Health Center Management System

A PROJECT REPORT for Mini Project (KCA353) Session (2023-24)

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MASTER OF COMPUTER APPLICATION

Under the Supervision of DR. SHASHANK BHARDWAJ Associate Professor



Submitted to

DEPARTMENT OF COMPUTER APPLICATIONS KIET Group of Institutions, Ghaziabad Uttar Pradesh-201206

(**February 2024_**)

CERTIFICATE

Certified that SHIVAM KUMAR (2200290140146), has/ have carried out the project

work having "HEALTH CENTER MANAGEMENT SYSTEM" (Mini Project-

KCA353) for Master of Computer Application from Dr. A.P.J. Abdul Kalam Technical

University (AKTU) (formerly UPTU), Lucknow under my supervision. The project report

embodies original work, and studies are carried out by the student himself/herself and the

contents of the project report do not form the basis for the award of any other degree to the

candidate or to anybody else from this or any other University/Institution.

Date:

SHIVAM KUMAR(2200290140146)

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This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Date:

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SHIVAM KUMAR

ABSTRACT

Health Center Management System is an organized computerized system designed and programmed to deal with day-to-day operations and management of health activities. The program can look after inpatients, outpatients, records, database treatments, status illness, billings in the pharmacy, and labs. It also maintains hospital information such as ward id, doctors in charge, and department administering. The major problem for the patient nowadays is to get the report after consultation, many hospitals managing reports in their system but it's not available to the patient when he/she is outside. In this project, we are goingto provide the extra facility to store the report in the database and make it available from anywhere in the world.

ACKNOWLEDGEMENTS

Success in life is never attained single-handedly. My deepest gratitude goes to my

project supervisor, Dr. SHASHANK BHARDWAJ for his/ her guidance, help,

and encouragement throughout my project work. Their enlightening ideas,

comments, and suggestions.

Words are not enough to express my gratitude to DR. ARUN KUMAR

TRIPATHI, Professor and Head, Department of Computer Applications, for his

insightful comments and administrative help on various occasions.

Fortunately, I have many understanding friends, who have helped me a lot on

many critical conditions.

Finally, my sincere thanks go to my family members and all those who have

directly and indirectly provided me with moral support and other kind of help.

Without their support, completion of this work would not have been possible in

time. They keep my life filled with enjoyment and happiness.

SHIVAM KUAMR

(2200290140146)

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CHAPTER-1

OVERVIEW

Our application contains two modules — the admin module and the user module. Our application will not only help the admin to preview the monthly and/or yearly data but it will also allow them to edit, add or update records. The software will also help the admin to monitor the transactions made by the patients and generate confirmations for the same. The admin will be ableto manage and update information about doctors. The user module can be accessed by both the doctors and the patients. The doctor can confirm and/or cancel appointments. The doctors can even add prescriptions for their patients using our application. The patients will be able to apply for the appointment and make transaction for the same, and can even cancel appointments with the doctors. They can track details about the previous transactions made by them.

Advantages

- The system automates the manual procedure of managing hospital activities.
- Doctors can view their patients' treatment records and details easily.
- It even generates an instant bill.
- The system is convenient and flexible to be used.
- It saves their time, efforts, money and resources.

Disadvantages

- Requires large database.
- The admin has to manually keep updating the information by entering the details in the system.

PURPOSE

This software will help the company to be more efficient in registration of their patients and manage appointments, records of patients. It enables doctors and admin to view and modify appointments schedules ifrequired. The purpose of this project is to computerize all details regarding patient details and hospital details.

SCOPE

The system will be used as the application that serves hospitals, clinic, dispensaries or other health institutions. The intention of the system is to increase the number of patients that can be treated and managed properly. If the hospital management system is file based, management of the hospital has to put much effort on securing the files. They can be easily damaged by fire, insects and natural disasters. Also could be misplaced by losing data and information.

DEFINITIONS, ACRONYMS, and ABBREVIATIONS

- 1. Cardiologist treats heart disease.
- 2. Pediatrician treats infants, toddlers, children and teenagers.
- 3. Plastic Surgeon restores, reconstructs, corrects or improves in the shape and appearance of damaged body structures, especially the face.
- 4. Psychiatrist treats patients with mental and emotional disorders.
- 5. Ophthalmologist treats eye defects, injuries, and diseases
- 6. ENT- Ear, Nose and Throat Specialist.
- SRS: Software Requirement Specification.
- DFD: Data Flow Diagram.
- ENT- Ear, Nose and Throat Specialist.

