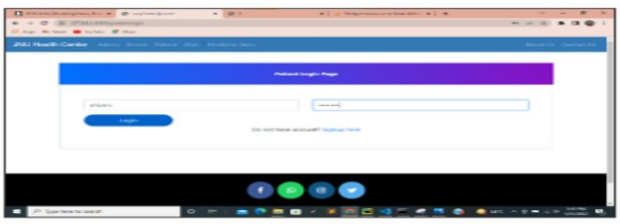
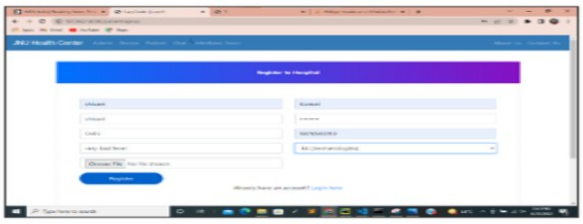
TESTING

Test Cases for JNU Healthcare Information System [JHIS]

- Check by entering the correct URL in the browser, and the application should be loading properly
- Check is there any user verification functionality present on the application.
- Check by entering valid credential like username and password user should be able to log in
- Check by entering invalid credentials the user should not be login into the application, and an error message should be displayed
- Check if the JNU healthcare information system has an option to add a new patient
- Check whether all the mandatory fields are present while registration
- Check after adding a new patient the patient must to be allowed to login.
- Check whether the patient card has the details like assign doctor name, department, present application number, date of admission and discharge etc.
- Check after completion of patient checkup process the details should be updated in the patient database
- Check if the patient exists in the database, and he performs some checkup then the user should be able to search the details of the present in the database
- Check if the doctors are also able to update the passenger details after check
- Check the number of roles in the hospital management system like the patient, doctor, admin, accountant, etc.

- Check that the authorized users can see the doctor details in the portal.
- Check if there is any functionality to add a new doctor in the JNU healthcare information system, for instance, we have added patient details in the database.
- Check whether the admin users can delete doctor and patient information by the JNU healthcare information system portal
- Check after the formation of a bill that should be an option to print the bill or to generate a hard copy of the bill.
- Check the authorized users have the privilege to check the details report of the patients.
- Check the admin has all the access

Test cases for the Admin module:

Login:

Prerequisite: All fields are mandatory.

Test Case id	Testcase Objective	Steps	Input data	Expected Output	Actual Output	Status
T01	Login using correct data	1.Username 2.Password 3.Login	1.sarita 2.Sa@123	Open admin window	Open admin window	**Pass**
T02	Login using incorrect username	1.Username 2.Password 3.Login	1.amitk 2.Sa@123	Doesn't open admin window	Doesn't open admin window	**Pass**
T03	Login using incorrect password	1.Username 2.Password 3.Login	1.sarita 2.djielk	Doesn't open admin window	Doesn't open admin window	**Pass**

Signup:

Prerequisite: All fields are mandatory.

Test Case id	Testcase Objective	Steps	Input data	Expected Output	Actual Output	Status
T01	Signup using valid password	1.FirstName 2.LastName 3.Username 4.Password	1.aman 2.singh 3.aman 4.Am@123	Open login window	Open login window	**Pass**

		5.Submit				
T02	Signup using invalid password	1.FirstName 2.LastName 3.Username 4.Password 5.Submit	1.shaan 2.kumar 3.shaan 4.Sh1234	Error Password should contain at least one of them @, #, $	Error Password should contain at least one of them @, #, $	**Pass**

Test cases for the Doctor module:

Login:

Prerequisite: All fields are mandatory.

Test Case id	**Testcase Objective**	**Steps**	**Input data**	**Expected Output**	**Actual Output**	**Status**
T01	Login using correct data	1.Username 2.Password 3.Login	1.pk_d1 2.Ak@123	Open doctor window	Open doctor window	**Pass**
T02	Login using incorrect username	1.Username 2.Password 3.Login	1.amiw 2.Ak@123	Doesn't open doctor window	Doesn't open doctor window	**Pass**
T03	Login using incorrect password	1.Username 2.Password 3.Login	1.pk_d1 2.as	Doesn't open doctor window	Doesn't open doctor window	**Pass**

Apply:

Prerequisite: All fields are mandatory.

Test case id	Testcase Objective	Steps	Input data	Expected Output	Actual Output	Status
T01	Register using correct data	1.FirstName 2.LastName 3.Username 4.Password 5.Department 6.Mobile 7.Address 8.Profile 9.Register	1.anish 2.yadav 3.anish 4.An@123 5.Cardiologist 6.7348747012 7.UP 8.photo	Opens login window after successful registration	Opens login window after successful registration	**Pass**
T02	Signup using incorrect password	1.FirstName 2.LastName 3.Username 4.Password 5.Department 6.Mobile 7.Address 8.Profile 9.Register	1.aman 2.sharma 3.amsh 4.am@145 5.Cardiologist 6.9452865341 7.bihar 8.photo	Error the password must contain one uppercase letter	Error the password must contain one uppercase letter	**Pass**
T03	Signup using	1.FirstName	1.aman	Error Invalid	Error Invalid	**Pass**

	incorrect password	2.LastName 3.Username 4.Password 5.Department 6.Mobile 7.Address 8.Profile 9.Register	2.sharma 3.amsh 4.Am@145 5.Cardiologist 6.945286 7.bihar 8.photo	phone number	phone number	

Test cases for the Patient module:

Login:

Prerequisite: All fields are mandatory.

