

A Synopsis on

Hospital Management System

Submitted in partial fulfillment of the requirements
of the degree of

Bachelor of Engineering

in

Information Technology

by

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CERTIFICATE

This is to certify that the project Synopsis entitled “*Hospital Management System*” Submitted by “*Pranav Iyer (16104002), Shefali Rane (16104003), Bhaskar Khekale (16104026)*” for the partial fulfillment of the requirement for award of a degree *Bachelor of Engineering* in *Information Technology*, to the University of Mumbai, is a bonafide work carried out during academic year 2020-2021

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Date: 19/12/2020

Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, We have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

When the patient goes under treatment the schedule or appointment data can be handled by Doctor for the particular patient. Application gives the Doctor the comfort to manage schedules of his/her patients. It is Mainly focused on helping the local medical clinics who still use the traditional way of managing data. This application has an efficient way of accessing the medical records through an online platform. It also eliminates the need of a local database by making use of a centrally accessible cloud server. This system is aimed at developing a set of modules which can facilitate the diagnosis for the doctors through tele-monitoring of patients. This project deals with the management aspect for the local clinics. This project is very helpful to both Medical staff as well as to the public. We have also considered the privacy and security aspects of the system keeping the provision of authority for patients to access the data as well as the possible threats to the system.

Introduction

Hospital management system is a web application developed for hospitals to manage staff data and patients data effectively. the main aim of developing “HOSPITAL MANAGEMENT SYSTEM” is to computerize the Front Office Management of Hospital. The main intention of introducing this system is to reduce the manual work at Health center counters. Quicker processing of receipt would mean better service to the patients . It would also help in the complexity of maintaining the records manually and thus less time is wasted on rework.

In the current existing system the patient details, doctor availability details, tests undergone , medicines prescribed by the doctor is maintained manually by the receptionist in some random notebook. If a patient has to visit the Doctor, they need to check the availability of the doctor by constantly calling their clinic, which consumes lot of time if done manually.

This particular proposed system is aimed at developing a solution where the cross platform application will help the Doctors to run their clinics in a better way .Hospital Management System enables you to develop your organization and improve its effectiveness and quality of work.

The growing quality demand in the healthcare sector makes it necessary to exploit the whole potential of stored data efficiently, in order to improve the care given to the patients. Our proposed system is aimed at developing a solution where the proposed cross platform application will help Doctors running a local clinic in a better way. Better way to store patients medical data can help in better functioning of a clinic. Hospital Management System is a useful to improve the management of hospital in the area of clinical process analysis and activity-based costing. Hospital Management System enables you to develop your organization and improve effectiveness and quality of work.

User can search about the doctor whether they are available or not and the details of a patient. The hospital management system can be entered using a username and password. If any Doctor wants to check the details regarding their patients last visit, then all they have to do is take a quick glance through the patients profile in the application. The use of Cloud Server in order to store the data efficiently in an organized way is an important aspect of this proposed application.

Objectives

- To design a cross platform system for better patient care.

By using a cross platform system it will be easier for the patients to make use of the proposed technology irrespective of whatever device they use for daily purposes.

- Use of multilingual system for better user understanding.

The implementation of Multilingualism in this project will benefit the users as they will understand more clearly in their local language.

- To store the patient medical records in a better and organized manner for future references. There wont be a need to store data in the manual form as everything will be stored in a centrally accessible cloud server platform in a secure manner, patient will only need a basic internet connection to use the application.

- To fetch the data on local database will become very tedious to manage, hence making use of a cloud server.

As the number of Doctor and patients using the application increases, the amount of data will also increase exponentially, hence making use of a Cloud service platform, which provides facilities for safe storage and thereby eliminating the need of keeping the patients record in a traditional paper format

Literature Review

1. Paper title: Cloud-Implementation of E-Healthcare Framework.

Author: R. Vignesh, K.Mohana Prasad.

Publisher: International Journal of Recent Technology and Engineering (IJRTE).

