

To Enhance the Efficiency and Effectiveness of Electronic Health Record for Hospital Management System

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ABSTRACT

Our project hospital management system includes registration of patient's details storing into the system and booking appointments with the doctors and taking care of staff. This website is powerful, flexible, and easy to use. Our software has the facility to give unique IDs to patients and staff. The details of each patient and staff are stored on this website. This interface is user friendly. Here website can be login through username and password. The lost data can be recovered easily. The admin can manage the total website and data is well protected here by admin. It improves the quality and management of the hospitals. The primary goal of a Hospital Management System is to enhance the efficiency and effectiveness of healthcare delivery by providing a centralized platform for managing various aspects of hospital administration, patient care, and related activities. The Hospital Management System encompasses a wide range of functionalities, including patient registration, appointment scheduling, billing and invoicing, electronic health records (EHR), inventory management, and reporting. It leverages information technology to create a seamless flow of information between different departments within the hospital, ensuring smooth communication and coordination.

Introduction

Hospital Management website is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. The Hospital Management System is designed for multi-specialty hospitals, to cover a wide range of hospital administration and management processes. Managing the key processes efficiently is critical to the success of the hospital, it helps you manage your processes. It is an integrated end-to-end Hospital Management website that provides relevant information across the hospital to support effective decision making for patient care, hospital administration and critical financial accounting, in a seamless flow.

Hospital Management website is a software product suite designed to improve the quality and management of hospital management in the areas of clinical process analysis and activity- based costing. The Hospital Management website enables you to develop your organization and improve its effectiveness and quality of work.

The primary goal of the Hospital Management System project is to create an integrated digital platform that facilitates efficient and effective management of hospital resources, patient information, and overall healthcare services. The system aims to automate routine administrative tasks, enhance communication among healthcare professionals, and improve the overall patient experience. The primary objective of the

Hospital Management System project is to provide a comprehensive and integrated platform that optimizes various facets of hospital management.

Key Features: The HMS project encompasses a range of features, including patient registration and management, appointment scheduling, electronic health records (EHR), billing and invoicing, inventory management, doctor and staff management, pharmacy management, and robust reporting and analytics capabilities. These features collectively contribute to a more streamlined and efficient healthcare ecosystem.

Patient Registration

Streamlining the patient registration process by capturing and storing essential demographic and medical information. Facilitating the creation of unique patient identifiers for efficient record management.

Appointment Scheduling

Implementing a user-friendly interface for scheduling and managing patient appointments. Sending automated reminders to both patients and healthcare providers to reduce no-shows.

Laboratory Information System (LIS)

Integrating laboratory test requests and results within the system for efficient diagnostics. Improving communication between healthcare providers and laboratory staff.

Staff Management

The Providing tools for managing healthcare personnel, including scheduling, performance tracking, and training. Ensuring compliance with staffing requirements and regulations.

Reporting and Analytics

Generating customizable reports on key performance indicators, patient outcomes, and financial metrics.

Problem Definition

The information generated by various transactions takes time to store in the right place. It is a difficult task to collect information about patients from various registers. This current system requires paper forms, where data can be stored in a hospital. Multiple copies of the same information stored in the hospital may lead to inconvenience of data. With manual calculations errors can occur and take a lot of time and this may cause incorrect information. It is very difficult to retrieve data and to find information about patients or staff. This software will help the company to be more efficient in registration of appointments and records of patients. It enables doctors and admin to modify/reschedule the appointments if needed.

The doctors can view their patient details easily and it generates instant bills. It will help us overcome all these problems because now patients can book their appointments at home, they can check whether the doctor they want to meet is available or not. Doctors can also confirm or decline appointments.

The main goal is computerizing all the details regarding patients and the hospital. We don't have the time to wait in long hospital queues. The problem is queues at hospitals often managed by staff, then take a token there and then we wait for our turn then ask for the doctor. We went there by travelling a long distance and then we came to know that the doctor is on leave, or the doctor can't make appointments.

Hospital currently uses a manual system for managing and maintenance of data. This current system requires paper forms, where data can be stored in the hospital. This leads to inconvenience in between patient and doctor. This software will help the company to be more efficient in registration of appointments and records of patients.

