MODERN APPLICATION DEVELOPMENT

JAVA SPRING BOOT

Project Report

Hospital Management System

Team Members:

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Guided By

SmartInternz

Hospital Management System

Introduction:

Hospital are the essential part of our lives, providing best medical facilities to people suffering from various ailments, which may be due to change in climatic conditions, increased work-load, emotional trauma stress etc. It is necessary for the hospitals to keep track of its day-to-day activities & records of its patients, doctors, nurses, ward boys and other staff personals that keep the hospital running smoothly & successfully.

But keeping track of all the activities and their records on paper is very cumbersome and error prone. It also is very inefficient and a time-consuming process Observing the continuous increase in population and number of people visiting the hospital. Recording and maintaining all these records is highly unreliable, inefficient and error-prone. It is also not economically & technically feasible to maintain these records on paper.

The main aim of our project is to provide a paper-less hospital up to 90%. It also aims at providing low-cost reliable automation of the existing systems. The system also provides excellent security of data at every level of user-system interaction and also provides robust & reliable storage and backup facilities.

Objectives:

Main objectives of a Hospital Management System are:

- ✓ Design a system for better patient care.
- ✓ Reduce hospital operating costs.
- ✓ Provide MIS (Management Information System) report on demand to management for better decision making.
- ✓ Better co-ordination among the different departments.
- ✓ Provide top management a single point of control.

Literature Survey:

Existing System:

The procedure involved within the current system is that, when a patient visits the hospital for medication, the patient will first of all buy the identification card which contains name, and other relevant information needed, and card number. The patient will then await the cardboard board to be processed along side a file jacket that holds the card that has column for diagnosis made by physician, drugs prescribed, and date at the lounge for the arrival of the cardboard . When the file arrived, the patient joints the queue to ascertain a doctor. during this current system, file cabinets are used for keeping individual patient card enclosed during a file. this technique is so tedious in tracing a record files slow in processing of records, space occupied by the file time waiting while expecting the patient file to be retrieved by the receptionist.

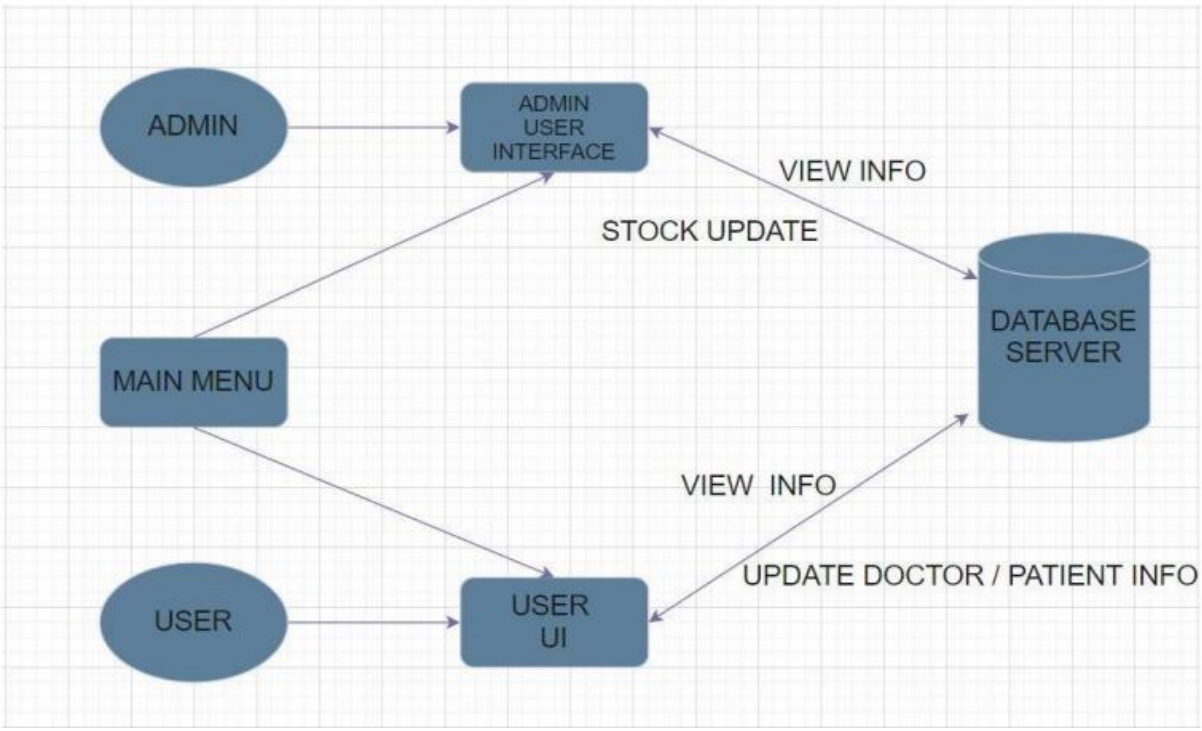
Proposed System:

Healthcare centers can help patients during a number of the way, all stemming from the card's ability to authenticate a patient's identity when the patient seeks medical aid. Identifying the patient is that the cornerstone of quality medical aid and healthiness system management. Accurate identification of every one that receives healthcare has multiple benefits:

1) Decreases medical errors.
2) Expedites the admissions process.
3) Reduces healthcare costs.
4) Expedites claims reimbursement.
5) Reduces the incidence of medical identity theft and fraud.