Year: 2019

Healthcare Systems are gaining ground around the world, seeking to provide viable and affordable healthcare to all sections of society. With the recent advancements in the Information and Communication Technology (ICT) around the globe, the Healthcare Frameworks can be made more robust with the use of more novel techniques and modern-day technologies. With the rise of Mobile Cloud Computing resources and easy availability of smartphones and net services, a proposed framework referred to as “Cloud Implementation of EHealthcare Framework” built upon a Cloud Framework authenticated by personal biometrics would allow the agencies at work to store a patient’s credentials and medical history on the Cloud which will then be accessible throughout the network which will be a significant shift from the Paper-Based Record System as well as the new and more modern Electronic-Based Record Systems.

2. Paper title: Study of challenges to utilise mobile based health care monitoring systems: A descriptive literature review.

Author: Seyed Mohammad Ayyoubzadeh

Publisher: Journal of Telemedicine and Telecare.

Year: 2018

Mobile health encompasses remote and wireless applications to provide health services. Despite the advantages of applying mobile-based monitoring systems, there are challenges and limitations; understanding the challenges may assist in identifying available solutions and optimising decision-making to apply mHealth technologies more practically. This study aimed to investigate the main challenges related to mHealth-based systems for health monitoring purposes. This review was carried out through investigation of English evidence from four databases, including Scopus, PubMed, Embase, and Web of Science, using a defined search strategy from 2013 to 2017.

3. Paper title: eHealth Cloud Security Challenges: A Survey.

Author: Yazan Al-Issa, Mohammad Ashraf Ottom, Ahmed Tamrawi.

Publisher: Journal of Healthcare Engineering.

Year: 2019

Computer security is a growing field in computer science that focuses on protecting computer systems and electronic data against unauthorized access, hardware theft, data manipulation, and against common threats and exposures such as backdoors, denial-of-service(DoS) attacks, and phishing. The objective of applying computer security measures is to attain protection of valuable data and system resources; securing system resources includes protection of a computer system hardware and software, whereas data security is more concerned with protecting data that are stored or transmitted between computer systems, as well as cloud systems. Privacy could be claimed as a moral right for individuals and groups when using information systems, whereas computer security is not a moral right in itself.

4. Paper title: Security and privacy issues in e-health cloud-based system: A comprehensive content analysis.

Author: Nureni Ayofe Azeez, Charles Van Der Vyver.

Publisher: Science Direct.

Year: 2018

The recent advancement in Information and Communication Technology(ICT) has undoubtedly improved services in all sectors in the world. Specifically, Information Technology (IT) has led to a very vital innovation in health sector called electronic health (e-Health). In order to optimize full and excellent benefits of this innovation, its implementation in a cloud-based environment is important. However, with noticeable and numerous benefits inherent from e-Health in a cloud computing, its full utilization is still being hampered by challenges of security and privacy. In this paper, we focused on extensive review of current and existing literatures of various approaches and mechanisms being used to handle security and privacy related matters in e-Health. Strengths and weaknesses of some of these approaches were enunciated.

Problem Definition

We have large number of local clinics who still store the patient data in a traditional paper format. Every time a Doctor has to check the Patients medical history, they have to go through their notebooks to obtain the information. In the existing system all the patients details, doctor availability details and regarding the tests done to the patients prescribed by the doctor is maintained manually by the receptionist on some random notebook.

The solution to solve this problem, is an internet based platform which will store the patients information in an organized manner. Patients information will be stored in his/her profile, whatever was discussed with the Dr during their appointment can be fetched through their profile, whether or not they were advised to follow certain diet, whether they were supposed to do certain exercises, medicine routine they were told to follow, everything can be tracked using this platform. If any Doctor wants to check the details regarding their patients last visit, then all they have to do is take a quick glance through the patients profile in the application

