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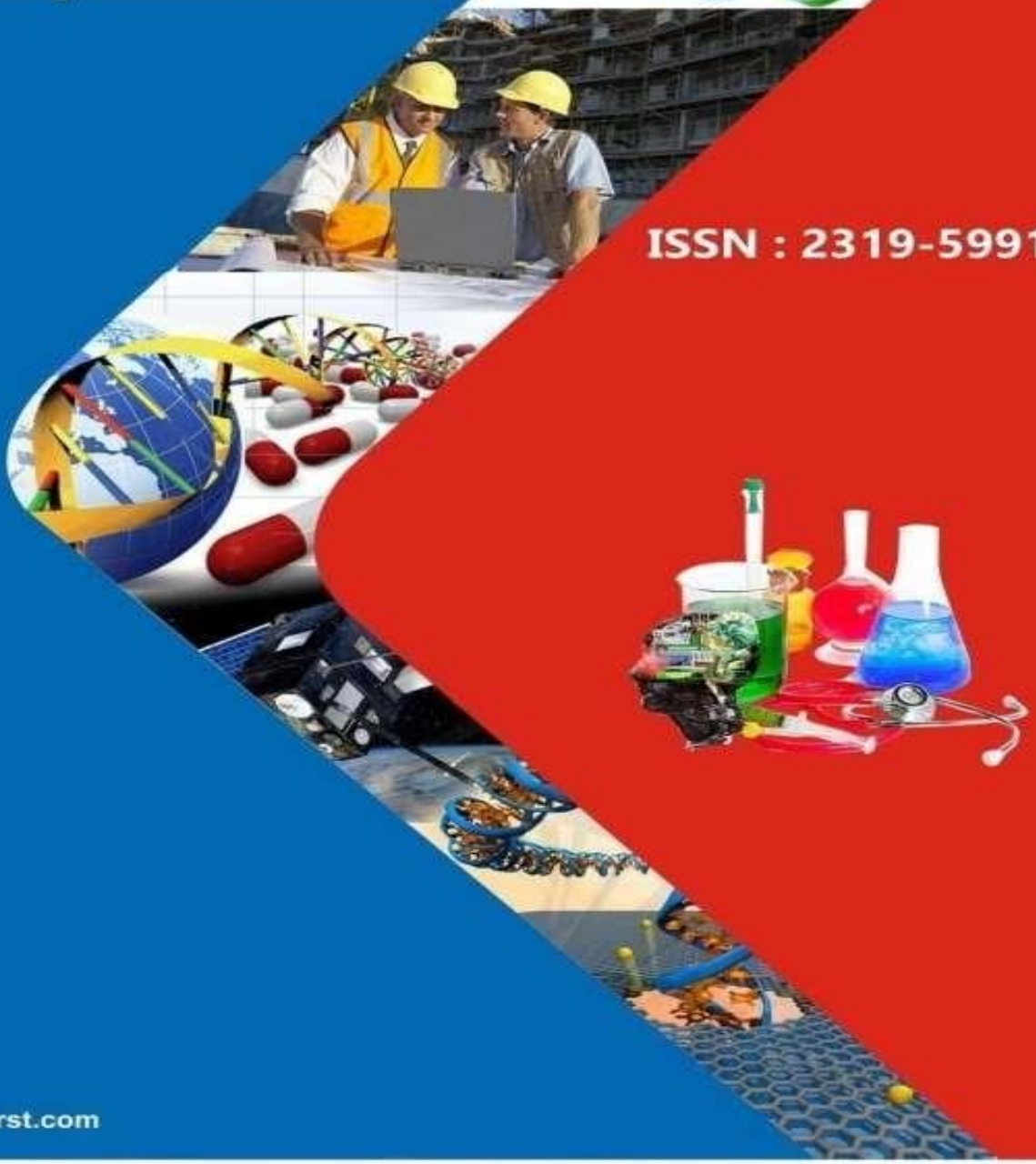

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A Hospital Management System that is Web-Based

