Hospital Management System Application using Android Studio

Dhruvil Chanchad[1], Santosh Kadam[2], Akshay Shende[3],Ishant Kharat[4],Prof. Sagar Dhanake[5]

Students, Department of Information Technology[1,2,3,4]

Assistant Professor, Information Technology[5]

Dr. D. Y. Patil Institute of Technology, Pune, Maharashtra, India

Abstract: *Hospitals are the largest and most complex organizations where health care is provided.Safe and effective patient care services in hospitals depend on the efficient decisions madeby hospital executives. The main task of hospital executives is to ensure the hospital canprovide high quality patient care and services.The healthcare problems are growing rapidly day by day and people have to spend lot ofmoney for their daily checkup, because they do not have an easy and free access to theircheck-up. Android-based application aims for an easy access and use for providing almostfree of cost facility to users.Therefore, the development of healthcare android-based application is essentially required.The primary goal of this study is the development of android-based healthcare application which can assist people to check their health-related issues on daily basis, which canimprove their health.The application wasdeveloped in android operating system environment. A Googleproduct, namely App Inventor tool, which is a Visual block programming language, is usedto develop the system.The results reveal that the system provides an easy and user friendly interface for end users.*

Keywords: *Hospital*

I. INTRODUCTION

Healthcare consistently has been an important thoughtful concern all the time for humankind. In the lastdecade, with the fast development in web and internet technologies, smart hospitals have developedmanifest in our lives.Advancement in the technology has changed the world so far along with development of smart phonesand other handheld gadgets. Good health is the basic necessity of good life. Several technologies andgadgets in last few years have been developed and have promoted to monitor the healthcare and otherhospital's critical assets.This project deals with the Corporate Medicare Management. This project is very helpful to both Medicarestaff as well as to the public. It is having mainly Administration and Client modules.The growing quality demand in the hospital sector makes it necessary to exploit the whole potential ofstored data efficiently, not only the clinical data, in order to improve diagnoses and treatments, but alsoon management, in order to minimize costs and improve the care given to the patients.It is very important to maintain efficient software to handle information of a Hospital. This applicationprovides away to record this information and to access these in a simple way.

Motivation

The real motivation for the hospital management system project is to make easy process of all themanagement process like patients registration, billing, doctors appointment, doctors prescription, etc. Wealways see that to find out the patient's history, the user has to go through various registers. This resultsin wastage of time. So by this system it will become easy to manage all process. So now by taking themotivation of this scenario which was regularly done in hospitals we are designing this system which canbe benefited for the patients and hospital staff. So, we'd like to possess this system which help hospital todo work fast and effective.

II. DESCRIPTION OF THE PROBLEM

Problem Definition

It is very important to maintain efficient software to handle information of a Hospital. This application provides away to record this information and to access these in a simple way.

Purpose

In Health care management situations we are dealing with objectives such as:

1. To optimize bed occupation.

2. To improve the use of operating theatres, avoiding the cancellation of operations.

3. To know how emergencies affect to the administration of the hospital departmentsor services (cancellation of operations, etc).

4. To optimize the allocation of human and material resources towards and shifts.

5. To detect the influence of certain diseases in the hospital's services.

6. To find clusters of patients.

Goals and Objectives

- To implement this application we will require computers in each room of hospital for e.g. All thewards of hospital should have a computer to update the details about patient, all the departmentslike MRI, CT scan, X-ray rooms should have computers to store the reports on the system databaseand all these computers should be in network and it should have an updated browsers and internet connection.

- Every patient should be registered, and every person who handles the patients in some or the otherway should have a login access to the system so that person can update about the patient relatively.

- All the doctors should have a system with internet connection and connected with the otherhospital computers.

- This web application can be developed by using object oriented programming languages for frontend like .net, C#, HTML, CSS which will provide the latest technology in developing quite userfriendly user interface so it is very easy for all the user to understand the system.

III. LITERATURE REVIEW

A hospital resource and patient management system based on real time data capture and intelligent decision.

One of the major challenges existing hospital management systems face is aroundoperational efficiency andwait times between different processes, departments andpersons. This paperhighlights such limitations ofexisting systems andproposes a RFID(Radio Frequency ID) and wireless sensor based , location andinformation managementframework that facilitatesreal time tracking of hospital assets, personnel and patientsas they move through pre-setprocedures as part of dailyactivities of the hospitals.

