HMS: Efficiency, Integrated and Better Monitoring Service at Hospital to Confect Inter-relationship between Doctors and Patients

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Abstract: The main purpose is to computerize the front office management of Hospital to develop website which is user friendly simple, fast, and cost-effective. This process deals with the collection of patient's information, diagnosis details and integrate all the details to provide better service for patients. Traditionally, it was done manually and it was affected for both patients as well as doctors. The main function of the system is to register and store patients and doctor details to monitor in a good way, retrieving these details when it is necessary and manipulate meaningfully. The admin can check doctor's and patient's list, number of appointment etc. All the users will be having login credentials such as username and password, it is accessible either by an admin or receptionist to add the data into it. This process helps us to pop-up recent appointment to notify for emergency patients and all the data is secured. All the users can use this system for their personal problems and makes the data processing very fast without interruption. The distributed data will be transferred from hospital and all the patients can access their personal data. Finally, it will collect the feedback from all the users for better improvement.

Keywords:- Python, Sqlite, Django, Admin, HTML, CSS styles in Web, Python

I. Introduction

Hospital management is related to integrated hospital information system, which addresses all the functional areas of multi- Specialty hospitals. It includes better patient care, patient safety, patient confidentiality, efficiency and better management information system. The problem statement includes reducing paper work as well as saving lot of time. It also involves easy access to critical data thus enabling the management to take better decisions on time. Hospitals should computerize all details including patient details & hospital details. The information of the patients should be kept up-to-date and the record should be kept in the system for future use. Every type of information would be available whenever the user requires. It aims at standardizing the data, consolidating the data ensuring the data integrity and reducing inconsistency. Also the system is error free thus making it more useful [1].

The design and implementation of proper models for authorization and access control for the patient record are essential to a widfeefe scale use of the Patient Record in large health organizations. However, specifying the access conditions and privileges for a PR user is still a difficult task, since an access control solution must keep the confidentiality of PR data, without hindering patient care by denying legitimate access to clinical data and services requested by medical staff. For instance, it is not appropriate to impose a restricted control that prevents a physician, in an emergency room, to access crucial PR information about a patient in a critical condition. The urgency condition should be regarded as an exception, overriding the access control restrictions [1].

II. Related Work

As we visited some prestigious hospital with very large patient capacity. This number is increasing at a rapidly with each passing day. The Management of the hospital is concerned with the increasing effort in keeping the records of the patients and recording their activities (done manually). The hospital treats both indoor patients and the outdoor patients. It maintains full information of both indoor patients and outdoor patients for the purpose of future use. Doctors who serve to the hospital are the regular employees of the hospital, sometimes-external doctors are used to handle complicated cases. So the hospital needs to maintain its Doctors' records separately along with the records of its other employees. All these operations are getting cumbersome day by day because of the stiff rise in data.

As I visited the hospital work was done as follows: -Registration of patients is done by just writing the Patients name, age and gender. -Whenever the Patient comes up his information is stored freshly. Bills are generated by recording price for each facility provided to Patient on a separate sheet and at last they all are summed up.
Diagnosis information to patients is generally recorded on the document, which contains patient information. It is destroyed after some time period to decrease the paper load in the office [1]. All this work is done manually by the receptionist and other operational staff and lot of papers are needed to be handled and taken care of. -Doctors have to remember various medicines available for diagnosis and sometimes miss better alternatives as they can't remember them at that time.

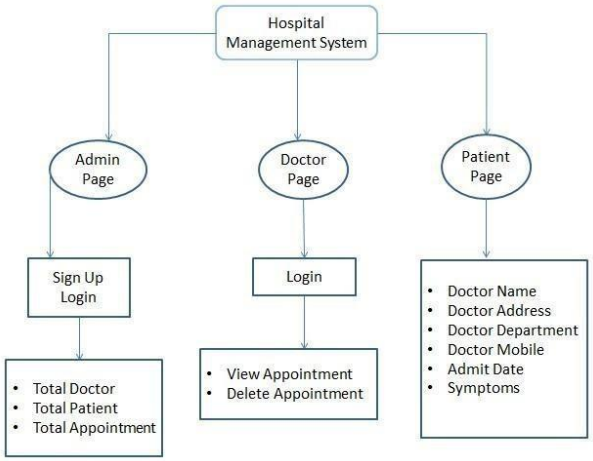
Problem Statement:-

Lack of immediate retrievals. The information is very difficult to retrieve and to find particular information like to find out about the patient's history, the user has to go through various registers. This results in inconvenience and wastage of time. Lack of immediate information storage. The

Information generated by various transactions takes time and efforts to be stored at right place. Lack of prompt updating: Various changes to information like patient details or immunization details of child are difficult to make as paper work is involved error prone manual calculation: Manual calculations are error prone and take a lot of time this may result in incorrect information[2]. For example calculation of patient's bill based on various treatments. Preparation of accurate and prompt reports: This becomes a difficult task as information is prepared manually already established. The problem is to devise authorization and access control models capable of supporting exceptional cases, taking into account contextual or conditional information.