- \checkmark Appt Appointment.
- ✓ Sign up Creating New User.
- ✓ Log in Logging in Existing User.
- ✓ PhNo Mobile number.
- \checkmark Addr Address.
- $\sqrt{Expr} Experience$

CHAPTER 2

SOFTWARE REQUIREMENT SPECIFICATION

Perspective This Hospital Patient Info Management System is a self-contained system that manages activities of the hospital. Due to improperly managed details medical center faces quite a lot of difficulties in accessing past data as well as managing present data. The fully functional automated hospital management system which will be developed through this project will eliminate the disadvantages caused by the manual system by improving the reliability, efficiency and performance. The usage of a database to store patient, employee, stock details etc. will accommodate easy access, retrieval, and search and manipulation of data. The access limitations provided through access privilege levels will enhance the security of the system. The system will facilitate concurrent access and convenient management of activities of the medical center.

2.1.1 System Interfaces

User Interfaces

- This section provides a detailed description of all inputs into and outputs from the system. It also gives a description of the hardware, software and communication interfaces and provides basic prototypes of the user interface.
- The protocol used shall be HTTP.
- The Port number used will be 80.
- There shall be logical address of the system in IPv4 format.

Hardware Interfaces

- Laptop/Desktop PC-Purpose of this is to give information when Patients ask information about doctors, medicine available lab tests etc. To perform such Action it need very efficient computer otherwise due to that reason patients have to wait for a long time to get what they ask for.
- Laser Printer (B/W) This device is for printing patients' info etc.
- **Wi-Fi router** Wi-Fi router is used to for internetwork operations inside of a hospital and simply data transmission from pc's to sever.

♦ Software Interfaces

- **JDK 1.8** Java is fast, secure, and reliable. From laptops to data centers, game consoles to scientific supercomputers, cell phones to the Internet,
- My Sql server Database connectivity and management
- OS Windows 7/8/8.1- Very user friendly and common OS
- **JRE 1.8** JAVA Runtime Environment for run Java Application and System 17 2.1.2 System Specifications

2.1.2.1 H/W Requirement

- Core i5 processor
- 2GB Ram.
- 20GB of hard disk space in terminal machines
- > 1TB hard disk space in Server Machine

2.1.2.2 S/W Requirement

- Windows 7 or above operating system
- ➤ JRE 1.8
- Mysql server

2.1.3 Communication Interfaces

- **NIC** (**Network Interface Card**) It is a computer hardware component that allows a computer to connect to a network. NICs may be used for both wired and wireless connections.
- CAT 5 network cable- for high signal integrity
- TCP/IP protocol- Internet service provider to access and share information over the Internet
- **Ethernet Communications Interface** Ethernet is a frame-based computer network technology for local area networks (LANs)
- Ubiquitous, easy to set up and easy to use. Low cost and high data transmission rate.

2.2 Product functions

- Provide access to registered users only.
- Registration of new patients.
- Enable patient to view their record.
- Enable patient to update their record.
- Generate appointment date and timing.
- Confirmation by doctor.
- Patients can do Payment.
- Modification in schedule by patient.
- Admin access to patient's record.
- Admin Verify Payment and Generate Bill/Receipt.
- Admin can view monthly/yearly records

