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Development of Online Consultation App for Health Care Systems

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ABSTRACT—

Many people are currently coping with a number of health problems. The majority of people are unaware of the finest medical specialists for their needs and lack direct access to a physician to discuss with them their health problems. A web-based service called "HEALTHIFY" has alternatives for registration and login that the administrator states are available to both physicians and patients. Doctors can sign up by supplying the necessary details, such as schedules, classifications, and so forth. Once the registration procedure is complete, the doctor can log in with their username and password. The patient's request may be viewed by the doctor, who will then let them know if an appointment is available. He gets access to the patient's comments as well. The user registers and logs in after that. Although patient happiness and efficiency are the primary requirements for optimal performance, medical facilities in many developing nations confront challenges such as: 1. Overtime for physicians and nurses. 2. Extended waiting periods are experienced by patients. 3. A heavier burden for staff members in administration. A web-based method for scheduling doctor appointments has been designed with these concerns in mind.

Index Terms—Medical specialist, direct access, web-based service, schedules, health problems, workload.

I. INTRODUCTION

In a time of advancements and a growing focus, on efficient healthcare delivery, the Hospital Management System (HMS) has become a vital tool in the healthcare industry. The HMS is an encompassing software solution designed to streamline and optimize the day-to-day operations of hospitals and healthcare facilities. Healthcare institutions, ranging from clinics to multi- specialty hospitals face numerous complex challenges such as patient management, administrative tasks maintaining medical records, billing processes and resource allocation. Manual handling of these tasks can be time-consuming, prone to errors and inefficient. This is where the Hospital Management System emerges as a game changer in healthcare management. The HMS acts as a platform that integrates modules and func- tionalities to create an interconnected and data-driven approach to managing healthcare services. This simplifies the workload for healthcare professionals, by allowing them to focus on providing quality patient care than getting bogged down by complexities. A web-based solution for an existing hospital management system. The hospital administration system for the project includes patient registration, data storage, and computerized billing for the pharmacy and laboratory. Each patient's information can be automatically stored by the soft- ware, which can also provide each patient with a special ID. Users can look up patient information and doctor availability using IDs. With a password and user name, you can log into the hospital management system. The administrator or front desk may offer advice. Only they are able to add to the database. Getting data back is easy. Excellent in terms of usability.

The processing of the data is quick, and it is properly protected for personal use. Strong, adaptable, and user-friendly hospital administration system. It is created and built to offer hospitals the most incredible advantages possible. Multi- specialty hospitals are the target audience for the hospital management system, which comprises many hospital opera- tions and administration procedures. It is a comprehensive, integrated end-to-end hospital management system that pro- vides relevant data to all hospital departments so they may make informed decisions about critical patient care, hospital operations, and financial accounting. principal. mainly and basically through an ongoing process. The goal of the Hospital Management System's clinical process analysis and activity- based costing components is to raise the standard and admin- ister hospital administration better. The Hospital Management System's (HMS) clinical process analysis and activity-based costing modules are designed to raise the standard and handle hospital administration. A web application project called Hos- pital Management System was developed for an online hotel business. The field is a system that gives patients access to an online platform, diagnoses therapeutic tasks in accordance with patients' daily demands, and produces reports, sales invoices, and patient maintenance records.

