A Thesis/Project/Dissertation Report

on

VIRTUAL MEDICAL HOME

Submitted in partial fulfillment of the
requirement for the award of the degree of

Bachelor of Technology in Computer Science And Engineering

Under The Supervision of
Mr. R.VIJAY

Submitted By

TEJAS KESARWANI(19SCSE1010509)
SUMIT KUMAR(19SCSE1010336)

SCHOOL OF COMPUTING SCIENCE AND ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
GALGOTIAS UNIVERSITY, GREATER NOIDA
INDIA
December,2021

SCHOOL OF COMPUTING SCIENCE AND ENGINEERING
GALGOTIAS UNIVERSITY, GREATER NOIDA

CANDIDATE'S DECLARATION

I/We hereby certify that the work which is being presented in the thesis/project/dissertation, entitled **"VIRTUAL MEDICAL HOME"** in partial fulfillment of the requirements for the award of the B.TECH submitted in the School of Computing Science and Engineering of Galgotias University, Greater Noida, is an original work carried out during the period of OCTOBER, 2021 to DECEMBER 2021, under the supervision of Mr. R Vijay, Department of Computer Science and Engineering/Computer Application and Information and Science, of School of Computing Science and Engineering , Galgotias University, Greater Noida

The matter presented in the thesis/project/dissertation has not been submitted by me/us for the award of any other degree of this or any other places.

TEJAS KESARWANI (19SCSE1010509)

SUMIT KUMAR(19SCSE1010336)

This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

MR. R VIJAY

CERTIFICATE

The Final Thesis/Project/Dissertation Viva-Vice examination of TEJAS KESARWANI:19SCSE1010509 and SUMIT KUMAR:19SCSE1010336 has been held on _____ and his/her work is recommended for the award of B.TECH

Signature of Examiner(s)   **Signature of Supervisor(s)**

Signature of Project Coordinator   **Signature of Dean**

Date:23 December,2021
Place: Greater Noida

Acknowledgement

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to Mr. R Vijay for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I would like to express my gratitude towards my parents & member of Galgotias University for their kind co-operation and encouragement which help me in completion of this project.

I would like to express my special gratitude and thanks to industry persons for giving me such attention and time.

My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities.

Abstract

Virtual Medical Home is a website that provides online interaction between patients, doctors, hospital admin and all other users. The main objective is to provide essential medical services online to everyone hardly matters whether the people live in metro or a remotely located village. Users can connect through their home internet or approach any nearby kiosk to get these services. The system design is motivated by factors like very few doctors or no doctors at remote locations, limited hour services and lack of sophisticated medical equipments and no patients' or lab data management.

It can be used by the patients to take online appointments of doctors, view their previous health records, lab reports etc. The doctors can give online appointments, e-prescriptions and view the patient's history.This site will help you to find the blood donators and eye donators.The following technologies are used to make project:

User Interface	: HTML, CSS
Client-side Scripting	: JavaScript
Programming Language	: Java
Web Applications	: Servlets, JSP, JDBC
Database	: Oracle 10G

This system can be entered using a username and password. It is accessible either by admin, doctors or patients/kiosk manager. 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.

Contents

List of Figures

Acronyms

B.Tech.	Bachelor of Technology
M.Tech.	Master of Technology
BCA	Bachelor of Computer Applications
MCA	Master of Computer Applications
B.Sc. (CS)	Bachelor of Science in Computer Science
M.Sc. (CS)	Master of Science in Computer Science
SCSE	School of Computing Science and Engineering

CHAPTER-1 Introduction

1.1 Introduction

The goal of any system development is to develop and implement the system cost effectively; user-friendly and most suited to the user's analysis is the heart of the process. Analysis is the study of the various operations performed by the system and their relationship within and outside of the system during analysis, data collected on the files; decision points and transactions are handled by the present system.

The first step in system development life cycle is the identification of need of change to improve or enhance an existing system. An initial investigation on existing system was carried out. The present system of hospital is completely manual. Many problems were identified during the initial study of the existing system.

System analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. Here the key question is – What all problems exist in the present system? What must be done to solve the problem? Analysis begins when a user or manager begins a study of the program using existing system.

During analysis, data collected on the various files, decision points and transactions handled by the present system. The commonly used tools in the system are Data Flow Diagram, interviews, etc. training, experience and common sense are required for collection of relevant information needed to develop the system. The success of the system depends largely on how clearly the problem is defined, thoroughly investigated and properly carried out through the choice of solution. A good analysis model should provide not only the mechanisms of problem understanding but also the framework of the solution. Then the proposed system should be analyzed thoroughly in accordance with the need

1.2 Formulation of Problem

The purpose of the project entitled as "Virtual Medical Home" is to provide online medical services to everyone hardly matters whether they live in metro or a remotely located village. Users can connect through their home internet or approach any nearby kiosk to get these services. What motivate to build this system are:

1) Very few or no doctors at remote locations.

2) Limited hour services and lack of sophisticated equipments.

3) No patients/lab data management.

The main function of the system is that it can be used by the patients to take online appointments of doctors, view their previous health records, lab reports etc. The doctors can give online appointments, e-prescriptions and view the patient's history.This site will help you to find the blood donators and eye donators. The users can register and store their details and retrieve these details as and when required, and also to manipulate these details meaningfully.

1.2.1 Tool and Technology Used

1.   Hardware Requirements

2.   Processor   : Intel Pentium IV 2.4 GHZ or above

3.   Clock speed   : 700 MHZ

4.   System bus   : 32 bits PCI Ethernet card

RAM : 512MB of RAM

HDD   : 20 GB or higher

2. Software Requirements

OS   : MS WINDOWS XP/2000(client/server)

User Interface   : HTML, CSS

Client-side Scripting   : JavaScript

Programming Language   : Java

Web Applications   : Servlets, JSP, JDBC

IDE/Workbench   : My Eclipse 6.0

Database   : Oracle

Server Deployment   : Tomcat 5.x

CHAPTER-2 Literature Survey/Project Design

The first step in system development life cycle is the identification of need of change to improve or enhance an existing system. An initial investigation on existing system was carried out. The present system of hospital is completely manual. Many problems were identified during the initial study of the existing system.

System analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. Here the key question is – What all problems exist in the present system? What must be done to solve the problem? Analysis begins when a user or manager begins a study of the program using existing system.

During analysis, data collected on the various files, decision points and transactions handled by the present system. The commonly used tools in the system are Data Flow Diagram, interviews, etc. training, experience and common sense are required for collection of relevant information needed to develop the system. The success of the system depends largely on how clearly the problem is defined, thoroughly investigated and properly carried out through the choice of solution. A good analysis model should provide not only the mechanisms of problem understanding but also the framework of the solution. Then the proposed system should be analyzed thoroughly in accordance with the needs.

Modules:

The virtual Medical Home system consists of the following modules.

1. Admin
2. Doctors
3. Patients
4. Kiosk Manager

Admin:

The admin will have control over the entire system. There is no registration for him but he should have username and password to login into the system to provide security. He can view everyone's profiles associated with the hospital. He can interact with the doctors and also patients through chats, mails, discussion forums etc. In case of any medical errors like wrong medication and lab reports, the patients can register complaint.The patients' grievances and feedback goes to admin

and then he forwards them to specific doctors to answer. He takes backup of every data; view logs and generate reports according to them.

Doctors:

All the doctors associated to the hospital should register. Only registered people can have access to the site. The doctors can vies and update their profiles. The entire patient's database is accessible to them. They can give online appointments, e-prescriptions .They can view patient's history to know their health status and suggest new medication. He can set online appointment request enable or disable. He can communicate with admin, patients and other users through mails, chat and discussion forums.

Patients:

The patients should get registered to get online medical services. They can connect through home internets or approach any nearby kiosk manager to get these services. The patients can view and update their profiles. They can also view the doctor's profiles only to know their specialization, their success stories so that they can approach those specific doctors to get treatment. The patients' can take online appointments; look their previous health records, doctor's prescriptions, lab reports and medical expenses. They can also send online payment for their medical expenses. Incase of any errors they can register a complaint to the hospital admin. They can also give feedback and suggestions which goes to admin.The patients' can communicate with the admin, doctors or other patients through mails, chats or discussion forums etc..

Kiosk Manager:

The kiosk manager associated to a small area should get registered. He acts as communication link between the patients and hospital. The patients can approach him to get those online medical services. He maintains the patient's database associated with a small area. He can see/adjust appointments, perform day open and close activities. He gets commission for acting as a communication link and helping the patients to get these online medical services. He can also interact with the admin, doctors and others through chats, mails and discussion forums.

CHAPTER-3 Functionality/Working of Project

Architecture
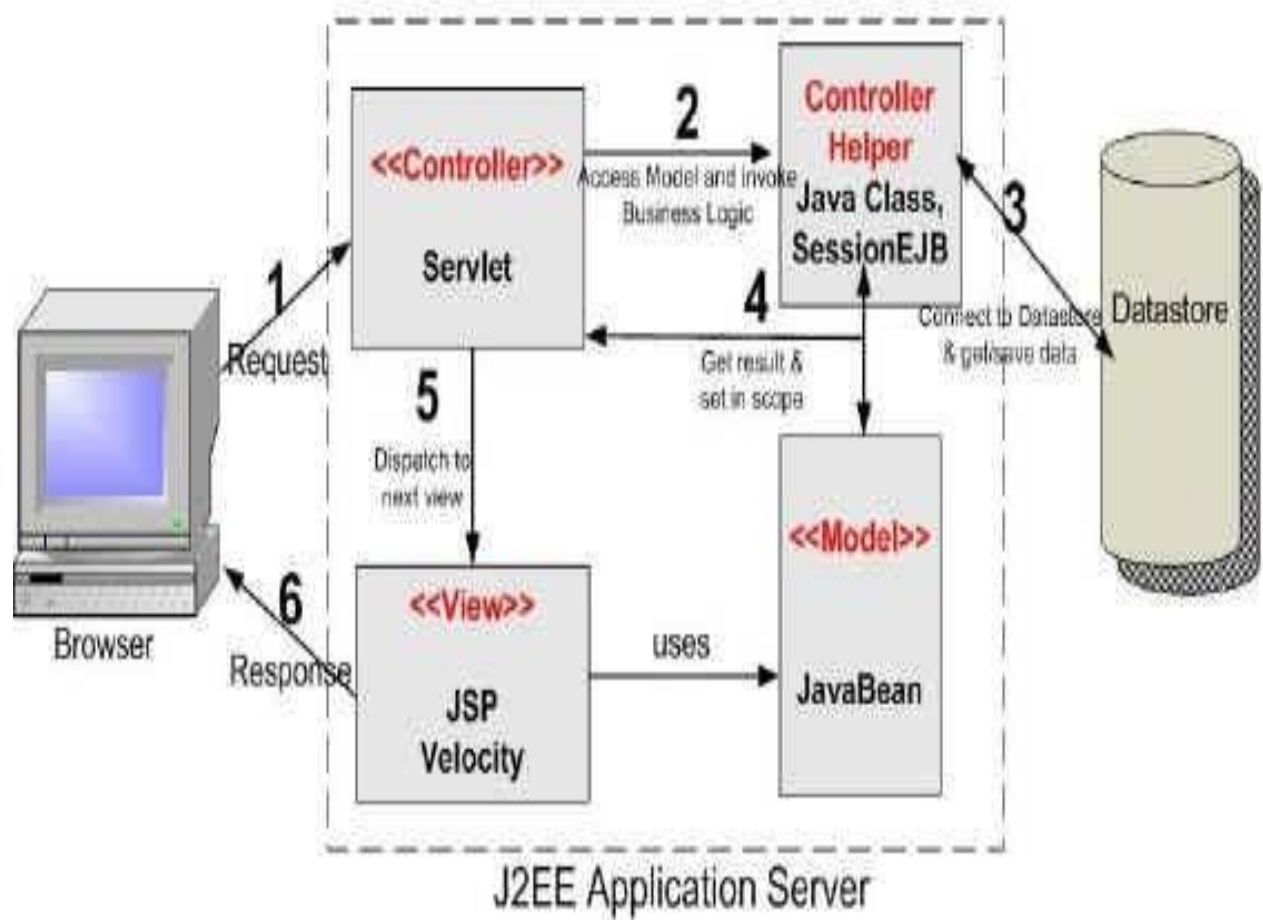
The following diagram shows how a spiral model acts like:
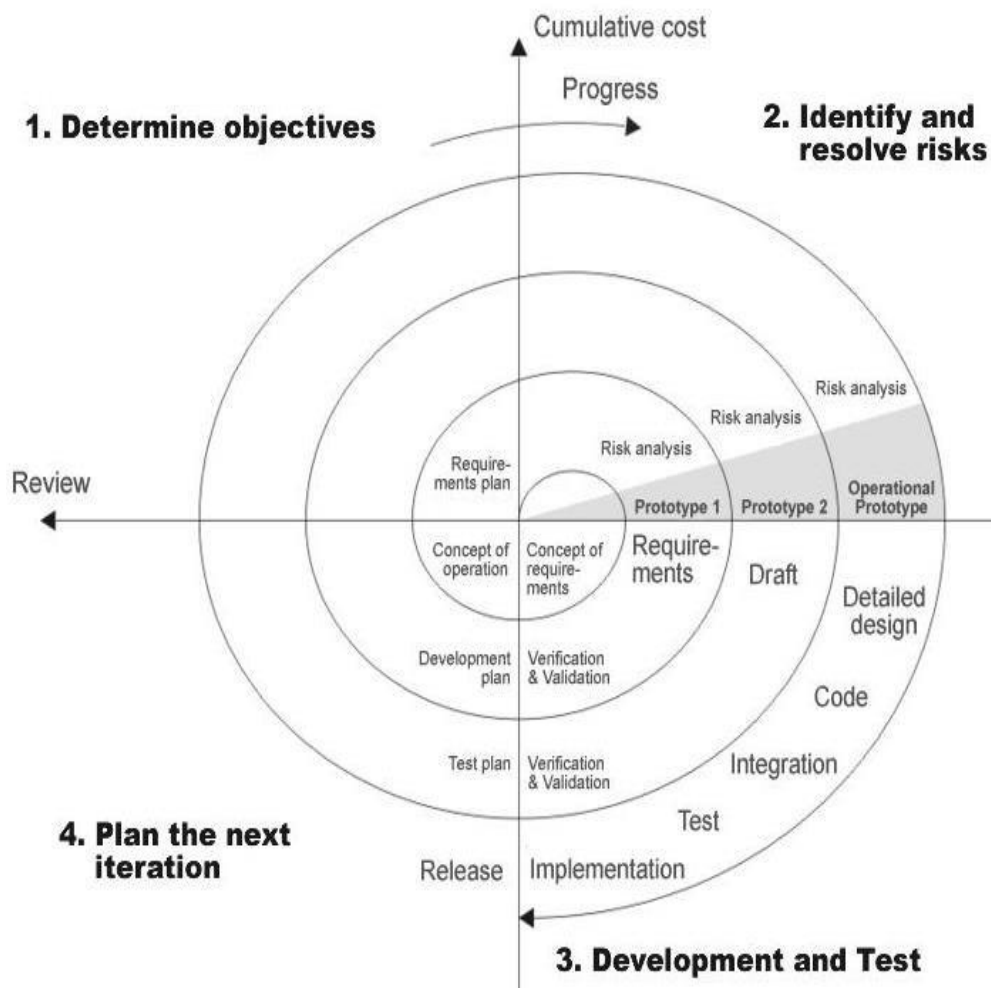
ADVANTAGES:

- Estimates(i.e. doctor avalabity, schedule etc .) become more relistic as work progresses, because important issues discoved earlier.
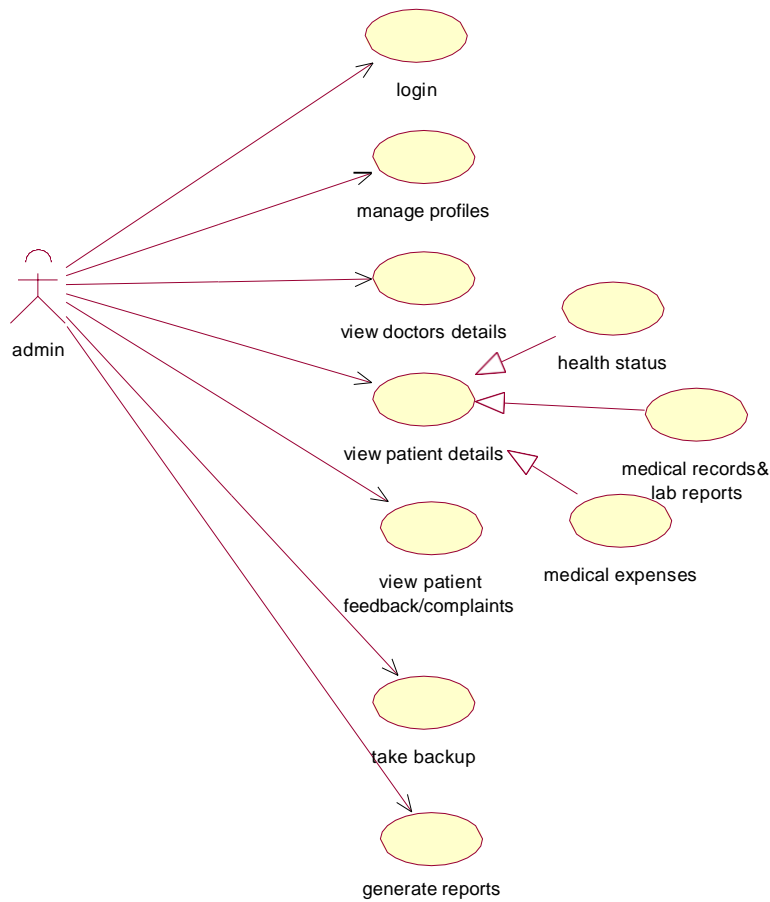
- It is more able to cope with the changes that are software development generally entails.