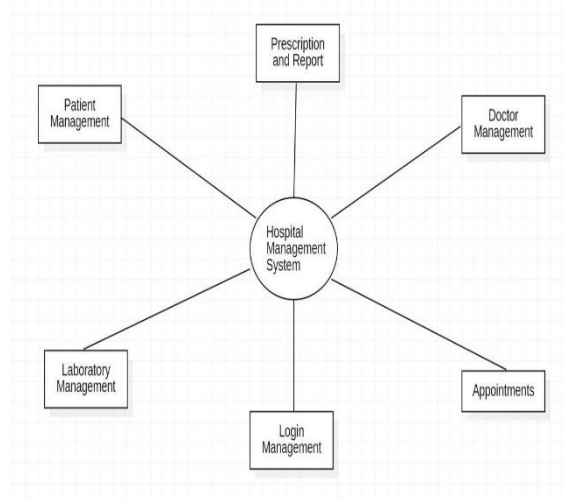
It enables doctors and admin to modify appointments schedule if needed. The purpose of this project is to computerize each and every information of the hospitals regarding operation timing, patient, doctor. The intention of this system is to increase the number of patients that can be treated by doctors. The doctor can view their patient details easily and it generates instant bills. It saves time, effort, money and resources. The proposed Hospital Management System should be scalable, user-friendly, and adaptable to the specific needs of the hospital. Regular updates and maintenance should be considered to address evolving requirements and technological advancements in the healthcare industry.

Pro's and Con's

- Doctors can view their patient details and treatment records easily.
- It provides easy access to patient records. Improves efficiency of the staff work in the hospital.
- It saves time, effort, money and resources.
- The system automates the manual procedure of managing hospital activities.
- It requires a large database to store data.
- The admin must manually keep updating the information daily by entering in system.
- The decision making is slow sometimes.
- Hospitals become heavily reliant on technology, and any system failures or technical issues can temporarily paralyze operations.

Design Analysis

The block diagram is typically used for a higher level, less detailed description aimed more at understanding the overall concepts and less at understanding the details of Implementation. Main operations are to add, view, update and delete the details of the faculty, students.



Hospital Management System

They all represent the elements and the mechanism to assemble them. But the structural model never describes the dynamic behaviour of the system. Behavioural model describes the interaction in the system

Implementation

Add or remove and allocate bed to patients and approve patients. Add or remove doctors and approve doctors and hospital information. Book approve and view appointments and manage laboratories. Add and delete attendants of patient. The admin module handles user authentication, authorization, and user profile management within the system. It allows the admin to create, modify, or delete user accounts for various roles such as doctors, nurses, administrative staff, and patients. Additionally, it may include functionalities for resetting passwords, managing user permissions, and logging user activities. The admin can define different roles within the HMS, such as doctors, nurses, administrative staff, and patients. Each role has specific permissions that dictate what actions the users assigned to that role can perform. Permissions may be granular, allowing fine-tuning of access rights. While a nurse may only have permissions to update vital signs and administer treatments.

Register and login. Create, manage appointment with patient. Create prescription for patient. Issue for lab tests of patients and creates report. View information about Salary. Doctors can access patient records, including medical history, diagnosis, treatment plans, and medication history, from a centralized database. They can view and update patient information, such as vital signs, lab results, and progress notes, ensuring accurate and up-to-date documentation of patient care. The module may include features for creating new patient records, scheduling appointments, and managing patient admissions and discharges. Doctors can manage their schedules and appointments efficiently through the doctor module.

They can view upcoming appointments, reschedule or cancel appointments, and block out time slots for breaks or meetings. Automated reminders and notifications can be set up to alert doctors about upcoming appointments, reducing the risk of missed appointments and improving patient engagement. The doctor module may include communication tools such as secure messaging, telemedicine capabilities, and video conferencing to facilitate collaboration with other healthcare providers, specialists, and support staff. Doctors can consult with colleagues, discuss patient cases, and coordinate care plans in real-time, regardless of geographical location. The module may integrate decision support tools, such as clinical decision support systems (CDSS) and medical reference resources, to assist doctors in making informed decisions about diagnosis, treatment, and management of patients. Decision support systems can provide evidence-based guidelines, drug interaction alerts, and diagnostic recommendations based on the patient's clinical data and medical history.