II. LITERATURE SURVEY

Healthcare is shifting towards a patient-centered approach, emphasizing the importance of involving patients in their care. One significant aspect of this transformation is the evolution of medical appointment scheduling. Patients now have greater control and choice in scheduling their appointments through online platforms. This empowers them to make decisions based on their preferences and improves their access to healthcare services. The Internet has become a vital medium in facilitating these changes in healthcare delivery and de- sign[1]. A cutting-edge online tool called the Smart Health Doctor Appointment System was created to make it easier for patients and physicians to arrange and manage in-person checkup visits. Upon registering, doctors may specify their specializations, prices, and availability. Later, they can log in to view and accept patient booking requests. Individuals with particular medical requirements and geographic area can schedule appointments by registering and logging in. The patient chooses a doctor from the list of compatible physicians displayed by the system, and the request is then forwarded to both the doctor and the administrator. The patient receives a confirmation email from the doctor and the booking status is updated accordingly. With this technique, healthcare appointment scheduling is more efficient and waiting times are decreased, guaranteeing a smoother patient experience[2]. Online physical checks are a shrewd web operation; this gives an investiture and login to the two specialists and cases. Specialists can enroll by giving their abecedarian craft like timings, charge, bracket, and so forth. After effective regis- tration, the specialist can subscribe by giving a username and secret expression. The specialist can see the reserving demand by cases and in the event that he acknowledges the patient de- mands the status will appear as booking affirmed to the cases. He can likewise see the input given by the case. The case must be enlisted and subscribed in to bespeak a specialist grounding the class and the kind of issue tolerant is defying and the area. The query item will demonstrate the rundown of specialists coordinating cases. needed criteria and he can choose one and shoot a demand the demand will be transferred to the director and the director forward it to the specialist and on the off chance that he is accessible he'll shoot the protestation and ask back to the director to refresh the reserving demand and says affirmed to the cases. The cases can see the status in the status tab and likewise, he'll get the correspondence saying the booking is affirmed[3]. Many people are avoiding hospital visits due to fear of contracting the illness while waiting in queues. To address this issue, the research suggested a Zero Queue Management System (ZQMS). This system allows individuals to book appointments with doctors based on availability, make online payments, and cancel appointments if needed. It also maintains patients' medical records for easy access and offers a waiting list option to notify users of appointment cancellations by other patients. The goal is to alleviate people's fears, reduce waiting times, and streamline the healthcare visitation process[4].In order to alleviate the hassles patients have with the conventional method of setting up appointments, the Mr. Doc application is presented as a way to streamline the procedure. Patients may effectively schedule appointments with doctors with this Android application and a website that acts as a server. Highlights of the system include calendar syncing with Google, appointment reminders, and navigation-enabled doctor and hospital searches. Medical practitioners may access patient health information and receive real-time notifications through the system's usage of Near Field Communication (NFC) for registration and scheduling. With two modules for administrators and patients, the paper introduces "Mr. Doc," a novel online hospital management application that improves the convenience and dependability of appointment scheduling. Hospital appointments may be made using the patient module[5]. In order to schedule an appointment for a check-up, the patient must wait until the physician is available. The advancement of mobile technol- ogy has made scheduling a doctor's visit more convenient. Calendar-connected appointment records are stored by the mo- bile application in order to accept appointments. Concerning the time set before the appointment, the user gets notifications. This is an easy-to-use, basic software. Here, the administrator will oversee the information about the physicians and pa- tients[6]. The Student-Teacher Online Booking Appointment System represents a modernized approach to appointment scheduling within academic institutions. By harnessing the power of technology, STOBS promotes efficiency, accessi- bility, and data-driven decision-making, ultimately enhancing the educational experience for both students and teachers. Its adaptability and scalability make it a valuable asset for institutions aiming to streamline administrative processes and foster stronger student-teacher relationships in today's digital educational landscape[7]. Medical appointments were made via telephone or in person, but these methods were limited by the availability of slots and scheduling issues. The Internet has emerged as a popular means for scheduling appointments, with two major types: medical scheduling software as a service (SaaS) and proprietary Web-based scheduling systems. The growth of patient portals in the United States has been driven by meaningful use (MU) requirements and the federal incen- tive program for electronic health records adoption. Web-based appointment systems can be asynchronous or real-time, with asynchronous systems replicating telephone-based scheduling processes[8].