CHAPTER 3

DFD LEVEL-1

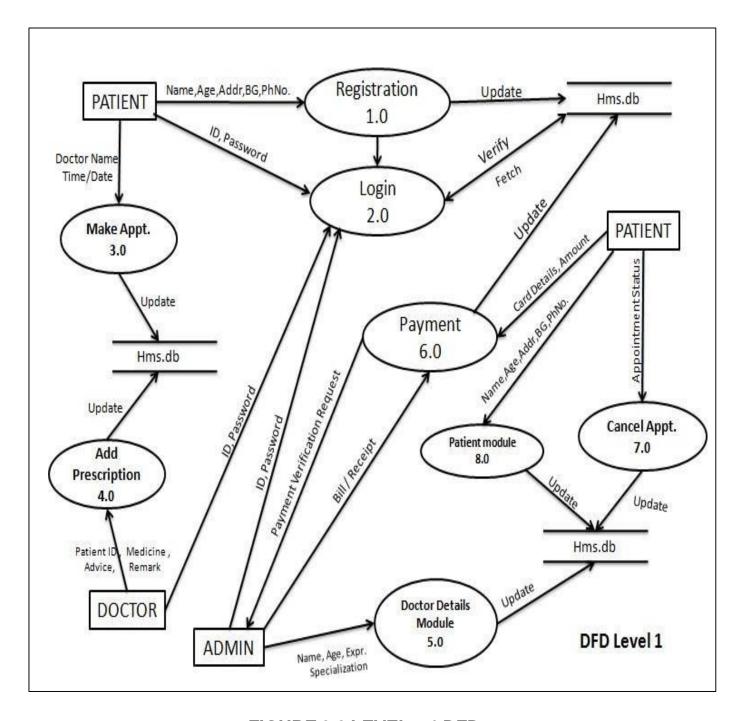


FIGURE 3.2 LEVEL - 1 DFD

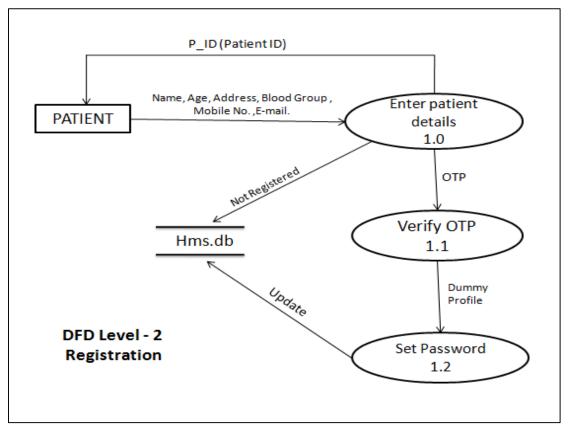


FIGURE 3.3 LEVEL – 2 Registration

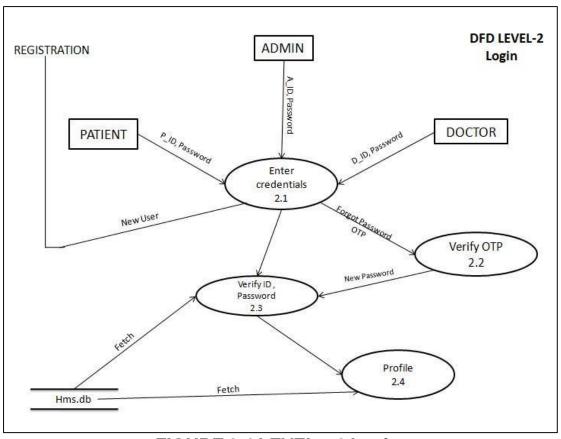


FIGURE 3.4 LEVEL – 2 Login

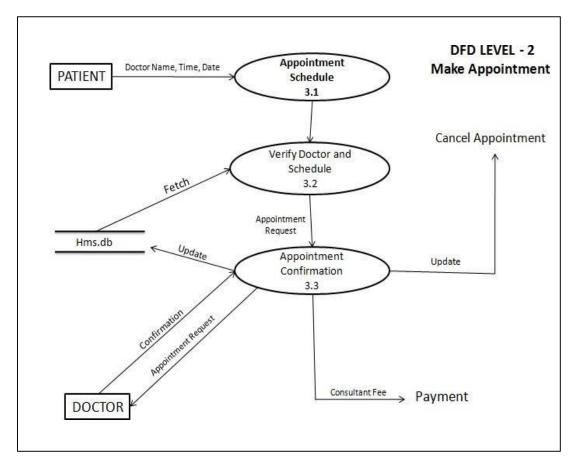


FIGURE 3.5 LEVEL - 2 Make Appointment

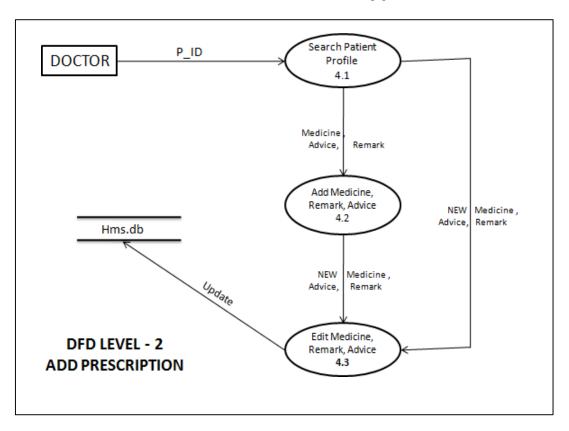


FIGURE 3.6 LEVEL - 2 Add Description

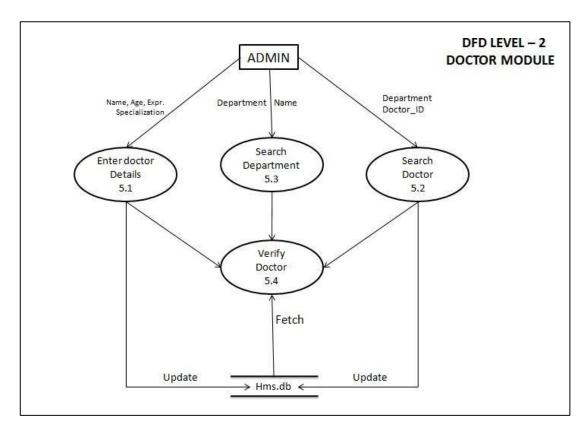


FIGURE 3.7 LEVEL - 2 Doctor Module

