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Hospital Management System

Anurag Mishra[1], Suresh Dhurve[2], Rohit Soni[3], Raj Somgade[4], Kanchan Narware[5]

[1,2,3,4,5]Shri Balaji Institute of Technology & Management Betul

Abstract

A Hospital Management System (HMS) is an integrated software solution designed to manage various functions of a hospital, from patient registration to billing and medical records management. The primary goal of an HMS is to streamline the hospital's day-to-day operations, improving efficiency, accuracy, and service delivery. This system helps to automate administrative tasks such as appointment scheduling, patient admission, laboratory test management, inventory management, and pharmacy operations. Additionally, it allows healthcare professionals to access patient information easily, improving patient care quality. The system aims to reduce human errors, save time, and enhance decision-making capabilities through data analytics. This paper presents the design, implementation, and benefits of an HMS, highlighting its impact on hospital management, patient satisfaction, and overall healthcare efficiency.

Keywords: PHP (hypertext preprocessor), MYSQL (my structured query language), HTML (hyper text markup language) VS CODE.

1. Introduction

A Hospital Management System (HMS) is an advanced and essential software platform designed to integrate and streamline the diverse operations of healthcare facilities. From administrative tasks to clinical and financial management, an HMS serves as the backbone of hospital functionality, enabling a more efficient, patient-centered approach to care delivery. One of the primary goals of an HMS is to reduce manual effort and paperwork by automating key processes such as patient registration, appointment scheduling, and medical record management. By digitizing these workflows, hospitals can ensure that information is organized, accessible, and secure, allowing healthcare professionals to focus more on patient care.

In addition to its administrative advantages, an HMS plays a critical role in clinical operations. It provides a centralized system for storing and accessing patient medical histories, treatment plans, test results, and prescriptions. This not only facilitates better coordination among medical staff but also minimizes the risk of errors, ensuring a higher standard of care. Furthermore, the system often incorporates tools for inventory management, helping hospitals monitor the availability of essential supplies, medicines, and equipment in real time. By maintaining optimal stock levels, hospitals can avoid shortages and ensure uninterrupted services.

Financial management is another crucial aspect addressed by an HMS. The system simplifies billing processes by automating invoicing, payment tracking, and insurance claim handling. This reduces errors and enhances transparency for both the hospital and its patients. Additionally, HMS software often

includes analytics and reporting features that provide valuable insights into hospital performance, patient demographics, and resource utilization. These data-driven insights enable hospital administrators to make informed decisions, optimize operations, and plan for future growth.

Ultimately, a Hospital Management System not only streamlines hospital operations but also enhances the overall patient experience. By reducing wait times, ensuring accurate medical records, and providing seamless communication between departments, an HMS fosters a more efficient and patient-friendly environment. As healthcare becomes increasingly complex and technology-driven, the implementation of a robust HMS is vital for any hospital aiming to deliver high-quality care while maintaining operational excellence. This comprehensive approach to hospital management ensures that resources are utilized effectively, staff productivity is improved, and patients receive the best possible care.

2. Literature Review

Roshan Mungane1, Prajakta Deshmukh2, Kaustubhi Bankar3, Srushti Maske4, Sachin Chavhan5 A Survey Paper on Integrated Hospital Management System International Journal for Multidisciplinary Research (IJFMR) E-ISSN: 2582-2160Hospital Management Systems (HMS) are essential tools in modern healthcare, focusing on efficiency and streamlined operations. Key functionalities include patient registration, appointment scheduling, and doctor availability search. Accessible to administrators, doctors, and patients, HMS offers a customizable, user-friendly interface while emphasizing data protection and fast processing. Ongoing advancements promise to enhance the patient experience and diagnostic procedures, solidifying HMS's role in patient centric healthcare delivery[1].

Kurhe Snehal, Nawalekartik , Ahire Karina ,Mahale pratik Guide name:- Dubhe D.S Survey Paper On Hospital Management System (HMS) Journal Publication of International Research for Engineering and Management (JOIREM) Volume: 10 Issue: 04 | April-2024An hospital management system was developed to assist the patient at the front of desk of a hospital. The patient will be able to learn about the doctors, appointment times, relevant departments, relevant times, and the specific medicine about his/her medical situation. System will provide an intelligent front desk information services for the patient at the hospital entrance. It will also provide software assistant for the doctor to diagnose easily and rapidly by using the program decision mechanism [2].