Study on information system of health care services management in hospital

This paper reviews the HIS(Hospital InformationSystems) which are widelyused in many hospitals inChina mainly to provideeasier and faster way for dailymedical tasks /activities witha GUI And provides forovercoming some of thelimitations of HIS , eg. HISaims at improving quality ofhealth care services but do nothave way of evaluating/measuring those. So thispaper proposes HSMS(Hospital ServicesManagement System) whichaims at improving quality ofservices, identifying costreduction

Specification of aReference Model for the Domain Layer of a Hospital Information System

Many enterprise projects get scrapped due to high costs involved in initial planningrequirement gathering anddesign phase. The costs inthis phase become unmanageable due to lot of unknown factors.This paper aims at creating areference data model that willserve as a generic startingpoint for any new HIS development projects so costsinvolved in studying and analyzing current state and coming up with gaps analysisand additional requirementscan be significantly reduced.The model is Hierarchical in nature that is it is dived into 3levels of sub models and unitsso a choice for full or partial implementation can be offered based on the requirements.

Developing EffectiveHospital ManagementInformation Systems: ATechnology EcosystemPerspective

The author of this paperfocuses more on needs ofhospital manager and theecosystem in which he/sheoperates. The internal andexternal Environmentshaping factors ESFs thatbear an impact or associationon daily hospital activitiesand decision making processthat the hospital manager hasto go through in eachsituations. Some of thechallenges that thisecosystem needs

to work onare high demand pressure,greater customer satisfactionlevel and low profit margins.This paper more socontributes to Planning,Design and developmentaspects of any Hospitalmanagement system byhighlighting ESFs that shouldbe considered.

IV. SYSTEM DESIGN AND FLOW

The system will be able to improve the workflow of the hospital starting from registration until billing to the patient. At the same time, it will maintain all the data that can be accessed anytime. In this system the entire process will be managed by the admin.

Our project Hospital Management System includes registration of patients, storing their details into the system and also computerized billing in the pharmacy and labs. Our software has the facility to give a unique id for every patient and stores the details of every patient and the Doctor automatically.

It includes a search facility to know the current status of each patient id. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast. The main thing of our project is patient does not submit any previous reports. In this system user get a separate user id. It holds the all details of patient. So the doctor easily understand the Patient full detail
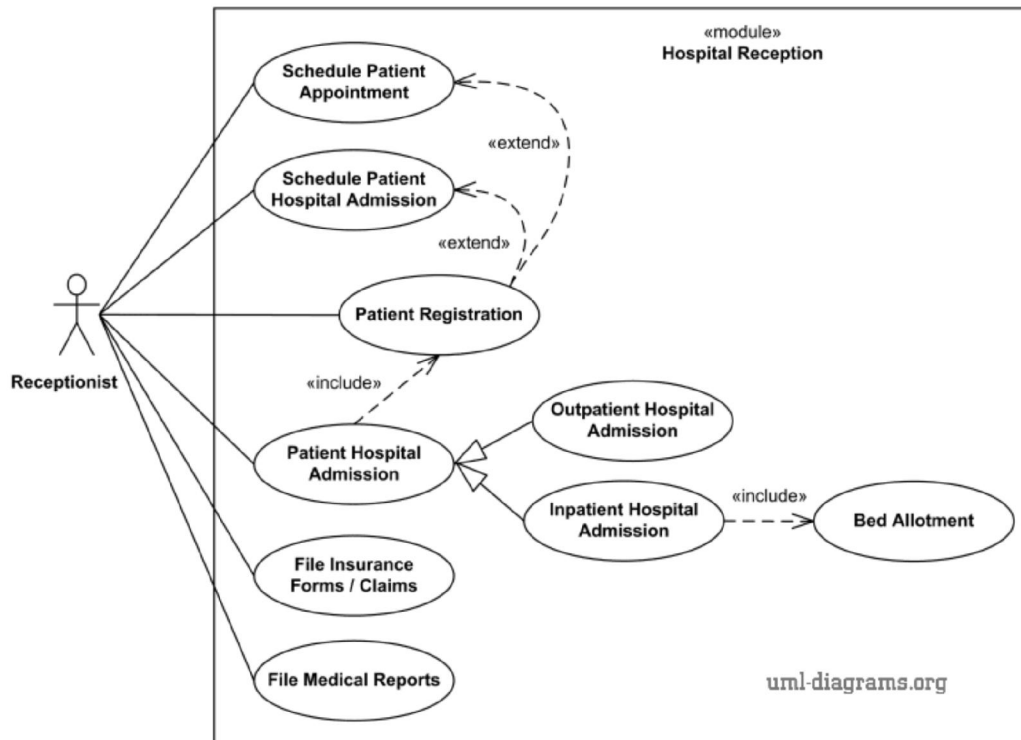