III. PROPOSED WORK

The suggested effort aims to put in place an online platform for scheduling healthcare appointments. The website's primary goal is to make scheduling appointments easier for both patients and doctors. The implementation process makes use of the Waterfall Model. On the frontend, HTML and CSS are used to implement the system. This results in a dynamic user interface that is intuitive and easy to use. The databases and session monitoring of patients, physicians, their information, scheduled appointments, medications, etc. are managed on the server side via PHP (Hypertext Preprocessor). The object-oriented programming language JavaScript allows for dynamic interactivity, preventing page reloads while interacting with websites. The program made use of two-tiered server/client software. The server-client communication uses the Hyper-text Transfer Protocol (HTTP), a member of the Transmission Con- trol Protocol/Internet Protocol (IP/TCP) family of protocols. Programming languages utilized were Javascript, Cascading Style Sheet (CSS) with Hypertext Preprocessor (PHP), and Hypertext Markup Language (HTML). Use case and system architecture diagrams. To make an appointment with a doctor, users can use this system from any Internet-connected com- puter or mobile device. The appointment time and purpose are then submitted to the doctor and admin module while they are awaiting a reply, either accepting or rejecting it. The doctor and admin connect to their mail accounts and use the system to accept or cancel an appointment with a specific patient. The status of the appointment can then be informed to the patient.

1) Patients

2) Doctors

3) Admin

A. Patients :

Patients should be registered users, according to the patient module. New users may register on the website by providing basic details including their name, password, email address, and other details. Upon logging in, users are presented with an overview of their profile entitled to the dashboard. Depending on the problem they are having, they can arrange to see a specific doctor for a consultation. Depending on what's avail- able, the administrator will either accept or refuse appointment requests. The website's structure is as follows:

B. Doctors :

Providers of medical care can register by supplying basic details including name, degree, specialism, and work history.
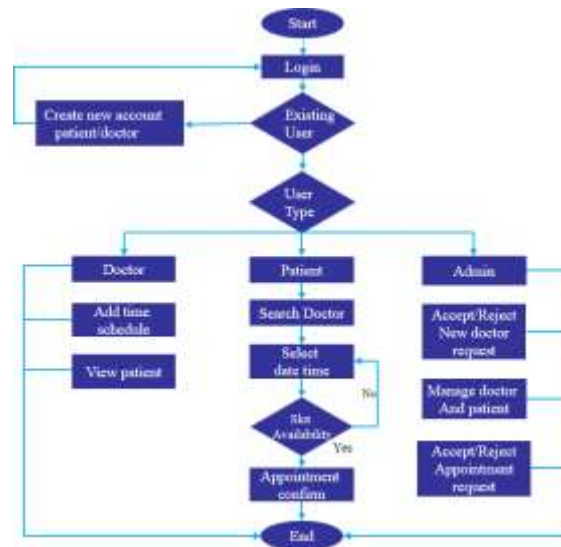
Fig. 1. Patients Booking Flowchart

C. Admin :

Physicians and patients are connected through the admin- istrative staff. In order to ensure a seamless appointment procedure, its main responsibility is to oversee physicians and patients. Once extensive verification is complete, the administrator can also add new physicians to the database. All scheduled appointments, by patient and doctor, are viewable in the administrative area. A doctor's schedule determines whether or not the receptionist can accept or reject an ap- pointment request.
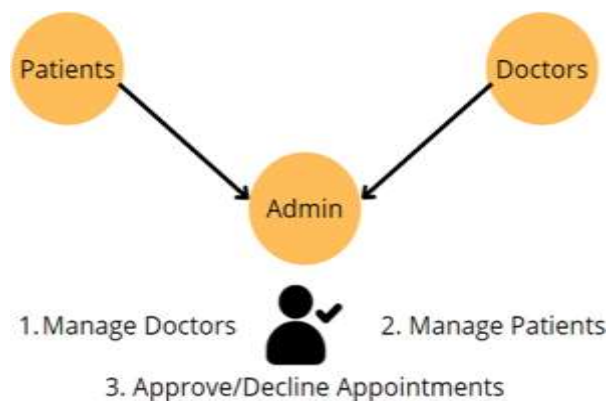

Fig. 2. Admin Module

D. User Interface :

Upon successful registration, the doctor may access their ac- count by entering their username and password. The physician has access to the patient's requests and can let them know whether an appointment is available. They could prescribe drugs following a consultation.

