IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

# Design and Development of Online Medical System

**Prof. S.M. Joshi, Aaradhya Chaudhary, Manvendra Singh Chauhan,**
**Shubham Rathod, Pratyush Pandit**
Sinhgad College of Engineering, Vadgaon, Pune, India

***Abstract:*** *The patient registration process is the first stage in our project's health care hospital management system. The next step is to save their information in the system. Booking appointments with doctors is the third step. Our programme may assign a special ID to each patient and automatically record the information about each patient and member of the team. Using the ID, users may look for a doctor's availability and patient information. You can log in to the Health Care Hospital Management System with a username and password. A receptionist or an administrator can access it. The database can only be expanded by them. They can quickly obtain the info. The user experience is excellent. Data processing is quick and the data are well-protected for personal usage. Essentially, it contains two components. One is for users, such as patients and physicians, while the other is at the administration level. To access the application, the application maintains authentication. Information about patients and physicians is managed by administrators. To accomplish this, two databases—one for the patient and the other for the doctors—were created, both of which were accessible to the admin. Authorities will make reference to the user concerns. Checking appointments and medications is a feature of the patient modules. Online users can also pay for medical services.*

## I. INTRODUCTION

The hospital management system project comprises computerised billing in the laboratories and pharmacy as well as patient registration and data storage. Every patient may receive a unique ID from the programme, which also automatically records staff and patient information. It has a search feature so you can see how each room is doing right now. Using the ID, a user may look up a doctor's availability and a patient's information. With the use of a login and password, one may access the Hospital Management System. A receptionist or an administrator can access it. They alone are able to add data to the database. The information is simple to get. The user experience is excellent.

Data processing is quick since the data are adequately safeguarded for personal use. The Hospital Management System was created with the intention of providing hospitals with tangible, imaginable advantages. It is strong, adaptable, and simple to use. A comprehensive variety of hospital management and administrative processes are covered by the Hospital Management System, which is developed for multispecialty facilities. It is a fully integrated end-to-end hospital management system that offers pertinent data to all

hospital departments to enable efficient decision-making for patient care, hospital operations, and crucial financial accounting in a smooth flow. Clinical process analysis and activity-based pricing are two areas where the Hospital administration System, a software product package, is intended to improve the quality and administration of hospital management. With the aid of a hospital management system, you may grow your business and enhance its productivity and level of service. You may manage your processes by effectively managing the core processes that are essential to the hospital's performance.

## II. RELATED WORK

Life Care: GPS based Medical Emergency Solution - This research paper focuses on the development and implementation of a GPS-based medical emergency solution, which allows individuals to request emergency medical assistance using their mobile devices. The system uses GPS technology to track the location of the individual in need, and alerts emergency medical services with their location to provide timely assistance.

Implementation of MediCare Social media system - This research paper explores the use of social media platforms in healthcare delivery. It focuses on the development and implementation of a MediCare social media system, which

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

enables healthcare providers to engage with patients and share healthcare information on social media platforms. The system aims to improve healthcare communication and provide patients with access to timely healthcare information.

A Review Role of Mobile Application for Medical Services - This research paper reviews the role of mobile applications in the delivery of medical services. It examines the potential of mobile applications to improve healthcare delivery and enhance patient care. The paper discusses the advantages and limitations of mobile applications in healthcare, and provides recommendations for the development and implementation of effective mobile healthcare applications. Improving Healthcare Delivery with the use of Online Patient Information Management System - This research paper discusses the development and implementation of an online patient information management system, which aims to improve healthcare delivery by providing healthcare providers with access to timely and accurate patient information. The system enables healthcare providers to access patient information from anywhere, at any time, and provides a comprehensive view of a patient's medical history and treatment plan.

## III. PROPOSED SYSTEM

### 3.1 DESCRIPTION

By utilising electronic record-keeping and communication, as well as offering user-friendly input and output capabilities, this system strives to decrease human error. Our e-healthcare system's functionality is made available as Web Services based on the Service Oriented Architecture using modern technology so that both people and applications may utilise the services offered. While its framework focuses solely on medical monitoring devices, it offers services that involve patients, doctors, nurses, and chemists in addition to those who utilise medical monitoring equipment. Any hospital can use the Hospital Management System to replace their current manual, paper-based system. The purpose of the new system is to manage patient data. Patient bills, staff and operating room schedules, and room availability. In order to save costs, these services must be delivered properly and efficiently.

