SOFTWARE ENGINEERING

CSE3001

TITLE: ONLINE PORTAL HOSPITAL

Software ProjectReport

TEAM MEMBERS

1. S.V.S.JIGNESH(19BCE0038)

2. ORUGANTI SHIVA CHARAN(19BCE0545)

3. K. RAGHURAM(19BCE0160)

Done under the gudience of

PROF MEENAKSHI.SP

ABSTRACT:

Compared to other countries, India has relatively low health index. This is due to the increasingly complex disease pattern. Of the many solutions, one way to solve this problem is to use the Smart Health concept, which enables monitoring of health condition by patient and healthcare institutions, to prevent diseases. There have been many researches related to health monitoring. Most of them focus only on the reading and visualization of sensor data, but the data management aspects including data storage, processing and synchronization between system, patients and healthcare institutions are not developed yet. This research proposes a design of health monitoring system named Mooble (Monitoring for Better Life Experience), a system to monitor patient health condition and to prevent diseases as early as possible. Mooble consists of three subsystems: web application, database and API design, and mobile application on android platform. But this research will only focus on the design and development of the web application. This research consists of three main aspects: application design, development and testing. The system is developed using Rational Unified Process (RUP) framework. In the end, this research will result a web application to be used by patients.

1. Introduction:-

It is a system or decision making support system which is use for knowing the disease related to the symptoms. It is a system that checks a symptoms provided and suggest the disease related to that symptoms and the specialist or doctor in that field. It starts with, an registration where the user or patient has to give his/her name, age, sex using which an account will be created for the user , the user can there by access the system using his/her username and password. The system ha the interface which collects the information about the patient by asking for the symptoms of the patient, if the system is able to detect the disease from the symptoms that the patient has given, it responds to the user with the diagnosed disease and treatments, severity level and the name of doctors who specialise in it. If the system is unable to identify the disease then the system will inform the user that the disease cannot be currently identified and that the user will be informed later. On the basis of available information, the system will display the name of the disease and the prescribed doctor for the disease. This system not only simplifies task of the doctors but also helps the patients by providing initial medicines for small diseases in case of emergency.

1.1 Purpose of the document:

- To describe the external behaviour of the Health monitoring system.
- To describe the operations, interfaces, performance and quality assurance of the Health monitoring system.
- It describes the functional and non-functional requirements of the Health monitoring system.
- Also describes the constraints and other factors necessary to provide a complete description of the software requirements.
- To assist the doctor.
- It reminds the possible diseases to the doctor on the basis of symptoms.
- Enable a patient to find out the diseases, when no other help is possible.

1.2 Scope:

- This product provides the facility of diagnosing the disease from the symptoms given by the user.
- Depending on the disease diagnosed, the system will provide an idea of the treatment.
- The system will also recommend a doctor the patient can consult from time to time.
- The system provides logon facility to the user.
- This facility is available 24x7 except when the system is being updated or modified.
- The system is updated as and when new diseases are discovered.

1.3 Abbreviations:
- HMS – Health monitoring system.
- CP-chicken pox
- DF-dengue fever
- DHF-dengue haemorrhagic fever
- AD-amoebic dysentery
- DM-diabetes mellitus
- TB-tuberculosis
- BP-blood pressure

1.4 <u>REFERENCES</u>

Reference has been made from the books
1.4.1   Environment and health
1.4.2   Wikipedia
1.4.3 Distinguishing Public Health Research and Public Health Non research
        Policy

a. https://www.cdc.gov/od/science/integrity/docs/cdc-policy-human-research-protections.pdf

b. https://www.researchgate.net/publication/304919050_E-health_monitoring_system**.**

1.5 <u>Overview</u>

- Section 1:
- The SRS will provide a detailed description of the health monitoring system.
- This document will provide the outline of the requirements, overview of the characteristics and constraints of the system.
- Section 2:
- This section of the SRS will provide the general factors that affect the product and its requirements.
- It provides the background for those requirements.
- The items such as product perspective, product function, user characteristics, constraints, assumptions and dependencies and requirements subsets are described in this section.
- Section 3:
- This section of SRS contains all the software requirements mentioned in section 2 in detail sufficient enough to enable designers to design the system to satisfy the requirements and testers to test if the system satisfies those requirements.

Our Plan:
- Registration for users.

- Online prescription from doctor.

- Online appointment facility.

2. Overall Description:
We provide a form that shows a list of symptoms. From the listed symptoms the user has to select the symptoms that he/she has. On the basis of selected symptoms after fetching matches from the database the system will generate the related disease. On the basis of the information a query is generated and the data base responses to that query.

2.1 Product Perspective

This is a system which can detect disease based on the symptoms. It can be used by the patient to self-diagnose himself or by the hospital staff to assign the doctors. It is a system for decision making support system which is use for simplifying the task of doctors. It is a system that checks a patient at initial level and diagnosis the diseases. It starts with, an initial registration where the user has to give in his or her name, age, sex using which an account is created for the user , the user can there by access the system using his/her username and password. The system collects the information about the patient by asking for the symptoms of the patient, if the system is able to diagnose the disease from the symptoms that the patient has given, it responds to the user with the diagnosed disease and the corresponding treatments, severity level and the name of doctors who specialize in it. If the system is unable to identify the disease then the system will inform the user that the disease cannot be currently identified and that the user will be informed later. On the basis of available cumulative information, the system will display the name of the disease and the prescribed medicines of the disease

2.2 Product Function:
- The user has to register with his/her name to access the system.
- The patient has to select the symptoms from a list of symptoms provided and the disease is detected.
- Health monitoring system specifies the type of doctor that the patient has to consult.
- The system also guides on the type of treatment depending on the severity level.
- Logon Capabilities: User can login using his username and password.
- Mobile devices: This system should be supported if a user logs in using mobile devices with internet.

2.3 User Characteristics:

- The users of this system can be patients who would like to know what kind of specialised doctor they have to consult.
- The users of this system could be doctors who can use this system for a referential purpose.
- The administrator who maintains the system.
- The administrators will have a wider knowledge of computers and the other users are assumed to have limited computer knowledge.

2.4 Constraints:

- All the information about the diseases has to be stored in the database.
- Only a limited number of symptoms can be entered by the user.
- The system only gives a basic idea of the disease and cannot be relied on completely.
- Information is available only for limited diseases.
- A user can view only his account.
- A user cannot use the subsystem if he has not registered for an account.
- It has to be accessible from any computer with a proper internet connection.
- This system may not work for complex diseases. Ex: multiple diseases.
- References to external sources may be done if needed.
- If many users are using the Health monitoring system at the same time, the system will be slow.
- A disease cannot be diagnosed unless present in the database.

2.5 Assumptions and Dependencies:

- User has basic knowledge of computers.
- User should have sufficient knowledge of English since the system interface will be in English.
- The system is fast.
- Internet connection is available to all the users who use this subsystem.
- The user is assumed to give system correct information about his details and also about the symptoms.
- The system will have simple and easy to use interfaces.
- All the diseases are present in the database.
- Provides accurate data.