Proposed System Architecture/Working

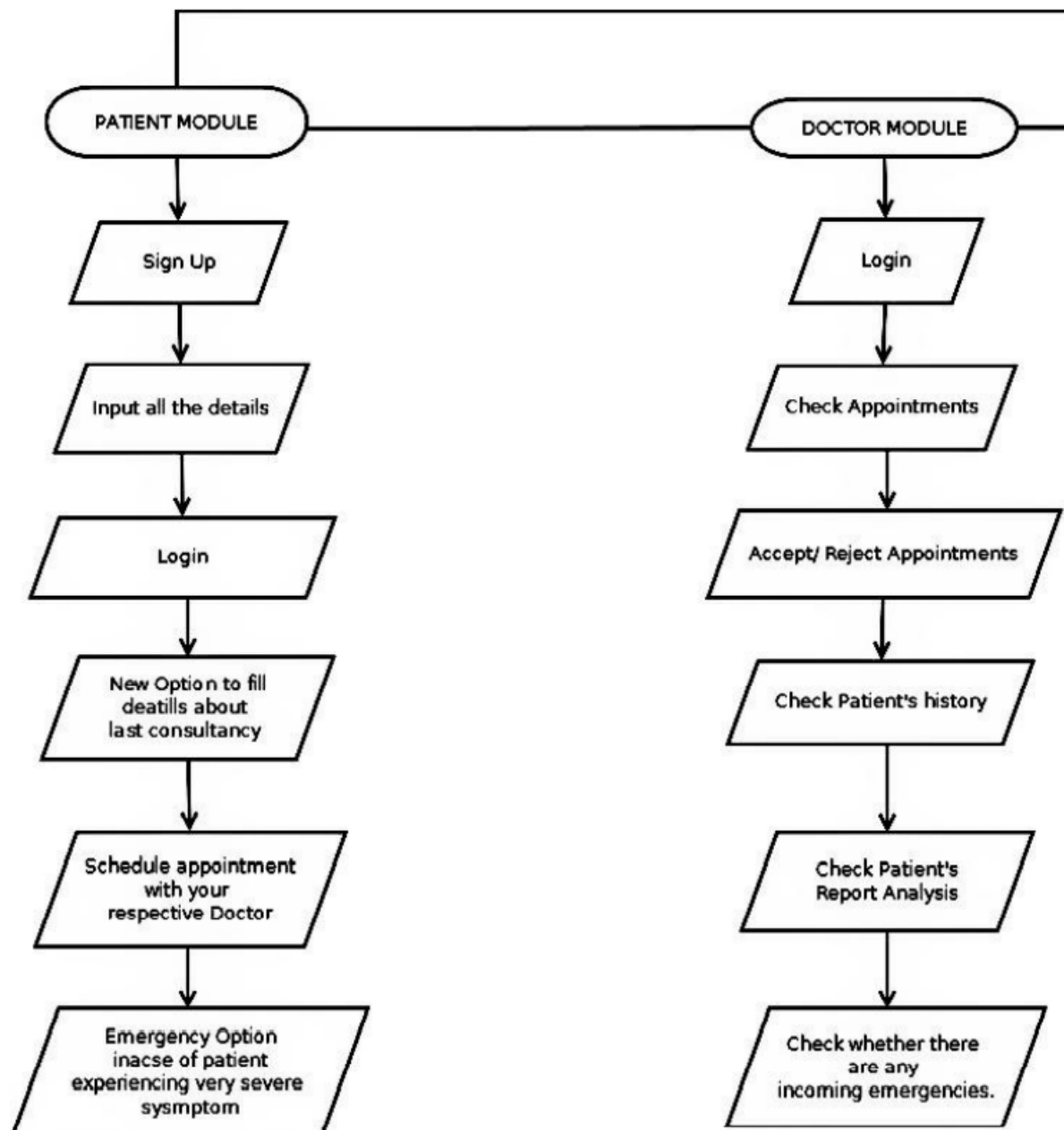
The proposed system that we are going to deploy here is to speed-up the database response by using a Cloud Server platform rather than a local database and to reduce the time complexity by using multi-user environment. Because of this multi user environment we can reduce the burden on single person.