In keeping track of all the activities and their records on paper is very cumbersome and error prone. It is also very inefficient and a time-consuming process. Observing the continuous increase in population and number of people visiting the hospital, recording and maintaining all these records is highly unreliable, inefficient and error-prone. It is also not economically & technically feasible to maintain these records on paper. The main aim of our project is to provide a paper-less hospital. It also aims at providing low- cost reliable automation of the existing systems.

Information systems in electronic healthcare have the



potential to support a variety of medical stakeholders in performing their regular daily working activities. Still with the growing amount of electronically available health- related data on patients, aspects of data privacy have to be considered, e.g., by improving the transparency of healthcare processes or by offering methods to allow patients to self-determine controls for their data. In the work we present the results of a study we conducted in India about the general desire of patients to self-control access to their health records as well as to elicit typical factors for access control they personally consider as important. The results we present in this work are intended to support the requirements analysis and development of patient-centric healthcare management applications. Healthcare management is a growing profession with increasing opportunities in direct and non- direct care settings. Direct care settings are those organizations that provide care directly to a patient, resident or client who seeks services from the organization. Non-direct care settings are not directly involved in providing care to persons needing health services, but rather support the care of individuals through products and services made available to direct care settings. The construction of medical information is important to improve the hospital medical care capability, the management decision-making level of health and the hospital operational efficiency. Nowadays, comprehensive hospital information services and management platform have been established, centering on electronic medical records and clinical pathway. The establishment and use of these information systems played an important role in improving the degree of patient satisfaction, enhancing hospital efficiency and healthcare quality, protecting the safety of healthcare, and reducing healthcare costs.

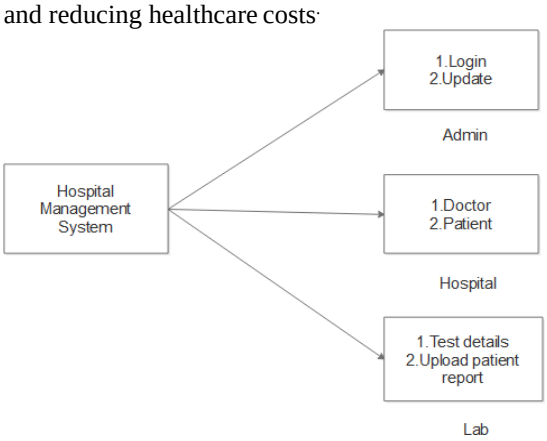


Fig: 2 Component diagram

III. PROPOSED SYSTEM

The proposed software system is the Hospital Management System. The system will be used in any Hospital, clinic to get the information from the patients and then storing that data for future usage. Information about Patients is done by just writing the Patients name, age and gender. Whenever the Patient comes up, his information is stored freshly. Bills are generated by recording price for each facility provided to Patient on a separate sheet and at last they all are summed up. Diagnosis information to patients is generally recorded on the document, which contains Patient information. It is destroyed after some time period to decrease the paper load in the office. Immunization records of children are maintained in pre-formatted sheets, which are kept in a file. Information about various diseases is not kept as in any documented forms. Doctors themselves do this job by remembering various medicines. All this work is done manually by the receptionist and other operational staffand lot of papers are needed to be handled and taken care [4]. Doctors have to remember various medicines available for diagnosis and sometimes miss better alternatives as they can't remember them at that time.

IV. IMPLEMENTATION

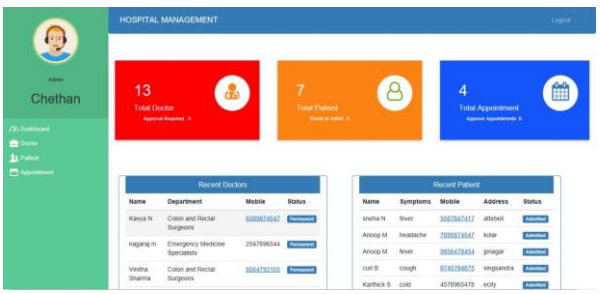
I. ADMIN PANEL

Admin panel basically includes a login page which appears when an admin opens his system. This login page will ask the admin to enter valid username and password. If in case he/she enters invalid username or password a small message will pop up saying “invalid username/password” [6]. After successful login, admin will get further access. After successful login admin will go to the home page of hospital management system. This home page includes patient details which are controlled by the admin itself. Admin is the one who takes decision whether to update patient status or not. Patient status is updated by clicking ON/OFF button and then by clicking on update button. If the status is ON the patient will be able to access his/her data. If the status is OFF then patient will not be given further access. If patient is done with his/her treatment then the status will be OFF hence not giving any further access. After finishing his work admin can successfully logout and all changes are saved.

Fig: 3 Homepage

ii.HOSPITAL PANEL

Hospital panel includes the most important part of hospital management system that is regarding doctor details and patient details. Doctor details include his/her name, address and the very important thing that is his/her specialty. This ensures that for each and every patient there will be a doctor for the treatment. Also the details include his/her email id and contact number [7]. The next important thing is patient details which includes his/her name, DOB, contact address and phone number. The most important thing which is included in this system is patient's past medical history. This will be very helpful for the patient as well as doctor. Often the past records are lost or forgotten. But by keeping it online, the data will be secured and also accessible. Room allotted and bed allotment details are also maintained. There are two different rooms for the patient one is general and second is air conditioned.



