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Abstract— The vital importance of Hospital Management Systems (HMS) in healthcare organizations is examined in this review study. HMS is a complex software tool that combines patient administration, financial management, clinical documentation, and human resources to improve operational efficiency. This study summarizes the benefits of HMS adoption, including increased efficiency, lower costs, and better patient care, based on a thorough examination of the research. It also investigates the changing trends and barriers in HMS adoption, providing insight into the present situation of hospital management technology. This thorough study emphasizes the importance of HMS in modern healthcare systems and provides practitioners, academics, and policymakers with useful insights.

Keywords: *Jsp, Hospital technology, Java, Mysql, Website, Patient*

I. INTRODUCTION

The main purpose of the project, entitled "THE HOSPITAL MANAGEMENT SYSTEM," is to create a computer-based application that is secure, user-friendly, quick, and cost-effective. This application allows patients to easily book appointments with specific doctors of their choice by logging in. Doctors can efficiently manage their patients, track their appointment status (pending or completed), which was previously a time-consuming and cost-ineffective manual process.

Patient reports can be downloaded from the website. Additionally, the application includes an ADMIN module responsible for overseeing the entire system. The ADMIN module can assign patients to doctors and add new doctors based on their specialization. The system also stores patient prescriptions, making them easily accessible for chronic diseases. Moreover, it aids in effective revenue and expense management, reducing the need for patients to wait in long queues by enabling online payments.

With the help of this application patients can book ambulance of that particular hospital in emergency

situation. It also stores all health record related to individual patient for better improvement, track the condition of the patient and can also transfer the patient health information to other organization such as insurance company or employer.

After an extensive study, we have developed a flexible and customizable application tailored to users' needs. The application is built using modern, secure, and efficient functionalities.

II. LITERATURE SURVEY

1. **“Barriers to adoption of Hospital Management Systems: A study of punjab healthcare industry(2016)”**[1]:- This paper shows the remarkable research done into the punjab region of India. This paper tells basically answers three important questions (a) Degree of which HMS has been adopted in hospitals of Punjab. (b) Barriers which are responsible for non-adoption of HMS in hospitals. (c) Which frameworks and policies that can be offered to boost implementation of HMS in hospitals. The paper shows a deep analysis on this topic and also provides valuable solutions for the concerning questions.

2. **“Advance Hospital Management System (2022)”**[2]:- This paper provides a great insight of an advance version of Hospital Management System. The system uses modern languages such as PHP, Java script, Html and My Sql. The system created provides many functionalities here such as room booking, appointment with doctors, online billing system etc. System created is very much robust as shown in the proper SRS documentation provided in the paper. System is able to handle the backend in a great way. The system provides remarkable services to the users, physicians and receptionist that makes the system very much efficient.

3. “Online Hospital Management System(2022)”[3]:- This paper provides details about a fast, secure and cost-efficient Hospital Management System. The system has all the functionalities that are required for an ideal HMS. The key or extra feature provided in the system is that the patient can download their report from anywhere and at anytime. Patient needs to login in the website and can access his/her report easily. This makes the system very much efficient and quick as it provide great feature for the patient to download report. In this fast world where each minute has its value, this system helps users to save a lot of time.

4. “The Hospital Management System (2022)”[4]:- This paper provides us with great insight of a module that is well structured and provides useful features for boosting the efficiency of the module. The system is well organized and each sub-module is divided as per the need in a well-regulated way. The system additionally provides the appointment for lab tests online along with payment. For multispecialty hospitals, the Health Board System is created to cover a variety of hospital administrative procedures. System provides family lab test packs which are very cheap and helpful. The system enhance productivity and work quality of the hospital.

5. “Interlinked Hospital Management System (2018)” [5]:- This paper provides an overview of web-based health mangement system which is very unique. In this all the the hospitals of the country are linked together so that in case of emergency all the data of the patient can be easily retrieved. Like prior medical condition, prescriptions and addictions. This system provides biometric authentication and API in the coding framework. of the patient that makes this system very secure and fruitful. The methodology used was Rapid Application Development (RAD). This system is very much useful in the emergency cases as it provides additional functionalities based on that.

6. “Blockchain integration for hospital information system management (2022)” [6] :- This paper is an excellent work that shows the system built to overcome the problem of interoperability. Many hospital management system does face the problem of interoperability. Thus blockchain is introduced it is a string that contains a list of transactions that occur. System integrate the Hyperledger fabric network and then take the changed data using debezium connect and Kafka and inserted it into the blockchain. Using blockchain along with these techniques enhances the the system robustness,efficiency and security upto a great extent.