3. Specific Requirements:
3.1 Functionality:

- The user registers to use the system.
- The system provides the related disease according to the symptoms provided.
- Health monitoring system specifies the type of doctor that the patient has to consult.

- System also provides to call or chat with the doctor.
- Logon Capabilities: User can login using his username and password.
- Mobile devices: This system should be supported if a user logs in using mobile devices with internet.

3.2 Usability:
- The interface is simple and easy to use.
- System is user friendly, self-explanatory and also it is provided with a help guide.
- This system can be used by the doctors as well as the patients.

3.3 Reliability:
- The system cannot be relied upon completely but we have to try to attain maximum reliability.
- Reliability will also be higher since we try to attain maximum accuracy.
- Immediate retrieval of information.
- Maintain proper and updated database to improve reliability.

3.4 Accuracy
- The information provided in the database and by the user should be correct.
- Minimize the errors.
- All operations will be done correctly to increase the level of accuracy.
- We can also refer to external sources for higher accuracy.

3.5 Performance
- Speed: The system should be made as fast as possible to reduce response time.
- Throughput: The throughput should be as high as possible. We should be able to attain maximum output in minimum time.
- Capacity: We should try to make it accessible to maximum users at a time.
- Resource Utilization: Resources are modified according to user requirements.

3.6 Supportability:
- Compatibility: The browsers should be compatible with the system.
- Security: The system has to be secure from attacks.
- Robust: The system should be tough and not prone to breakdowns and in case of breakdown should be stabilized soon.
- Maintenance: The administrators maintain the system as per the maintenance contract.

WBS DIAGRAM

```
                        ┌─────────────────┐
                        │ Health Monitoring│
                        │    web app       │
                        └─────────────────┘

   1.0              2.0              3.0              4.0
┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
│ Gathering │   │ Design and │   │   Site   │   │Integrating│   LEVEL 1
│  project  │   │  Analysis  │   │Development│   │and Testing│
│requirements│  └──────────┘   └──────────┘   └──────────┘
└──────────┘
```

LEVEL 2

| Working on Front End | working on backend | Graphics and Interface | Content Creation |

| Database Design | Database Security | LEVEL 3 |
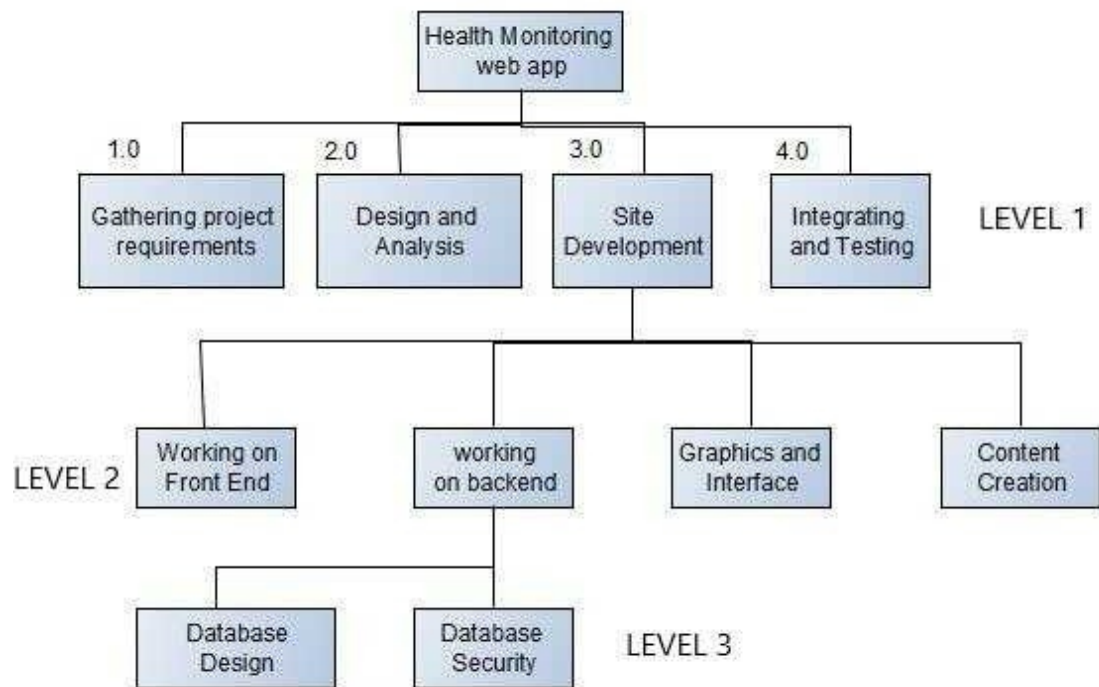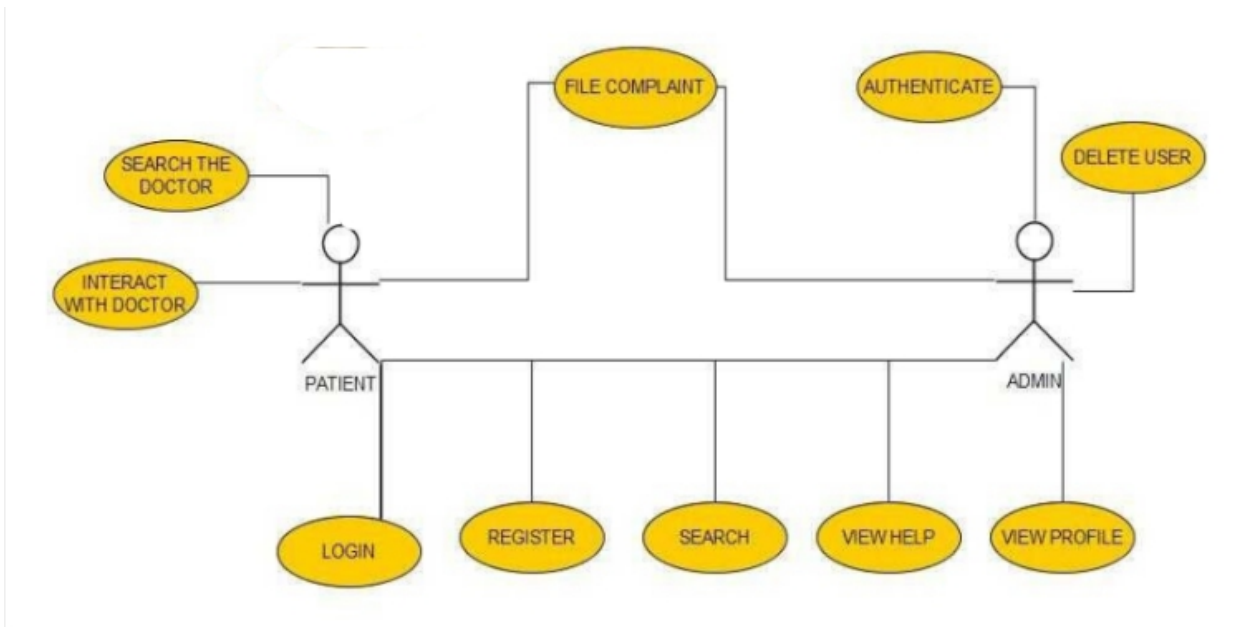
3.7 Use Case Diagram

