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Web Based Hospital Management System

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***Abstract*—In this article, we take a look at a hospital administration system that runs on the web and lets everyone from patients to physicians to managers access the hospital's database from anywhere with an internet connection. Building blocks of the system include TCPDF, MySQL, XAMPP, HTML5, CSS3, JavaScript, Bootstrap, and PHP. The ability to do a number of medical and hospital-related tasks online is made possible by web-based hospital management systems (HMS). Patients sign up, log in, and schedule appointments with physicians who then keep track of their information on the system. Every user—patients, physicians, and administrators—has their own unique login page. The three components make it up. You have the patient, the doctor, and the administrator. The authentication process for accessing the information is maintained by this web application. As part of their administrative duties, administrators have access to patient and doctor records, appointment calendars, and the ability to add new physicians. In order for the administrator to have access, two databases were created: one for patients and another for physicians. Schedule visits and verify medication levels in the Patient module. Online payments for doctor's fees are accepted. Viewing appointments, writing prescriptions, and searching for patients are all capabilities of the doctor module. Online services in almost every sector are made possible by web-based technologies. Workload, price, and effort may all be reduced since most tasks can be done online. 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. All of the hospital's online patient data storage, management, communication, analysis, and updating, as well as patient administration and doctor schedule management, will be facilitated by this. Consequently, this web-based tool allows for the completion of several tedious and troublesome activities.**

Keywords— Admin, Patient, Doctor, Hospital Management System, Web Application ,PHP ,MYSQL ,Appointments.

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, occupational hazards, and stress. Hospitals can't function well in terms of administration and upkeep without accurate patient and physician records. But it's very tedious to keep track of everything using paper records. Patients may register, log in, schedule appointments with physicians, and save their information all inside 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. Everyone from patients to doctors to administrators fall within these categories. In order to access the information, this web application maintains authentication. Administrators are responsible for keeping track of patients' and physicians' records. So that administrators may access both the patient and doctor databases, two databases were constructed. This web-based hospital management system frees up personnel to spend more time with patients by providing easy access to critical information and automating tedious tasks. Issues with performance management and increased wait times in processes, people, and departments are solvable.

LITERATURE REVIEW

Zhihong Liu's article "Design, Implementation of the Hospital Emergency Nursing Information Management System" (ISSN:0193-14120PageNo.4493-4494) had an impact on the project's planning and execution.
IEEE published the work.
• The kind of activities to be performed and managed is defined in the article "UserInteractiveHospitalManagementSystem by using web applications" by S Sharmila Devi and J S Deepica. In this article, we laid down the groundwork for the Hospital Management System's software solution. The dataflow of information in hospitals was deduced in this article. [1]
• Data structures and methods were deduced from the article "A web-based hospital management systemforenhancinghealthcareservicedelivery" by I.O. Olaoye, O.J. Omotosho, and A.T. Fadipe-Joseph (2018).
• The method of protecting the login was deduced from the article "HospitalManagementSystem" written by Prof. Parineeta,

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Yadnyesh P. Kazam, Digvijay H. Gadhari. [2] in
"A system for managing hospital resources and patients that relies on intelligent decision-making and real-time data capture." This article was presented at the 2012 International Conference on Systems and Artificial Intelligence (ICSAI) by Ahmed Musa, Yahaya Yusuf, and Matthias Meckel. Building a reference data model to provide the groundwork for future HIS development projects is the goal of this study, which is motivated by the paper's suggestion to cut down on expenses related to research, assessment of the existing state, gap analysis, and additional needs.