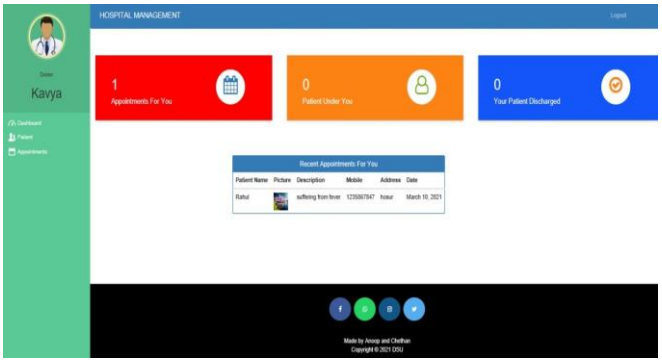
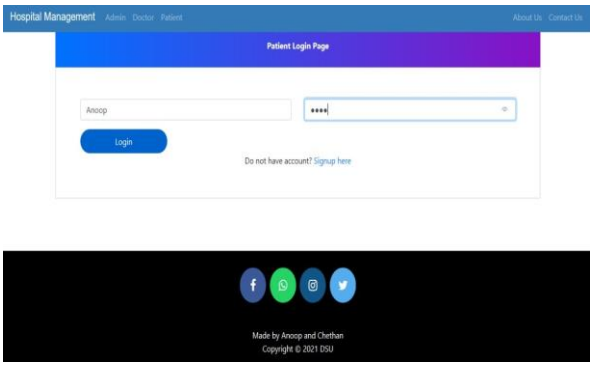


Fig: 4 Doctors Page

iii. PATIENT PANEL

Hospital app is made for the benefit of patient. If a patient visits a hospital for the first time he has to fill the form, wait in line and wait for their turn to come. By using this website, patient will get their individual id and password for further access. After registering and the entire required details patient will get their Username and Password [6]. Admin will add the patient details in his system. Website has proved to be very time saving and has reduced the paper work completely. Now patient will not have to wait in line and fill form, they can do that sitting at home by just simply visiting the HMS website.



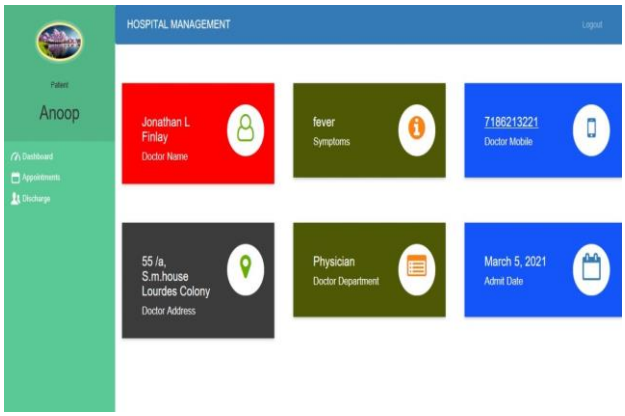


Fig: Patients page

Fig: Feedback form

V. CONCLUSION AND FUTURE SCOPE

The HMS: Efficiency, Integrated and better monitoring service at Hospital to confect inter relationship between doctors and patients for computerizing the working in a hospital. The system 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. The system is also distributed thus making it available for every individual. This proposed system has completely reduced the paper work thus reducing the work load of working staff. The system in not complex in nature and therefore can be handled very well. Patient's report can be shared online thus saving a lot of time and effort. Also the system is error free and it avoids manipulation with the record. In order to access lab panel, hospital panel and admin panel every individual requires a unique username and Password. First panel is admin panel which can be accessed only by the admin wherein the admin can update (ON or OFF) the status of the patient. Maintained about the total count of medicines. Also the entire working staff can be included in this system along with doctor and admin. Appointment of new staff like ward boys, nurses can also be included. Also the working hours of doctor, nurses, ward boy, watchmen should be included in the system. All these kinds of records will be very helpful for future use. This system can include many aspects, like providing health tips, dietary advice etc. This will be proved helpful in controlling of various diseases that is caused due to unhealthy diet. Effectiveness of the system can further be improved if trained on larger database.

At present, this proposed system is dealing with database of hospital, doctor and patient. This system can be improved by adding labs, Scan test details and pharmacist as well. Meanwhile keeping a track of total medicine details is also important. In future scope we will implement all other futures which is applicable to hospital.

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Biography

Ms. Shweta S Aladakatti working as an Assistant Professor in the department of Computer Science and Engineering and is currently pursuing her Ph.D. at Presidency University, Bengaluru and has 1 year of industrial experience as Java Developer at TheDecisionsLabs Consulting Pvt Ltd and She worked as a Research Scholar for 1 year at Presidency University. She has completed her M. Tech from SJBIT College, Bengaluru and B.E from Bapuji Institute of Engineering and Technology, Davanagere. Her research area is Semantic Web, Interlinking in Linked Open Data (LOD Cloud 2019). She has presented 1 paper in National Conference and published 3 papers in the International Journal.