**Cura - HMS**

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**Abstract**

Hospitals aren't just about patients and doctors. There are a few more roles in the hospital management process. When we build hospital software, we usually create separate modules for each role. Every module differs by the access level to data and functionality.

**Keywords**: platforms, on-demand, booking services, handymen

1. **INTRODUCTION**

Developed system is a comprehensive, integrated

information system designed to manage the administrative, financial and clinical aspects of a hospital. As an area of medical informatics, the aim of the system is to achieve the best possible support of patient care and administration by electronic data processing. This encompasses paper-based information processing as well as data processing machines. Laboratory information system is a class of software which handles receiving, processing and storing information generated by medical laboratory processes. People generally do not know the procedures in hospitals. They do not know which department they should go to for their specific medical complaints. So, an intelligent system is required to assist them. Patients will initially be registered in the system with a friendly question and answer menu. Once registration is completed, they will select their medical complaints through a software menu. The menu driven software will present the patient with the right department, doctor name, appointment

date and time, possible medication and laboratory tests subject to doctor’s confirmation. Doctors examine the information provided by the patient and confirm the data once they examine the patient.

1. **LITERATURE REVIEW**

A hospital management system (HMS) is a computerized system that allows the hospitals to manage information and records related to patents, hospital operations, processes, workers and other aspects of healthcare [1]. The HMSs are mainly developed to upgrade the quality of information and improve management of healthcare information as well as efficiency of the healthcare workers. As the hospital operates 24/7 and produces a huge amount of information on the daily basis, which is difficult to be managed through traditional paperwork. The hospital database management systems were introduced in the 1960s [1]. To smoothen the workflow and manage all records and information related to healthcare aspects properly, it has evolved and continues to evolve with the integrating of existing and new technologies, software and facilities. There are several reasons behind the development of hospital management systems such as to reduce the paperwork, reducing human intervention and errors, reducing staff burden, and managing healthcare information in a better [2]. The HMSs provide various benefits including eduction of errors, safety and data privacy, speedier process and improved interaction between patients and healthcare staff and boost productivity. According to [2], an integrated hospital information management system is an important subsystem of the hospital management which is used for optimizing the service quality. In similar manner, [3] conducted study to develop and implement a web-based hospital management systems using web technology. In this study, the author has extended an existing hospital management system which is not completely digitized yet and still requires a lot of paperwork. The proposed system has two modules for doctors and patients, providing facilities of appointments schedules, payment, viewing online information, register on hospital website. The whole process of information sharing and processing in these systems is automated through the ID3 algorithm. Also, [4] developed the front end and back-end interfaces of

hospital information management systems using PHP, HTML, CSS, MySQL technologies. To test the performance and usability of this system, the author has conducted unit and integration testing, results of which revealed that the developed system is efficient for managing healthcare information. All modules of this system work well and overall the system resolves the challenges of data redundancy, saves time on retrieving records, billing management issues and drug management. In another study, [5] developed a web application for managing hospital information using various programming languages such as HTML, CSS, C#, and .net framework for front end interface and MS Access database for back-end data management. Hardware requirements for this system were 1GB RAM, HDD min. 40 GB and Dual core processor. On implementing this application, it has been found that it is responsive for both websites and mobile or tablets. This web application is highly efficient, easy to use and saves a lot of time for both doctors and patients. In the current study, a hospital information system named CURA is developed using React Js for frontend, Node Java Script for backend, MongoDB database and Blockchain technologies. This system provides various functionalities such as registration for patients, data storage, generating computerized bills for pharmacy and labs. Users of the system can also check the availability of doctors and patient’s information and stores information about different healthcare aspects.

1. **Objectives**

The definition, implementation, and construction of a system that provides support for hospital management is the primary objective of this project. This objective can only be accomplished by achieving the secondary objectives that will be discussed later. The expressivity and consistency of the graphical user interface are used to measure efficiency in use, which is one of the project's goals. When using a system, a user is considered to be efficient if the amount of time required to complete a particular task decreases with each use. The development of a system that facilitates further enhancements and enhancements to the existing functionality is an additional objective. It should be possible to manage patient and doctor information, schedule appointments, view prescriptions, order medicines online, and pay online with the system.