OBJECTIVE

The major objective of this project is to create, construct, and launch a platform that supports the management of healthcare facilities. Increasing productivity by making the graphical user interface more concise and consistent. If the amount of time needed to complete a task lowers as time goes on, then the user is being efficient while using the system. Making a system that can accommodate changes and enhancements to the current capabilities is another goal. Appointment scheduling, patient data, doctor information, prescription and drug viewing, and more should all be under the system's purview. [4]

EXISITINGSYSTEM

IntheexistingSystem,Hospitalsusebookkeepingsystemwhererecordsaremaintainedbyhandforthemaintenanceandmanagement of important information. Manual system requires a lot of paperwork.[5]

LimitationsinExistingSystem

Data isbeingstoredinredundantform,soitconsumes lot of memory due to abundant information.
Datainconsistencyis there.
Itisn'teasytostorevastamountsofdata.
Managedbyalargenumberofstaff.

PROPOSEDSYSTEM

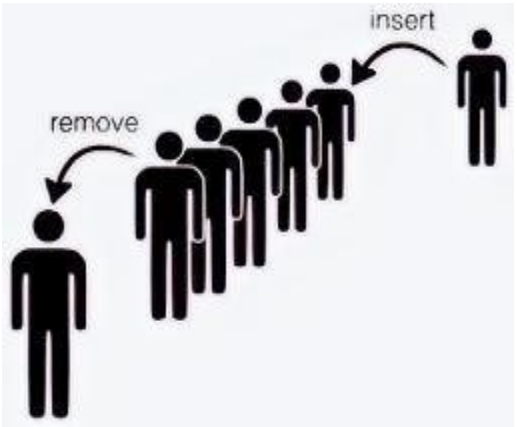
IntheproposedSystem,HMScanbeusedforanyhospital. Itstoresthepatient,doctor,andadmininformation.Anadmin can see patient, doctor information, appointment status and add or remove a doctor.[6]

A.AdvantagesoverExistingSystem

Simpletouse.Patientscanmakeanappointmentwithadoctor and candownloadtheprescriptionfromadoctoraspdfthroughonline,andpaybillsonline.[7]
Interface is user friendly. Patient can choose doctor based on specialization and interest.
Dataisnotredundant
Itprovidescost-effectiveness.Thereexistsafixedconsultancy fees based on the specialization.
Itreducestimeandresourcesaswell.
Thedatacanberetrievedeasily.
Dataprocessingisincrediblyspeedyandinformationishighlysecuredforpersonalusage.
Increased accessibility: Patients can make appointments with doctors from anywhere, anytime. They don't have to travel to the clinic saving them time and money.
Real-timeupdates: Patientscanreceivereal-time updates on their appointments, prescription and test results.

METHODOLOGY

ALGORITHM:



AlgorithmDescription:

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Step1:BEGIN
Step2:Patientsmustregisterinthequeue.
Step 3: When a patient arrives for their appointment, the doctorchecksthemandprovidesthenecessaryconsultation.Thepatient'sinformationisremoved from the database queue.
Step4:Verifythesecondpatientavailability.
Step5:Ifsecondpatientisnottherethenadditto the end of thequeue.
Step6:Thealgorithmisthencontinuedinthismanner.
Step7:Exit.

MODULES
Patientmodule:

Patientscreateanaccount,scheduleanappointmentwithadoctor,andviewtheirappointmenthistory.Patientcanbook the appointment by selecting the doctor based on specializationandavailability.Patientcanpaybillonlinewhenapatientgetsprescription.Thedoctor'sfeecanbepaidonline by the patient. Itenablestwooperations:

Fig.1.PatientRegistration

Appointment scheduling, patient account creation, and appointment history viewing are all capabilities of this module. When registering (seen on the main page), patients must use the buttons to provide their first and last name, contact information, email address, password, and gender. After finishing the account creation process by pressing the "Register" button, the patient will be sent to their Dashboard (Fig 1).