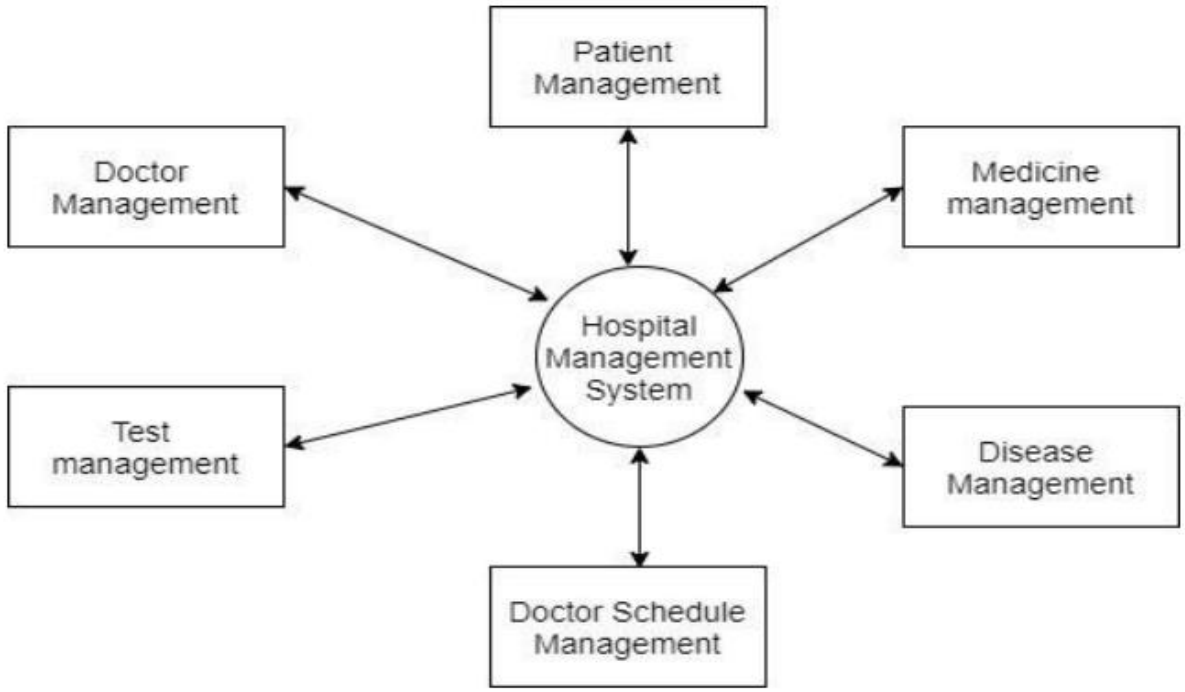
Theoritical Analysis:

Architectural Diagram:

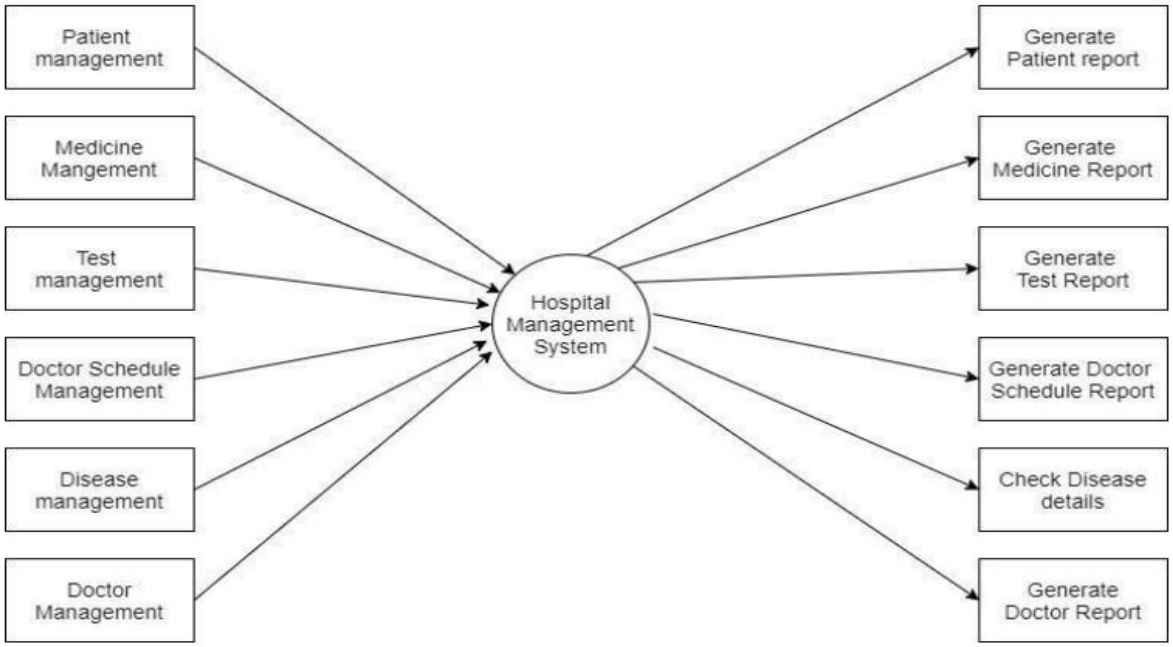


Data Flow Diagram:

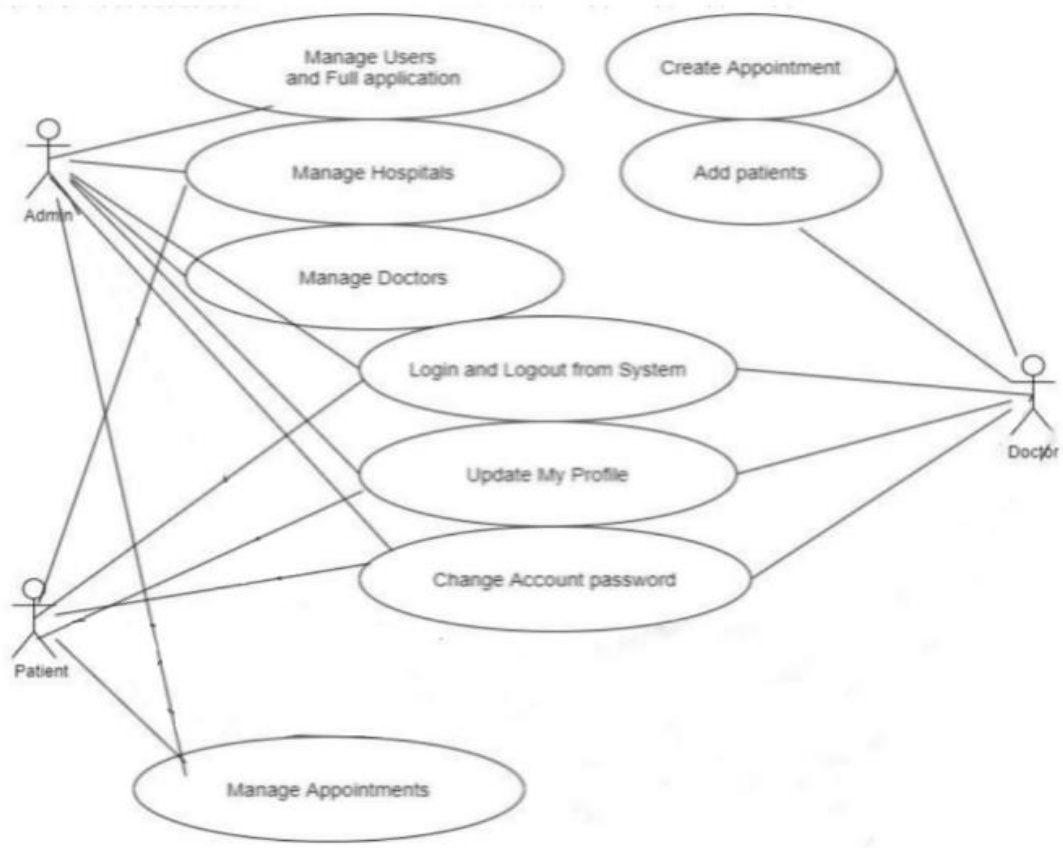
Zero Level DFD:



First Level DFD:



Use Case Diagram:



TECHNOLOGY USED:

Master Patient Index (MPI) in its simplest terms it connects patient records with more than one database which contains records of patient registered in any healthcare organization and also it aims to reduce the need for the manual duplication of patient records.

E-prescribing it speeds up the entire prescription process and the fulfilment of prescriptions can be tracked and controlled substance prescriptions can be monitored more accurately.

Electronic Health Records (EHR) as it saves the time of patients and also eliminates the errors in manual charting of patient data and it is more secure.

Global Positioning System (GPS) provides geolocation and time information to a GPS receiver anywhere on or near the Earth

Web Portal A web portal is a specially designed website that brings information from diverse sources, like emails, online forums and search engines, together in a uniform way.

It help to organize the administrative functions of any medical institutions. It stores all essential information about the patients such as patient names, mobile numbers, addresses, and their medical history. It also provides information about the institution such as facilities, HCP details, price structures, insurance facilities etc. to the patients.

Functional Requirements:

Functional requirements define the function of the device, explaining the actions taken by the HMS system clearly and quantitatively. These requirements define the capabilities of the HMS system, as well as its process or workflow. It also determines the form of input and output desired. Some of the functional requirements of the HMs system are:

Registration

The admin is the only user who can register doctors, nurses, receptions, lab assistants, cashiers and pharmacists. The patient can register through the registration module. In addition, the system should allow a receptionist to register new patients into the system.

Authentication

The user (patients) should be able to create an account in the HMS system through the registration module (form). The following details should be entered in the registration module:

- Full Name

- Username (ID)
- E-mail
- Gender
- Password
- Confirm Password

Login

The system must enable registered users including all categories of users to log in through the login module, by entering the username and password.

Manage Account

Users of the HMS system should have the ability to manage their account including changing their password, email or phone number.

Input validation

The system should validate all inputs entered by the user to ensure that the user does not leave any blank required fields. This is also important to ensure that the inputs are entered in the correct format and does not exceed the size specifies.

Unique Username (ID)

The username of each user in the HMS system should be unique. Equally important, the system should verify that the username, which is entered in the registration form, is not already used by another user in the system.

Issuing clinic numbers

The receptions should have the ability to view nurses' schedule to use the system for issuing a clinic number for patients.

Allot patients for doctors

The system shall enable nurses to view doctors' status (Schedule) to allot patients successfully for the concerned doctors in terms of their problem.

Appointment List

The receptionist shall be able to view the full appointment list.

Booking an appointment

The system shall provide the available appointment to receptionist and patients in order to book a new appointment.

Check Out (Payment)

The system shall allow the cashier to create and order invoice for payment through the billing module. The cashier shall watch the payment history of the patients.

View Reports by doctor

The system shall allow doctors to view the patients' reports and enter required advice for the patient, as well as new prescriptions if needed.

Dose of Medicines

The system shall allow the pharmacist to enter the dose and guidelines of each medicine for patients.

Examination and Medicine Costs

The system shall allow lab assistants and pharmacist to enter the costs of the examinations and medicines.

Non-Functional Requirements:

The non-functional requirement defines the operational requirements off the system, as well as the constraints to be followed in order to improve the system's functionality. The following are some of the non-functional requirement that needs to be considered in the HMS system:

Availability

The system must be available 24/7.

Capacity

The system must support a load of 3000 users at a time.

Performance

Response Time: The system must respond within 2 seconds after verifying the details and other data of the patient. In other words, the time to load a web page over a 56Kbps modem connection should not exceed 2 seconds.

User Interface: User interface display shall response within 5 seconds.

Conformity: The system should be in accordance with Windows Accessibility.

