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Hospital Management System using JSP Technology

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A B S T R A C T

Today's web technology offers many online services in almost every field. Every major industry is transforming and creating a digital front for all of their core operations to get closer to the emerging digital market. In today's world, the flow of information is very fast, and excess resources will not improve the individual or the organization that uses them. Online connectivity is now a must for all well-organized and well-managed facilities. One such area is healthcare, where digitization of information should take place quickly and efficiently. This paper addresses this particular region and paves the way for the creation of software that helps facilitate the transition from paper to electronic papers. The article describes the idea of such a web-based platform that eliminates the need for paper prescriptions in hospitals, which proposes E-Medical Management, which will increase the efficiency of patient management, manage doctors' schedules, and provide universal access to patient data. anywhere in the hospital

Keywords: Hospital, Medical Equipment, Hospital Information System, Patient, JSP

1. Introduction

As many industries are turning towards the digital front, it could be a very great step for an older and necessary industry like hospitals to move in this direction. The current module is effective, but only if there is no time limit. We can't have this system when every second counts. This system should include many features in the online queue which includes patient records including his disease history and messages. The above data can be accessed by the relevant doctor from anywhere in the world. Storing all these details would be done by setting up a database server. If the patient is admitted to the hospital, all the important details will be updated so that the doctors can check them online. They can even dispense online prescriptions directly to a patient-specific pharmacy with their patient ID. Each person who visits the website can register as a patient and receive a unique patient ID that is referenced in all future transactions. The patient can make an appointment online and know the doctor's availability. Notices regarding regular medical examinations and medication orders. Tips for a regular better lifestyle and good health are provided. Nowadays, every individual must have a smart device to connect them to the internet world and that is when data transfer speed or data availability comes into play. This digital approach would help many people who need medical services for minor inconveniences and cannot travel for necessary medical treatment.

The paper is organized as follows, in section 2 the literature review is discussed. Section 3 presents the methodology, Section 4 presents the proposed system, Section 5 contains the project methodology and Section 6 discusses the project results and discussions, Section 7 discusses the conclusions and finally the future improvements of the project.

2. Literature Survey

According to Paul R. Vegoda (1987), Hospital Information System (HIS) is defined as, _an integrated information system which improves patient care by increasing the user‘s knowledge and reducing uncertainty allowing rational decisions to be made from the information provided. Haux, Schmücker and Winter (1996) view hospital information systems as the entire information processing and information storage subsystem of a hospital, whereby it is not only about the computer systems and networks and the computer-based application systems installed on them, but also about the information in the entire hospital. HIS consist of different softwares that are integrated in order to capture data in specific sections of the hospital [Garrido, Raymond, Jamieson, Liang and Wiesenthal [2004:21-22]], handle the workflow of daily medical services and Also helps manage day-to-day medical care and financial, administrative and clinical data.. From the various definitions of HIS, it is understood that HIS is a very broad area as it encompasses services catering to varied departments and personnel of an hospital and finally satisfying the patient care in its true sense. Hospital Information Systems (HISs) are supposed to make the right information and knowledge available to the right people, in the right place, at the right time and in the right form.

3. Objectives

The primary goal of this project is to define, implement and build a system that offers hospital management support, which can only be fulfilled by achieving the secondary goals that will be presented next. One of the goals of this project is to increase the efficiency of use, which is measured through

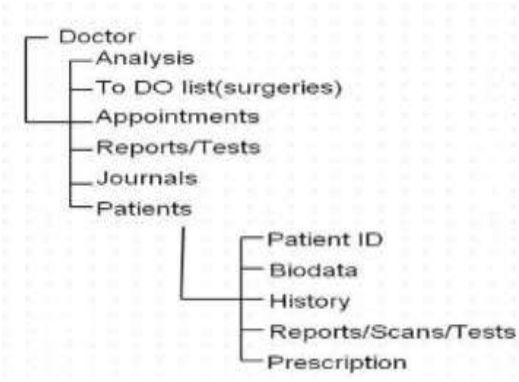
the expressiveness and consistency of the graphical user interface. A user is considered efficient in using the system if the time required to perform a certain task decreases with each use. Another goal is to create a system that will allow for further improvements and expansion of the existing functionality. The system should be able to offer the ability to manage patient data, doctor data, schedule appointments, view prescriptions, order drugs online and make online payments