Our interface is straightforward and user-friendly. The ad- min has the ability to approve or reject appointment re- quests. Users may use this interface to log in and create an appointment, physicians can examine requests and schedule appointments accordingly. You can also find a list of the best medical professionals in a specific medical specialty here.

Fig. 3. login page

An online system for scheduling doctor appointments can be broken down into two primary parts: client-side and server- side.

1) Client Side

2) Server Side

1) Client Side : Users only engage directly with the client side of the system. It might be a mobile app, a web application, or both. The client- side is in charge of offering other features including the ability to cancel or reschedule appointments, as well as displaying a list of available doctors and appointment times, allowing users to choose a time slot and make an appointment, and more.

Fig. 4. Login Interface

2) Server Side: The system's server side is responsible for handling client-side requests and storing data. Its duties include authenticating user input, monitoring the database of doctors and appointments, and sending users email confirma- tions.

E. Web Service API :

This is the interface that allows the client-side and server- side applications to communicate with each other. A web service API is used to facilitate communication between the client and server sides. This enables the client side to communicate with the server side and send requests, such as requesting an appointment booking or a list of doctors and their available times. The required data is subsequently returned in response to these requests from the server side. An overview of the primary elements of an online system for scheduling doctor appointments is provided below:

1) Client-side application: This is the program that users use to make reservations. It might be a mobile app, a web application, or both. Application running on the server: This program handles client-side requests and stores data. Its duties include authenticating user input, monitoring the database of doctors and appointments, and sending users email confirma- tions.

2) Database: A database is a file that is specifically de- signed for effective data storage and retrieval. It enforces guidelines on how data should be maintained or saved since it is structured. The database is frequently regarded as one of the most crucial components of most systems. The database was

a MySQL server, which uses structured query language. All of the information required for the Web-based Online Ap- pointment system, including the fundamentals of the patient, doctor, admin, and the time and date of the appointment, is stored in the Database Management System(DBMS).
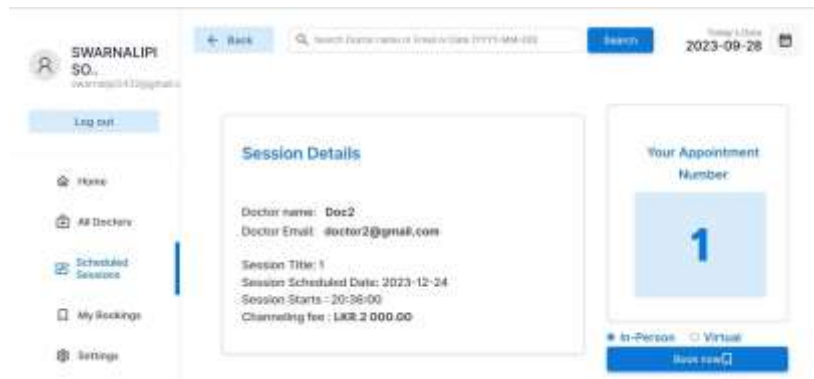
IV. RESULTS

Fig. 5. Session Details

The precise information regarding your online doctor visit, such as the date, time, duration, and goal of the visit, is known as the session details. When scheduling an appointment, it's critical to submit accurate and comprehensive session infor- mation so that your doctor can be ready for your visit and give you the best care possible.

When scheduling an online doctor appointment, you might need to supply the following crucial session information about date and time, duration, appointment booking number and appointment mode.

Here in this window, the patient will need to choose the doctor and book the session according to his/her requirements. While booking the slot according to his/her convenience the slot will be in offline mode or online mode.