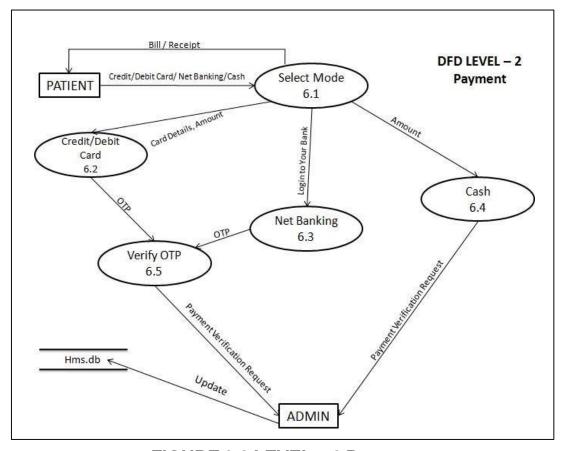


FIGURE 3.8 LEVEL – 2 Payment

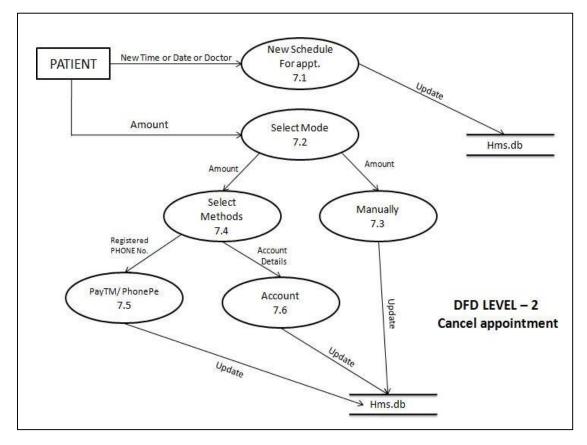


FIGURE 3.9 LEVEL – 2 Cancel Appointment

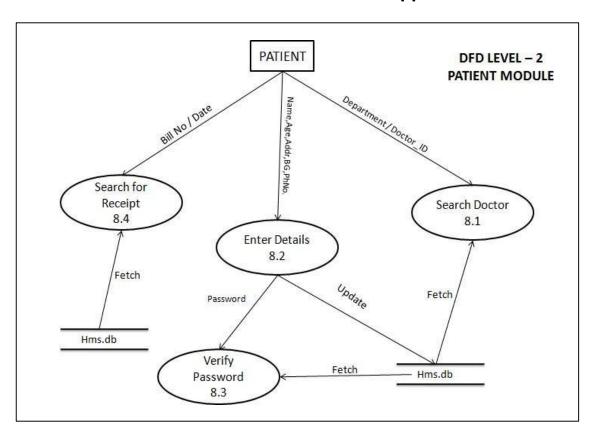
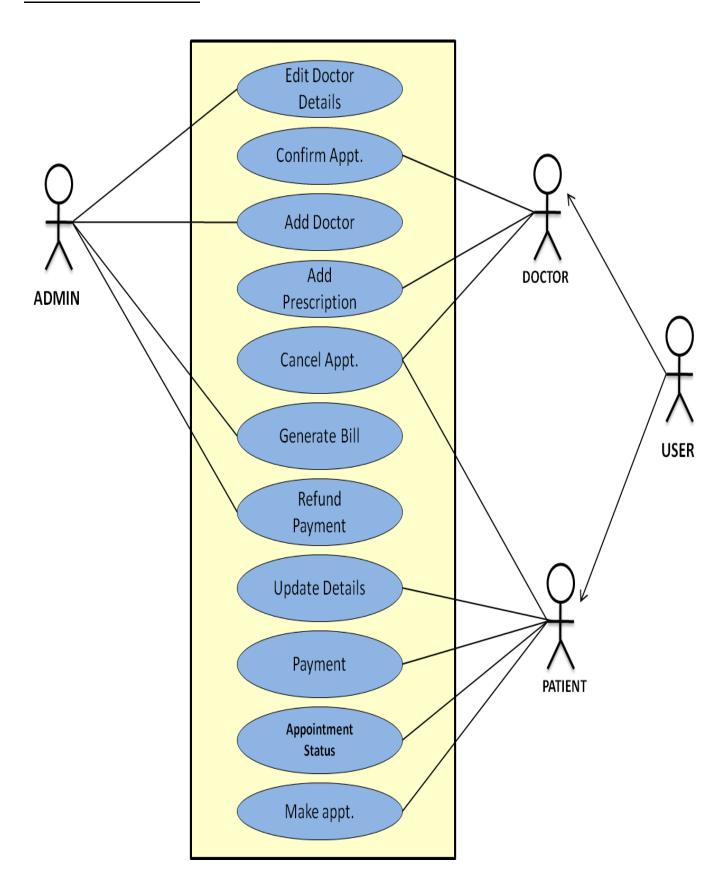


FIGURE 3.10 LEVEL - 2 Patient Module

USE CASE DIAGRAM



(1) PATIENT

* REGISTRATION

<u>DESCRIPTION</u> - The new patient can register themselves and add their details like name, age, gender, blood group etc. The patient entry will be made in the hms database.