3.7.1 Augmented use case diagram of a diagnostic system
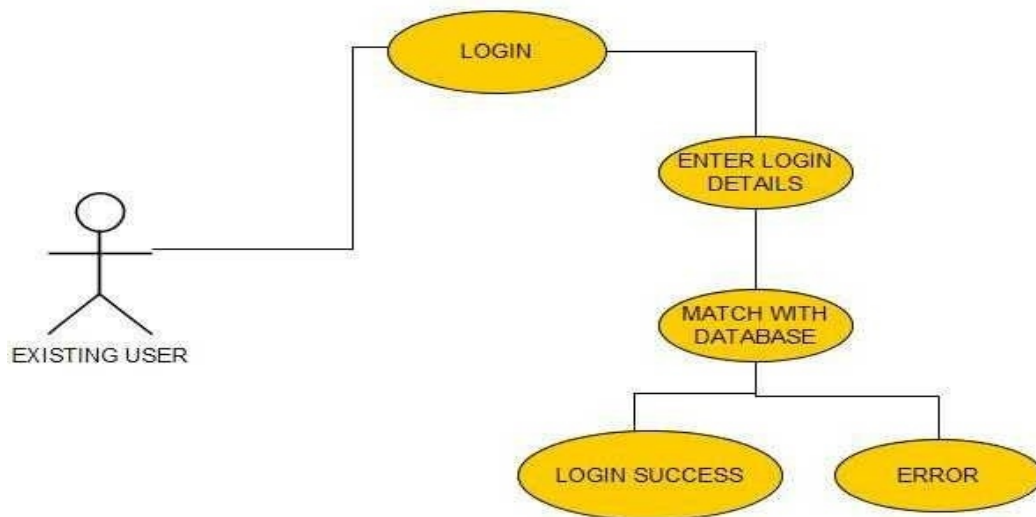
3.7.2 use case diagram of a existing user login
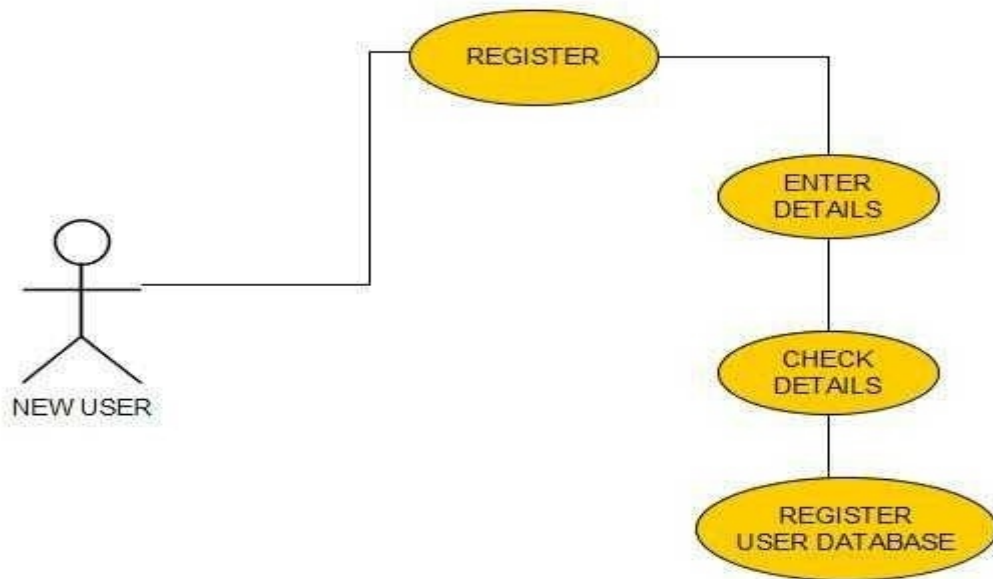
3.7.4 use case diagram of a new user login
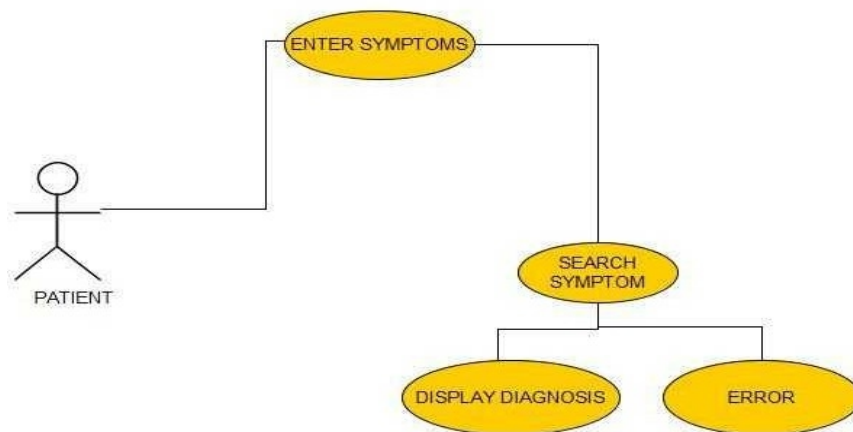
3.7.2 use case diagram of a diagnosis

