SMART HOSPITAL PATIENT INFORMATION SYSTEM STREAMLINING HEALTHCARE MANAGEMENT

Dr. DHIVYA. K [1], Mr. SUDHARSHAN.A [2]

[1]Assistant Professor, Department of Commerce CA, Dr. N.G. P Arts and Science College, Coimbatore, Tamil Nadu, India.
[2]Student – III B. Com.(CA), Department of Commerce CA, Dr. N.G.P. Arts and Science College, Coimbatore, Tamil Nadu, India.

ABSTRACT :

The Hospital Patient Information System automates hospital tasks like record-keeping, scheduling, billing, and employee management, improving efficiency and decision-making with real-time data and user-friendly interfaces . This paper explores the challenges of traditional manual hospital management systems and introduces an automated solution developed using PHP, MySQL, and HTML/CSS. The implementation results show significant improvements in operational efficiency, data accuracy, and decision-making

Keywords Hospital Management, Web Application, Automation, PHP, MySQL, Scheduling, Billing, Patient Records, Data Accuracy, Efficiency, Real-Time Data, User Interface, Database Management

INTRODUCTION

The project aims to develop a comprehensive Hospital Patient Information System to streamline operations and improve patient care. It will handle patient registration, appointment scheduling, doctor-patient management, and record-keeping. When a patient visits, they provide their ID if they are new, a unique ID is generated. The receptionist can view the patient's medical records, available doctors, and relevant diseases. The patient can then book an appointment based on the doctor's specialty and availability, following a FIFO system. After treatment, the doctor updates the patient's records The system will store all patient reports, track billing details, and manage doctor and employee information. Appointments and treatment details will be updated in real time, ensuring smooth communication among staff. Data security will be a priority, with access control and backup mechanisms to prevent data loss. The system can be hosted on either the internet or an internal network, offering ease of access and secure data management. This solution will enhance hospital efficiency, patient care, and data security while reducing administrative workload.

STATEMENT OF PROBLEM

The current healthcare system requires patients to visit hospitals in person to book appointments, with no centralized platform to access doctor or hospital information in a city. This is especially difficult for newcomers. There's no remote booking, limited live support, and no option for a personal doctor. Existing systems also fail to automatically assign available doctors when the preferred one is unavailable, leading to poor accessibility and inefficient care management

OBJECTIVES

- To design and implement a system that caters to the needs of patients by allowing them to register and manage their medical details.
- To enable patients to browse through hospital information, available doctors, their timings, and appointment slots.
- To develop a separate login module for doctors and patients to ensure secure and role-specific access.

LITERATURE REVIEW

Recent studies emphasize the need for automated hospital management systems to enhance efficiency, reduce human error, and improve patient care. Sharma et al. [1] highlight the use of unique patient IDs to streamline record-keeping and ensure continuity of care. Gupta and Mehta [2] point out that centralized systems improve data accuracy and accessibility. Appointment scheduling systems using real-time doctor availability and FIFO logic, as discussed by Verma et al. [3], improve fairness and reduce waiting times. Banerjee and Roy [4] stress the importance of interactive modules for doctors and receptionists to access and update patient data easily. Data security and digital storage are also crucial, with Patel and Das [5] noting that electronic medical records minimize the risk of data loss and enhance accessibility. Comprehensive systems that integrate billing, employee records, and reporting, according to Iyer et al. [6], further support efficient hospital administration

V. EXSISTING SYSTEM

A. Description of the Existing System

The current system for scheduling doctor appointments is inefficient, requiring patients to visit hospitals in person or rely on word-of-mouth for doctor and hospital information. This creates significant difficulties, especially for newcomers to a city. Patients also lack access to real-time doctor availability, personalized health advice, and continuous support