<u>PRE -CONDITION</u> – The patient must be a new patient, If necessary fields left by user then prompt user to fill the necessary fields.

MAIN FLOW OF EVENTS

- 1. Patient selects sign up in login module.
- 2. A registration form get displayed
- 3. Patient fills the required details.

POST CONDITIONS - Patient record is added to hms database.

*UPDATION

<u>DESCRIPTION</u>-The patient should be enabled to update his/her details and the changes should reflect in hms database.

<u>PRE-CONDITION</u> – The patient must be a registered patient, The patient cannot update details after treatment starts.

MAIN FLOW OF EVENTS

- 1. Patient logs in to the system.
- 2. Patient view his record
- 3. Patient selects update details.
- 4. Now patient may change the necessary fields.
- 5. Pop of update details.

POST CONDITION - The record of patient is updated in hms database.

*APPOINMENT

<u>DESCRIPTION</u> - It shows users a list of available doctors, timings, dates and enables patients to select the most suitable appointment date and doctor. The patient may also the cancel the appointment.

<u>PRE-CONDITION</u> - The patient must be a registered patient, Patient can fix only one appointment for a particular department.

MAIN FLOW OF EVENT

- 1. Patient first logs in to system.
- 2. View his/her record.
- 3. Create a new appointment or cancel the appointment..

<u>POST CONDITIONS</u> - patient details are displayed and a new appointment is fix or a existing appointment is cancelled. The hms database is updated.

*PAYMENT

DESCRIPTION – It enables user to pay the consultant fee of Doctor online.

<u>PRE-CONDITION</u> - The patient must be a registered patient, If Patient don't wants to pay online he/she can pay by cash also.

MAIN FLOW OF EVENT

- 1. Patient first logs in to system.
- 2. View his/her record.
- 3. Appointment confirmed by the Doctor then go for Payment.

POST CONDITIONS – A Reciept will be displayed. The hms database is updated

(2) Doctor

<u>DESCRIPTION</u>- The doctor view patient record/ update his details and add description of treatment given to patient.

<u>PRE-CONDITION</u> – The doctor must be a registered doctor, System does not allow the doctor to modify the qualification, hospital managed details.

MAIN FLOW OF EVENTS

- 1. Doctor logs in to the system.
- 2. Doctor may select view patient.
 - 2.1 Patient record is displayed with treatment history.
- 3. Doctor add description of patient treatment.
- 4. Doctor may select appointment details
 - 4.1 Appointment Requests is displayed with schedule.
- 5. Doctor confirm or cancel appointment.

POST CONDITION – The patient and doctor 's database are updated.

(3) ADMIN

<u>DESCRIPTION</u> - The admin add doctor, update docotr details and verify payment and generate Bill/Reciept for the same.

MAIN FLOW OF EVENTS

- 1. Admin logs in the system.
- 2. Admin may add doctor new doctor.
 - 2.1 admin fills the doctor's details.
- 3. Admin view Doctor record.
 - 3.1 Admin enters the doctor id in the system.
 - 3.2 Doctor details are displayed, Admin can update details.
- 4. Admin Verify the payment submited by the Patient.
 - 4.1 Generate Bill/Reciept and confirmation message for the same.

PRE -CONDITION - Admin must first log in with his/her credentials.

<u>POST CONDITION</u> - The hms database is updated.

User characteristics

ADMIN

Admin has the full access to the system which means he is able to manage any activity with regard to the system. He is the highest privileged user who can access to the system.

Key functions:

- Access patient record, doctor Record.
- •Add new doctor entry in system database.
- Confirm Payment and Generate Bill.
- View Records. (Total no of patients treated, doctor added/remove, consultant fee).

PATIENT

Patients can choose the best preferred appointments from the options provided and can also change the appointment schedule or cancel it. After appt. is confirmed by the respective doctor they can pay their consultant fee online. Patients have access to only their records.

Key functions:

- Make appointment.
- Cancel appointment.
- Update Details.
- Payment.
- View Payment History.

DOCTOR

Doctors can view the patient appointment list and provide the confirmation or make changes in the appointment list if required. Doctors have access to only records of those patients whom they are treating.

Key functions:

- Confirmation of appointment.
- Cancellation of appointment.
- Modification of appointment list.
- Add Prescription.

Constraints

- System is wirelessly networked with an encryption.
- System is only accessible within the hospital's website only.
- Database is password protected.
- Should use less RAM and processing power.
- Each user should have individual ID and password.
- Only administrator can access the whole system.

Assumptions and dependencies

- Each user must have a valid user id and password
- Server must be running for the system to function
- Users must log in to the system to access any record.
- Only the Administrator can delete records.