1. **Proposed System**

The current system is not entirely digitalized; The majority of processes, including patient registration, report sharing, and prescription sharing, are done offline, requiring a lot of paper and a lot of time. The goal of this project has been to speed up these processes while also reducing the amount of paperwork required. Additionally, we have incorporated a predictor module that can anticipate a patient's disease. Two modules have been created for this project. A patient and a specialist module. A web interface was developed for the patient module, which enables users to register for the hospital website, schedule appointments, pay bills, and view reports online. The meeting with specialists is computerized utilizing the ID3 algorithm (for example at the point when a patient solicitation for a specialist the accessible specialist is straightforwardly distributed by the framework). In the patient module, there is a disease prediction section that looks at the symptoms and predicts the disease. Another web interface for a doctor is the doctor module, where he or she can view the patients he or she has been assigned, view their history, and add comments about the patient's visit. The pharmacy and lab staff can view payments made by patients and share reports and bills in two additional submodules. Additionally, there is an admin module with access to all patient and doctor information, as well as the ability to add and update staff information.

1. **PROJECT REQUIREMENTS**

Mentioned below are the product requirements for making sure the project runs at optimal performance and fulfills its defined functional requirements.

*A. Software Requirements*

* Browser: Microsoft Edge, Google Chrome
* IDE: Visual Studio
* Design: Adobe Illustrator, Miro Board
* Assets: Adobe Photoshop
* Database: MongoDB
* Version Control: Source Code Hosted on GitHub
* Project Management: GitHub Projects, JIRA
* Documentation: Microsoft Word, PDF Expert, Excel, Google Docs

*B. Hardware Requirements*

* Development  
  Windows PC: For Android, Web Backend development stack
* End User  
  App: Any iOS, Android device to run the app, Any Web Browser