Test Case id	Testcase Objective	Steps	Input data	Expected Output	Actual Output	Status
T01	Login using correct data	1.Username 2.Password 3.Login	1.shivani 2.Sh@123	Open patient window	Open patient window	**Pass**
T02	Login using incorrect username	1.Username 2.Password 3.Login	1.shivani 2.Sh@123	Doesn't open doctor window	Doesn't open doctor window	**Pass**
T03	Login using incorrect password	1.Username 2.Password 3.Login	1.shivani 2.shivani	Doesn't open doctor window	Doesn't open doctor window	**Pass**

Register Your Account:

Prerequisite: All fields are mandatory.

Test Case id	Testcase Objective	Steps	Input data	Expected Output	Actual Output	Status
T01	Signup using correct data	1.FirstName 2.LastName 3.Username 4.Password 5.Address 6.Mobile 7.Symptoms 8.Name and Department 9.Profile_pic 10.Register	1.shradha 2.chaudhari 3.cr 4.Sh@123 5.UP 6.7854625847 7.fever 8.anish (cardiologist) 9.photo	Opens login window after successful registration	Opens login window after successful registration	**Pass**
T02	Signup using incorrect password	1.FirstName 2.LastName 3.Username 4.Password 5.Address 6.Mobile 7.Symptoms	1.pakhi 2.sinha 3.keeda 4.Pa@23 5.Bihar 6.7548963254 7.cold	Error password length must be at least of length 6.	Error password length must be at least of length 6.	**Pass**

		8.Name and Department 9.Profile_pic 10.Register	8.anish (cardiologist) 9.photo			
T03	Signup using incorrect mobile number	1.FirstName 2.LastName 3.Username 4.Password 5.Address 6.Mobile 7.Symptoms 8.Name and Department 9.Profile_pic 10.Register	1.pakhi 2.sinha 3.keeda 4.Pa@123 5.Bihar 6.75489632 7.cold 8.anish (cardiologist) 9.photo	Error invalid mobile number.	Error invalid mobile number.	**Pass**

Test cases for Book Appointment by patient:

Prerequisite: All fields are mandatory.

Test Case id	**Testcase Objective**	**Steps**	**Input data**	**Expected Output**	**Actual Output**	**Status**
T01	Book appointment by entering all the details	1.Description 2.Date 3.Time	1.fever 2.Select 3.Select	Open patient appointment status window	Open patient appointment status window	**Pass**

		4.Doctor Name and Department 5.Book	4.Select			
T02	Book appointment by not entering description	1.Description 2.Date 3.Time 4.Doctor Name and Department 5.Book	1. 2.Select 3.Select 4.Select	Error, please fill out this field.	Error please fill out this field.	**Pass**
T02	Book appointment by not entering date	1.Description 2.Date 3.Time 4.Doctor Name and Department 5.Book	1.fever 2. 3.Select 4.Select	Error, please fill out this field.	Error please fill out this field.	**Pass**

Test cases for Medicine Module:

Add Product

Test Case id	**Testcase Objective**	**Steps**	**Input data**	**Expected Output**	**Actual Output**	**Status**
T01	Add medicine in the list	1.Category 2.Name	1.Select 2.Paracetamol	Adds medicine to the product list	Adds medicine to the product list	**Pass**

		3.Quantity 4.AddProduct	3. 10			
T02	Add medicine in the list without entering details	1.Category 2.Name 3.Quantity 4.AddProduct	1.Select 2. 3. 10	Please fill out this field.	Please fill out this field.	**Pass**

Order Product

Test Case id	**Testcase Objective**	**Steps**	**Input data**	**Expected Output**	**Actual Output**	**Status**
T01	Order medicine from the list	1.Product 2.Order Quantity 3.Order	1.Select 2.10	Order is placed for the given medicine	Order is placed for the given medicine	**Pass**
T02	Order medicine from the list	1.Product 2.Order Quantity 3.Order	1.Select 2.	Please fill out this field.	Please fill out this field.	**Pass**

CONCLUSION

The project has been a rewarding experience in more than one way. The entire project work has enlightened us in the following areas:

- We have gained an insight into the working of the Hospital. This represents a typical real-world situation.
- Scheduling a project and adhering to that schedule creates a strong sense of time management.
- Sense of teamwork has developed and confidence of handling real life project has increased to a great extent.
- Initially, there were problem with the validation but with discussions, we were to implement validations.

FUTURE WORK:

- We can add a log record system which keeps the record of every user who visited this website and the activity done by him.
- Instead of creating a new login id for a patient we can connect it to the existing database of student and employees in JNU.
- We can add a mobile verification system while registering a new patient.
- Instead of checking appointment status online we can provide it via mobile SMS to patient.