CHAPTER 4

SPECIFIC REQUIREMENTS

PERFORMANCE REQUIREMENTS

- o **Response time** The system will give responses within 1 second after checking the patient information and other information.
- o Capacity-The system must support 1000 people at a time
- User interface- User interface screen will response within 5 seconds

SAFETY REQUIREMENTS

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed up log, up to the time of failure. All the administrative and data entry operators have unique logins so system can understand who is login in to system right now no intruders allowed except system administrative nobody cannot change record and valuable data.

SECURITY REQUIREMENTS

- 1. Want take the responsibility of failures due to hardware malfunctioning.
- 2. Warranty period of maintaining the software would be one year.
- 3. Additional payments will be analyzed and charged for further maintenance.
- 4. If any error occur due to a user's improper use. Warranty will not be allocated to it.
- 5. No money back returns for the software.

3.1 SOFTWARE SYSTEM ATTRIBUTES

- **3.1.1** <u>Usability:</u> Software can be used again and again without distortion.
- **3.1.2 Availability:** The system shall be available all the time.
- **3.1.3** Correctness: Bug free software which fulfills the correct need/requirements of the client.

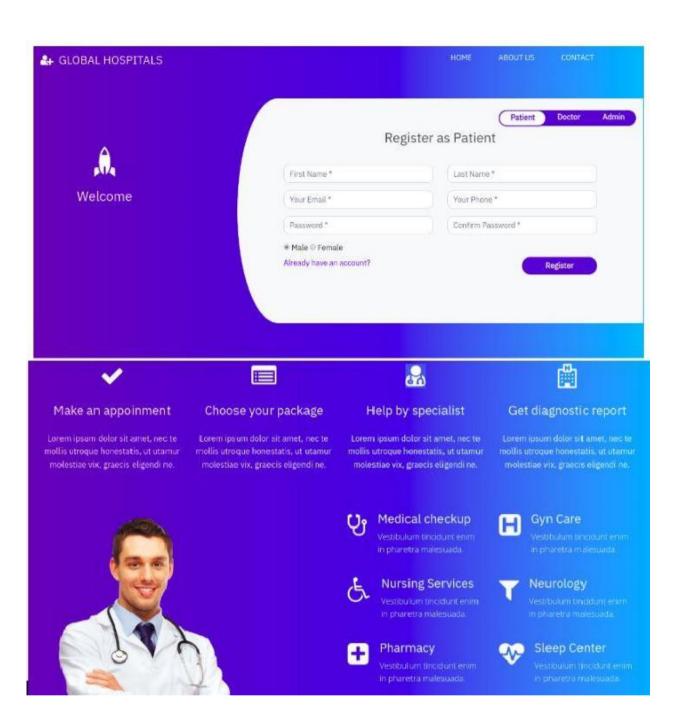
- **3.1.4** <u>Maintainability:</u> The ability to maintain, modify information and update fix problems of the system.
- **3.1.5** <u>Accessibility</u>: Administrator and many other users can access the system but the access level is controlled for each user according to their work scope.