Some of the Proposed System's Features are as Follows:

- Helps patients cut the long queue and saves their time
- Is equipped with features like automated email and text message reminders
- Role-Based Access Control
- Allows employees to access only the necessary information to effectively perform their job duties
- Increases data security and integrity Overall cost reduction
- Cuts down paper costs as all the data are computerized
- No separate costs for setting up physical servers Data accuracy
- Removes human errors
- Alerts when there's a shortage of stock Data security
- Helps to keep patients records private
- Restricts access through role-based access control Revenue management
- Makes daily auditing simple
- Helps with statistics and other financial aspects

### 3.2 BLOG DIAGRAM OF PROPOSED SYSTEM

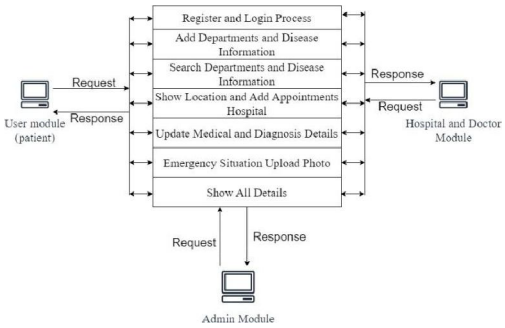


Fig. 1. System Architecture of Proposed System

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

### 3.3 HARDWARE AND SOFTWARE DESCRIPTION

**Front End**

• Operating System: -Windows XP/7/8
• Programming Language: JAVA/J2EE/Python
• Tools: Eclipse or Higher or Net beans, Heidi SQL, JDK 1.7 or Higher
• Database: MySQL 5.1

**Back-End**

• MySQL 5.1

**Hardware Requirements**

- Processor: - Intel Pentium 4 or above
- Memory: - 2 GB or above
- Other peripheral: - Printer
- Hard Disk: - 500gb

### 3.4 List of Modules and Functionalities

#### 3.4.1 Admin Module

The administrator may control the departments of hospitals using this module, and he can also manage users and physicians while checking doctor appointments. Additionally, this section enables users to look up the status of their medical appointments. He can also look up the hospital count and patient condition. Admin has complete access to the system, which enables him to control all system-related activities. He has the greatest level of access privileges in the system.

**Key Functions:**

• Access to patient, physician, and hospital records.
• Add a new doctor entry to the database of the system.
• Create a bill and confirm payment.
• View Records (total number of patients treated, addition/deletion of doctors, and consultant fee).

#### 3.4.2 User module (patient)

Patients may see their doctor's appointment schedule and status using this module. He has access to the specifics of the prescription and the doctor's medicine. The patient has access to the hospital's complete doctor roster. The patient has access to illness and department histories. Patients may select the most convenient appointments from the available alternatives, as well as modify or cancel their existing appointments. They can pay their consultant fee online once the appropriate doctor has confirmed their appointment. Only the patients' records are accessible to them.

**Key Functions:**

• the ability to schedule an appointment.
• Recall the appointment.
• Revise the details.
• Making a payment; seeing payment history.

#### 3.4.3 Hospital & Doctor Module

Doctors have access to the patient appointment list and can confirm appointments or modify them as needed. Only the patient records that they are currently treating are available to doctors.

**Key Functions:**

• Handle the patient.
• Opening and maintaining accounts; setting up and managing
• patient appointments

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

• Create a prescription for a patient.
• Identify a patient's illness and create a report on it.
• Manage your own profile.

## IV. RESULTS AND DISCUSSIONS

According on the findings and the debate that followed, it is expected that using this software would increase the effectiveness and efficiency of healthcare delivery. By allowing patients to quickly and easily identify healthcare facilities and doctors in their area, software will help to reduce wait times and improve access to healthcare services. Additionally, the automated prescription system will reduce errors and simplify the medicine purchase process for patients.

Additionally, the emergency request feature of the app will allow medical personnel to schedule patient arrivals in advance, raising the calibre of treatment given. Overall, by providing patients with access to a more effective, efficient, and comfortable healthcare system, the adoption of this app will promote ongoing efforts to digitise the healthcare business.