Doctors can access reports and analytics dashboards within the module to review key performance indicators, patient outcomes, and clinical trends. Analytics tools may offer insights into practice productivity, patient demographics, disease prevalence, and adherence to clinical protocols, enabling doctors to monitor their performance and identify areas for improvement.

Make and View appointment list and status with doctors. View prescription details. View doctor list. View laboratory report. The patient management module facilitates the registration of new patients, capturing essential demographic information such as name, age, gender, contact details, and identification details (e.g., insurance information). It may also include features for assigning unique patient identifiers, such as medical record numbers, to streamline patient identification and record-keeping processes. Patients can request appointments with healthcare providers through the HMS, either online or via phone or in-person registration. The system for efficient scheduling of appointments based on the availability of doctors, examination rooms, and other resources. Automated reminders and notifications can be sent to patients to confirm appointments and reduce the likelihood of no-shows.

The patient management module integrates with billing and insurance systems to streamline the billing process and manage insurance claims. It captures information related to insurance coverage, co-payments, deductibles, and reimbursements, ensuring accurate and timely billing for healthcare services rendered.

Watch prescription list. Upload diagnostic report. Preview of report files. like X-ray images, CT scan, MRI reports. The laboratory module in a Hospital Management System (HMS) is crucial for managing all aspects of laboratory operations, including test ordering, specimen processing, result reporting, quality control, and inventory management. Here's an overview of the key features and functionalities typically found in the laboratory module. Healthcare providers can electronically order laboratory tests for patients directly within the HMS. The laboratory module tracks specimen collection, labelling, and transportation, ensuring proper handling and identification to prevent errors.

The laboratory module optimizes workflow processes, including test prioritization, assignment of tasks to laboratory technicians, and monitoring of test progress. It streamlines the laboratory's operational efficiency by automating repetitive tasks, minimizing turnaround times, and maximizing resource utilization. It manages laboratory inventory, including reagents, consumables, and equipment, to prevent stockouts and minimize wastage.

It tracks inventory levels, expiration dates, and usage patterns, generating alerts for reordering and restocking as needed. Integration with supply chain management systems streamlines procurement processes and ensures seamless inventory replenishment. The laboratory module optimizes workflow processes, including test prioritization, assignment of tasks to laboratory technicians, and monitoring of test progress.

The login module is a fundamental component of any software system, including Hospital Management Systems (HMS). Its primary function is to authenticate users and grant them access to the system's functionalities based on their credentials and permissions. The login module verifies the identity of users attempting to access the HMS by prompting them to enter their credentials, typically a username/email and password. It employs various authentication methods, such as password-based authentication, multi-factor authentication (MFA), biometric authentication, or single sign-on (SSO) integration with external identity providers. The login module includes features for managing user accounts, such as user registration, profile management, password reset, and account deactivation. Admin users have the authority to create, modify, or delete user accounts, assign roles and permissions, and monitor user activity within the HMS.

The facilitates the admission and discharge processes for patients. It includes features such as bed management, assigning rooms, generating admission/discharge summaries, and managing patient transfers. It provides analytical tools to extract insights from the data stored in the system. It generates reports on various aspects of hospital operations, patient outcomes, financial performance, and resource utilization.

Sample Database Design

Sl no	Name	Age	User Name	Password
1	Shiva	20	Shiva@12	1202
2	Trisha	22	Trisha@28	2806
3	Akshay	22	Akshay@25	2502
4	Arshad	22	Arshad@07	0708
5	Krupkar	22	Krupkar@14	1406

6	Venkat	22	Venkatesh@23	2304
7	Jhansi	22	Jhansi@06	0604

Sample Database Design for Donor Registration

Conclusion

This website provides the management status of Hospital. It is computationally simple and fast, with an HMS, hospital administrators can automate and streamline many of the day-to-day tasks involved in running a hospital, such as patient registration, appointment scheduling, billing and invoicing and more. By leveraging the power of technology, an HMS can help healthcare organizations reduce costs, improve patient outcomes, and deliver higher-quality care.

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