PROPOSED SYSTEM

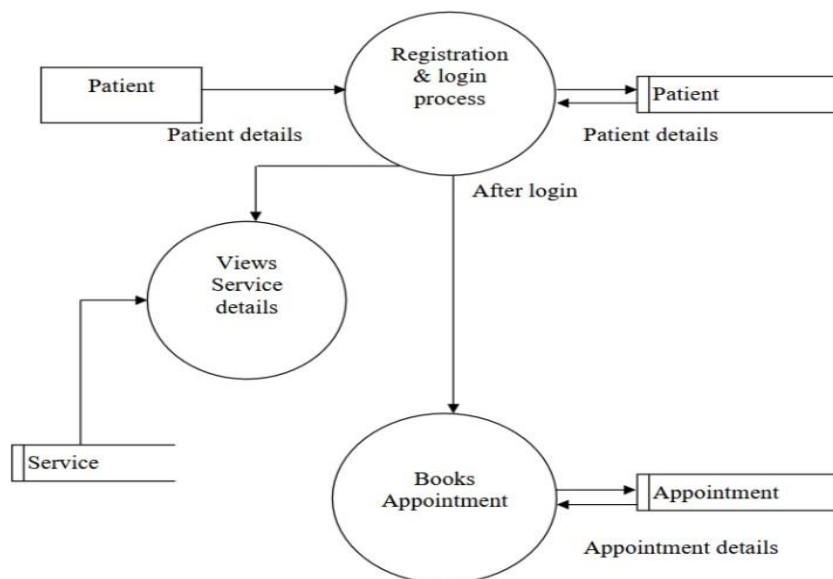### A.   Description of the Developed System

1.   APPOINTMENT MODULE

It is used to view available doctors in order to get appointment for treatment. When the doctor is available, patient can confirm the appointment timing and day. On the booked day patient can come for treatment. It is used for maintaining treatment details.

2.   ADMIN LOGIN MODULE

The Admin Login Module ensures secure access by authenticating registered users with valid credentials. It restricts unauthorized access, displays error messages for invalid logins, and allows authenticated users to access their personal data and settings. Unregistered users are restricted from accessing sensitive information, ensuring privacy and security.

- User Authentication
- Error Handling
- Secure Access
- Personalized Experience
- Data Privacy

Use case diagram

RESULTS AND DISCUSSION

APPOINTMENT MODULE

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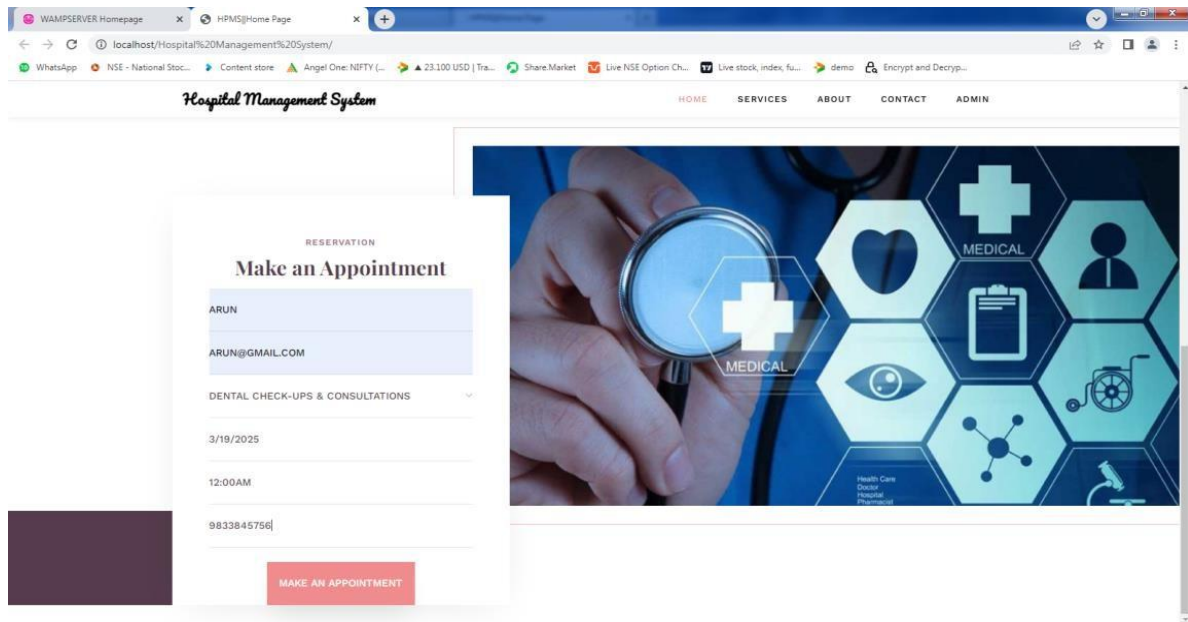
ADMIN LOGIN MODULE:

The **Login Module** is designed to authenticate users before granting access to a system, ensuring that only registered users with valid credentials (username and password) can log in. It enhances security by preventing unauthorized access and displaying error messages when incorrect credentials are entered. Once authenticated, users can access their personal data and settings, providing a personalized experience. This module also restricts access to full features for unregistered users, protecting sensitive information and ensuring data privacy
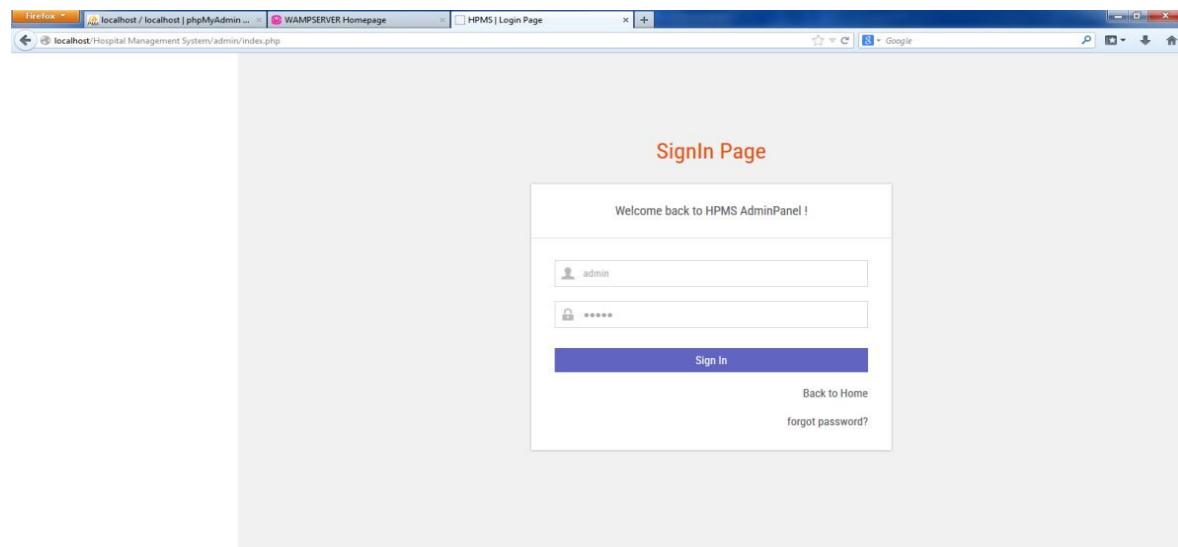

PATIENT DETAILS MODULE:

The **Patient List Module** manages patient information, appointments, and blood stock. It stores personal, billing, and appointment details, allowing for easy tracking of patient visits. Users can search for doctors by location, specialty, and availability, and view real- time blood stock availability. The module also includes a **Patient Portal** for managing appointments and updating details. Automated notifications keep patients informed about appointments, billing, and blood stock. With strong data security, the system enhances healthcare efficiency by centralizing patient data and providing real-time updates.
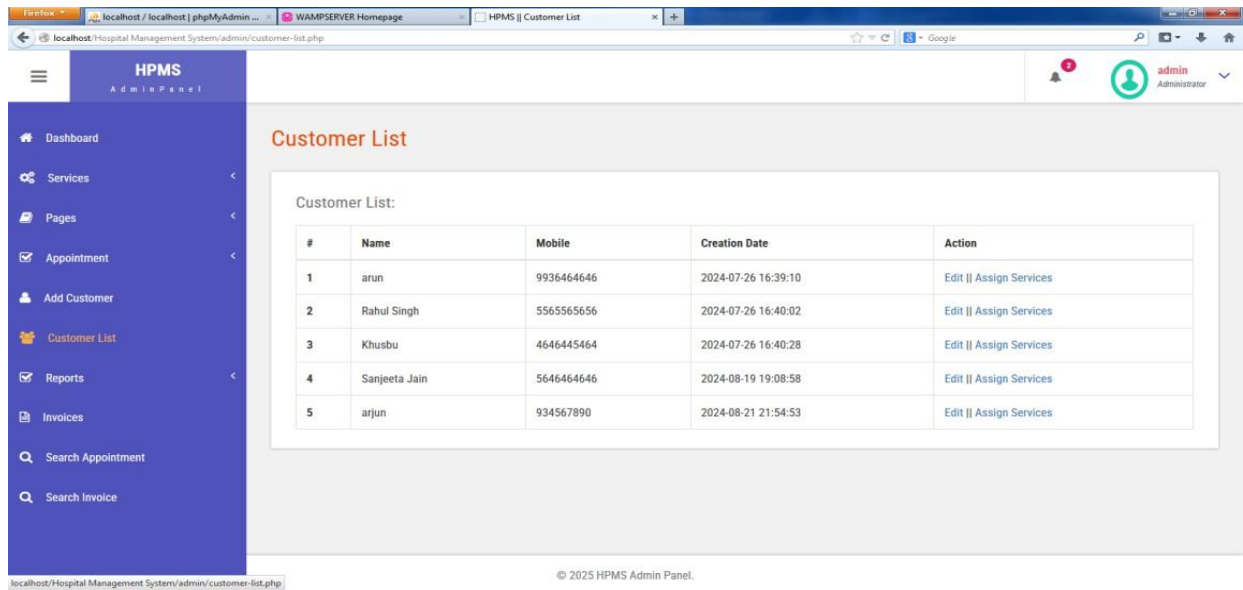
REPORT MODULE:

Medical reports can be generated through this module. Various reports that have beengenerated through this module are patient report, doctor report and appointment report. Admincan generate and view reports
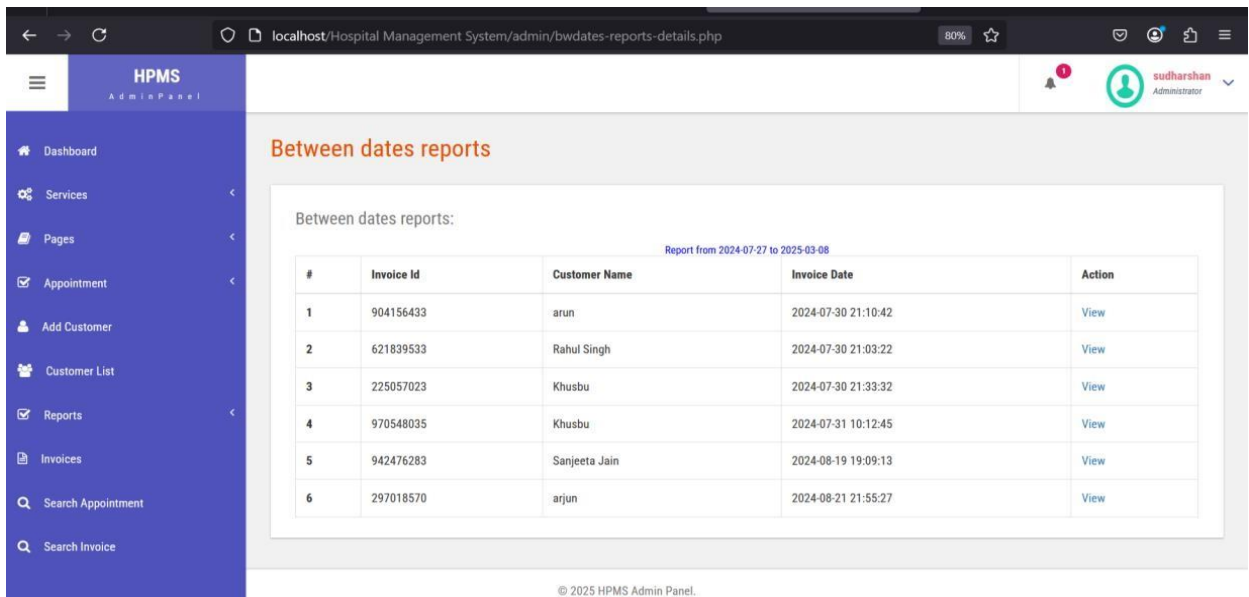
VIII. DATABASE DESIGN