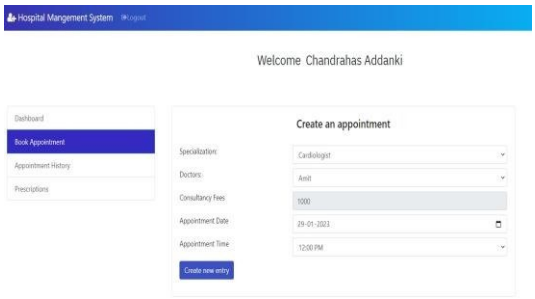

Fig.2.BookAppointment

Patients will be able to see the consultation costs displayed with the day, time, and doctor they choose. An acknowledgment stating that the appointment was successfully created will be sent to the patient once they click the "create new entry" button. To make sure that no unauthorized people may access or change the data, it offers a login authentication method. After authentication is successful, the user is routed to the appropriate module where they may complete the necessary tasks.

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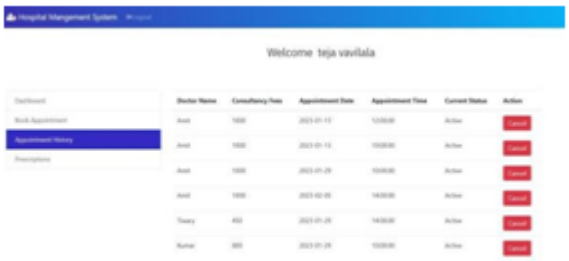

Fig.3.AppointmentHistory

All of the patient's appointment details, such as the name of the doctor, consultation fee, appointment date, time, and status, are available in their appointment history. If the patient wants to regain access to his established account after logging out, he may simply log in instead of creating a new account. Pressing the "Login" button will transport the patient to his dashboard page. It is in this way that the patient module functions. Users may sign up for an account, access their existing account, make an appointment, and see their appointment history all inside this module. In order to pay for their consultation, patients may go online, pick a doctor, and schedule an appointment. Patients no longer have to worry about bringing cash to the doctor's office because of this feature, which makes it a safe and simple method to pay. The patient's registered email address will get an electronic receipt after the payment is processed. For reference or reimbursement reasons, this receipt may be used in the future. The portal also provides an avenue for patients to get in touch with customer service in the event that they have any problems with their booking or payment. In the second module, "Doctor," the administrator gives the doctor access credentials so the doctor may see patient appointments and, if necessary, prescribe medication. To access their accounts, physicians may click the "Doctor" tab, which is located just below the "Patient" button. The doctor writes up the prescription after discussing the patient's condition, allergies, and current medications. The doctor may simply login his online account, amend the appointments, and treat patients by prescribing medication.

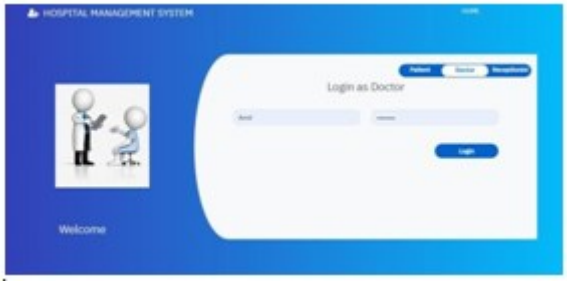

Fig.4.DoctorLogin

The dashboard, where physicians may check their appointments and other information, will be accessible after they have signed in. Using the search box located on the navigation menu, they may easily find certain patients or appointments.

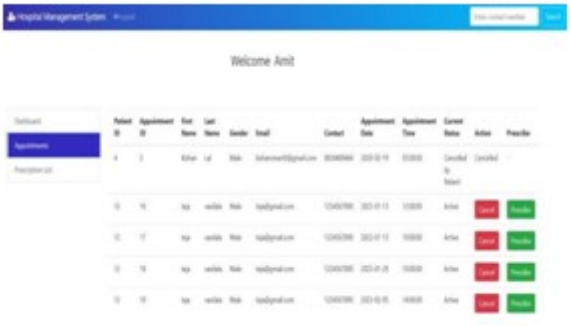

Fig.5.DoctorAppointments

Appointments that patients have booked may be seen by the doctor. As an example, the patient "Ram" made an appointment with the doctor "Chakravarty," as shown. Dr. Chakravarthy will visit with the patient, Ram, on 10/10/2019 at 10 AM. The doctor may treat the patient at the designated time and write a prescription that will be kept online. The patient can then see the prescription and pay for the meds as indicated.