Fig: System Architecture

V. PROJECT IMPLEMENTATION

Implementation is the process of having system personal check out and provides new equipment's into use, train the user to install a new application and construct any files of data needed to use it. There are three types of implementation. Implementation of computer system to replace a manual system. To problem encountered are covering files, training user, creating accurate files and verifying print outs for integrity. Implementation of a new computer system to replace an existing one. This is usually difficult conversion. If not properly planned, there can be many problems. So large computer system many take as long as a year to convert. Implementation of a modified application to replace the existing one using the same computer. This type of conversing is relatively easy to handle, usually there

are no major change in the file. Our project is yet to be implemented.
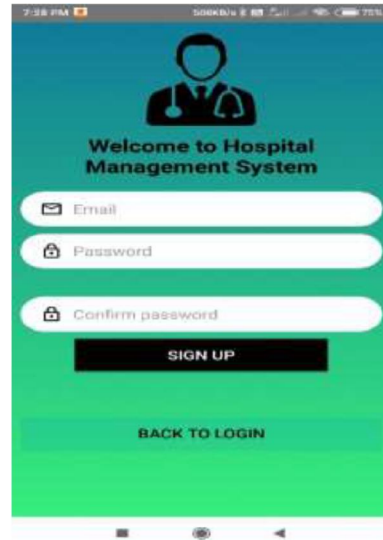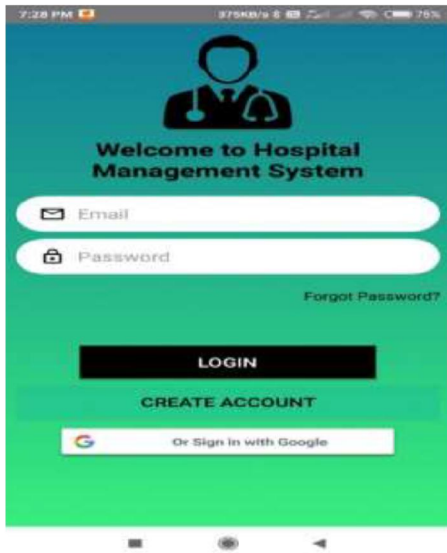
Patient Module:

Login:- Here Patient can Login using their registered email id and password. They can also login using their google account
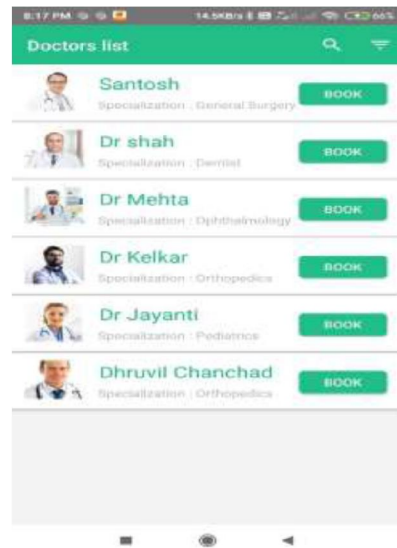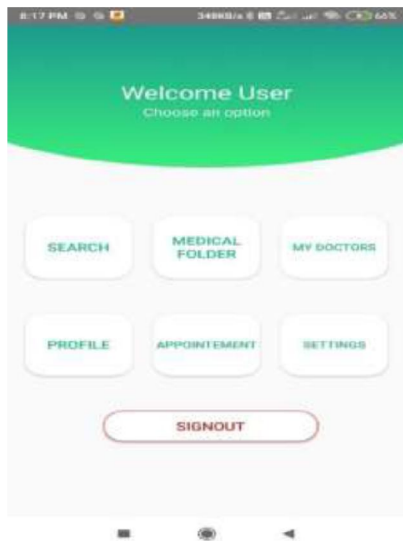
Forgot Password: If User Forgot their password they can click on forgot password in the login page and then they have to enter their registered email id. After clicking on the button they will get the link for resetting their password on their email.

Registration: Patient can register using their unique email id and by creating their New password.

After registering they have to enter their personal details like Name, Birth Year and Mobile Number and then click on Confirm to save their details into the database.

Patient Home Page: After successful registration/login user will be redirected to Home Page where they will get multiple options to deal with.