The system uses MySQL as the database management system. The key tables include:

Table name   **: Login Primary key**   **: Uname**

Field name	Data type	Description
Uname	Varchar(20)	Username of the user
Password	Varchar(20)	Password of the user

Table name   **: Patient Primary**

key   **: Patientid**

Field name	Data type	Description
Patientid	Int	Patient number
Pname	Varchar(20)	Name of the patient
Age	Int	Age of the patient
Occupation	Varchar(20)	Occupation of the patient
Address	Varchar(20)	Address of the patient
Height	Varchar(20)	Height of the patient
BP	Varchar(20)	BP of the patient
Weight	Varchar(20)	Weight of the patient
Contactno	Int	Contact number of the patient
Email	Varchar(30)	Email of the patient
Gender	Varchar(20)	Gender of the patient

Table name   : Doctor

Primary key   : Did

Field name	Data type	Description
Did	Int	Doctor number
Dname	Varchar(20)	Name of the doctor
Spl	Varchar(20)	Splecialization of doctor
Phone	Int	Phone number of the doctor
Address	Varchar(50)	Address of the doctor
Doj	Datetime	Date of joining in the hospital
Morning	Varchar(20)	Morning session timing of the doctor
Afternoon	Varchar(20)	Timing of the doctor in afternoon session
Evening	Varchar(20)	Timing of the doctor in evening session
Doctor limit	Varchar(25)	Doctor limit

Table Name   : Appointment

Primary key   : Appid

Foreign key   : Patientid, Did

Field Name	Data Type	Description
Patientid	Int	Patient ID
Pname	Varchar(20)	Name of the patient
Appid	Varchar(20)	Appointment ID
Appdate	Varchar(10)	Appointment date
Apptime	Varchar(5)	Appointment timing
Did	Int	Doctor number

IMPLEMENTATION AND RESULTS

Despite the user-friendly interface of BI tools, training is crucial. It helps users understand advanced features, customize the tool for specific needs, prevent errors, boost adoption, and improve efficiency. Training also aids in adapting to updates and ensures users stay current on new features, maximizing the tool's value within the organization

CONCLUSION AND FUTURE SCOPE

The system is a user-friendly, menu-driven platform developed using PHP for the front end and MySQL for the back end. It reduces time consumption and complexity for users while providing secure access through a login system, allowing only administrators to manage the site. Unauthorized login

attempts trigger a validation message. The software simplifies tasks for end users, such as generating reports and reducing manual calculations. The project has been successfully completed and tested.

In the future, further enhancements can be made to address emerging needs, optimizing the system for even better performance and user experience

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