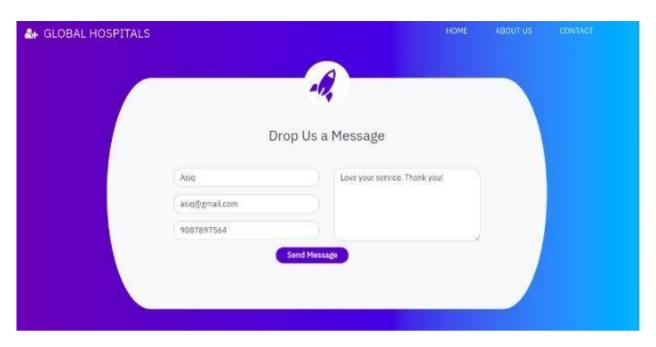
3.2 FUNCTIONAL REQUIREMENTS

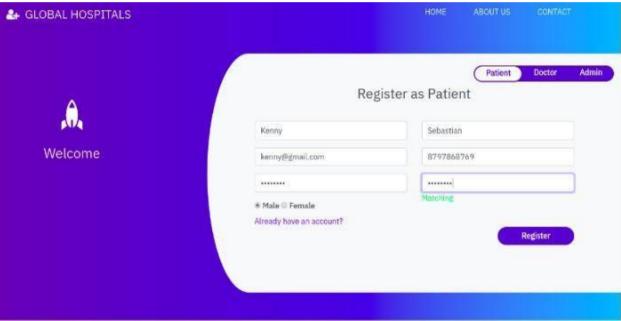
S.No.	MODULE	APPLICABLE	DESCRIPTION
	NAME	ROLES	
1.	LOGIN	PATIEN T DOCTO R	PATIENT: Can login using unique Id and Password after this system shall show his/her profile.
		ADMIN	DOCTOR: Can login using unique Id and Password after this system shall show his/her profile.
			ADMIN: Can login using unique Id and Password after this system shall show a profile with links to maintain the website.
2.	REGISTRATI ON	PATIENT	PATIENT: Can Register by filling all the required details, after this the system will verify the details and check if already registered or not.
3.	MAKE APPT.	PATIENT	PATIENT: Can Select doctor, date time and make an appointment request after this system shall show a confirmation for appointment request.
4.	CANCL APPT.	PATIEN T DOCTO R	PATIENT: Can Cancel appointment if want to by just one click after this system shall ask for re-schedule or refund of payment.
			DOCTOR: Can Cancel appointment if want to by just one click after this system shall
	DAXMENIT	D A THENT	send a message to the patient. PATIENT: Enter payment details and make
5.	PAYMENT	PATIENT	PATIENT: Enter payment details and make payment after this system shall show the
			generated bill by the hospital.

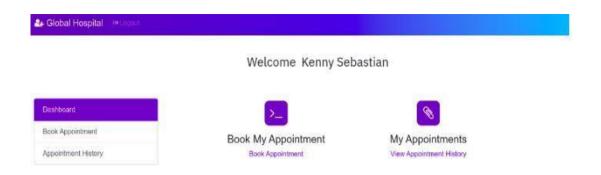
6.	DOCTO R	ADMIN	ADMIN : Can add a new doctor by filling all the details after this system shall show a
	MODUL		confirmation message.
	E		Can Remove a doctor by just one click after
			this system shall show confirmation
			message.

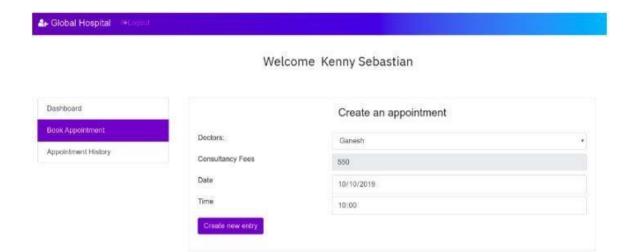
7.	PATIEN T MODUL E	PATIENT	PATIENT: Can view payment history or can search for a particular bill also after this system shall show a bill or history. Can also See or search for a doctor by
			entering dept. name or doctor id if known after this system will check for the doctor if found shall show doctor's profile. Can also update details after this system shall ask for re-enter password and after verifying password shall update details.
8.	ADD PRESCRIPTIO N	DOCTOR	DOCTOR: Enter Patient Id and after this all the treatment details and medicine, remark and advice for the patient after this system shall show a message for update.