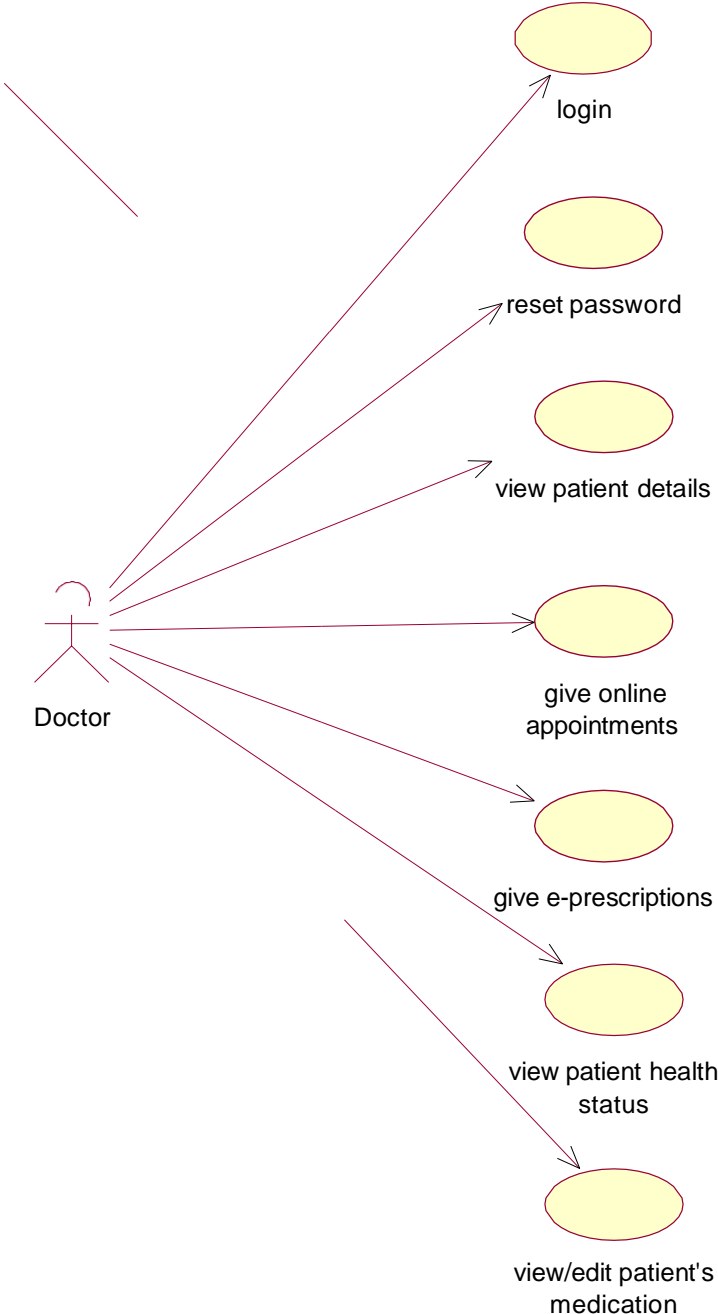Software engineers can get their hands in and start woring on the core of a project earlier