7. “SMART Hospital Management Systems Based on Internet of Things: Challenges, Intelligent Solutions and Functional Requirements(2021)”[7]:- This paper shows the importance of Internet of things in health care sector. As Iot is being used in every sector now this system uses Iot to built a smart hospital management ssystem. IoT devices produce different types of data and transfer them to the cloud computing for storage and analysis. The system implements multi-disciplinary systems. That helps in the management of both collecting and organizing the data and designing. Using Iot in System ensures features such as: access control, integrity, authentication, confidentiality, network and system security. Iot makes the usage of cloud very easy so that data transfer and storage is safe and fast.

8. “Hams: an integrated hospital management system to improve information exchange(2021)”[8]:- This paper shows an excellent ssystem built known as HAMS. The system not only provides the information regarding the assessts in the hospital but also about the availability of the hospital during any emergency. The information is not only provided to internal staff but also to the first responders such as fire fighters etc. The system look after the incident record to update the hospital availability. The HAMS has SAFECARE Cyber-Physical Integrated Security System has prevents system from physical as well as cyber threats. This system is really an advance version of HMS.

III.RESEARCH GAP AND FORMULATION

1. Many of the paper shows that there are many hospitals which are in process of implementing electronic health records (EHRs) and telemedicine solutions. Research could focus on many opportunities that has been associated with collaboration with emerging technologies such as artificial intelligence, blockchain and internet of things (IOT).
2. Many of the papers shows that the hospital management system are lack in prioritize patient-centric features due to which it's lack to meet the patients satisfaction and outcomes.
3. Some of the papers shows that there are still chances of data breaching in HMS which can put the patient data at risk. So, it's required to develop a system which can address the current and future threats, compiles with regulations, and ensure the

confidentiality and integrity of the information of the patient.

4. Some of the papers show that current system lacks in real time monitoring and decision support features. There should required development of more tools in Hospital Management System for real time monitoring and decision support.

IV. OBJECTIVES

- The main objective of this project is to develop a hospital management system using java and SQL (structured query language)
- It will help to provide convenience to patients to make appointment, improve the efficiency, cost-effectiveness, patient care outcomes.
- It will improve the data security of the patients as well as doctors and to store the patient data for future uses.
- It will also aim to provide low-cost maintenance to the health care departments.
- It will also provide separate login for doctors, patients and admin where they can check their details such as doctors can check time of their appointment with the patients, patients can check the availability of the doctor, empty beds and many more.
- It will reduce the chance of data loss by storing all hospital data records in computer and can have backup of this data also.
- It will improve efficiency by avoiding human errors, reduces the work of documentation and have better audit control.

V. METHODOLOGY/COMPARISON

The application created by us is fast , user friendly and really very secure. An active connection must to access the application.

(A) Flow of the System:

At first the user has to login the in the wesite with his/her email id. Then the user interface will bevisible . User can select which doctor he/she wants to book an appointment with based on the disease. User have to fill up the entire appointment form along with each detail. The doctor have to login with email id to access his/her portal and can see new

appointments and can mark old appointments as completed or status pending. The main authority will be of the Admin that can handle the entire portal that is of doctor and patients. Admin can appoint new doctors and can categorize them based on specialization. Whole data of the administration/users will be saved in the database. Website is adaptive and secure. Both the users and doctors can easily change their password in case they forget and can easily edit their fill in details in case they filled up wrong .

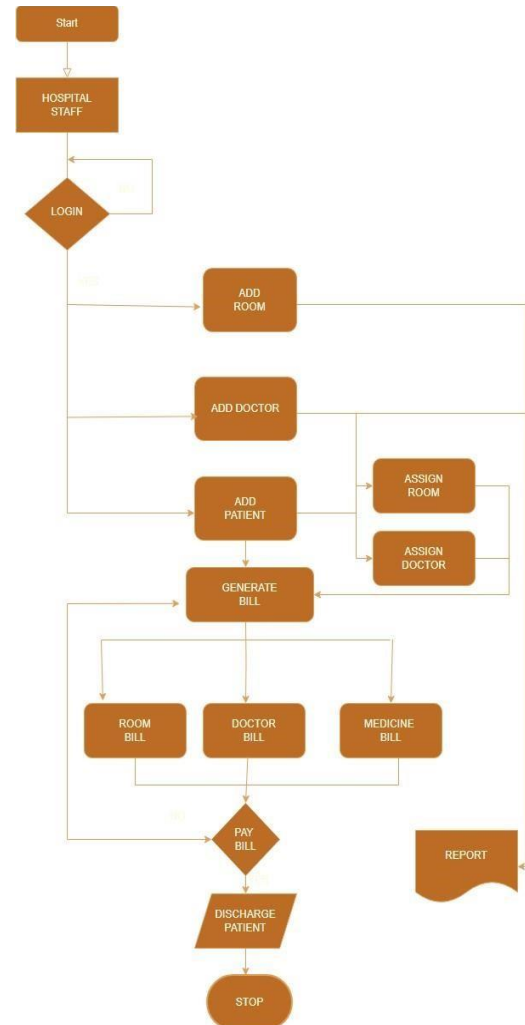


Figure1: Flowchart of the model

(B) Functional Modules:

The entire model is divided into three modules. They are ADMIN, DOCTOR , USER/PATIENT:

- **ADMIN:-** Entire authority is under the ADMIN . He/she can handle both users and doctor and

can edit anybody details , addition of new speacialist etc.

- **DOCTOR:-** Doctor based upon his/her speciality get categorize and view their new appointments and their details. They can update their status wheteher they are availabile or not.
- **USER/PATIENT:-** A user can book an appointment based upon their diseses and can fill up the appointment form where they can elaborate their problem.

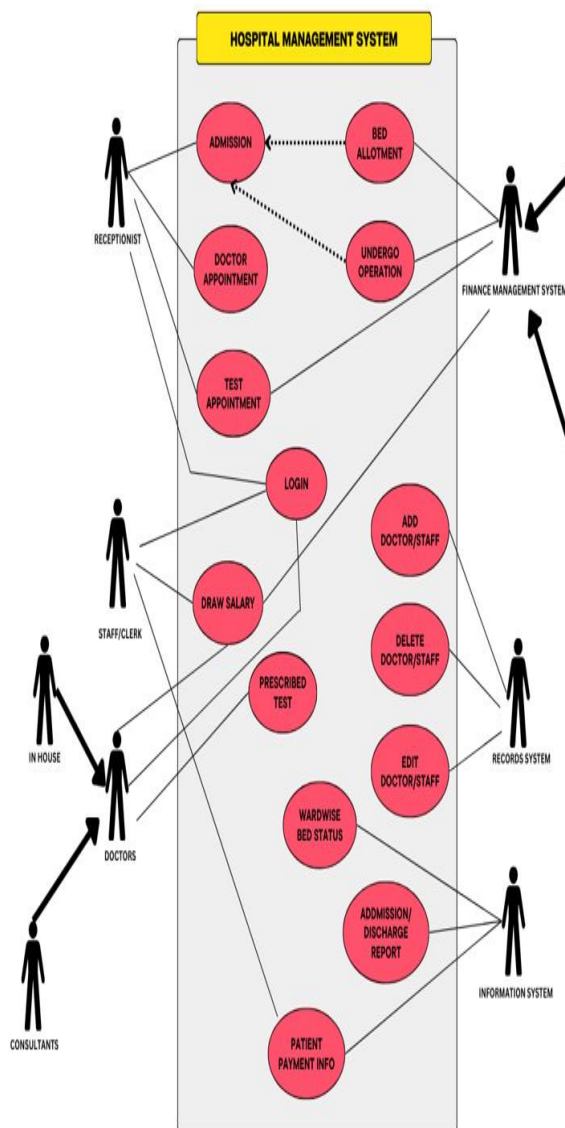


Figure 2: UML diagram of the model

VI. RESULT

(A) ADMIN:

- a. **LOGIN:-** Here admin have to login with his/her id and password.

The Admin Login form is displayed on a green background. It has a title "Admin Login". Below the title, there are two input fields: "Email address" with the value "admin@gmail.com" and "Password" with the value ".....". A green "Login" button is located below the password field.

figure 3: Admin login

- b. **ADD SPECIALIST:-** Admin will be having the authority to add new speciallist like urologist, dentist etc.

The "Modal title" form is displayed on a green background. It has a title "Modal title" and a close button (X). Below the title, there is a text input field labeled "Enter Specialist Name" with the value "Urologist". A blue "Add" button is located below the input field. A "Close" button is located at the bottom right of the modal.

Figure 4: Specialist details

- c. **ADD DOCTOR:-** Admin will be having the authority to add a new doctor by filling all these details.

Figure 5: Add doctor details

- d. **VIEW DOCTORS:-** Admin can view how many present doctors are their in the hospital.