3.8 ER DIAGRAM
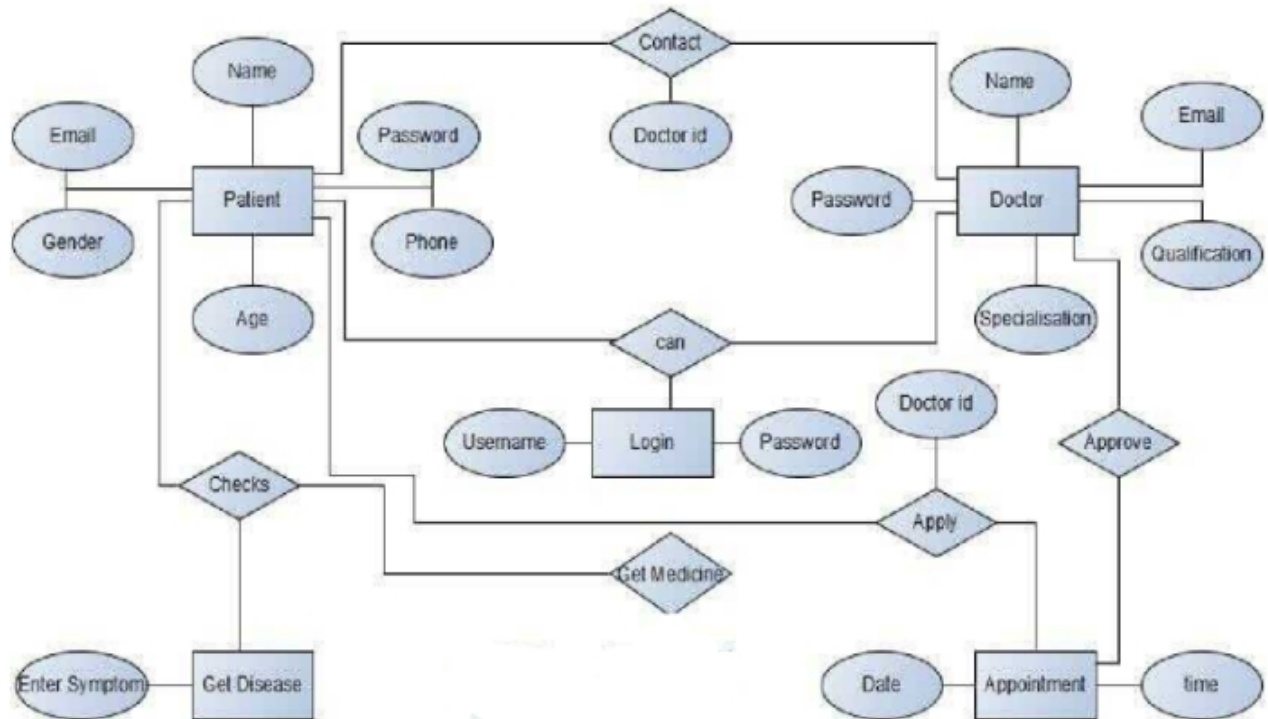
4.0 Design Constraints:

4.1 Software Language used: HTML for front end.
CSS for front end.
Java script for front end
Mongodb and Node js for back end.

4.1 Goals of the proposed systems:

1. Planned approach towards working: - The working in the organization will be well planned and organized. The data will be stored properly in data stores, which will help in retrieval of information as well as its storage.

2. Accuracy: - The level of accuracy in the proposed system will be higher. All operation would be done correctly and it ensures that whatever information is coming from the center is accurate.

3. Reliability: - The reliability of the proposed system will be high due to the above stated reasons. The reason for the increased reliability of the system is that now there would be proper storage or information.

4. No redundancy: - In our application utmost care would be that no information is repeated anywhere, in storage or otherwise. This would assure economic use of storage space and consistency in the data stored.

5. Immediate Retrieval of Information:-The main objective of our application is to provide for a quick and efficient retrieval of information. Any type of information would be available whenever the user requires.

6. Immediate Storage of Information: - In manual system there are many problems to store the largest amount of information.

7. Economic:-The system would be easy to operate and it will be such that it can be developed within a short period of time and fit in the limited budget of the user.

DESIGN PHASE

1. Introduction

1.1 Purpose

The purpose of the Software Design Specification is to describe the specific design of the e-heath monitoring system by rational rose. The design specification includes an overview of the design along with software module decomposition.

This document provides a detailed description of each software module's design. For each module, a user interface design and class diagram design is given. As well, a process description is described for each module. It is in the process description that the details of what logic will need to be implemented are given.

1.2 Scope

- This product provides the facility of diagnosing the disease from the symptoms given by the user.
- Depending on the disease diagnosed, the system will provide an idea of the treatment.
- The system will also recommend a doctor the patient can consult from time to time.
- The system provides logon facility to the user.
- This facility is available 24x7 except when the system is being updated or modified.
- The system is updated as and when new diseases are discovered.
- The system will also keep a record of the disease history that the patient has logged in.

2. Decomposition Description

2.1 Module Decomposition

The E-Health care monitoring system has been split up into various modules;

- **Registration Module**: This Module collects data of the user or doctor and store it in the database
- **Authentication Module:** This module authenticates user or doctor to the portal.
- **Symptoms Checker Module**: This module allows user to enter symptoms of the disease they are suffering.
- **Result Module:** This module display the disease and the specialist of the disease.

- **Appointment Module**: This module allows patient to book appointments with the doctors.

2.2 Concurrent Process Decomposition

The E-Health Care Project consists of two major components: The patient and the doctor. The patient component deals with the disease identification and fixing appointment with the doctor.

In the doctor component deals with approval of appointment and the updating the diseases on the server according to the current scenario.

2.3 Data Decomposition

The following are the two major data components: the disease related to symptoms and the field of specialization of doctors. The diseases related to symptoms have to accurate for effective working of portal.

4. Interface Description

4.1 Home Page

4.1.1 Description

This page allows patient or doctor to either move to login portal or Registration portal. If the user is registered he can directly proceed to login page else user has to proceed to registration page.

4.1.2 User Interface Design
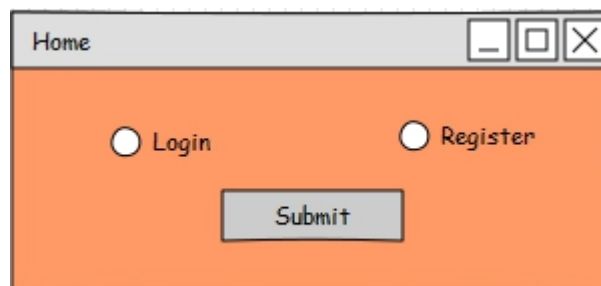
Figure 2: Home Page

4.2 Registration Page

4.2.1 Description

This page allows patient to register to the portal with providing his name, age, gender, phone and password which will be used in future logins.

4.2.2 User Interface Design

Figure 3:Registration for Patient

4.3 Registration Page for Doctor

4.3.1 Description

This page allows doctor to register to the portal with providing his name, age, gender, phone and password which will be used in future logins. For doctors it is necessary to provide their qualification for verification and the field in which they are specialized.

4.3.2 User Interface Design
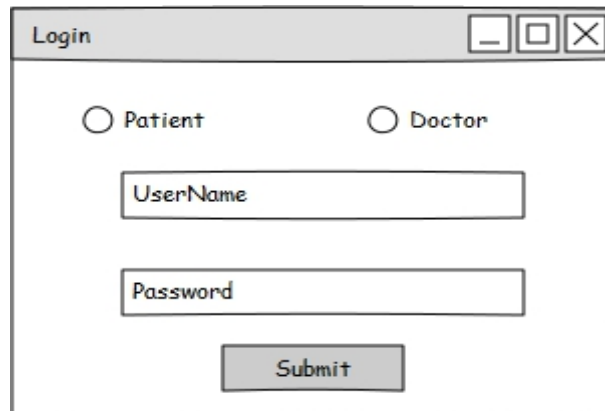
Figure 4: Registration for Doctor

4.4 Login Module

4.4.1 Description

This page allows registered doctor and patient to login to the portal.

4.4.2 User Interface Design
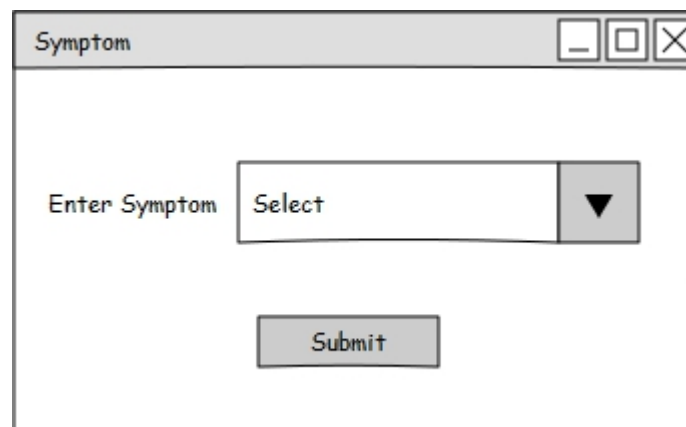
Figure 5: Login Page for Patient and Doctor

4.5 Symptom Page

4.5.1 Description

This page will allow patient to check the disease by entering the symptom from which he or she is suffering.