The proposed system is a solution to solve this problem, an internet based platform which will store the patients information in an organized manner. Patients information will be stored in his/her profile, whatever was discussed with the Dr during their appointment can be fetched through their profile, whether or not they were advised to follow certain diet, whether they were supposed to do certain exercises, medicine routine they were told to follow, everything can be tracked using this platform. If any Doctor wants to check the details regarding their patients last visit, then all they have to do is take a quick glance through the patients profile in the application.

In this project we have tried to implement a website which is platform independent and makes use of a particular Cloud Server which can help in virtualization. It can provide better security for the data which we're about to fetch from the patient's and doctor's profile.

The system after careful analysis has been identified to be presented with the following modules:

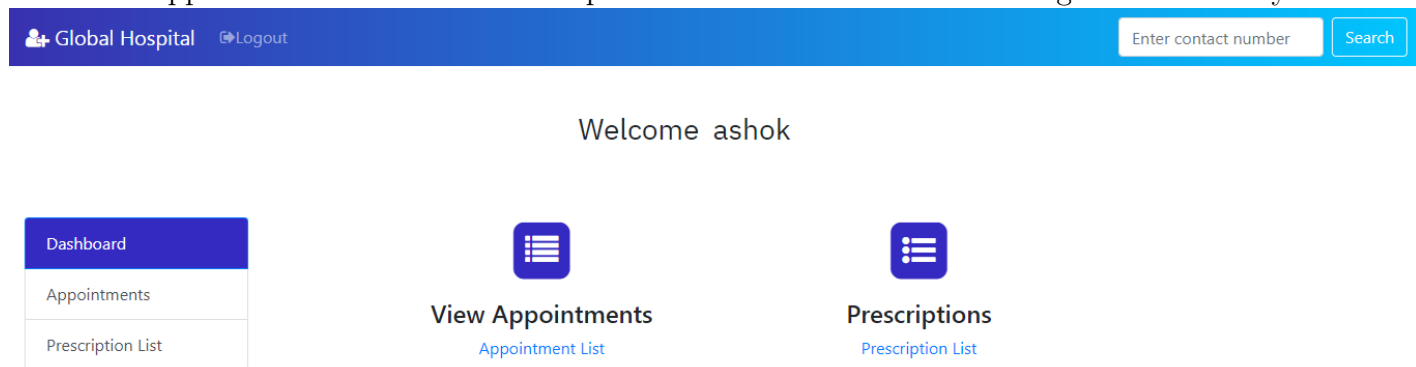
1. **DOCTOR MODULE:** The Doctor module holds the details of all the patient problem. The registered doctors can take a look at their patients record and decide the course of the next treatment. In this module, the Doctors are free to schedule appointment according to their own comfort, they have the option to reject a patients appointment.
2. **PATIENT MODULE:** The Home page of the application provides an option to the patients for signing up as a user of this proposed application. After registering all the details such as Name, Gender, Mobile Number, Address, Email Id, using a password of their own choice, any particular individual can sign up as an user in this application.