Full Name	DOB	Qualification	Specialist	Email	Mob No	Action
Anjali	2000-12-22	Mbbs	surgeon	anjali@gmail.com	9876543210	Edit Delete
Shelly	2004-03-11	Mbbs	Cardiologist	shelly@gmail.com	9876543210	Edit Delete
Saransh	2003-06-28	Mbbs	surgeon	ss@gmail.com	9876543210	Edit Delete

Figure 6: view doctor details

- e. **VIEW PATIENTS:-** Admin can view how many present patients are their in the hospital.

Full Name	Gender	Age	Appointment	Email	Mob No	Diseases	Doctor Name	Address	Status
Anjali	female	22	2002-08-03	an@gmail.com	6544854478	stomach	Shelly	india	Pending
Saransh	male	25	2003-07-25	saransh@gmail.com	423564352	liver	Saransh	india	Pending
pablo escobar	male	20	2003-07-26	pablo@gmail.com	978344882	heart problem	Shelly	span	completed

Figure 7: To view patient detail

(B) DOCTOR:

- a. **LOGIN:-** Doctor have to login with his/her id , password to get into doctor dashboard. The dashboard will be telling how many active doctors are their and how many appointments are to be held.

Figure 8: Doctor login

- b. **PATIENTS:-** Doctor can view how many active patients are under his/her care.

Full Name	Gender	Age	Appointment Date	Email	Mob No	Diseases	Status	Action
Saransh	male	25	2003-07-25	saransh@gmail.com	423564352	liver	Pending	Comment

Figure 9: Patient detail

- c. **COMMENTS :-** Doctor can mark the patient as cured or is it under treatment.

Figure 10: Edit profile

(C) USER/PATIENT:

- a. **LOGIN:-** Here patient can login with his/her id password to open the patient dashboard.



UserLogin

Email address

Password

Login

Don't have an account? [create one](#)

Figure 12: for patient login

- b. **APPOINTMENT:-** From appointment option patient can fill the appointment form with all the necessary details under specific doctor of there choice.



User Appointment

Full Name

Age

Email

Diseases

Full Address

Gender
Male

Appointment Date
dd-mm-yyyy

Phone No

Doctor
--select--

Submit

Figure 13: user appointment detail

- c. **VIEW APPOINTMENT:-** Patient can view how many appointments are in queue for the doctor patient is looking for.

Full Name	Gender	Age	Appoint Date	Diseases	Doctor Name	Status
pablo escobar	male	20	2023-07-26	heart problem	Shellyy	completed
Saransh	male	25	2023-07-25	liver	Saransh	Pending

Figure 14: View appointment detail

- d. **EDIT DETAILS:-** If patient fills any wrong detail then he/she can easily edit details. Also they are authorized to change their password incase they forget it.

Change Password

Enter New Password

Enter Old Password

Change Password

Edit Profile

Full Name
Saransh

DOB
01-09-2023

Qualifications
MBBS

Specialist
Surgeon

Email
sal@gmail.com

Mobile No
9876543210

Save

Figure 15: edit patient detail

- (D) **DATABASE:** This will be having the entire data of the website including patient, doctor and admin. Mysql workbench is used to create the database.

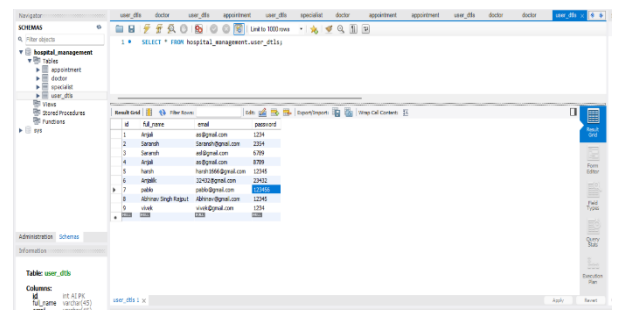


Figure 16: database

VI. CONCLUSION:

The project is known as Hospital management System. Most of the work are done through computer system these days so, this application contains modules like patient accounts, doctors accounts, admin accounts as primary users. This will help patients to book an appointment without visiting to hospital physically through online mode. This application contains various records like doctor availability, medicine availability, bed availability, medical history of patients, billings and many more. It is true that Hospital management System have completely changed the health care system. It is flexible we can make any changes by adding more features according to the new needs in health care fields.

VII. FUTURE SCOPE:

- This system will be updated with many more features in future.
- This system will have inbuilt AI to enhance patient care.
- In future feature like real time video calls will be added to interact with doctors without visiting them physically which enable remote consultations, monitoring of patients with chronic conditions.
- In future with increasing in digitalization of health care we should also have to address the evolving cybersecurity challenges.
- In future we will add more modules to this application for more benefits.

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