4.3.2 User Interface Design
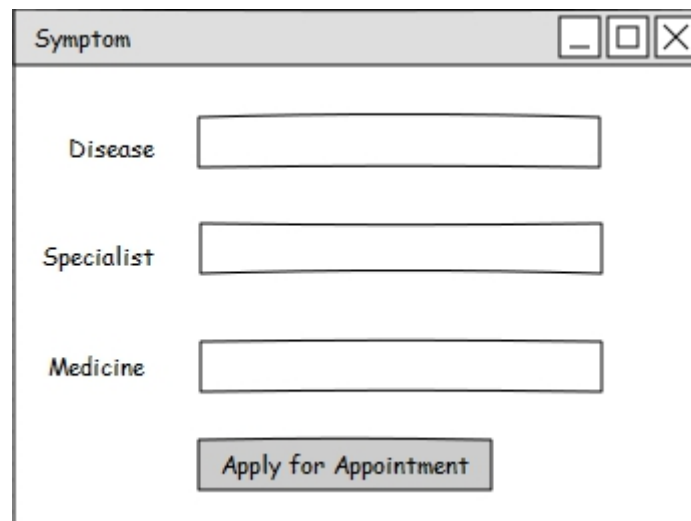
Figure 6: Symptom Page

4.6 Display Disease

4.6.1 Description

This interface will allows to user to know about their disease of the symptoms they have entered and along with that the specialist and medicine related to disease will be mentioned.

4.6.2 User Interface Design
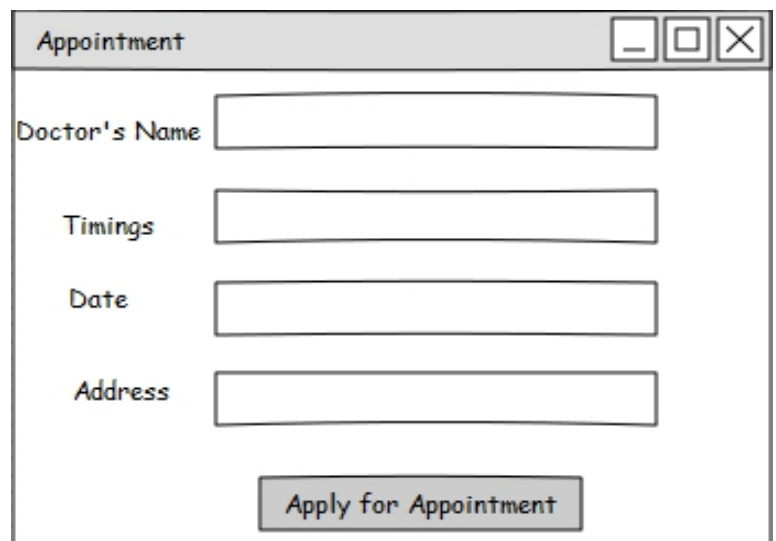
Figure 7: Disease Page

4.7 Appointment Page

4.7.1 Description

This interface will allows to user to book appointments with the doctor by specifying time and date and the address of the patient.

4.7.2 User Interface Design

Figure 8: Appointment page

IMPLEMENTATION

REGISTRATION MODULE

HOME PAGE

From this page user can either navigate to login or signup page
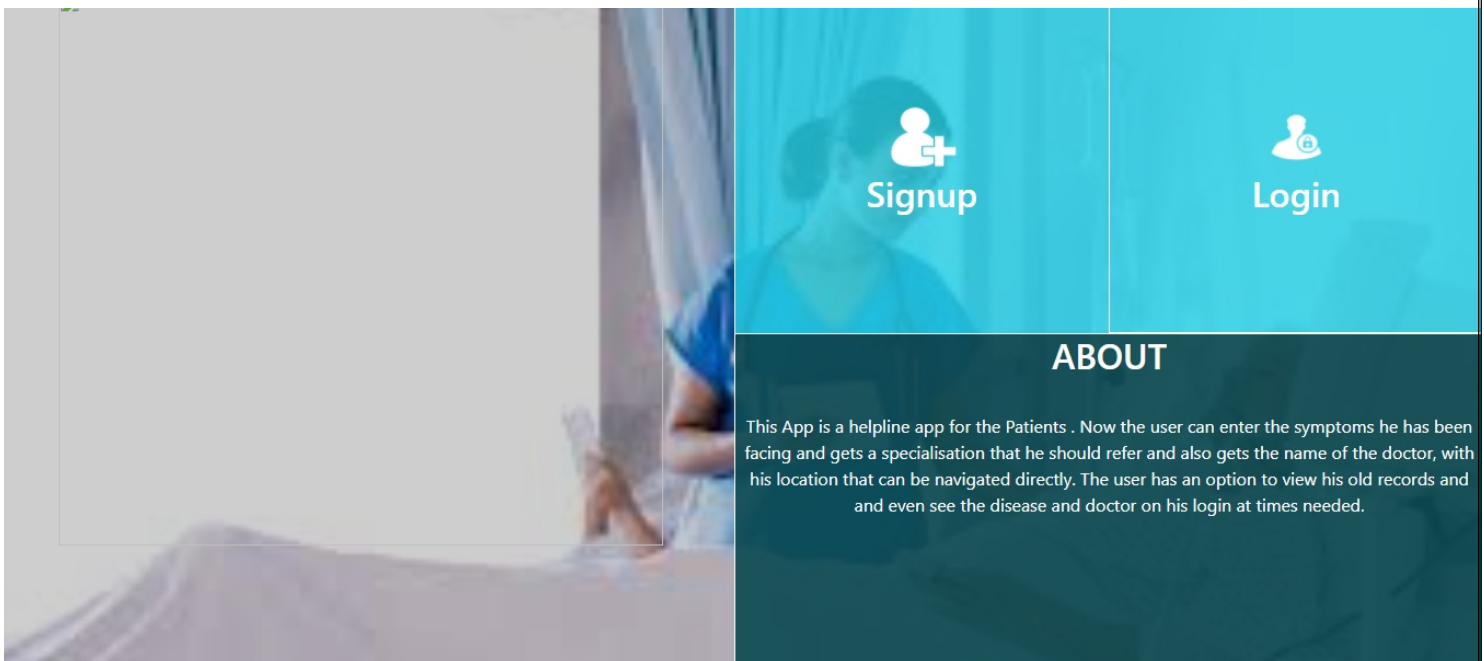
REGISTER PAGE FOR DOCTOR

From here doctor can register and enter the portal.