Design and Implementation

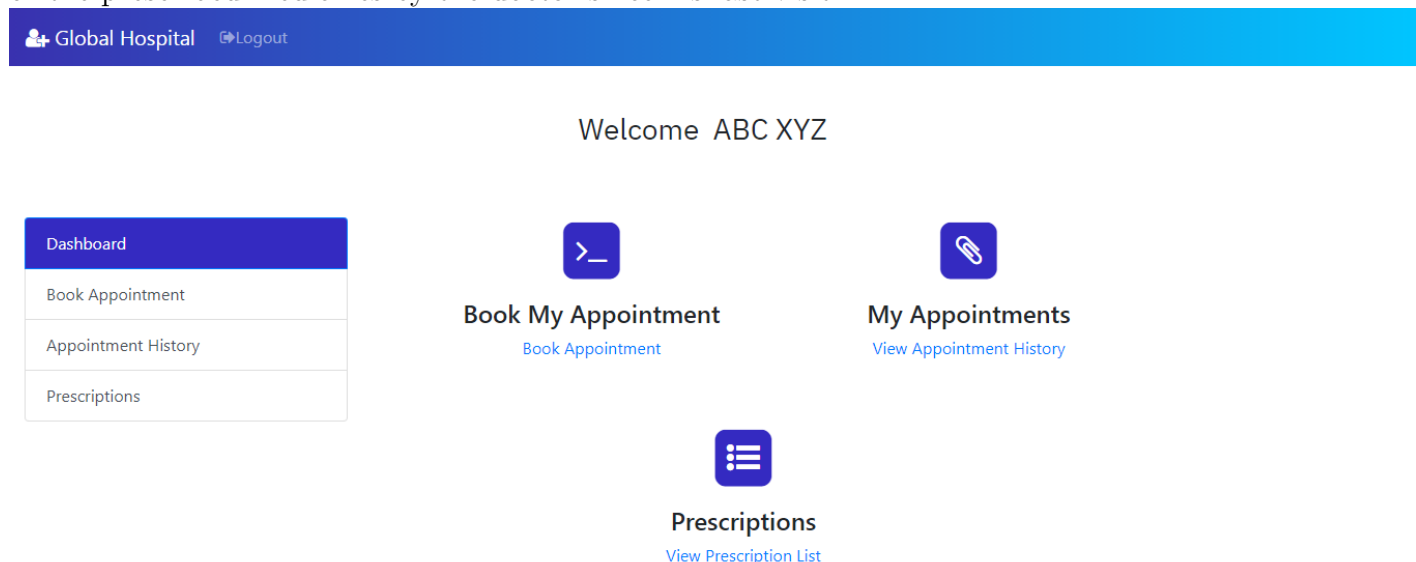
1. Doctor Login Page:

This is the Doctors module where the Doctor can view all the appointments and the prescription list. Under appointments he can search the patients and all his details including medical history.





2. Patient Login Page:

This is the page that opens when the Patient logs in. The patient name will be displayed above. He has the option to book his appointment, view his appointment history and view the dosages or the prescribed medicines by the doctor since his last visit.



3. Book Appointment Page:

This page is of Patients Module from where he can book his appointment with the Doctor according to his health issue. He can also select the available doctors as per his choice and then set an appointment date and time. He can also view the appointment history and view the dosages or the prescribed medicines by the doctor since his last visit.

 Global Hospital  Logout

Welcome ABC XYZ

Dashboard

Book Appointment

Appointment History

Prescriptions

Create an appointment

Specialization:

Select Specialization

Doctors:

Select Doctor

Consultancy Fees

Appointment Date

dd-mm-yyyy

Appointment Time

Select Time

Create new entry

Summary

- Thus to summarize this project is aimed in helping both Medical frontline workers as well as to the public. Our proposed system is aimed at developing a solution where the proposed cross platform application will help Doctors running a local clinic in a better way. Better way to store patients medical data can help in better functioning of a clinic.
- We have also considered the privacy and security aspects of the system keeping the provision of authority for patients to access the data as well as the possible threats to the system.

References

- 1] R. Vignesh, K.Mohana Prasad On, “Cloud-Implementation of E-Healthcare Framework”, International Journal of Recent Technology and Engineering (IJRTE),(2019).
- 2] Seyed Mohammad Ayyoubzadeh On. “Study of challenges to utilise mobilebased health care monitoring systems: A descriptive literature review”, Journal of Telemedicine and Telecare(2018).
- 3] Yazan Al-Issa, Mohammad Ashraf Ottom, Ahmed Tamrawi On, “eHealth Cloud Security Challenges: A Survey”,Journal of Healthcare Engineering(2019).
- 4] Nureni Ayofe Azeez, Charles Van Der Vyver On, “Security and privacy issues in e-health cloud-based system: A comprehensive content analysis”, Science Direct(2018).

Publication

- Paper Draft on E-Healthcare Management System is ready.
- Planning to present paper in IEEE Conference

<http://ieeepune.i2ct.in/call-for-papers/1570448337628-8405b5d7-fb05>