The Bottleneck In Health Care Sector: An Indian Perspective © 2024 IJCRT | Volume 12, Issue 12 December 2024 | ISSN: 2320-2882A software package which will facilitate the activities of both Govt. and private Hospitals and will provide an appropriate solution to the people. This software package will help government, hospitals and the common man. This will work in websites and apps designed for the Govt., Hospitals and common man. The algorithm and flow chart of the software being described in the paper. This software will help the government to verify the status of hospitals along with the services provided to people. The authenticity and valuation for the different services can be known to the govt. for initiating necessary future course of action.[3]

3. Methodology

3.1 Linear Sequential Model

In this project we have Linear Sequential Model sometimes it is called Classic Life Cycle Model or Water Fall Model. It is basic or formal model of software development models.

Linear Sequential Model suggests a systematic, sequential approach to software development that begins at the system level and progresses through analysis, design code, testing and support. Theirs model enco-

mpasses the following activities:

3.2 System/Information engineering and modeling:

Because software is always part of a larger system, work always begins by establishing requirements for all system elements and then allocating some subset of these requirements to software. This system view is essential when software must interact with other element such as hardware, people and database. System engineering and analysis encompass requirements gathering at the system level with a small amount of top level design and analysis. Information engineering encompasses requirements gathering at the strategic business level and at the business area level.

Data Flow Diagram

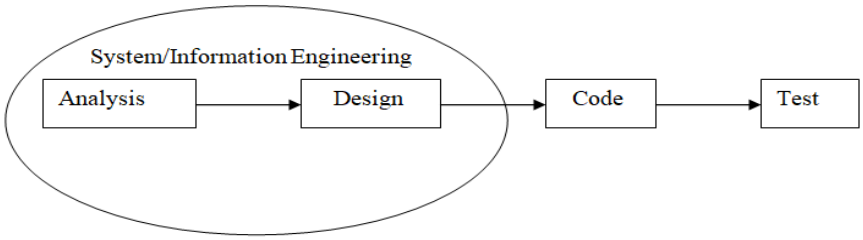

Fig3.1

Use Case Diagram

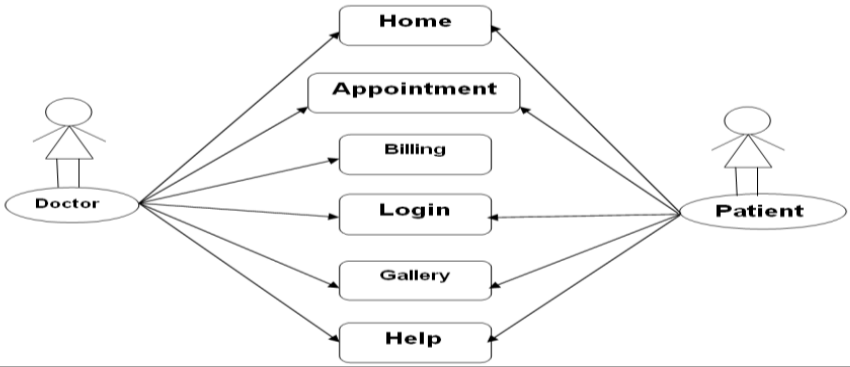

Fig 3.2

3.3 Key Elements

PHP, or Hypertext Preprocessor, is a popular server-side scripting language designed primarily for web development but also used as a general-purpose programming language. It's especially good for building dynamic and interactive websites.

MySQL is an open-source relational database management system (RDBMS) that is widely used for managing and organizing data in a structured manner. It's especially popular for web applications and supports SQL (Structured Query Language) for querying and managing databases. MySQL is often paired with PHP and HTML to create dynamic and interactive web applications.

HTML, or HyperText Markup Language, is the backbone of web pages and applications. It defines the structure and layout of content on the web, like headings, paragraphs, images, links, tables, and forms. HTML is essential for creating the visual and interactive components of websites.

Visual Studio Code, or VS Code, is a powerful, lightweight, and customizable code editor developed by Microsoft. It's designed for various programming languages and offers features that cater to web

development, software development, and more. Here's an overview of what makes VS Code an exceptional tool for developers.