REGISTRATION PAGE FOR PATIENT

LOGIN PAGE FOR DOCTOR AND PATIENT(LOGIN MODULE)

SYMPTOM CHECKER MODULE

Here patient can enter the symptoms and get the disease.

online portal   Home   Search Doctor   Contact   History   👤 Welcome shiva charan   👤Logout

Enter Symptom

Send
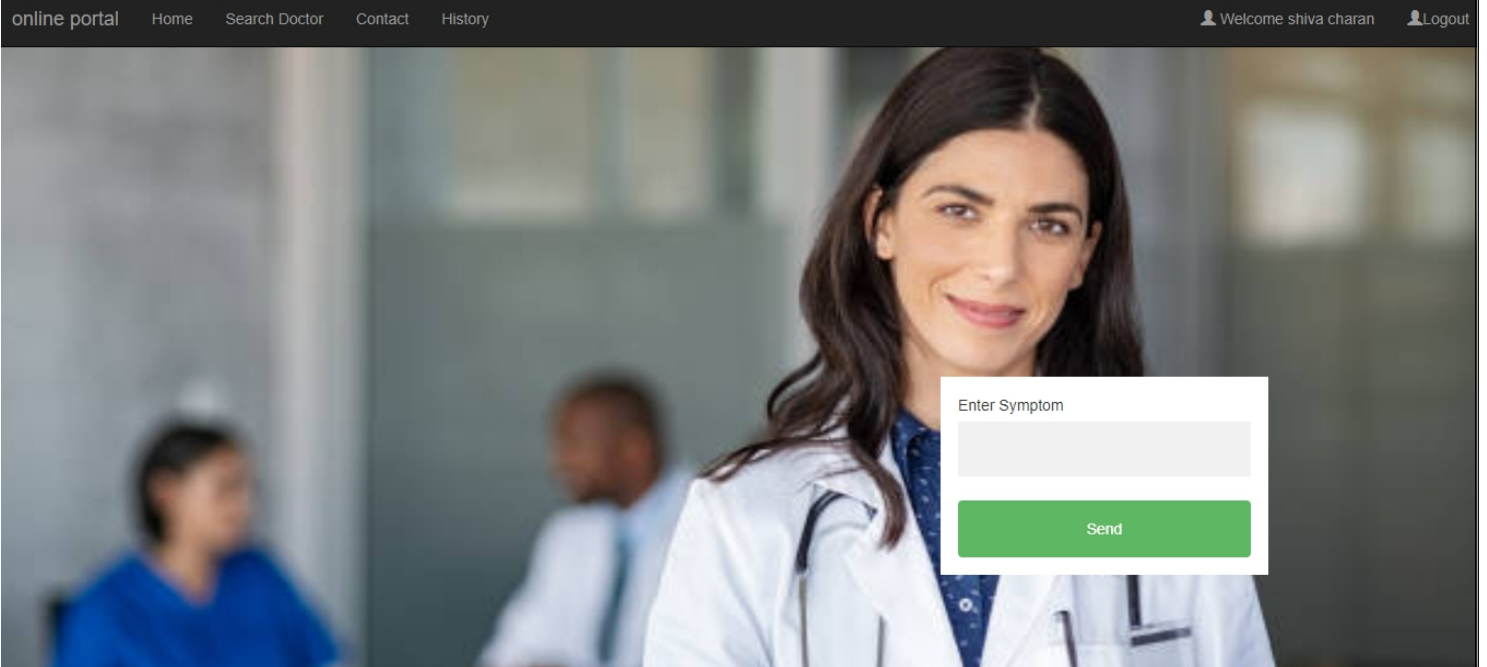
APPOINTMENT PAGE

Patient can fix appointments with the doctors.

online portal hospital   Home   👤Welcome shiva charan   👤Log out

Enter Specialisation   🔍

Name	Email	Specialisation	Address	Appointment
mike	mike@gmail.com	cardiology	street 5 , hydernagar, Hyderabad	Apply
Kalen	kalen@gmail.com	Dermatologist	kalen street, palen road, new york	Apply
parish	par@gmail.com	chrono	people area, dogs den , kalona	Apply

Get All
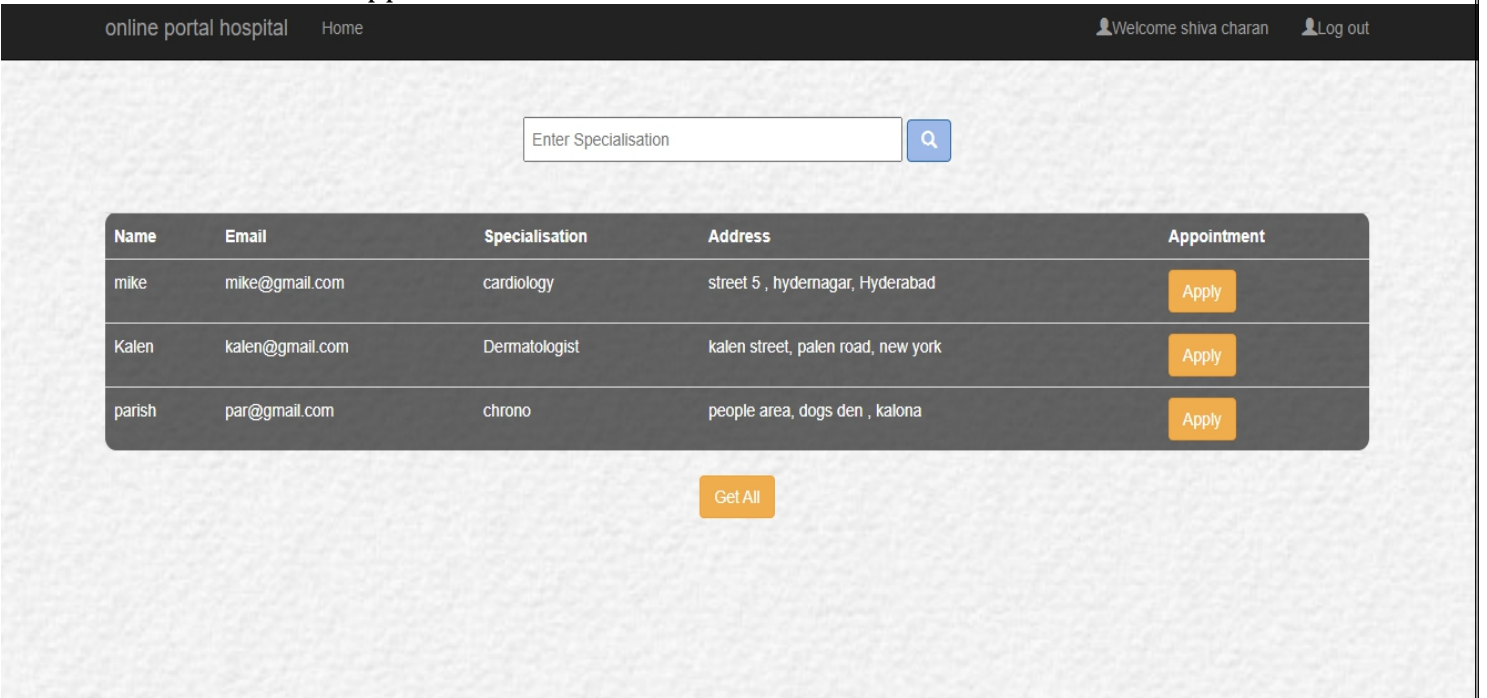
Doctor Name	Kalen
Doctor Specialisation	Dermatologist
Doctor Address	kalen street, palen road, ne
Patient Name	shiva charan
Date	dd-mm-yyyy

Submit

HISTORY

Here user can see the all the appointments he has applied and also the status of the appointment.