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Abstract—

Using a web interface, this article demonstrates a hospital management system that facilitates communication between the hospital's information system and its patients, physicians, and administrators. In its development, the system made use of TCPDF, MySQL, XAMPP, HTML5, CSS3, JavaScript, Bootstrap, and PHP. The ability to do a wide range of medical and hospital-related tasks online is made possible by web-based hospital management systems (HMS). Patients may sign up, log in, and schedule appointments with physicians when their information is saved in the system. Every user—patients, physicians, and administrators—has their own unique login page. It is composed of three distinct parts. Three people are involved: the patient, the doctor, and the administrator. Authentication is maintained by this web application in order to access the information. As part of their administrative duties, administrators have access to patient and doctor records, appointment calendars, and the ability to add new physicians. The administrative team has access to two databases: one for patients and one for medical professionals. Schedule visits and verify medication levels in the Patient module. Online payment for doctor's fees is an option. Using the doctor module, medical professionals may manage patient appointments, write prescriptions, and look up patient information. Almost every business now offers some kind of online service thanks to web-based technologies. Because most tasks can be done online, time, money, and effort are all reduced. The study delves into the idea of a web-based platform that might facilitate online execution of different medical and hospital operations via the use of web networking technologies. This platform could be vital in establishing the capabilities of online medical administration. As a result, the hospital's online patient data storage, management, communication, analysis, and updating processes will be more streamlined, and patients will have easier access to their records. Consequently, this web-based tool allows for the completion of several tedious and troublesome activities.

Appointments, PHP, MySQL, Hospital Management System, Web Application, and Patients/Doctors are some of the key terms.

I. INTRODUCTION

Hospitals play a vital role in our society by providing high-quality medical care to those who are ill due to factors such as weather, stress, overwork, or other environmental factors. Hospitals can't function well in terms of administration and upkeep without accurate records of patients and physicians. However, paper records are so cumbersome to maintain. Patient registration, login, appointment scheduling, and data storage are all components of the Hospital Management System (HMS). Each user—patient, doctor, and administrator—has their own login page. Passwords and usernames are unique for each user. The three components make it up. All three of those roles—patient, doctor, and administrator—are essential. To access the information, this web application maintains authentication. One administrative duty is to keep track of patients' and physicians' personal information. The administrative team has access to two databases: one for patients and one for medical professionals. Staff are able to spend more time with patients because to this web-based hospital management system, which automates complicated tasks and provides access to critical information. Issues with performance management and increased wait times may be resolved for all processes, people, and departments.

II. LITERATURE REVIEW

Zhihong Liu's "Design, Implementation of the Hospital Emergency Nursing Information Management System" article impacts the project's planning and execution. Citation: 0193-14120, pp. 4493–4494

The IEEE published this.

• The duties and responsibilities are outlined in the article "User Interactive Hospital Management System by using web applications" written by S Sharmila Devi and J S Deepica. The paper outlined the features that the Hospital Management System software solution should have. From what we can see, this research deduced how

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information flows across hospitals. [1] We deduced the methods and data structures from the work "A web-based hospital management system for enhancing healthcare service delivery" by I.O. Olaoye, O.J. Omotosho, and A.T. Fadipe-Joseph (2018).
Prof. Parineeta's "Hospital Management System" work implicitly cited Yadnyesh P. Kadam Digvijay H. Gadhari's proposal for login security. [2] "A system that manages hospital resources and patients through intelligent decision-making and real-time data capture." Written by Ahmed Musa, Yahaya Yusuf, and Matthias Meckel for the 2012 International Conference on Systems and Artificial Intelligence (ICSAI). In order to help future HIS development initiatives get off to a good start, this paper offered some ideas for cutting costs in research, assessing the current status, creating gap analyses, and meeting additional requirements. The goal of this work is to build a reference data model. the third

III. OBJECTIVE

The project's overarching goal is to create and launch a system that streamlines administrative tasks in healthcare facilities.

Simplifying and standardizing the graphical user interface to increase user efficiency. A user is said to be efficient when they utilize a system when the time it takes to complete a task reduces with time. Making sure the system can accommodate future updates and enhancements to the current capabilities is another goal. Appointment scheduling, medication tracking, prescription management, and patient records should all be under the system's purview. [4]

IV. EXISITING SYSTEM

As it is, hospitals rely on a bookkeeping system that requires them to manually retain records in order to manage and preserve crucial data. There is a lot of documentation needed for a manual system. [5]

A. Limitations in Existing System

• A lot of memory is being used up by data since it is kept in redundant form and there is an abundance of information.
• There is data discrepancy.

• Storing massive volumes of data isn't a picnic. Supervised by a large team of employees.

V. PROPOSED SYSTEM

The suggested system makes HMS suitable for any healthcare facility.