In real-time, hundreds of appointments will be available for the physicians. It will be simpler for doctors to find appointments if

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there are more of them. Easy patient lookups by phone number are now a reality thanks to the addition of a "Search" box to the navigation bar. Once everything is accomplished, the doctor may log out of their account. So, a doctor may see their appointments, treat their patients, and log in to their account.

The second section is the admin module, and it's where the project manager may see a complete list of patients, physicians, and appointments. A doctor may be added or removed by the administrator as well.

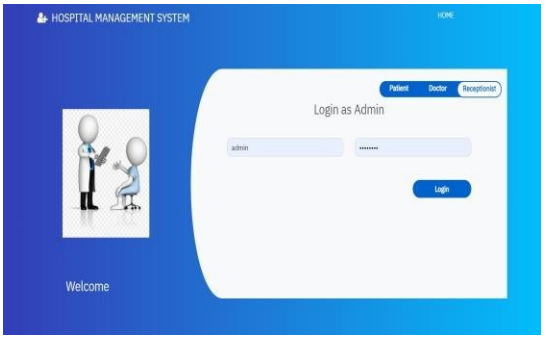

Fig.6.AdminLogin

One may access an administrative account using the credentials issued by the hospital administration by going to the "headmintab" on the homepage. Observe those who have already been registered: All patients who have registered may be seen by the administrator. The patient's ID, password, first and last name, email, and contact information may be viewed. The search box allows admin to locate a patient by phone number, much as the doctor module. details pertaining to the patients' visits to their several physicians. Included in this are the names of the patient and their doctor, as well as their contact information (email, phone, etc.), the date and time of their visit, and the cost of their consultation. Due of security considerations, only the administrator may add a new doctor. Information such as the doctor's name, email address, area of expertise, password, and consultation fee are requested by this form. When we examine the list of physicians after the addition of a new one, we can see that their information has been updated.

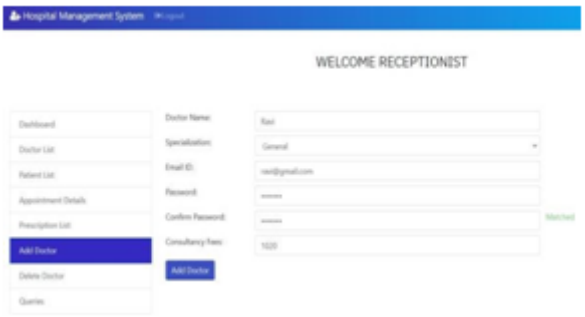

Fig.7.Patientslist

The admin may also see the data of the physicians who are registered with the system. This data is shown in Figure 8 and comprises the doctor's

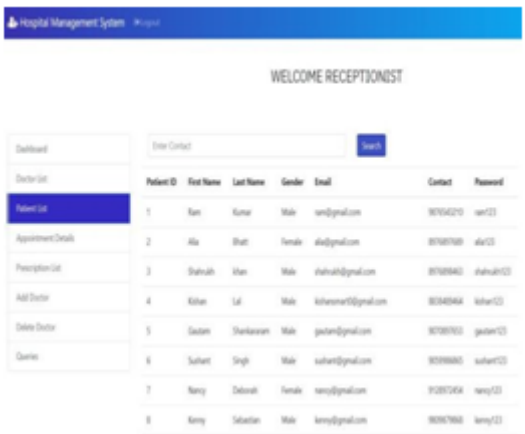

Fig.8.Doctorslist

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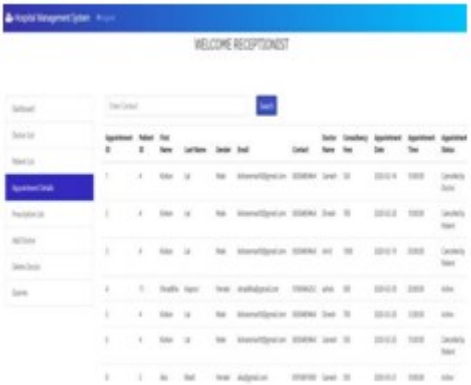

Fig.9.Appointmentlist

*DeleteDoctor:*name,password,emailaddress,andconsultationcosts.Byenteringthedoctor'semailaddressinto the search field the admin can find a doctor.