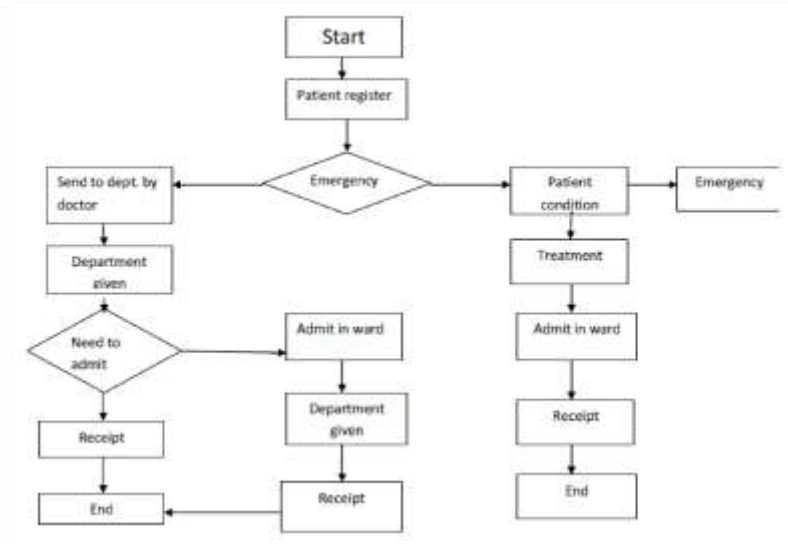
4. Proposed System

The current system is not fully digitized; most of the processes like registering patients, sharing their messages, sharing prescriptions are offline which requires a lot of paper and consumes a lot of time. This project focused on reducing the amount of paperwork required as well as reducing the time associated with these processes. We have also integrated a predictor module that can predict a patient's illness. This project is designed in two modules. Patient and doctor module. A web interface has been designed in the patient module that allows the user to register on the hospital website, schedule appointments, make payments and view reports online. Appointments with doctors are automated using the ID3 algorithm (ie, when a patient requests a doctor, an available doctor is directly assigned by the system). In the patient module, there is a disease prediction section that predicts diseases by analyzing the symptoms they enter. The doctor module is another web interface where the doctor can view the patients assigned to him, view their history and add his comments to the patient visit. There are two additional sub-modules for pharmacy and laboratory staff to view payments made by patients and share reports and bills. There is also an admin module that can view all patient details, view all doctor details, add new staff details and update existing staff details.

5.Methodology

There are two modules that are identified, the Patient and Doctor modules. The patient module is used to book appointments, make payments, view reports and view their medical and payment history. The patient module also includes a disease prediction section where the patients are, while the doctor module has a user interface (UI) for staff to access the database. There are four types of users in the Doctor module. They are administrators, doctors, laboratory workers and pharmacy workers. They all have hierarchical access to the database. Admin is responsible for adding users to the database and granting access based on their designation. Users with Doctor access can view details of his patients, administer medications and view tests assigned to him. The laboratory staff are in charge of the payment section and reports. Pharmacy staff can add or remove medication information and ship medications based on payment information.





Algorithm Description

Step 1- START

Step 2-Registration of patients in Queue.

Step 3-When the patients checkup is completed it get removed from the queue in database

Step 4-Check for second patient.

Step 5-If second patient is not present then add it on the last number in the queue.

Step 6-In this way the algorithm gets continued.

Step 7-EXIT

6. Implementation details

6.1 Software Requirement

Database: Oracle 10g

Web technology: JSP

Server: Apache Tomcat 9.0

Design: HTML, CSS, JavaScript

6.2 Hardware Requirement

Dual core processor

RAM 1GB

HDD min 40GB

Why JSP server Technology?

1) Extension to Servlet

We are able to use all the features of the Servlet in JSP. In addition to, we are able to use implicit objects, predefined tag, expression language and Custom tags in JSP, that makes JSP development easy.

2) Easy to maintain

JSP separate business logic with presentation logic. In Servlet technology, it mix business logic with the presentation logic.

3) Reduce time of development : Avoid recompile as well as re-deploys

When JSP page is modified, it is not required to recompile and redeploy application.

4) Less code than Servlet

In JSP, many tags such as action tags, JSTL, custom tags, etc. are available that reduces the code. Also , we are able to use EL, implicit objects, etc.

7. Result and Discussion

On the main page is the profile of the employee.

Patient Tab - Add price page allows the user to confirm the price and share the account with the patient and the shipping page allows the user to confirm the shipment of the drug.

Medicine tab - allows the user to update prices and stock details of existing medicines and add new medicines

The main page displays the doctor's profile.

Patients page - allows the doctor to confirm an appointment, share messages with the patient, and also view the patient's history.

8. Conclusion

By implementing JSP based web application for hospital it single window based application for patient, doctors. The management of the patients will be very much easier, efficient and less time consuming. It will be easy for the doctors and patient to access the records and reports as the history and reports are already present in the our application ,hence the patient not required need to carry all the reports and big x-rays and MRI films etc. The patient details are already present in the database while registration so there is no need to fill a form during emergency cases. The doctors can check details of the patients on their system, provide prescription on a click which will be sent to the pharmacist this will reduce a huge amount of time as the pharmacist knows which medicines to be kept ready before hand. help online. It will help to reduce many manual efforts, time taken and cost.

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