Information about patients, doctors, and administrators is saved in it. Admins have the ability to see patient information, doctor details, appointment status, and even add or delete doctors. [6]

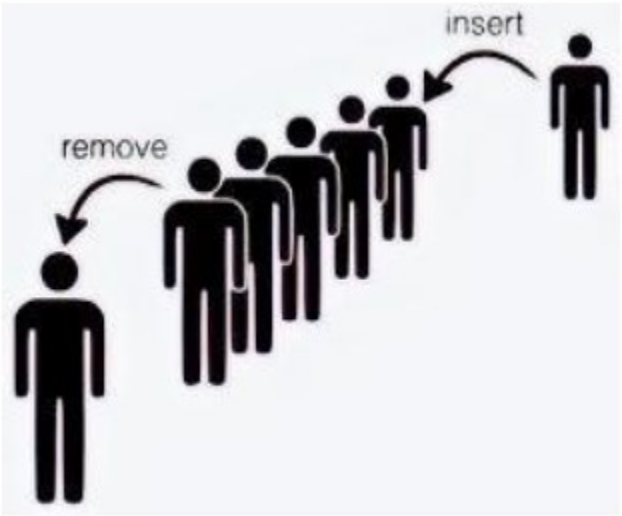
Advantages over Existing System

• Ease of use. Online services allow patients to do things like schedule appointments, get prescriptions in PDF format, and pay bills. [7] User-friendly interface. Patients have the freedom to choose a physician who best suits their needs and interests.
• Information is not repeated.
• It offers value for money. Based on the level of expertise, there is a set rate for consulting services.
• It saves time and cuts down on resources too.
• It's easy to obtain the data.

Information is kept very safe for individual use, and processing times for data are lightning fast.
• More convenient access: Patients may schedule appointments with their physicians whenever and wherever they choose. They may save both time and money by not having to go to the clinic. Appointment, medication, and test result updates are sent to patients in real-time.

VI. METHODOLOGY

ALGORITHM:



1. Algorithm Description:

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Step 1: BEGIN

Step 2: Patients must register in the queue.

Step 3: When a patient arrives for their appointment, the

doctor checks them in and provides the necessary

consultation. The patient's information is removed

from the database queue.

Step 4: Verify the second patient availability.

Step 5: If second patient is not there then add it to

the end of the queue.

Step 6: The algorithm is then continued in this

manner.

Step 7: Exit.

B. MODULES

1. Patient module:

Making an appointment, seeing past appointments, and creating an account are all features that patients may take use of. In order to schedule an appointment, patients may choose a doctor according to their availability and area of expertise. The patient has the option to pay their charge online upon receiving their prescription. The patient has the option to pay the doctor's charge online.

It enables two operations:

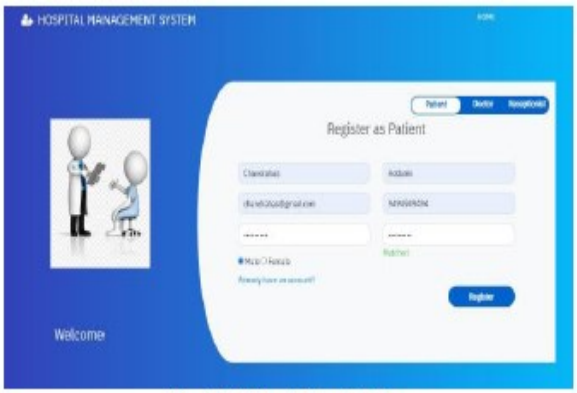

Fig. 1. Patient Registration

This module allows patients to sign up for an account, book a doctor's appointment, and see their previous appointments. A patient's gender, first and last name, phone number, email address, and password may be entered using the spaces provided on the registration page.

Front and center on the homepage. Selecting "Register" and entering the patient's information will lead them to their Dashboard the financial record (Fig 1).