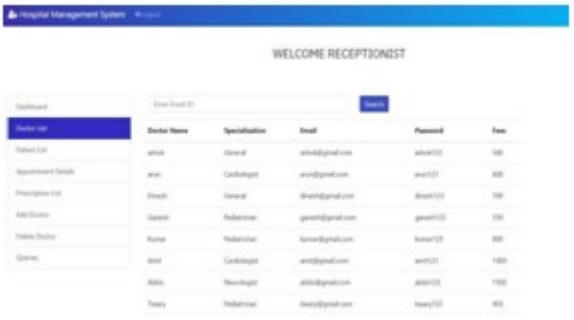

Fig.10.Adddoctor

Check out the appointment lists: The administratorhasaccesstoalloftheinformationoftheappointmentwhichincludesthe
An admin can deleteadoctorby entering doctormailwithoutanyproblem.Onlyadminhastheaccesstodelete thecredentialsofthedoctorfromthedatabase.

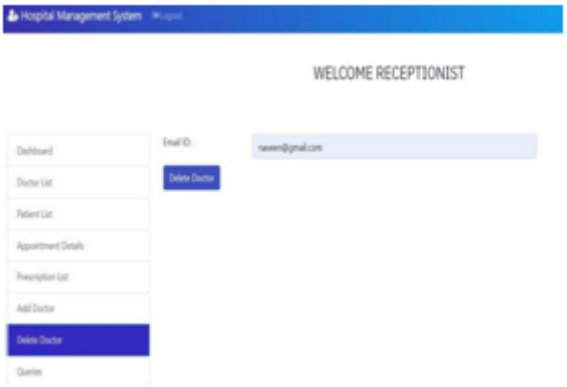

Fig.11.Deletedoctor

The administrator has complete database access. He can see who has been to the hospital before, what their appointments were like, what medications their doctors prescribed, and even who has visited the hospital in the past. Also, he has the ability to change the database's patient and doctor records. Users may do a number of activities more quickly with fewer employees because to the user-friendly and efficient interface. All things considered, the admin module grants full system control to the admin, letting them handle patient, doctor, and appointment data. After finishing up, nominated users may log out of their account.

RESULTS&DISCUSSION

The web-based HMS that was suggested was built with the help of many technologies, including HTML, CSS, TCPDF, JavaScript, MySQL, XAMPP, PHP, and Bootstrap. Data administration for patients and doctors, as well as appointments and

prescriptions, is made possible by this straightforward and user-friendly system. Further enhancing the patient experience, the technology also allows patients to pay for their visits and drugs online, which reduces waiting times. Hospital administration is made more efficient and with less wasted time thanks to this approach. After extensive testing, it was noted that the program responded quickly and had an intuitive design that made navigating it a breeze. It cut down on patient wait times by doing away with manual record keeping procedures.

CONCLUSION

Work at the hospitals would be efficient and seamless with the Hospital Management Project in place, since the Hospital Management System is vital for keeping accurate records of patients' appointments, doctors' appointments, prescriptions, and hospital personnel, among other things. This project covers all the bases that a conventional hospital would require. It can keep track of medical professionals' and patients' records in an efficient and successful way. The patient data transmission would take seconds instead of the usual minutes or even hours if done manually. Thanks to this initiative, it was made so much easier and faster. Data redundancy, inconsistency, storage of massive quantities of data, and staff efficiency are just a few of the ways in which the suggested method excels above the current manual approach. Hospital administration might be made more efficient and effective, and patients may get better treatment, if the data was collected, stored, and retrieved digitally.

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