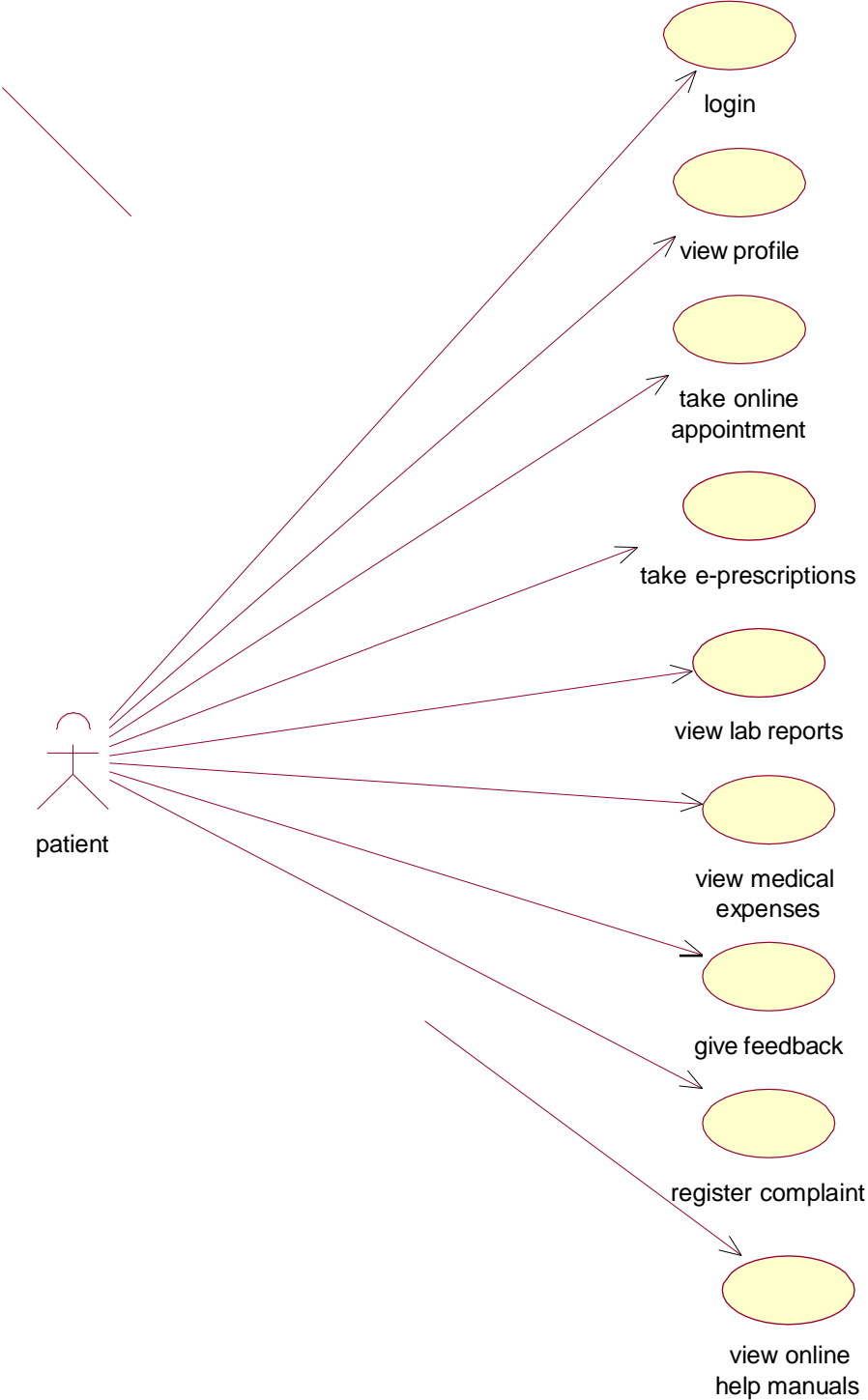
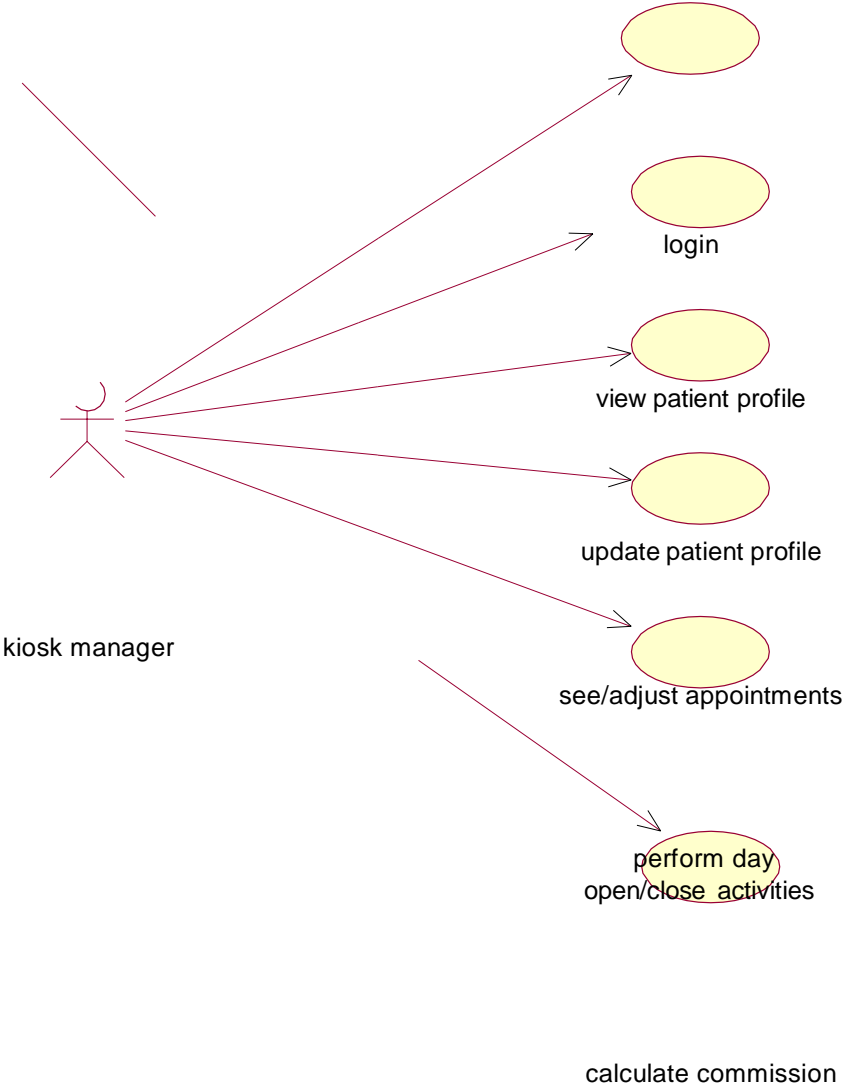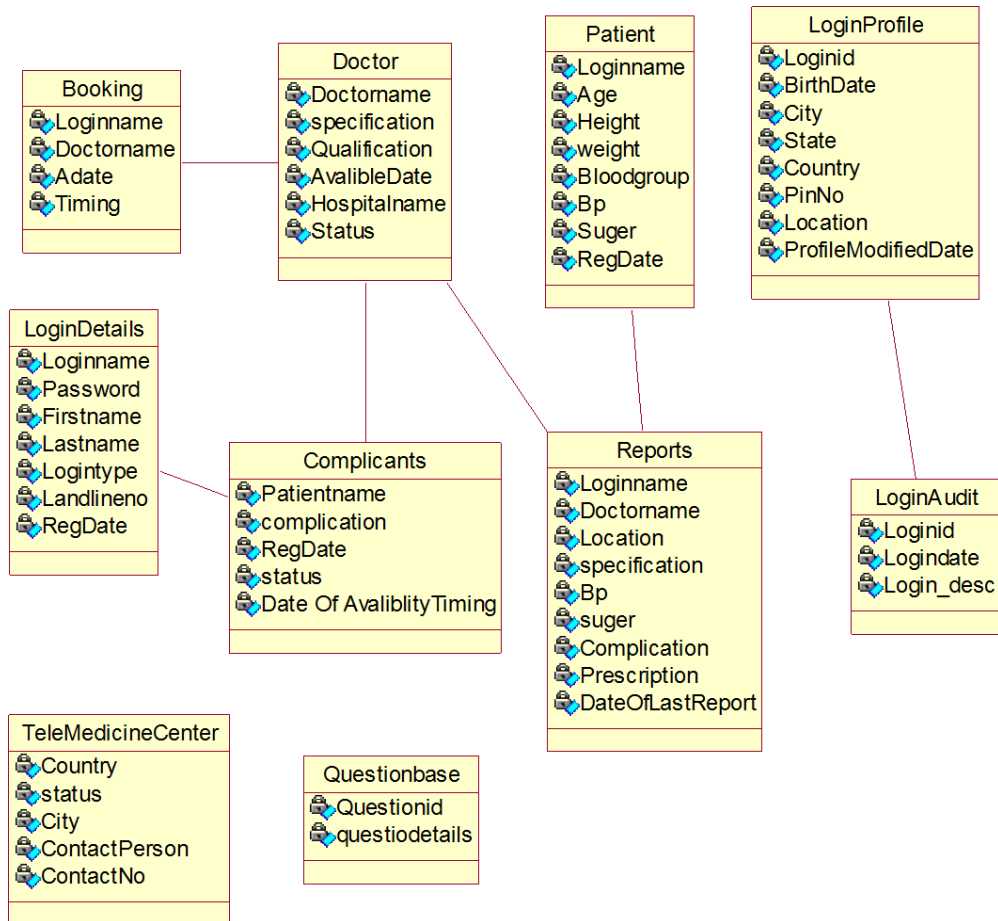## UML Diagrams