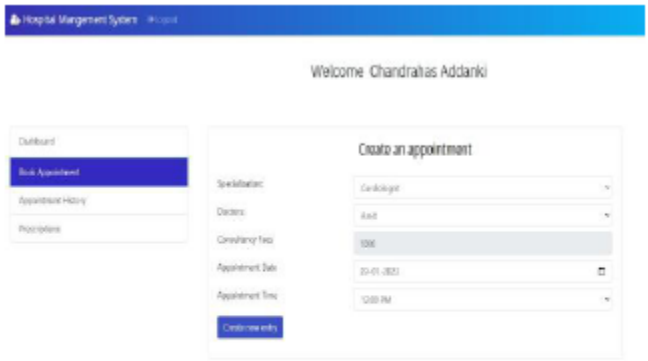

Fig. 2. Book Appointment

The patient is required to choose the physician, and the associated consultation costs will be shown based on that selection. The patient will get a confirmation message that the appointment went well once they click the "create new entry" button. To make sure that no unauthorized people may access the system and change the data, it has a login authentication mechanism. After the authentication process is complete, the user will be sent to the appropriate module to complete the necessary tasks.

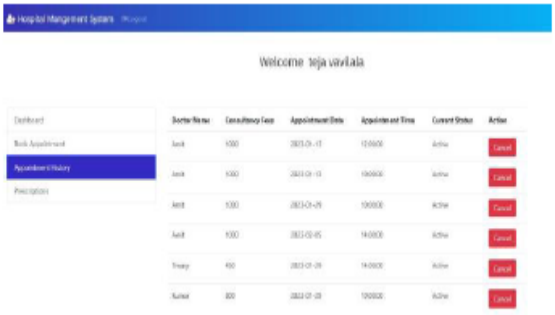

Fig. 3. Appointment History

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Everything from the name of the doctor to the consultation fee, appointment date, time, and status may be found in the patient's appointment history. Instead of creating a new account every time the patient wants to access his previously existing one, he may just log in. When the patient clicks the "Login" button, he will be sent to his dashboard page. This is how the patient module works. In sum, this module provides the following features: account creation, login (if already existing), appointment scheduling, and history viewing. In order to schedule a consultation, patients may go online, pick a doctor, and pay for it. With this function, patients may rest easy knowing that they won't need to bring any cash to their doctor's appointment.

An electronic receipt will be generated and sent to the patient's registered email address after the payment is completed. You may save this receipt for your records or to get your money back. The portal also provides an avenue for patients to reach out to customer service in the event that they have any problems with their booking or payment.

2. Doctor module:

The admin gives the doctor the login credentials so the doctor can access his account, see the appointments, and prescribe medication for the ones who were successful. A simple click will change the tab label from "Patient" to "Doctor," granting the physicians access to their accounts. Details on the patient's condition, allergies, and current medications are provided by the doctor while writing a prescription.
A doctor's internet account makes it easy for him to do things like update appointments and treat patients by prescribing medication.

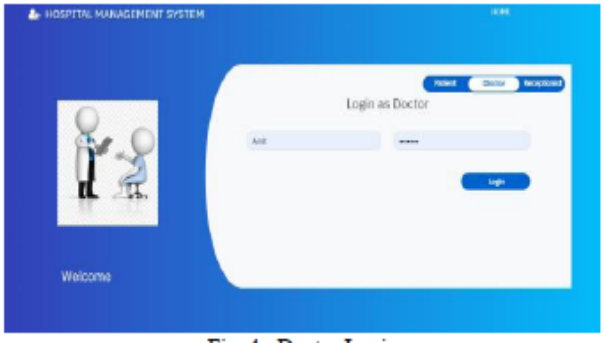

Fig. 4. Doctor Login

The dashboard is where physicians may see all of their information, including their appointments, after they have signed in. The navigation bar has a search box that users may use to find certain patients or appointments.

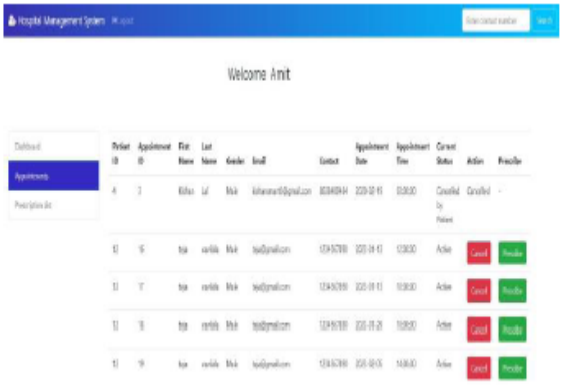

Fig. 5. Doctor Appointments

The doctor has access to the patients' scheduled appointments. As an example, the patient "Ram" made an appointment with the doctor "Chakravarty," as shown. This means that Ram, the patient, will meet with Dr. Chakravarthy on 10/10/2019 at 10 AM. The doctor may see the patient at the appointed time and write a prescription that is saved online; the patient can then access this information and pay for the meds included in the prescription. Thousands of doctor's appointments will be filled up in real time. It will be simpler for doctors to get appointments if there are more of them. It simplified things by including a "Search" box in the sidebar that allows physicians to seek for patients by phone number. Once the doctor is through with their work, they may log out. This allows doctors to manage their patients' care via their online accounts, where they may also see upcoming appointments.