Doctors often need to input their username and password into the PMS or appointment scheduling system in order to view their patient information. They can see a list of all of their patients after logging in, which includes their names, contact details, medical histories, and any other pertinent data.
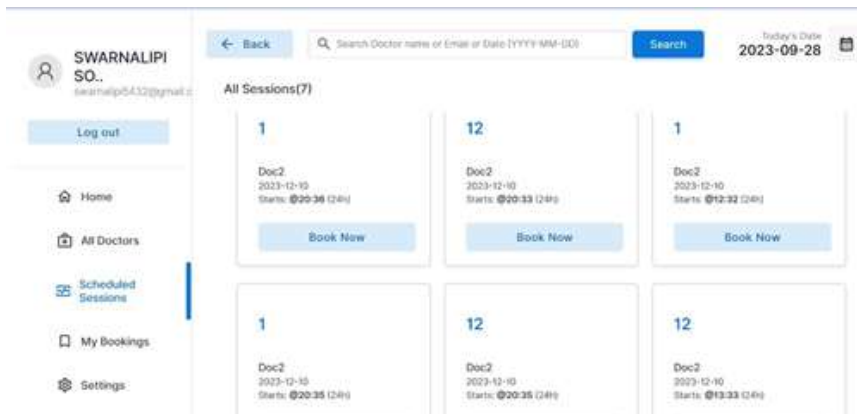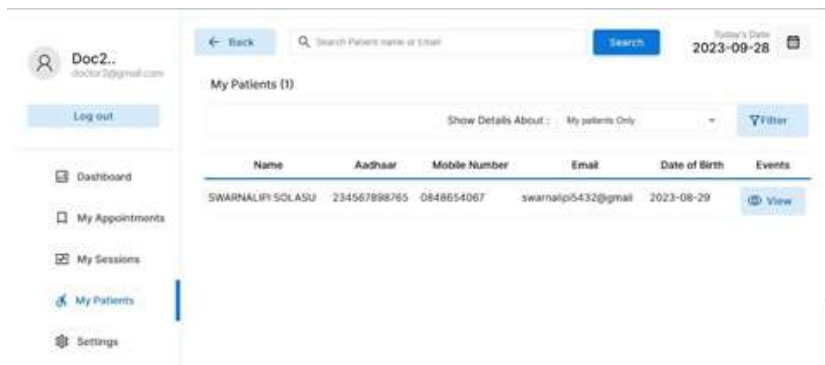

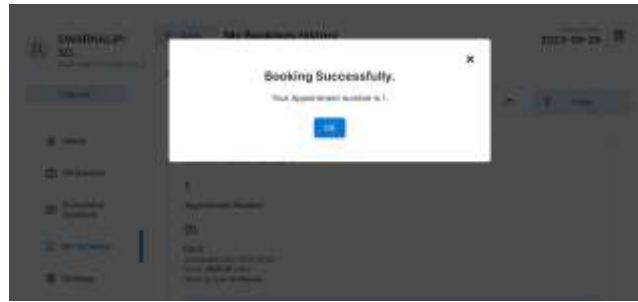Fig. 6. Booking Session

Fig. 7. Appointments

Fig. 8. Booking Status

A pop-up window that validates the success of the patient's online appointment booking may appear after the appointment has been made.

Administrators frequently have access to the list of doctors and their information, including the limited number of ap- pointments each doctor can see, in online doctor appointment systems. Admins can also change a doctor's information and remove a doctor.

Fig. 9. Scheduling of Appointments

V. CONCLUSION AND FUTURE SCOPE

This web-based solution addresses the problem of main- taining and scheduling appointments in accordance with user preference or necessity. Patients can choose doctors based on their medical requirements, and they can read about them and their reviews to get additional information. As a result, this project provides a useful solution that allows customers to browse the many booking slots that are available and choose the ideal date and time. This shortens the actual wait time, saves consumers time, and improves the effectiveness of the appointment scheduling process. The doctor can notify his own timetable using this app. Hospitals can easily control the flow of patients to the doctors and manage the registration and appointment processes. The administrative team organizes the doctors and patients while ensuring that everyone involved has a smooth experience. This is a practical method for scheduling appointments in the contemporary world and lessens weariness and•frustration. Users or patients may be charged money or another sum. Before booking an appointment stay away from dishonest users. Many users merely register for enjoyment and have no other purpose for doing so by scheduling an appointment, worry. Additional future improvements to the patient's module are the directives including creating appoint- ment reminders and saving the scheduled time to the calendar.

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