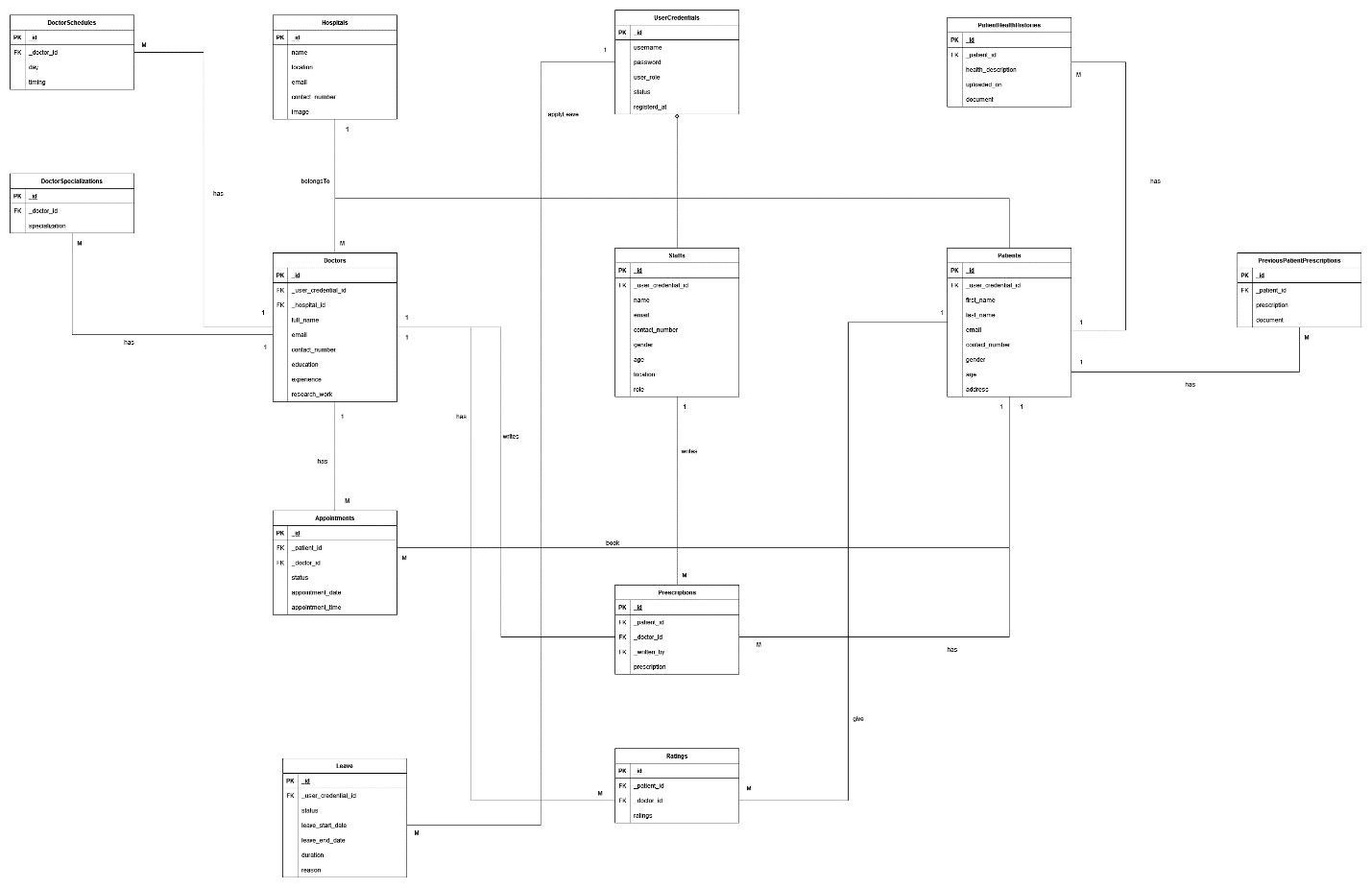
*C. Functional Requirements*

* The end user will be able to view, and book listed services as required.
* End user could schedule the services in the time slots mentioned.
* User could check the previous history of the services utilized.
* User will get notifications and information of the professional on their web application.
* User can provide feedback and rate the service and the professional.
* End user data would be secure, and the app would preserve privacy as much as possible.
* App will include registration and login features.
* App will suggest multiple professionals according to the ratings provided by other users.

*D. Technical Requirements*

* This is a web application and will support any iOS, Android based devices.
* This web application will be developed using AngularJS, GoLang, NodeJS and utilizes MySQL.

1. **SYSTEM DIAGRAM**
2. Entity Relationship Diagram

**** *Figure 4.1 Entity Relationship Diagram*

1. **Methodology**

There are two modules that have been identified, Patient and Doctor modules. The patient module is used to book appointments, make payments, view reports and see their medical as well as payment history. The patient module also contains a disease prediction section where the patients Whereas the doctor module has the User Interface(UI) for the employees to access the database. There are four types of users in the Doctor module. They are Admins, Doctor, Lab staff and Pharmacy staff. They all have hierarchical access to the database. Admin is responsible for adding the users to the database and giving access based on their designation. Users with Doctor access can view his patients details, give medicines and view the tests assigned to him. Lab staff are in charge of the payment section and reports. Pharmacy staff can add or remove the medicine details and dispatch the medicines based on the payment details.

1. **CONCLUSION**

There are many software packages about Hospital Information Management Systems in the world. This is a developing field, and many researchers are interested in developing new features and applying them to the software. The technique developed here attempts to include the decision 1603 factor in the software. The software decides for the patients where to go and what to do before they see a doctor. This saves a lot of time and helps the doctors to concentrate more on the patients. There are not many intelligent software packages like the developed ones in the market. The software also has a querying system where it can ask various questions to the patient and give them a diagnosis. Many hospital information systems in literature manage inventory of the hospital [4]. This inventory includes patient and staff information, stores and medicines, billing and report generation. This complex application communicates with a background database server and manages all information related to hospital logistics. But our software engages the patients and guides them with a querying mechanism which different and unique in itself. It suggests operational steps to the patients and doctors instead of simple management

1. **SUMMARY**

This software is in modular form and can be adapted to any hospital or clinic. Eventually the developed software will be placed in the internet so that old and disabled patients can also have access to hospitals from the comfort of their homes.

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