3. Management section:

An administrator may access a complete record of patients, physicians, and appointments in our project's central module. The administrator has the ability to recruit or fire medical professionals.

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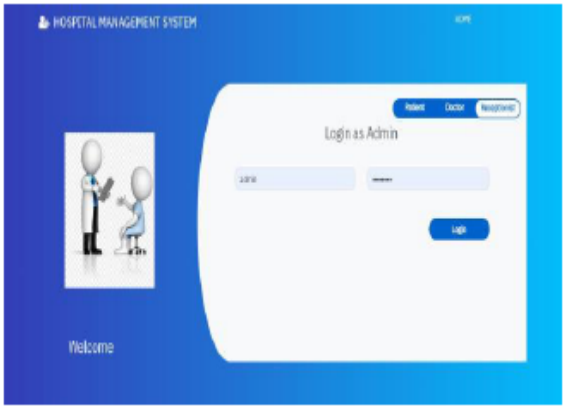

Fig. 6. Admin Login

The hospital administration has supplied login credentials that may be used to access an admin account; to access this account, go to the Home page and choose the "Admin" button. a. See who has signed up for treatment: The administrator may see all registered patients. The patient's email, first and last name, contact information, and password are all viewable. The admin may use the search box to locate a patient by phone number, just as in the doctor module.

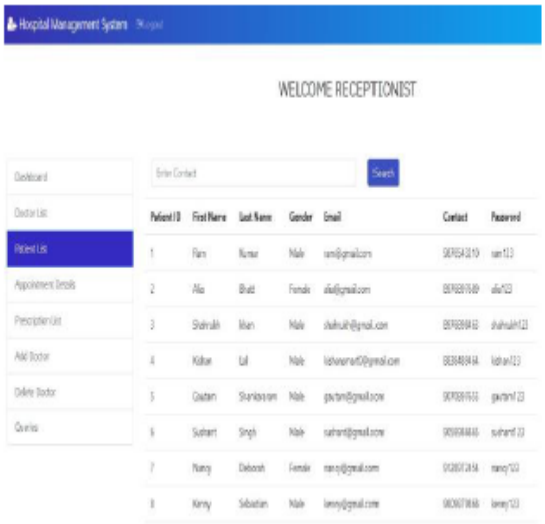

Fig. 7. Patients list

The administrator has access to the physicians' profiles as well. All of this data, including the doctor's identity, password, email, and consultation fees, is shown in Figure 8. The administrator may locate a doctor by using the search bar to input the doctor's email address.

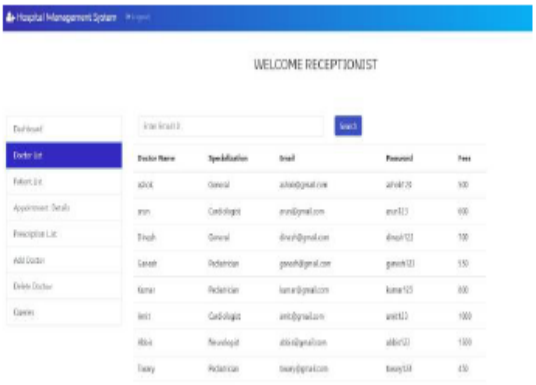

Fig. 8. Doctors list

Please review the following schedules: Information on patients' appointments with their different physicians is among the many pieces of appointment data that the administrator has access to. Included in this are the following details: the patient's full name, email address, phone number, and the name of the doctor who will be seeing them, as well as the appointment's time and date, and any associated costs.