Doctor Name	Specialisation	Address	Appointment Date	Apply Date	status	Delete
Kalen	Dermatologist	kalen street, palen road, new york	2021-05-20	Mon May 31 2021 06:19:49 GMT+0000 (Coordinated Universal Time)	Approved	Delete
Kalen	Dermatologist	kalen street, palen road, new york	2021-05-21	Mon May 31 2021 08:34:17 GMT+0000 (Coordinated Universal Time)	Pending	Delete
Kalen	Dermatologist	kalen street, palen road, new york	2021-05-20	Mon May 31 2021 09:09:45 GMT+0000 (Coordinated Universal Time)	Pending	Delete

online portal   Home   Welcome shiva charan   Log out

Doctor Name	Specialisation	Address	Appointment Date	Apply Date	status	Delete
Kalen	Dermatologist	kalen street, palen road, new york	2021-05-20	Mon May 31 2021 06:19:49 GMT+0000 (Coordinated Universal Time)	Approved	Delete
Kalen	Dermatologist	kalen street, palen road, new york	2021-05-21	Mon May 31 2021 08:34:17 GMT+0000 (Coordinated Universal Time)	Pending	Delete
Kalen	Dermatologist	kalen street, palen road, new york	2021-05-20	Mon May 31 2021 09:09:45 GMT+0000 (Coordinated Universal Time)	Pending	Delete