1 .UseCase Diagrams:
Admin:

Doctor:

login

reset password

view patient details

give online
appointments

give e-prescriptions

view patient health
status

view/edit patient's
medication

Doctor

Patient

patient

login

view profile

take online
appointment

take e-prescriptions

view lab reports

view medical
expenses

give feedback

register complaint

view online
help manuals

Kiosk manager

login

view patient profile

update patient profile

see/adjust appointments

kiosk manager

perform day
open/close activities

calculate commission

2. Class Diagram:

3. SEQUENCE DIAGRAMS

Login:

```
   :user              :system              :database

     │                   │                     │
     │  1:enter id,password                    │
     ├──────────────────►│                     │
     │                   │  2:checkdetails()   │
     │                   ├────────────────────►│
     │                   │                     │
     │                   │   3:validuser()     │
     │                   │◄────────────────────┤
     │                   │                     │
     │   4:getaccess()   │                     │
     ├──────────────────►│                     │
     │                   │                     │
```

Patient Information

```
  :patient        :system        :Database        Reports

     │               │               │               │
     │  1:isPatient()│               │               │
     ├──────────────►│               │               │
     │               │ 2:checkDetails()              │
     │               ├──────────────►│               │
     │               │               │               │
     │               │   3:valid()   │               │
     │               │◄──────────────┤               │
     │               │               │               │
     │               │               │ 4:getReports()│
     │               │               ├──────────────►│
     │               │               │           5:displayInfo()
     │               │               │               │◄──┐
     │               │               │               ├───┘
     │               │               │               │
```

Feedback/Complaint

:patient	:system	:feedback	:database

1:isPatient()

2:giveFeedback()

3:registerComplaint()

4:storeInfo()

Generate Reports:

:admin	:system	:reports

1:isAdmin()

2:viewLogs()