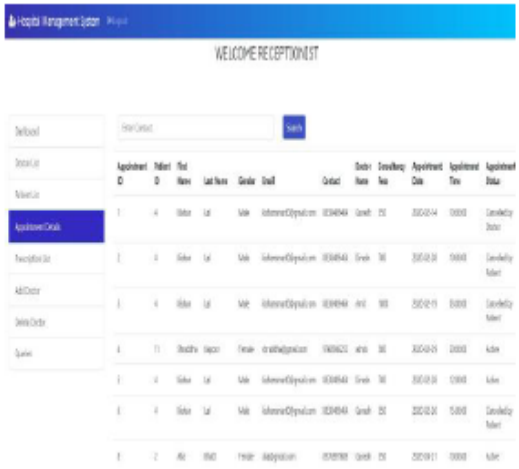

Fig. 9. Appointment list

Due of security considerations, only the administrator may add a new doctor. The details requested on this form include the name of the doctor, their email address, the area of expertise, a password, and the total cost of the consultation. When we examine the list of physicians after the addition of a new one, we can see that their information has been updated.

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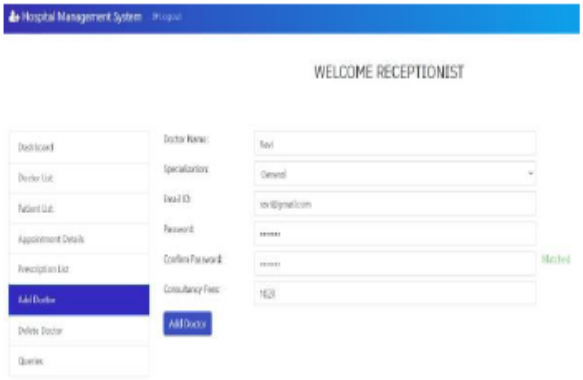

Fig. 10. Add doctor

Admins may easily remove doctors from their rosters by sending them an email with the appropriate deletion instructions. The ability to remove a doctor's credentials from the database is reserved for the administrator.

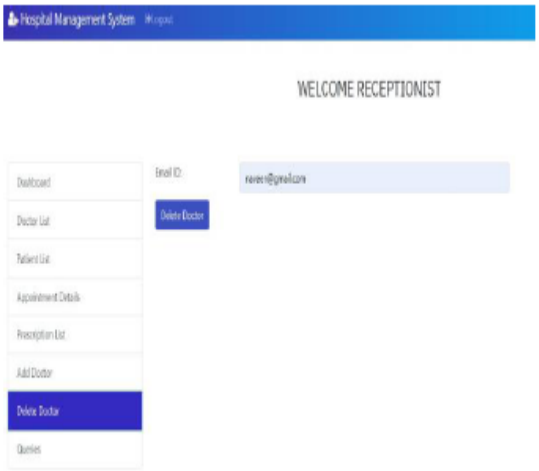

Fig. 11. Delete doctor

The administrator has complete control over the database. He has access to all of the medical records, including those of past patients, their appointments, prescriptions, and doctors' names and contact information. Additionally, he has the ability to edit the database's patient and doctor records. With fewer people needed to do a variety of jobs, the user interface is both efficient and simple to use. All things considered, the admin module grants full system control to the admin, letting them handle appointment, patient, and doctor data. After everything is finished, the administrator may log out.

VII. RESULTS & DISCUSSION

A web-based HMS was developed and launched with the use of many technologies, including HTML, CSS, TCPDF, JavaScript, MySQL, XAMPP, PHP, and Bootstrap. The system allows for the administration of prescriptions, appointments, and patient and doctor data; it is straightforward and easy to use. Patients may also pay for their consultations and prescriptions online using the system, which improves their experience and decreases wait times. Time is saved and efficiency is increased in hospital administration using this method. Extensive testing of the system revealed that the application responded quickly, had an intuitive layout, and was simple to use. As a result, patient wait times were cut in half and manual record keeping was rendered obsolete.

VIII. CONCLUSION

After the Hospital Management Project is unveiled, work at the hospitals will be efficient and seamless because the Hospital Management System is vital for keeping accurate records of patients' appointments, doctors' appointments, prescriptions, hospital personnel, and so on. This project satisfies every requirement of a standard hospital. With its help, the hospital can efficiently and effectively store data pertaining to both physicians and patients. The transmission of patient data would take just a few seconds, in contrast to the traditional process of manually delivering the information. The project greatly simplified and expedited the procedure. Data redundancy, inconsistency, storage of massive volumes of data, and staff efficiency are some of the benefits that the suggested method offers over the current manual technique. With the data collected, stored, and retrieved digitally, hospital administration might be made more efficient and effective, leading to improved healthcare for patients.

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