4. Result

Hospital management systems are software solutions designed to streamline operations in healthcare organizations. They integrate data from various departments to simplify workflows, reduce administrative costs, and enhance patient care. These systems can manage outpatient and inpatient services, pharmacy, radiology, scheduling, HR, payroll, and more.

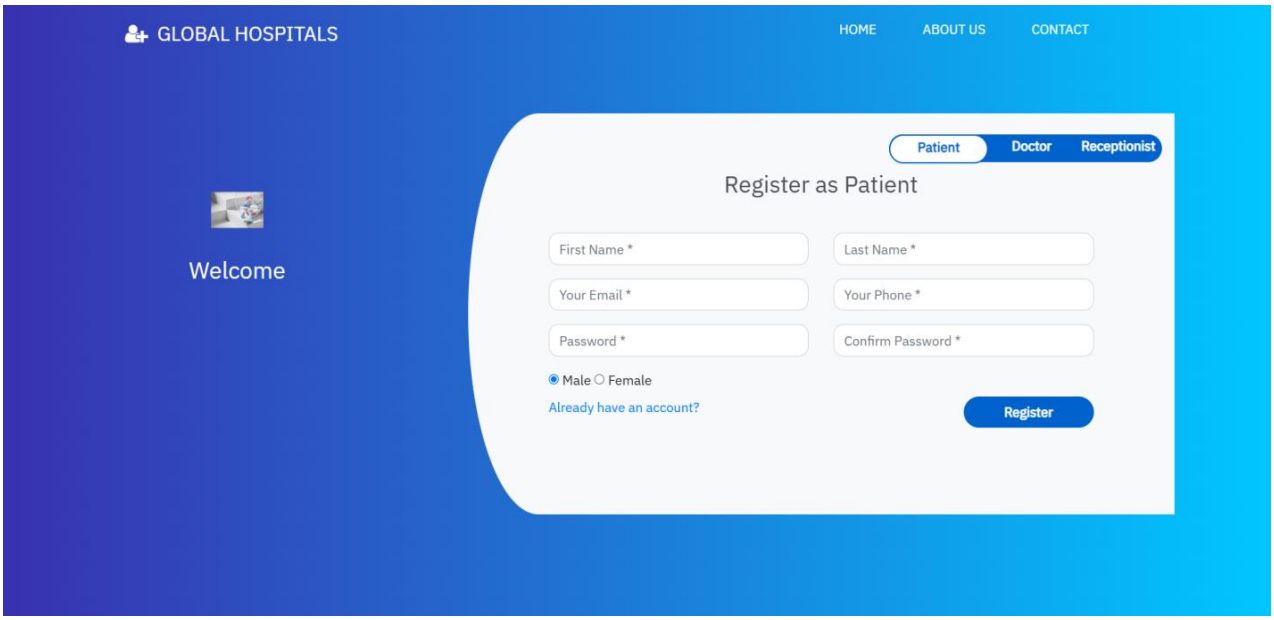

Fig 4.1
Login Page – Patient

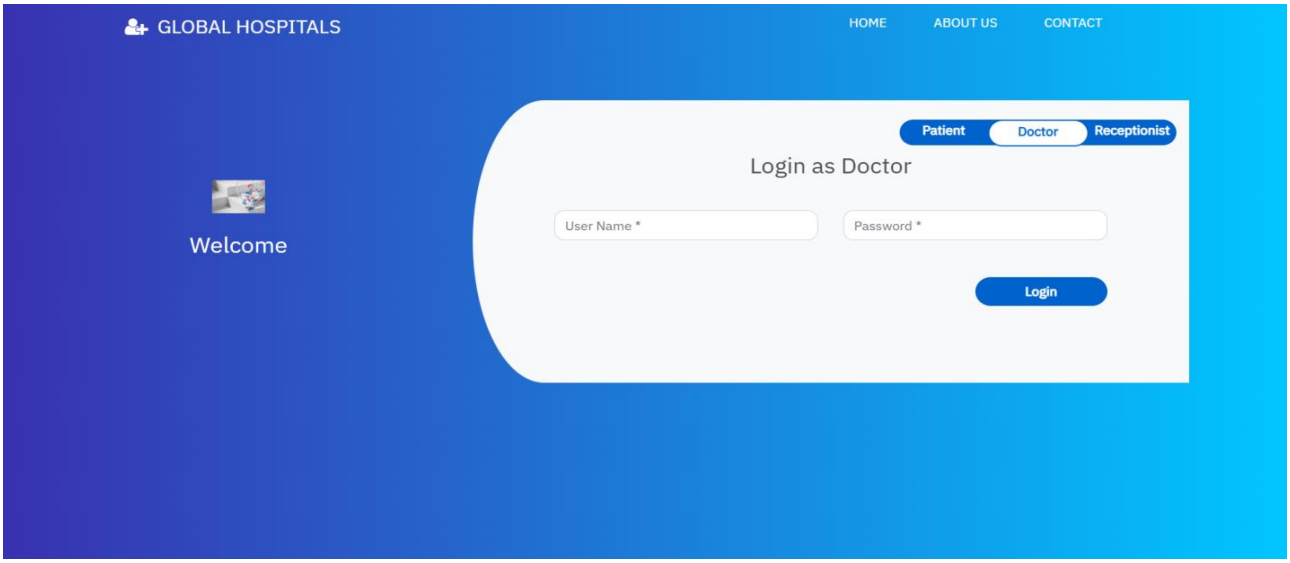

Fig 4.2
Login Page – Doctor

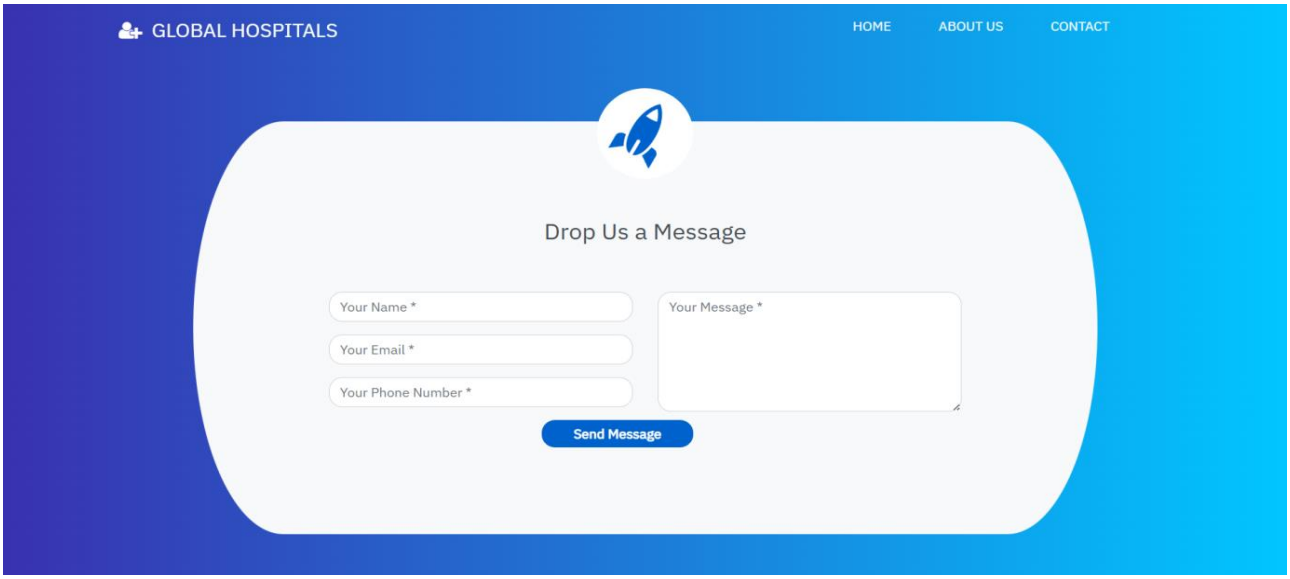

Fig 4.3
Contact US

5. Conclusion

The project "Hospital Management System" is for computerizing the working in a hospital. The software takes care of all the requirements of an average hospital and is capable to provide easy and effective storage of information related to patients that come up to the hospital. It generates test reports; provide prescription details including various tests,, and medicines prescribed to patient and doctor. It also provides billing facility on the basis of patient's status whether it is an indoor or outdoor patient.

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