Virus Protection: Devices in the hospital that use the system must have firewalls enabled and an Active Anti-Virus in usage.

Durability:

In case of failure, the system should be recovered by itself within 10 seconds, and the server must receive a comprehensive crash report stating the problem occurred.

Adaptability:

The system (web application) must be adaptive and responsive to support devices of all types.

Security

Modification: Changes in the system like (insert, erase, and update) is coordinated and performed by the Admin only.

User Rights: Users' activity of the system should be controlled so that each user can access the allowable activities only.

Data: the transaction data should be transmitted in an encrypted form.

Database Protection: the database should be protected by a strong password.

Safety and Maintainability:

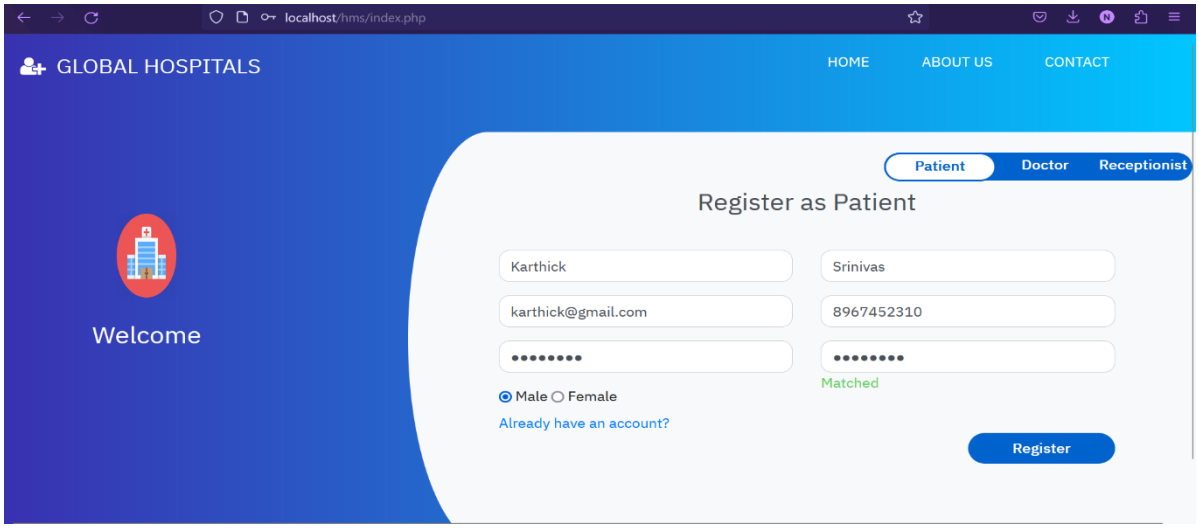
A backup of the database should be performed every week, so that the system can be recovered in case of any database damage, which may be occurred due to a catastrophic failure, such as a disk crash.

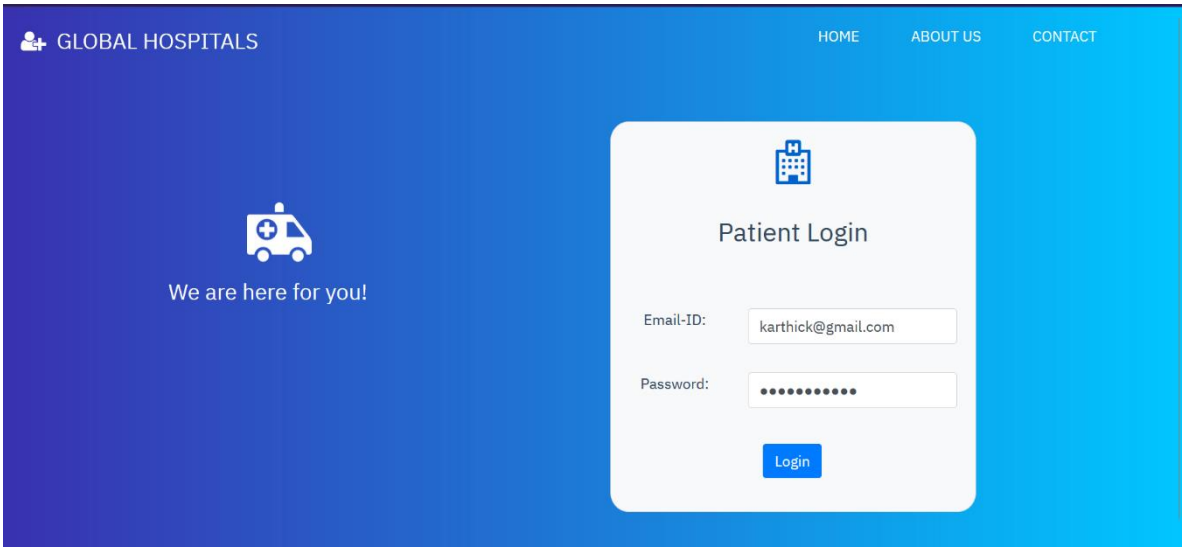
Accessibility:

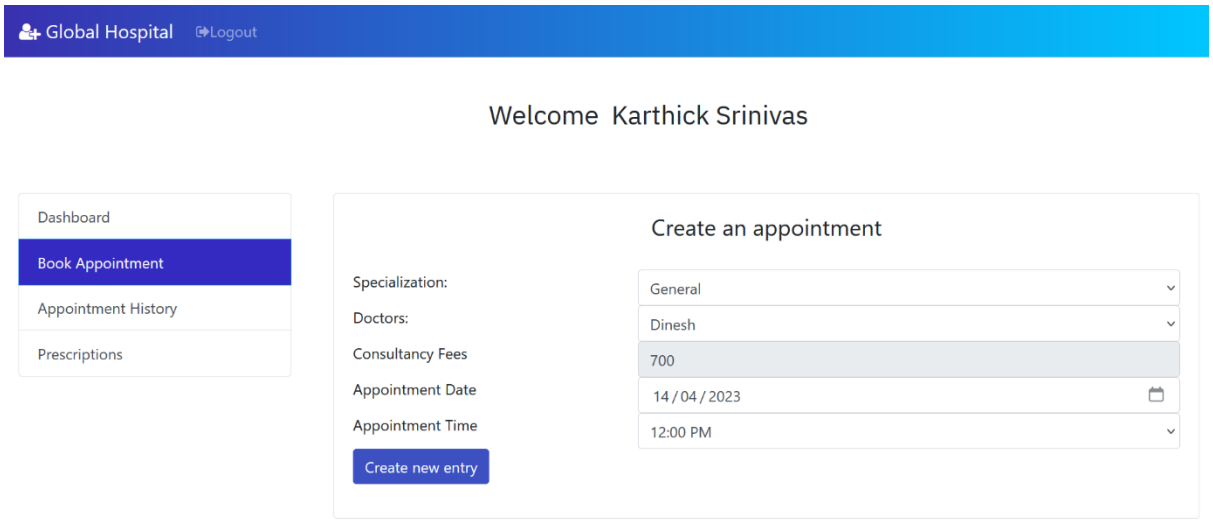
The system can be accessed by the Admin and many other users but the access level is controlled of each user as per their scope of work.

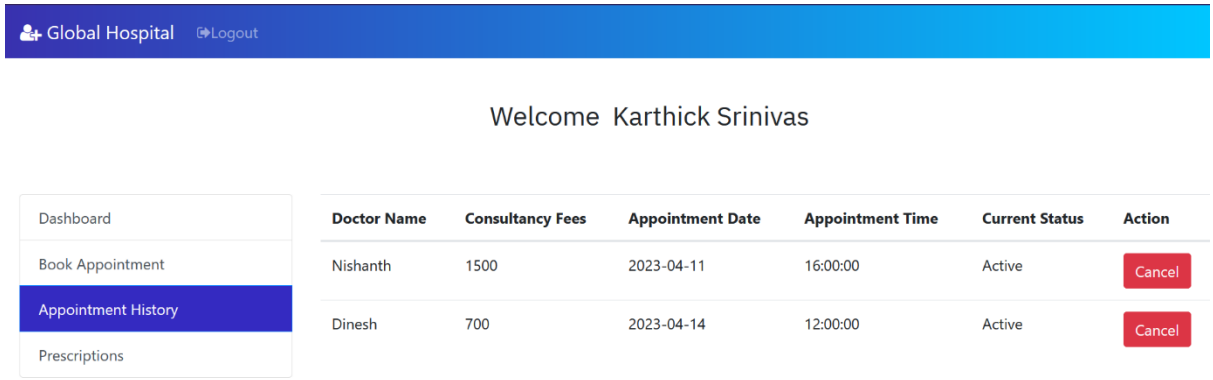
Screen Shots:

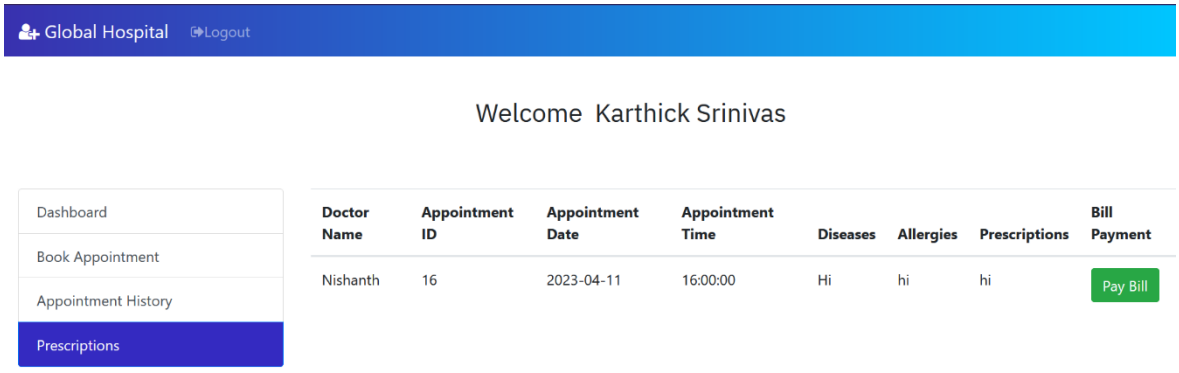
Patient Module:



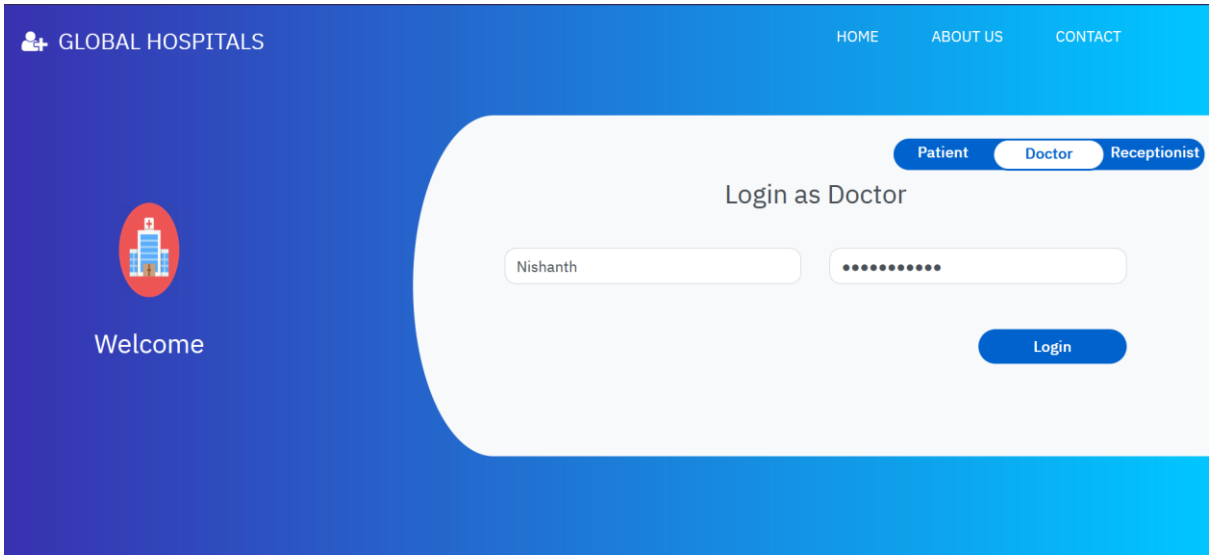


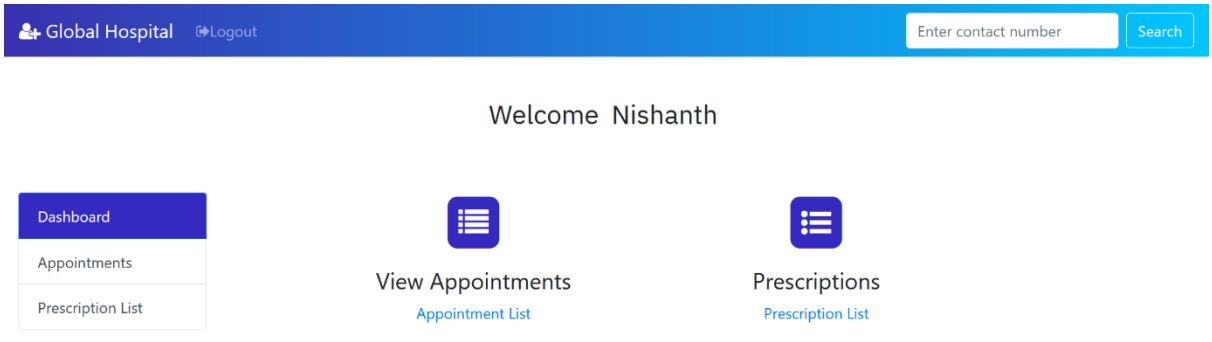

Global Hospital
Logout
Welcome Karthick Srinivas
Dashboard
Book Appointment
Appointment History
Prescriptions
Create an appointment
Specialization:
General
Doctors:
Dinesh
Consultancy Fees
700
Appointment Date
14 / 04 / 2023
Appointment Time
12:00 PM
Create new entry

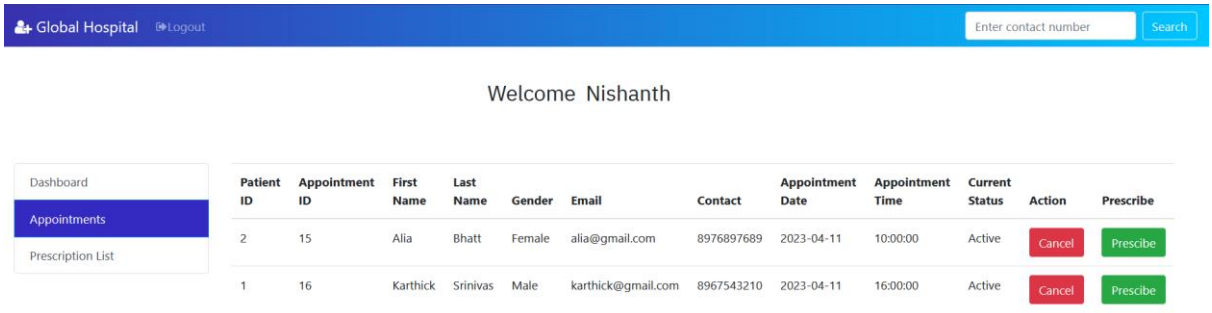

Global Hospital
Logout
Welcome Karthick Srinivas
Dashboard
Book Appointment
Appointment History
Prescriptions
Doctor Name
Consultancy Fees
Appointment Date
Appointment Time
Current Status
Action
Nishanth
1500
2023-04-11
16:00:00
Active
Cancel
Dinesh
700
2023-04-14
12:00:00
Active
Cancel


Global Hospital
Logout
Welcome Karthick Srinivas
Dashboard
Book Appointment
Appointment History
Prescriptions
Doctor Name
Appointment ID
Appointment Date
Appointment Time
Diseases
Allergies
Prescriptions
Bill Payment
Nishanth
16
2023-04-11
16:00:00
Hi
hi
hi
Pay Bill