## V. BENEFITS

• Better access to healthcare: In the event of an emergency, patients may quickly and easily find the closest medical institution, ensuring that they receive prompt and efficient treatment.
• Faster response times: The app notifies the hospital and doctor when a patient files an emergency request, and ambulance services are instantly deployed as a consequence.
• Does Efficiency gain: Wait times may be shorter and paperwork generated less as a result of the medical appointment system being digitalized.
• Patient outcomes may be improved by giving users access to pertinent medical information and services, which the app does.
• Convenience: Using the app, people may schedule doctor visits, buy prescription drugs, and access other medical services from the comfort of their homes.
• Increased transparency: The app equips users with knowledge about hospitals, doctors, ambulance services, and pharmacies so they can choose their healthcare options wisely.
• Increased transparency: The app equips users with knowledge about hospitals, doctors, ambulance services, and pharmacies so they can choose their healthcare options wisely.
• Savings: By preventing needless hospital visits, the app may help patients and healthcare professionals alike save money on medical treatment.

## VI. SNAPSHOTS OF IMPLEMENTATIONS

**Web Page Snapshots:**

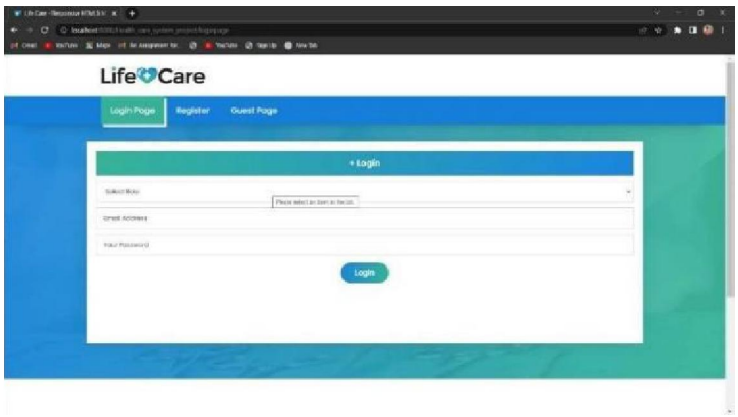


Fig 1. The Login Page

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

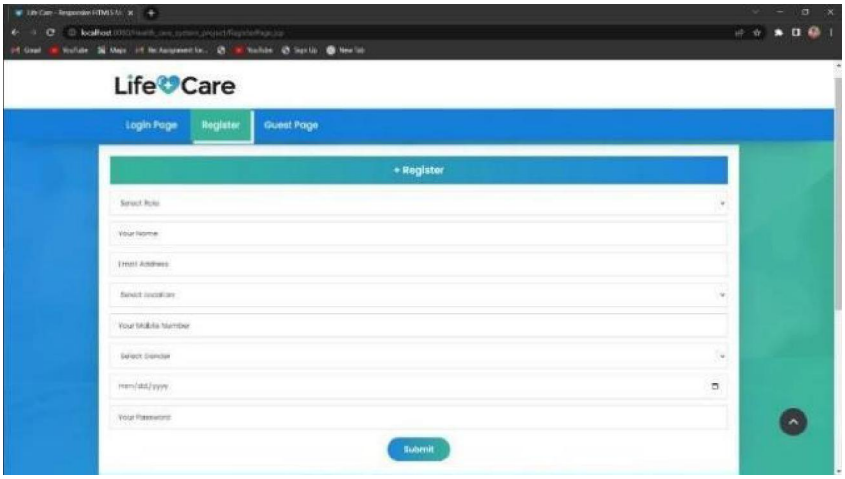


Fig 2. The Sign Up/ User Register Page

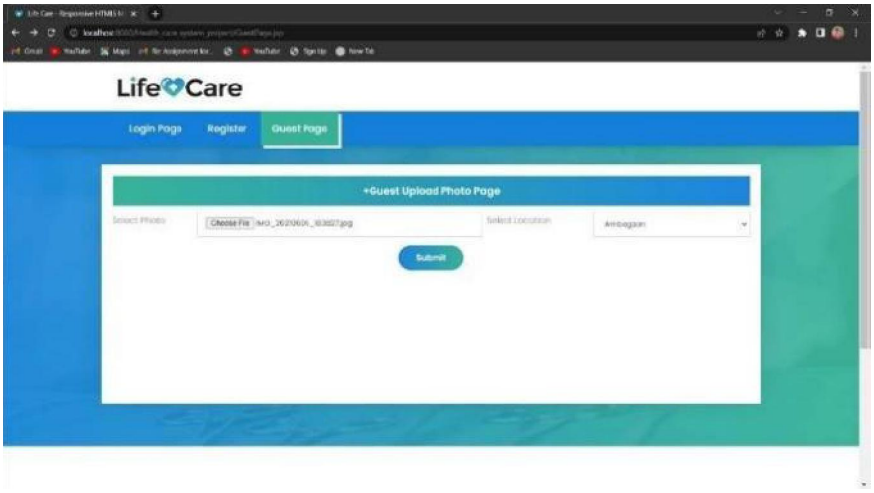


Fig 3. The Guest Page

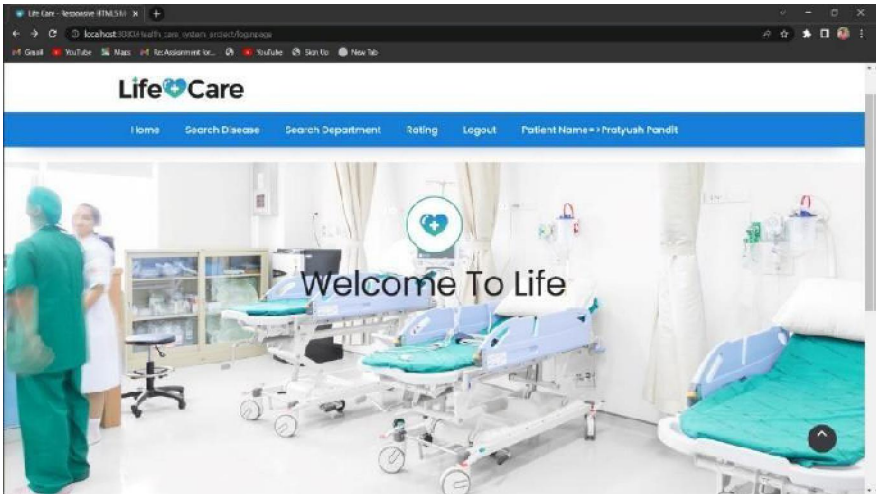


Fig 4. The Lading Page Which appears after Login

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023


Fig 5. Patient's Handle

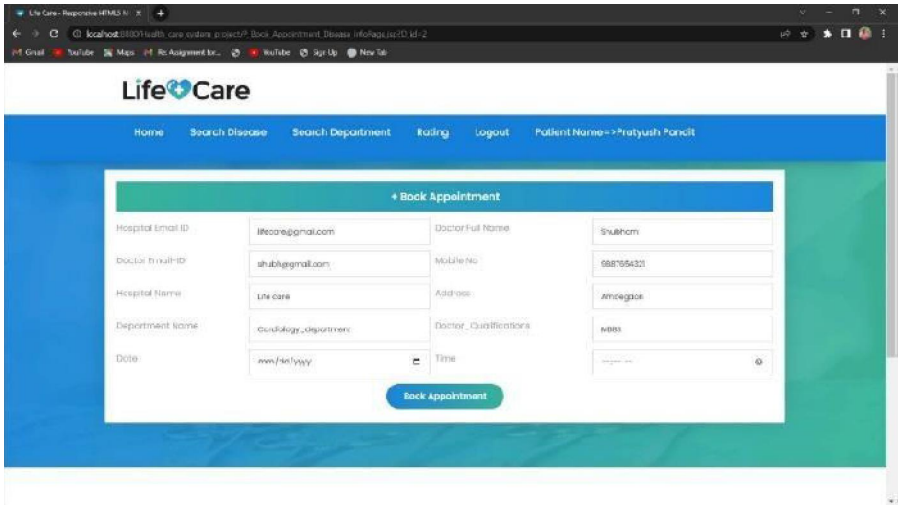


Fig 6. Appointment Booking Page

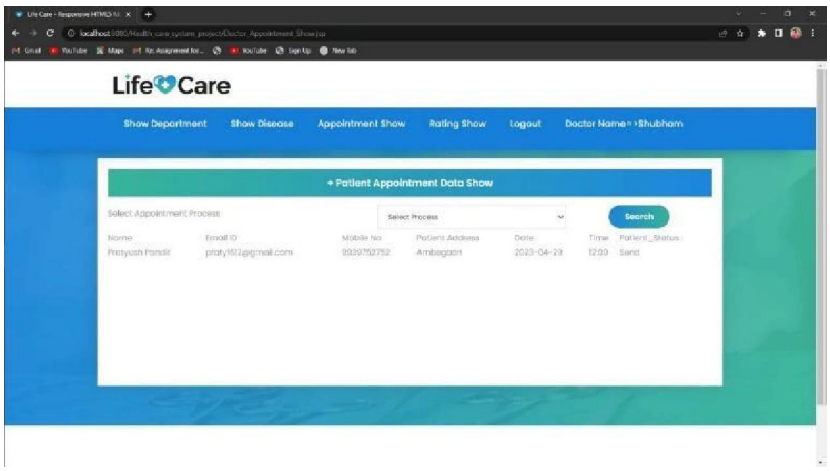


Fig 7. Doctor's Handle

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