3:takeBackup()
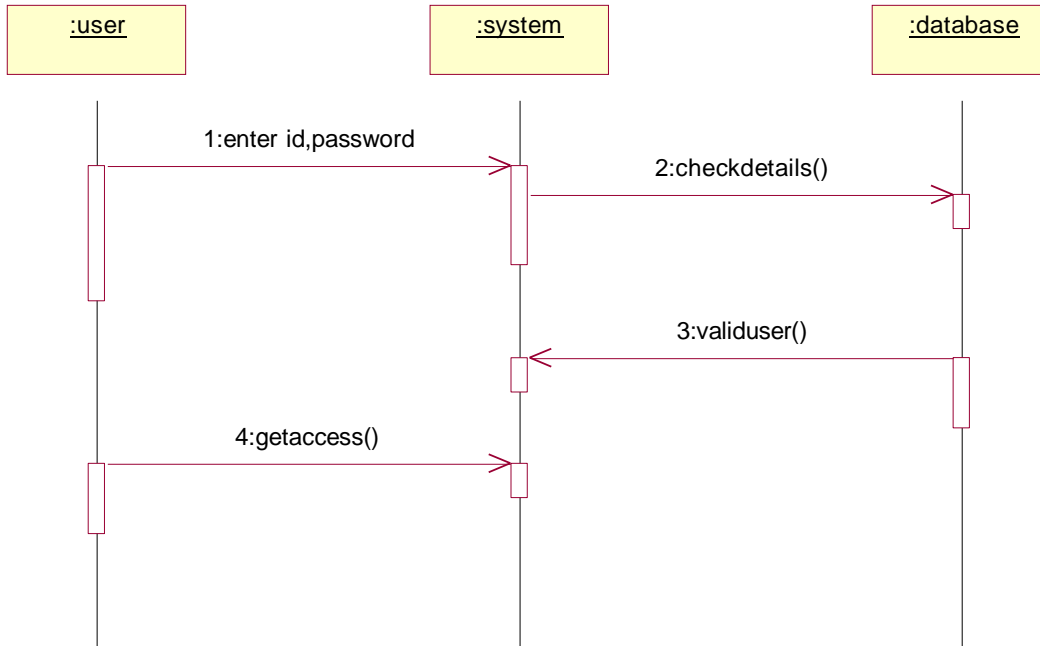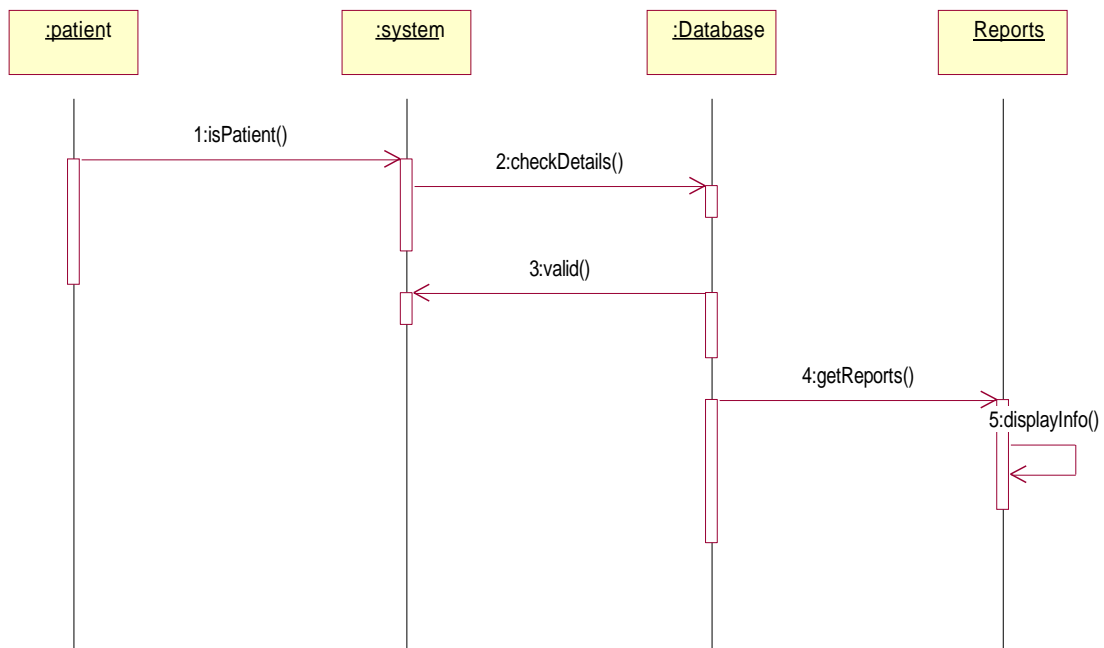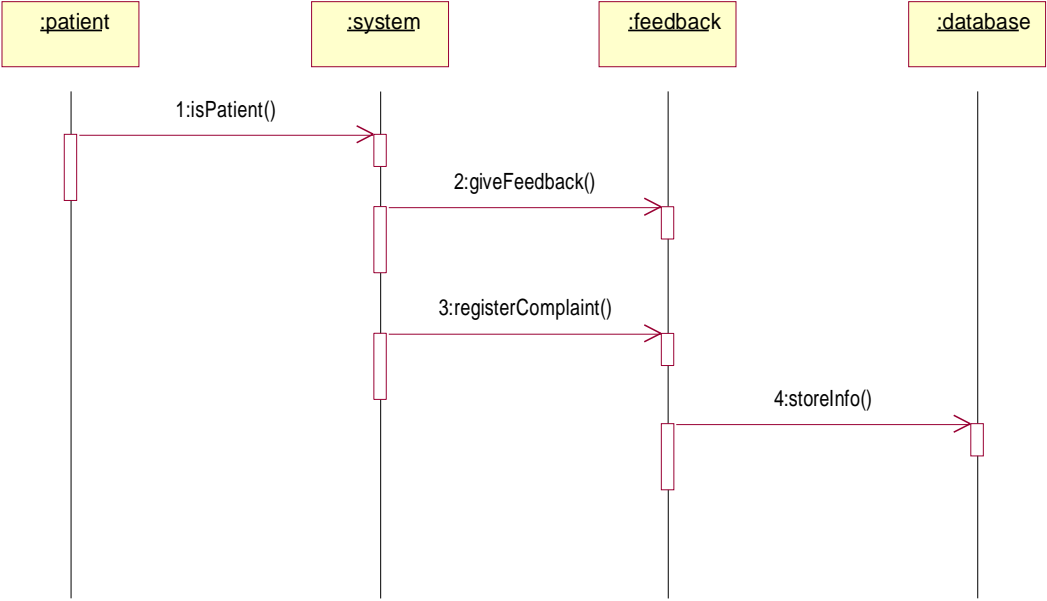
4:generateReports()
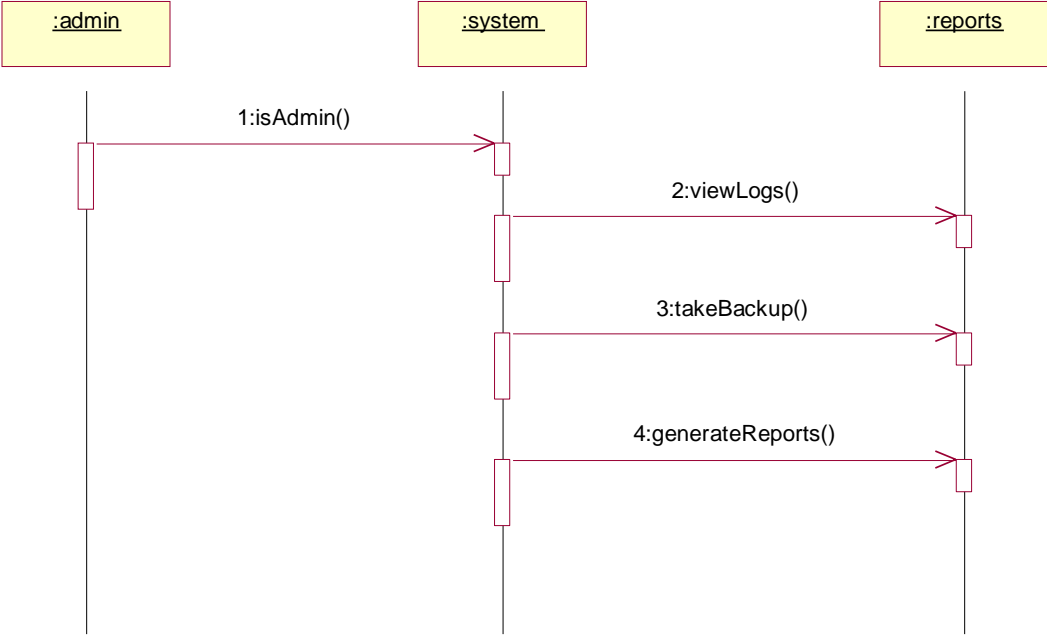
ACTIVITY DIAGRAMS