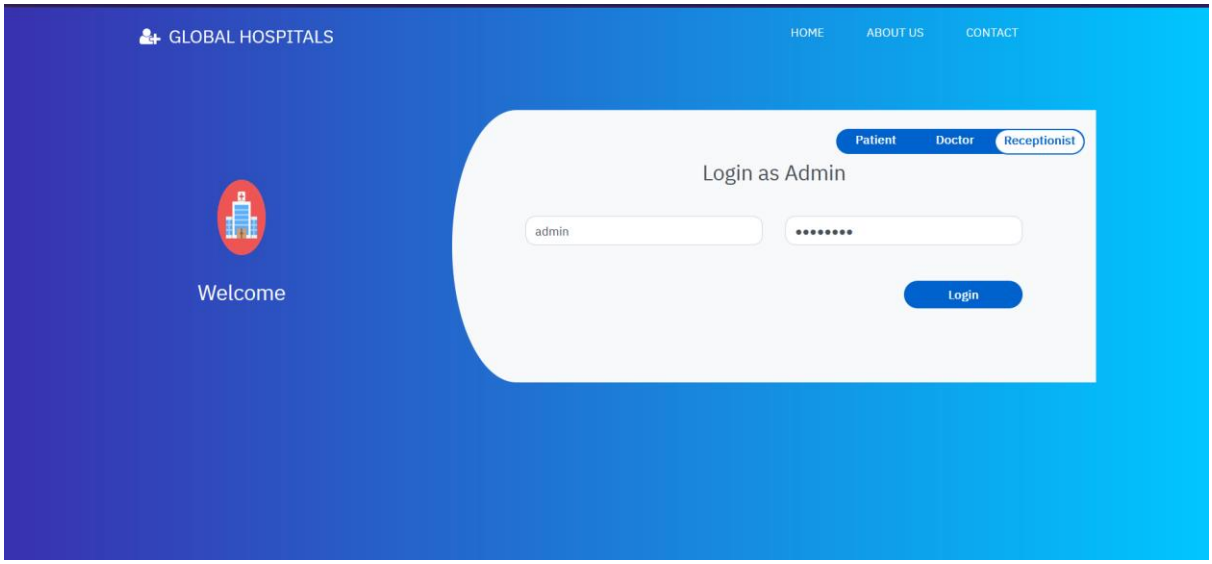
Doctor Module:

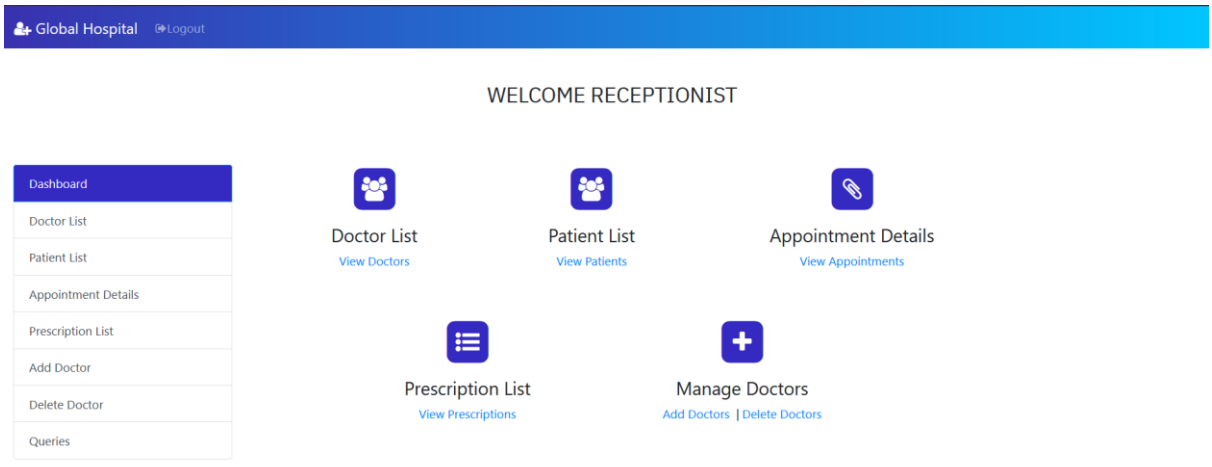


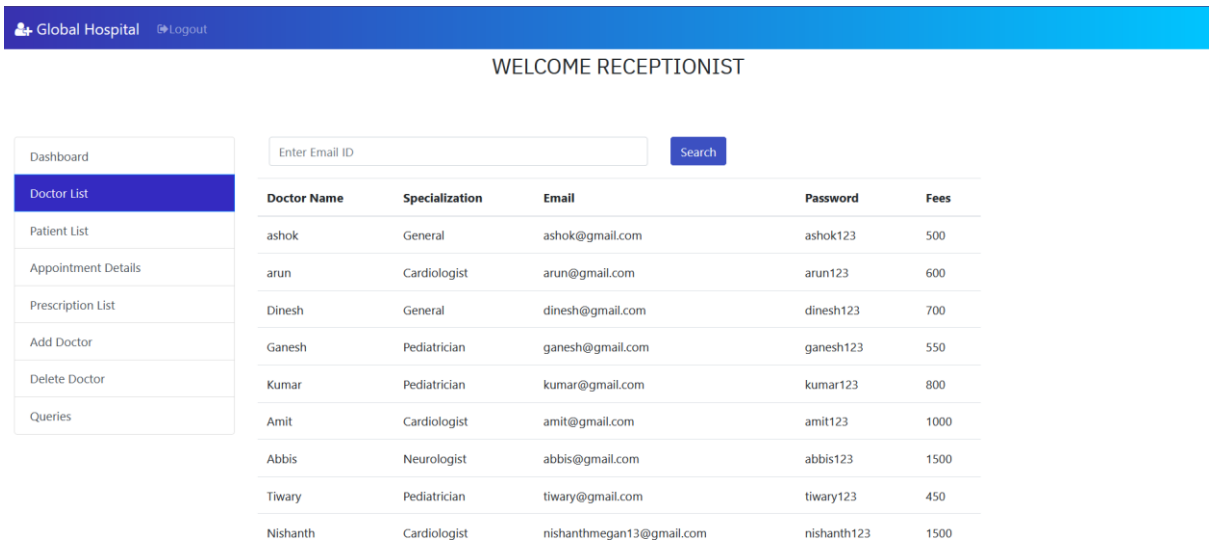




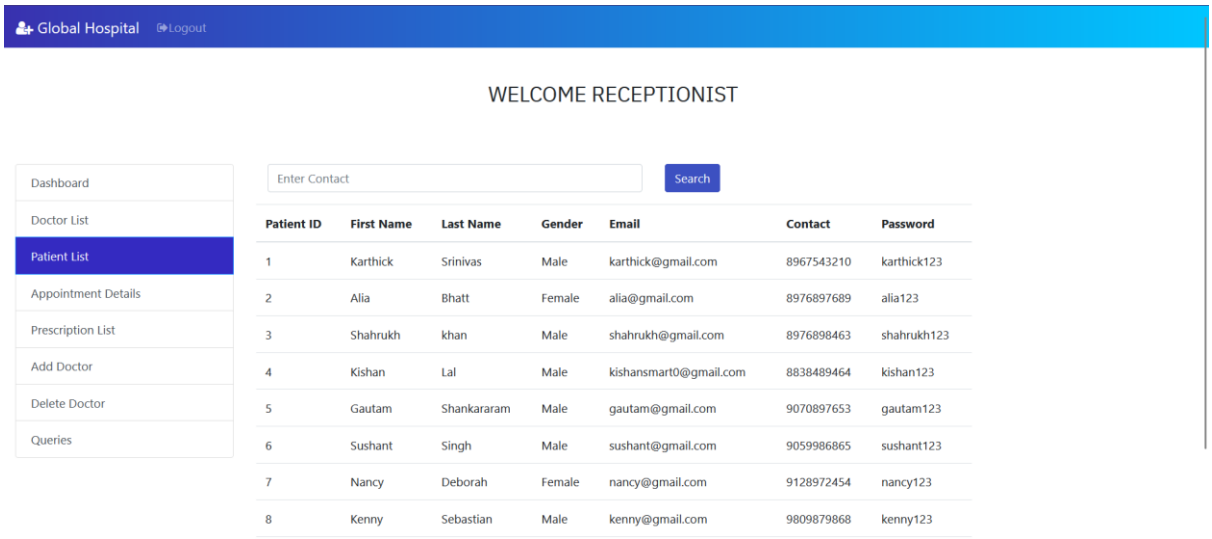
Admin Module:

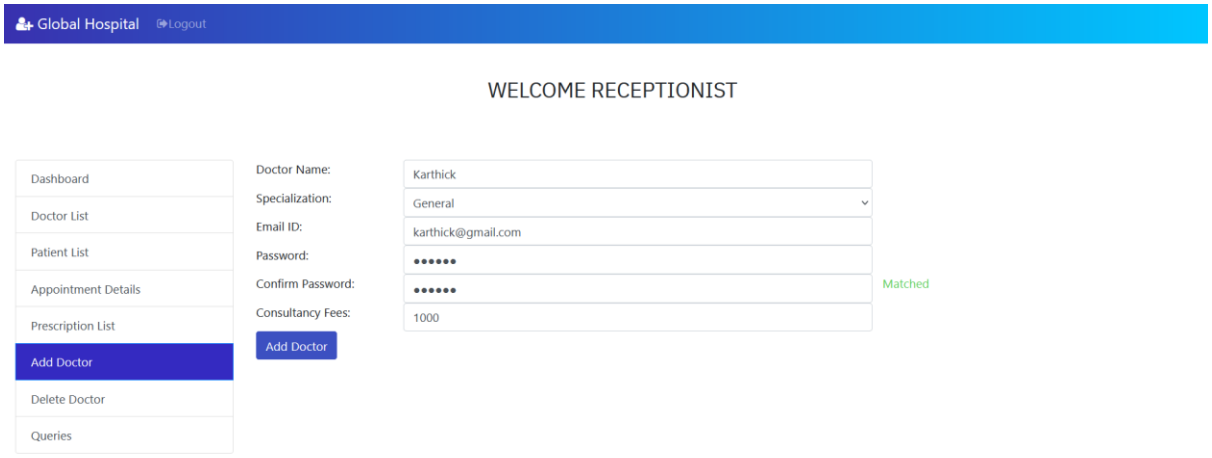






Doctor Name	Specialization	Email	Password	Fees
ashok	General	ashok@gmail.com	ashok123	500
arun	Cardiologist	arun@gmail.com	arun123	600
Dinesh	General	dinesh@gmail.com	dinesh123	700
Ganesh	Pediatrician	ganesh@gmail.com	ganesh123	550
Kumar	Pediatrician	kumar@gmail.com	kumar123	800
Amit	Cardiologist	amit@gmail.com	amit123	1000
Abbis	Neurologist	abbis@gmail.com	abbis123	1500
Tiwary	Pediatrician	tiwary@gmail.com	tiwary123	450
Nishanth	Cardiologist	nishanthmegan13@gmail.com	nishanth123	1500


Global Hospital
Logout
WELCOME RECEPTIONIST
Dashboard
Doctor List
Patient List
Appointment Details
Prescription List
Add Doctor
Delete Doctor
Queries
Enter Contact
Search
Patient ID First Name Last Name Gender Email Contact Password
1 Karthick Srinivas Male karthick@gmail.com 8967543210 karthick123
2 Alia Bhatt Female alia@gmail.com 8976897689 alia123
3 Shahrukh khan Male shahrukh@gmail.com 8976898463 shahrukh123
4 Kishan Lal Male kishansmart0@gmail.com 8838489464 kishan123
5 Gautam Shankararam Male gautam@gmail.com 9070897653 gautam123
6 Sushant Singh Male sushant@gmail.com 9059986865 sushant123
7 Nancy Deborah Female nancy@gmail.com 9128972454 nancy123
8 Kenny Sebastian Male kenny@gmail.com 9809879868 kenny123


Global Hospital
Logout
WELCOME RECEPTIONIST
Dashboard
Doctor List
Patient List
Appointment Details
Prescription List
Add Doctor
Delete Doctor
Queries
Doctor Name: Karthick
Specialization: General
Email ID: karthick@gmail.com
Password:
Confirm Password:
Matched
Consultancy Fees: 1000
Add Doctor