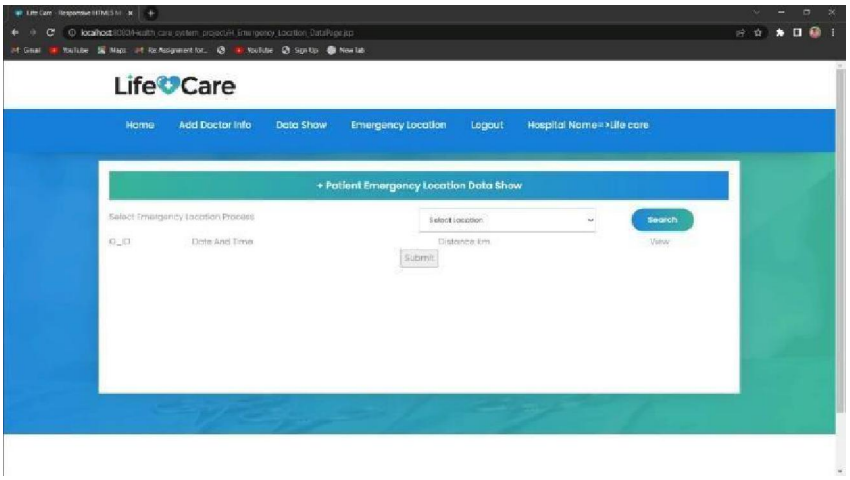


Fig 8. Hospital's Handle Page and it's Emergency Section

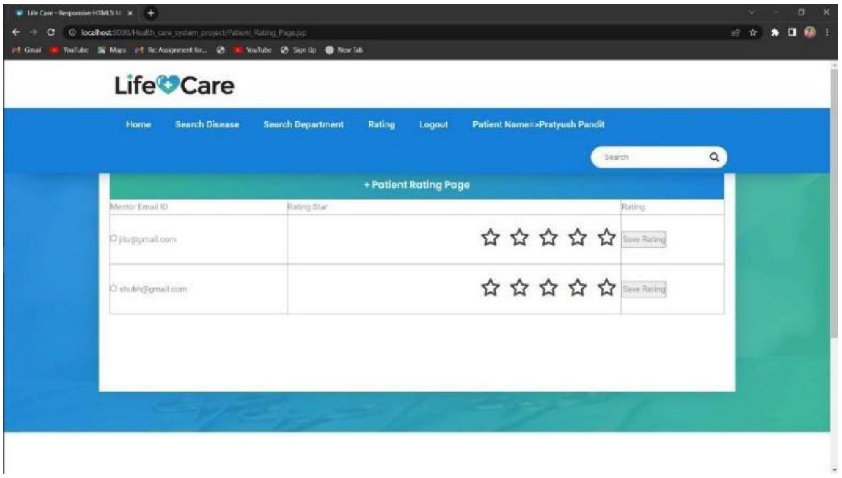


Fig 9. Doctor's Rating Page

**Database and Dataset Snapshots:**

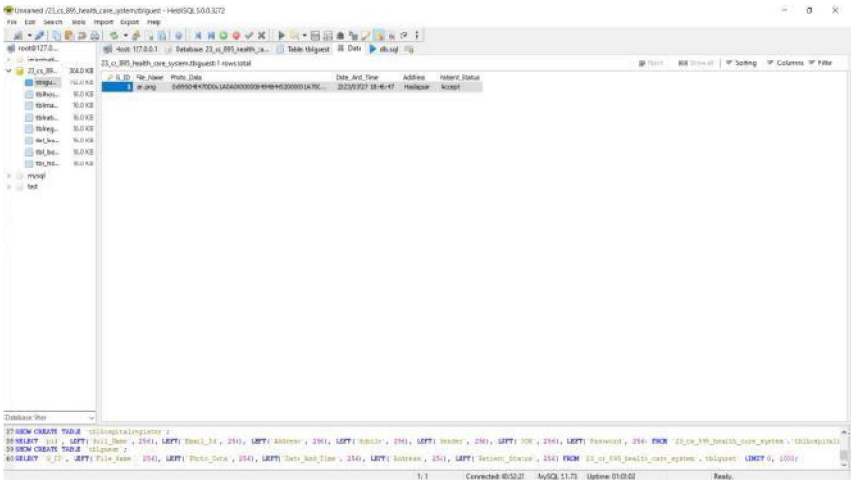

Fig 1. Emergency SOS System Dataset

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

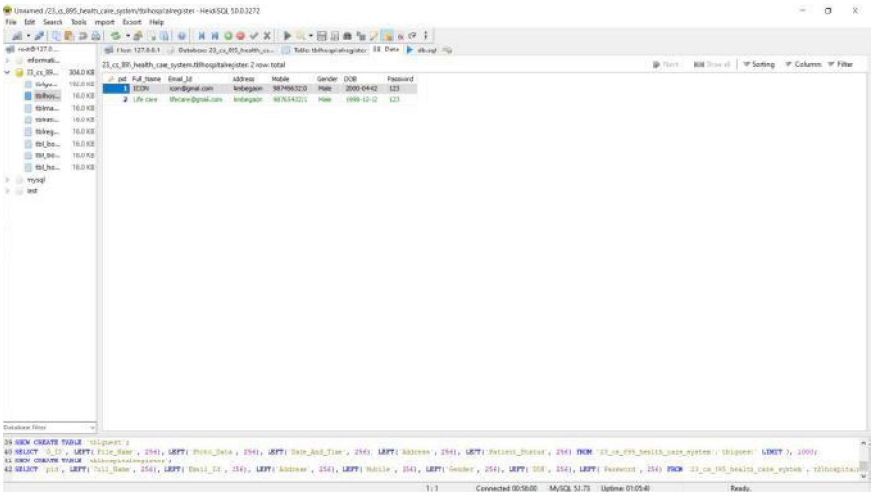

Fig 2. Hospital Registry Dataset

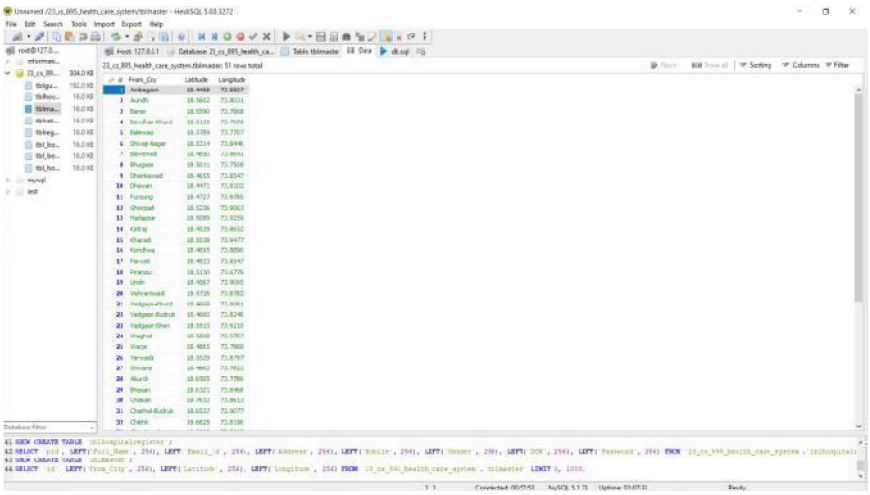

Fig 3. Locations Dataset with Calculated Latitude and Longitude

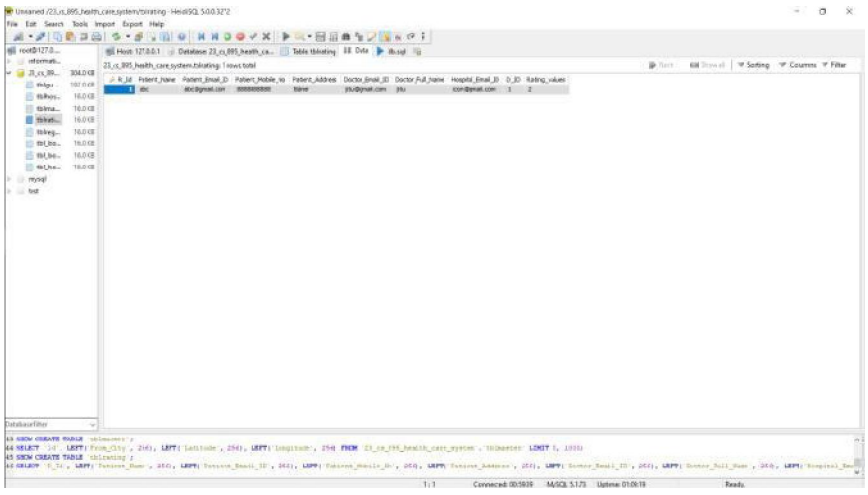

Fig 4. Doctor's Rating Dataset

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

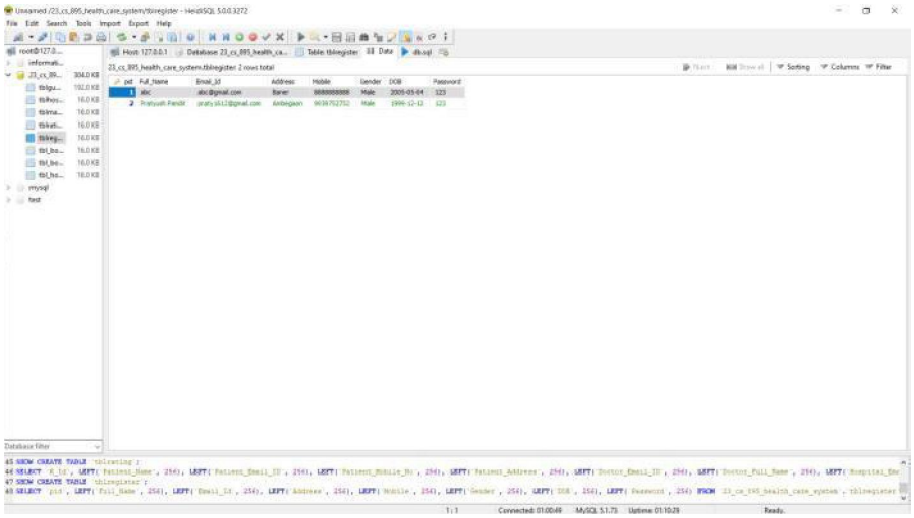

Fig 5. Patient's Registration Dataset

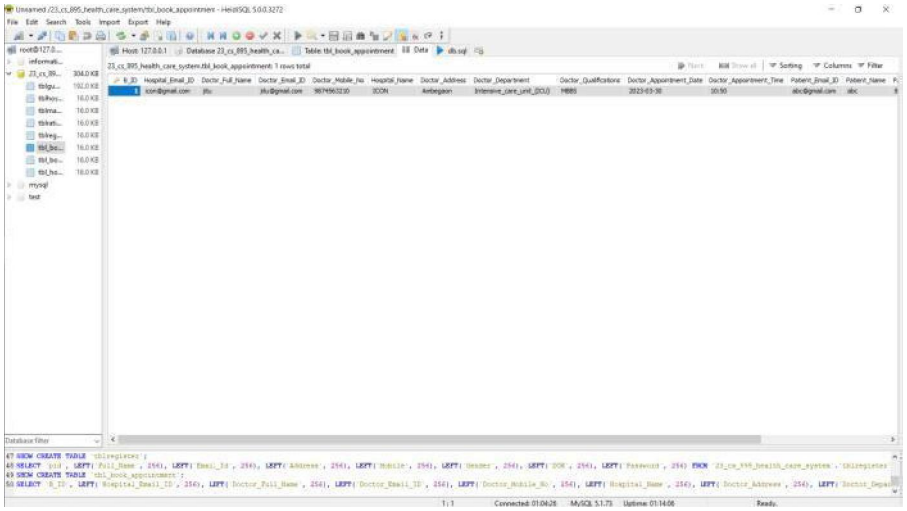

Fig 6. Appointment Information Dataset

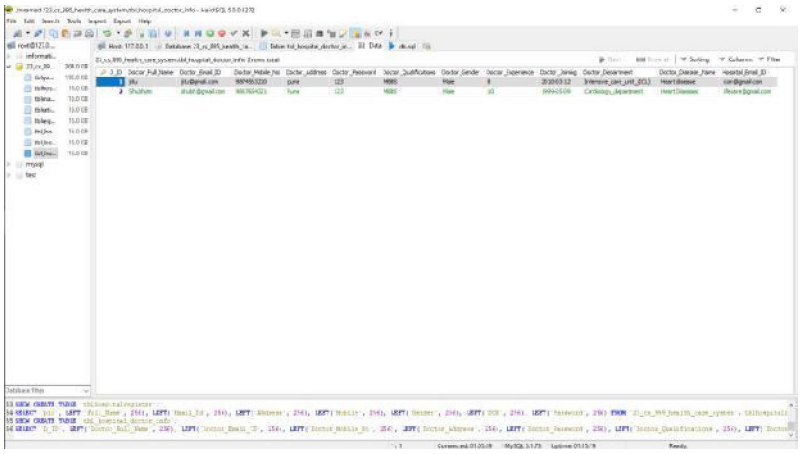

Fig 7. Doctor's List in a Hospital

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