Login
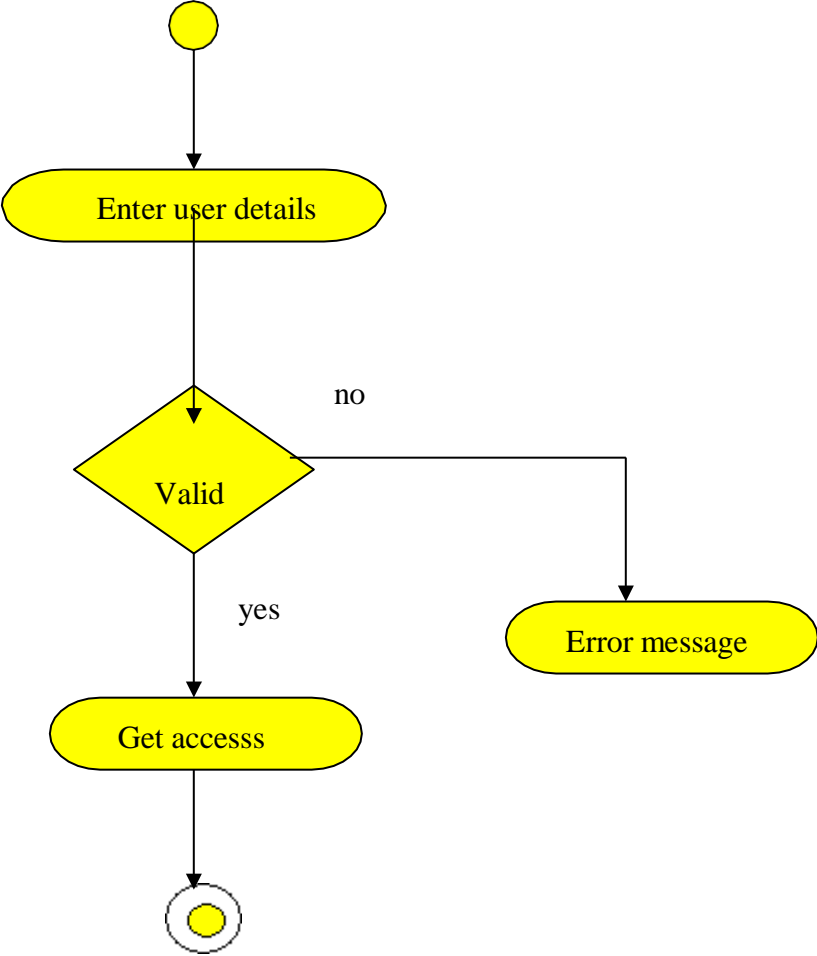
Chapter-4 Results and Discussion

Login page
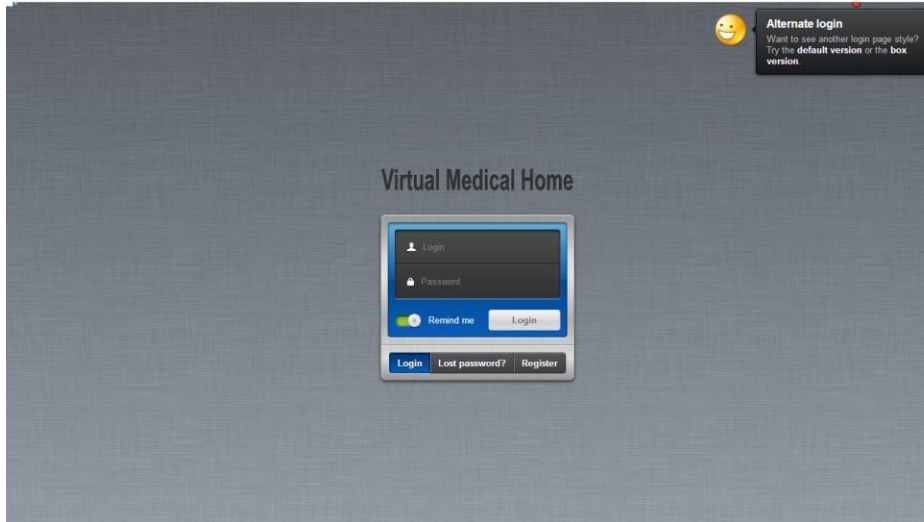
New user should get registered

Patients can take online appointments from the doctors
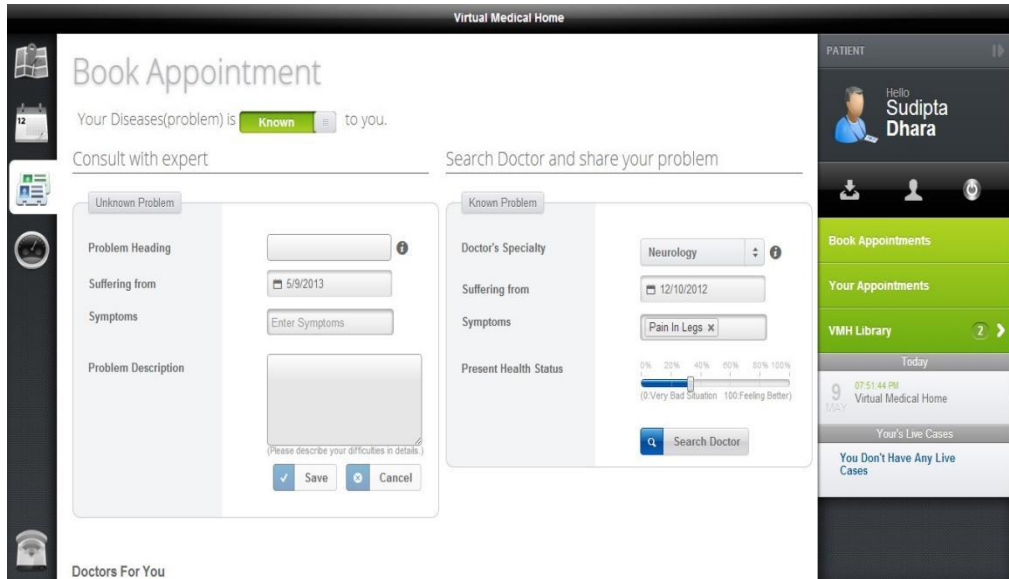
Patients can view their history and lab reports

Patient Feedback

Prescription

Chapter-5 Conclusion and Future Scope

5.1 Conclusion

This application software has been computed successfully and was also tested successfully by taking ─test cases‖. It is user friendly, and has required options, which can be utilized by the user to perform the desired operations.

The software is developed using HTML as front end and JSP as back end with Oracle Database in Windows environment. The goals that are achieved by the software are:

Optimum utilization of resources.

Efficient management of records.

Simplification of the operations.

Less processing time and getting required information.

User friendly

5.2 Future Scope

It is possible to develop a system that makes all the requirements of the user. User requirements keep changing as the system is being used. Some of the future enhancements that can be done to this system for better use of the system:

As the technology emerges, it is possible to upgrade the system and can be adaptable to desired environment.

The payments gateway will be added to the system.

Webcam interaction.

Tracking lab test records.

<div align="center">

Reference

</div>

Web references:-

    http://www.virtualmedicalcentre.com.
    http://www.internetmedicalclinics.com/virtual-medicine.php.
    http://www.internetmedicalclinics.com.
    http://www.vrphobia.com.

Book references:-

    http://www.cs.ucy.ac.cy/~mdd/publ/Ditis-book-chapter.pdf.
    http://www.studymode.com/essays/Virtual-Medical-Representative-919548.html.