Search Doctor: By Clicking on search User will get the list of Doctor of different specialization and they can book the appointment of their preferred doctor.
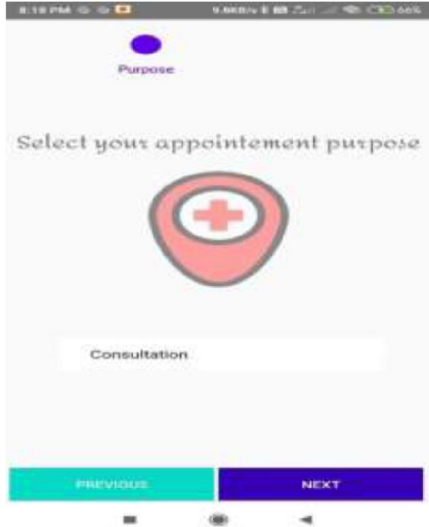
Book Appointment: Here the User can Book an Appointment with the Doctor. There are three steps for booking an appointment.

Step 1: Here User have to select the type of appointment they want for example: Consultation or Hospitalization. And then click next.

Step 2: Here User have to select their preferred time slot and then click next.

Step 3: Here User have to click on Confirm Button to Confirm their Appointment

Chat with Doctor

After Doctor accepts the appointment you will get the Doctors details in My Doctors Option in Home Page. There is also chat option available for patients to interact with doctor or they can call the Doctor by clicking on call option.

View Report

After the Interaction with the Doctor, He will create a report based on interaction he had with the patient
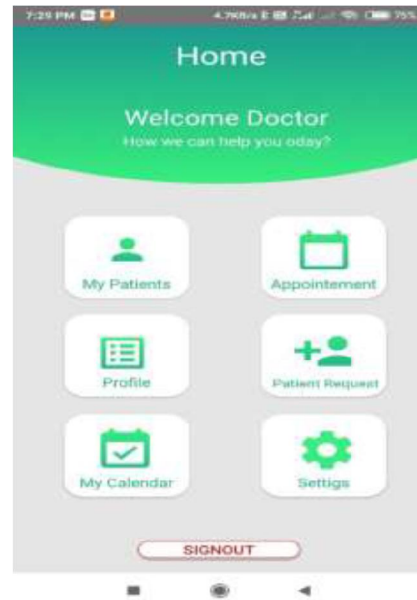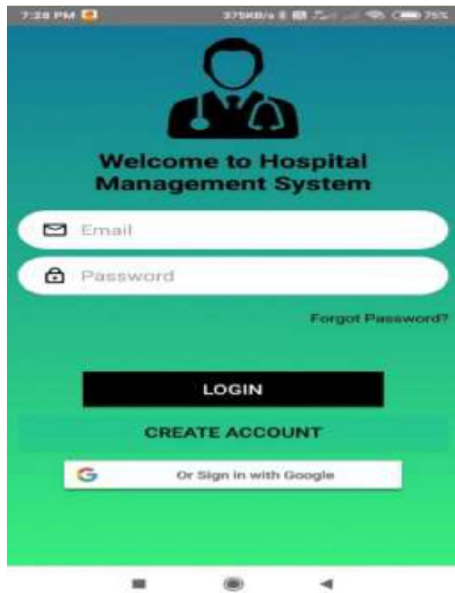
Doctor Module

Login: Here Doctor can Login using their registered email id and password. They can also login using their google account
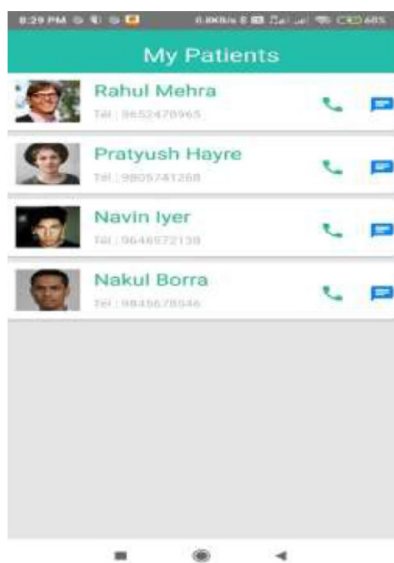
Registration: Patient can register using their unique email id and by creating their New password.

Doctor Home Page: After successful registration/login user will be redirected to Home Page where they will get multiple options to deal with.