## VII. CONCLUSION

The medical sector has grown to offer more advanced and efficient healthcare services. Just like other industries, the health care sector must transition too digital. Using a newly developed application, the general public will utilise our programme to keep their own medical information and access it whenever and wherever they are. The system is made up of specialty doctors who are listed with participating institutions. The doctors treat patients throughout the appointment and write prescriptions. Our system enables virtual communication between patients and medical professionals. The user will be helped by the capabilities of GPS-based medical emergency services to find the closest doctor using GPS. OPD patients in the real-world deal with a number of serious problems, such as making appointments, registering, seeking for OPD locations, and finding medical services, planning a trip, and the protracted doctor's appointment procedure.

Another big time save is the complete avoidance of having to recreate already existing files. The implementation of the Patient e-Files system will benefit the healthcare sector. It will help the whole country as well as the medical personnel, patients, and public and private medical institutes. The newly incorporated features will progress the current solutions and enhance healthcare service. A website that can be visited from mobile devices will be developed in the future. The data that was locally saved on the website would then be downloaded by the server. The same will be put into practise on PC and mobile nodes, where it will be feasible to maintain a local duplicated database that will be synchronised with the server and utilised in circumstances of sporadic Internet connectivity.

## REFERENCES

[1] https://www.researchgate.net/publication/343345999 Implementation of MediCaresocial media \s System
[2] https://www.kff.org/medicare/issue- brief/medicareadvantage-in-2022-enrollment-update-andkey- trends/
[3] Check out this article on Urban.org: https://research.urban.org/publication/assessment- literatureintegrated-care-models-peopledually-enrolled- medicare-andmedicaid.
[4] University of Western Sydney, San Murugesan, "Web Application Development:Challenges and the Role of Web Engineering".
[5] Using Operations Research to Minimize Healthcare Delays, Linda V. Green (2008).
[6] A Web-based Medical Emergency Guidance System by J. Kao et al., 2012 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, Istanbul, 2012, pp. 739–744.
[7] Suhiar Mohammed Zeki and Dr. Abdul Monem Saleh Rahma, "Healthcare System Technology Using Smart Phones and Web Applications (Case Study Iraqi Environment)", available at http://www.mecs-press.net/ijem 2017
[8] AyanthiSaranga Jayawardena (2014): "The District General Hospital Installed the Electronic Hospital Information System."
[9] "Intelligent Mobile Hospital Appointment Scheduling and Medication Collecting," Swabik Musa Abdulla Wani and Suresh Sankaranarayanan (2014).