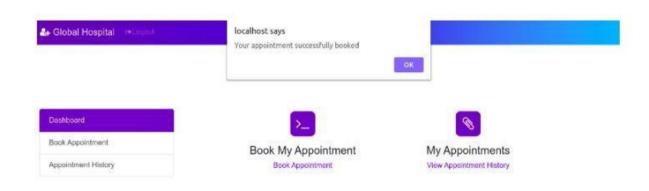




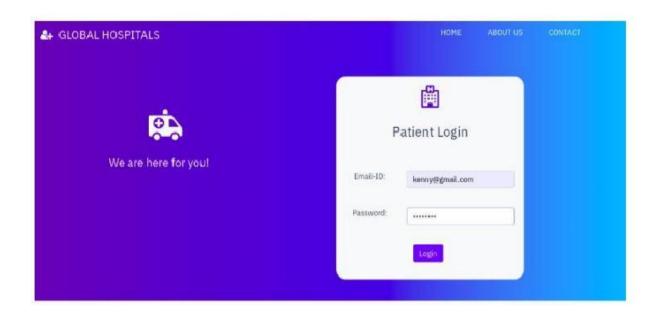




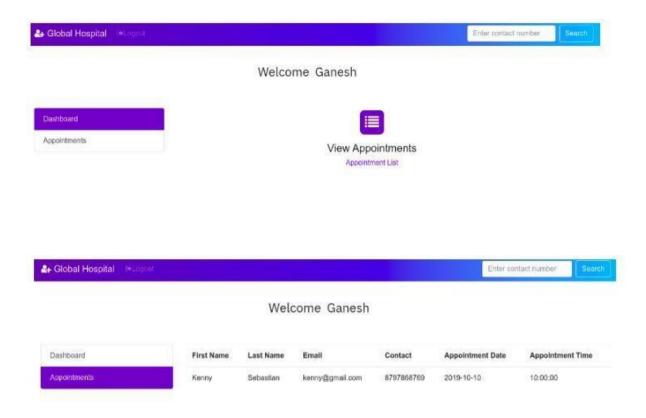


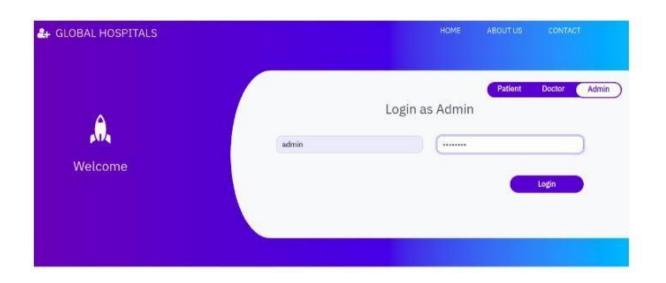


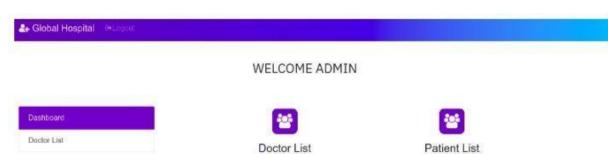


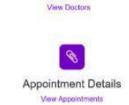








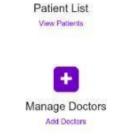


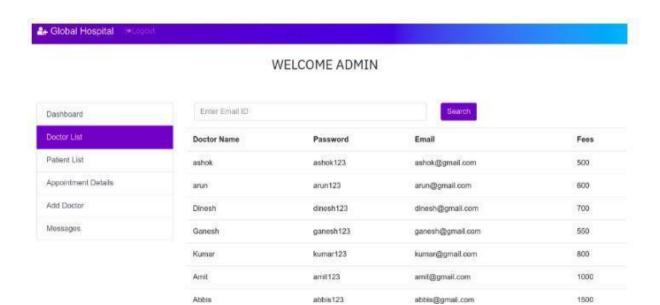


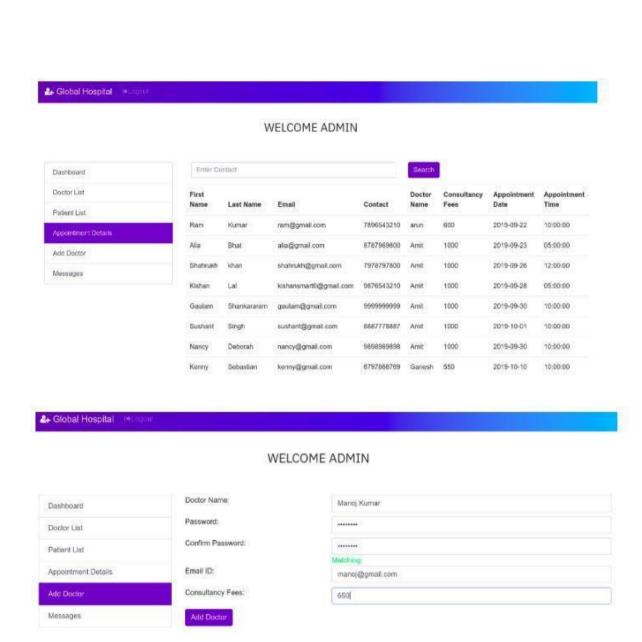
Patient List

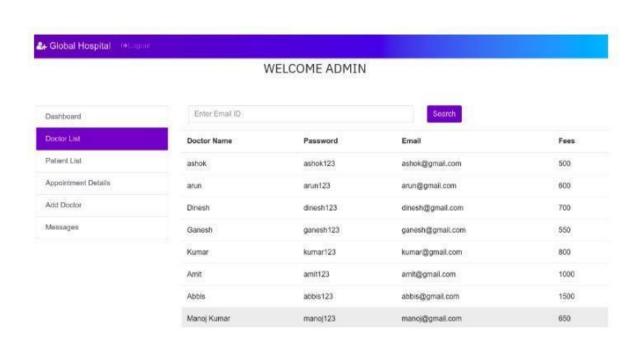
Add Doctor Messages

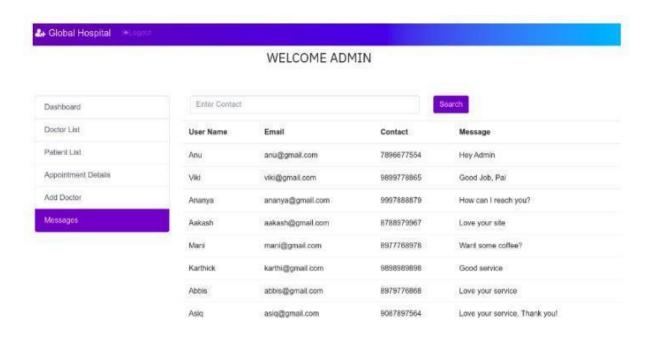
Appointment Details











♣ Global Hospital →Logout

Welcome Kishan Lal



Welcome Kishan Lal