My Patients: Here Doctor can view their patient , They can also Chat with them or they can personally call them with the details provided.
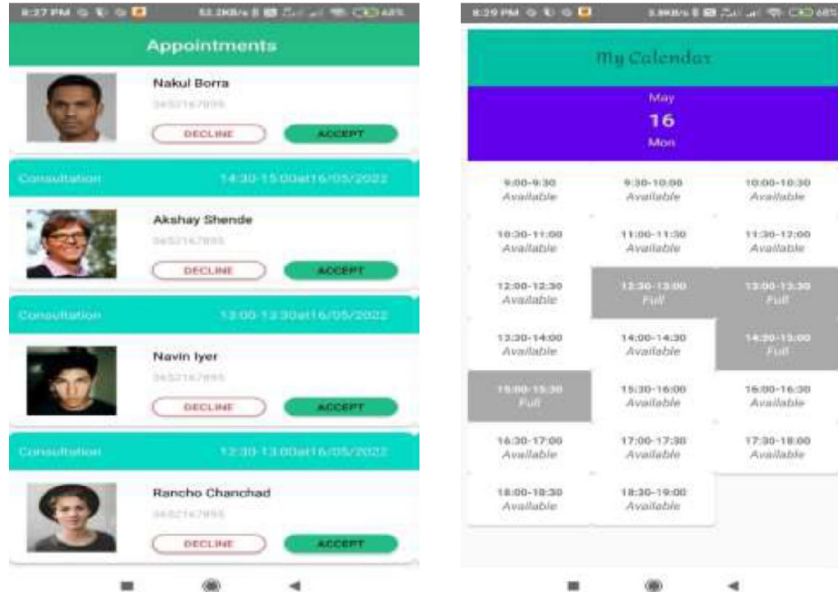
Appointment: Here Doctor can check their appointment scheduled with his patients. They can also check the time and date of the appointment and also the type of appointment like if it is for consultation or Hospitalization.

Accept Appointment: Here Doctor can Accept or Decline the Appointment Based on the Availability of the Doctor.

Doctor's Calendar:- Here Doctor can view their calendar. They can also Block the Appointment slot if they want to book that slot for their near ones.

VIII. ADVANTAGES & DISADVANTAGES

Advantages:
- It is less time and effort consuming
- It makes the process of updating the data fast
- It secures the data of the Users
- It reduces the manual work of management
- It enhances the reputation of the educational institute

Disadvantages
- One of the greatest disadvantages of the hospital management system is generally related to security. It is considered to be a matter of concern in case you go online without enough protection which can create some big problems related to security.
- Another greatest problem that is associated with the health care industry is the data breach. Not only that, but it is also known to be a sophisticated problem.
- Lack of employment is another such thing. The chances of employment usually become less with the automation of the system. Also, the gradual need for manual data drafting becomes an irrelevant aspect.
- Therefore, the overall procedure of the software implementation is considered to be a difficult task. Another difficulty faced is associated with the process of getting training properly.

Applications
- **Electronic Health Record Software (EHR Software):-**EHR software is the most popular type of IT software, hospitals and clinics use. For those aware of CRM, EHR is similar to CRM but is designed specifically for the healthcare industry.
- **Medical Diagnosis software:-** Medical Diagnosis Software automates real-time exchange of patient information among different medical specialists to allow secure and reliable medical diagnosis within hospitals.

- **Medical Database Software:-** Medical database software is a lot similar to the EHR system as it stores patients' diagnoses information except that medical database software categorizes by the diseases instead of patients. It helps doctors and medical staff .
- **Medical research Software:-** Medical research software is a breakthrough in education and research sharing within the medical community. This software trains medical personnel and support diagnoses if similar cases for internal references aren't available.
- **Hospital Management Software:-** Hospital Management Software (HMS) assists hospital administration in day-to-day tasks including automation of accounting, medical billing, medical billings, claims, In-out door patient management, inventory management, and further tedious tasks.

IX. CONCLUSION& FUTURE WORK

Our application provides quick guidance to the users, in search of the doctor and hospital nearby with the current update. It will render the information about the availability of beds and the ICU. It will also help the patient to take appointment using this app. In case of any emergency contact details of doctors are visible and can easily contact doctors for any emergency. The future work of this paper is linking all the hospitals irrespective of government or private sectors. By implementing this web based application the website and customized application on the tablet. 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. 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. The communications among the doctor and patient is enhanced as the patient can get as much help online. It will help to reduce many manual efforts, time taken and cost.

ACKNOWLEDGEMENTS

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