APPENDIX :
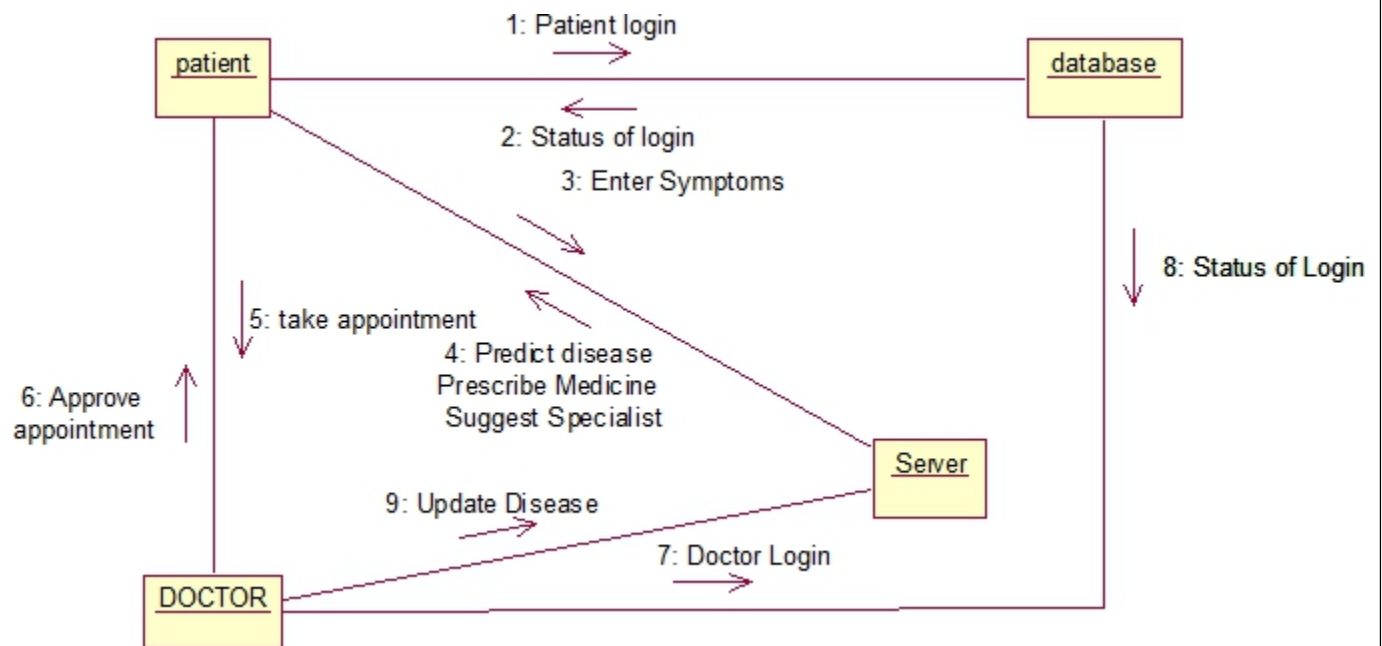
1. ACTIVITY DIAGRAM
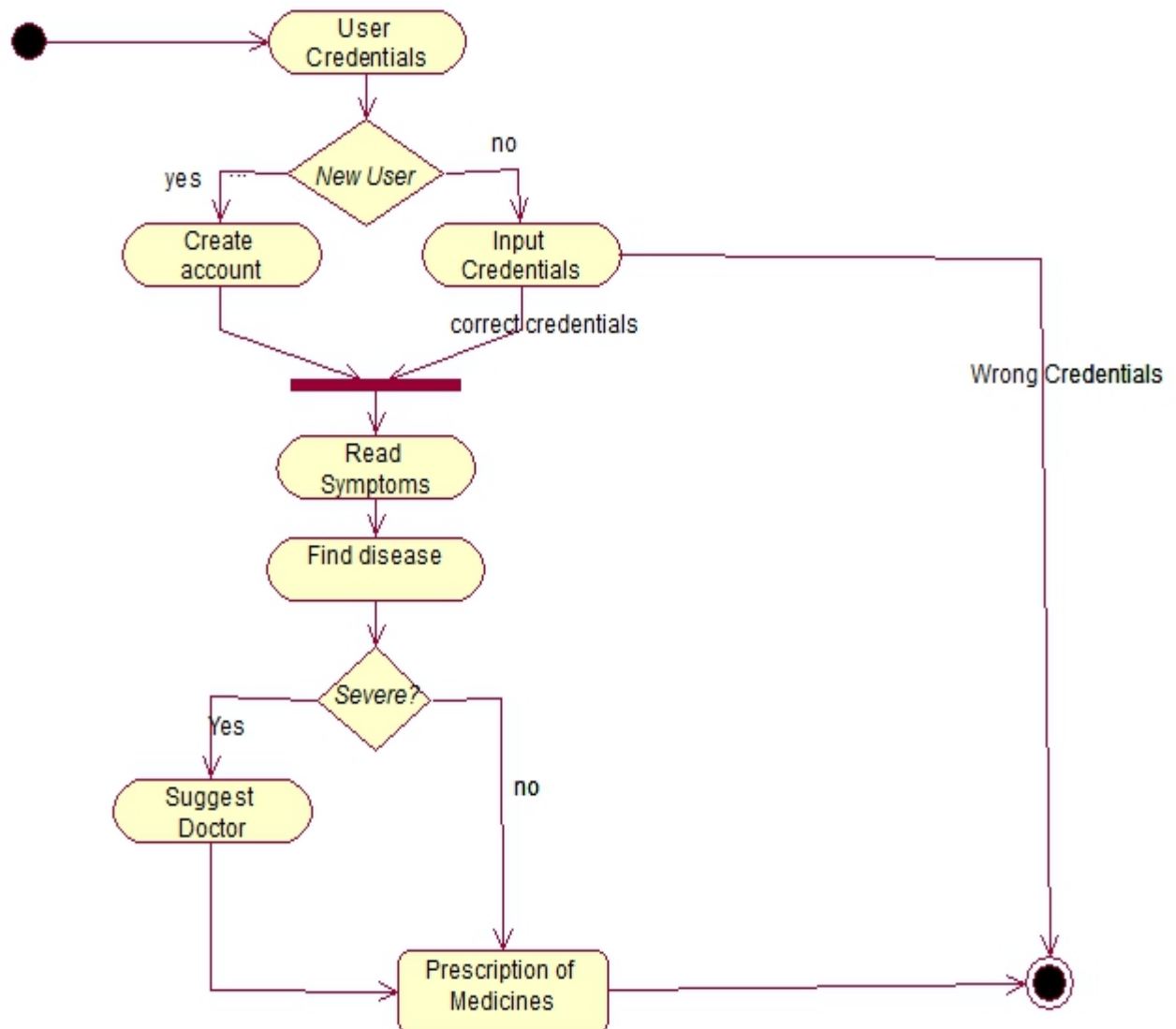
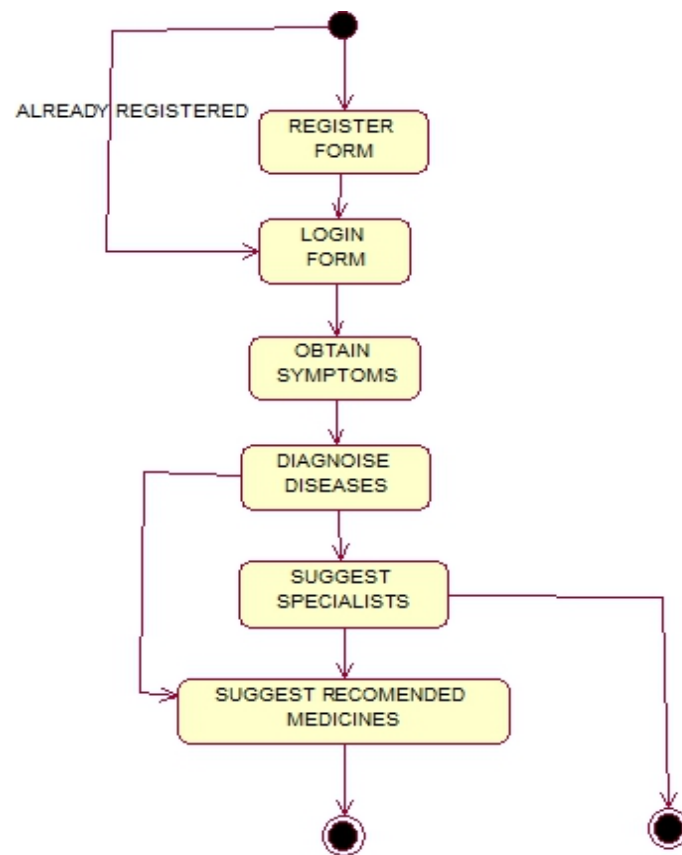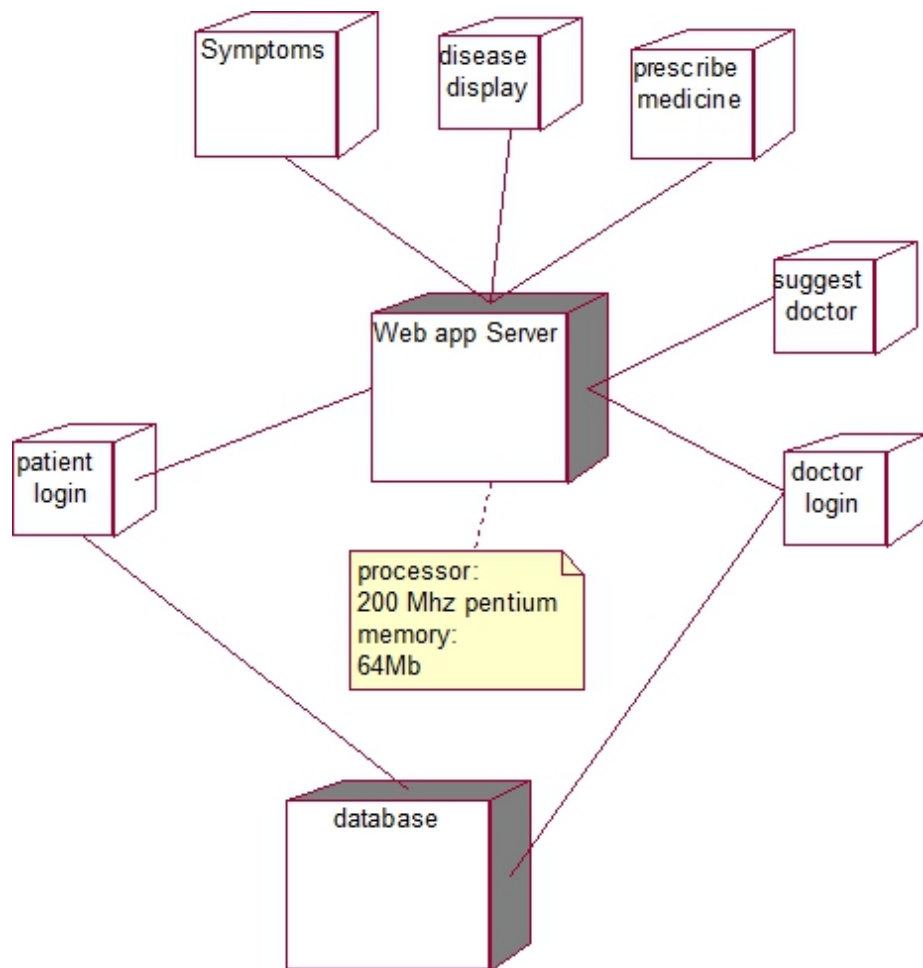## 2. COLLABORATION DIAGRAM

3. SEQUENCE DIAGRAM

4. <u>STATECHART DIAGRAM</u>

ALREADY REGISTERED

REGISTER FORM

LOGIN FORM

OBTAIN SYMPTOMS

DIAGNOISE DISEASES

SUGGEST SPECIALISTS

SUGGEST RECOMENDED MEDICINES
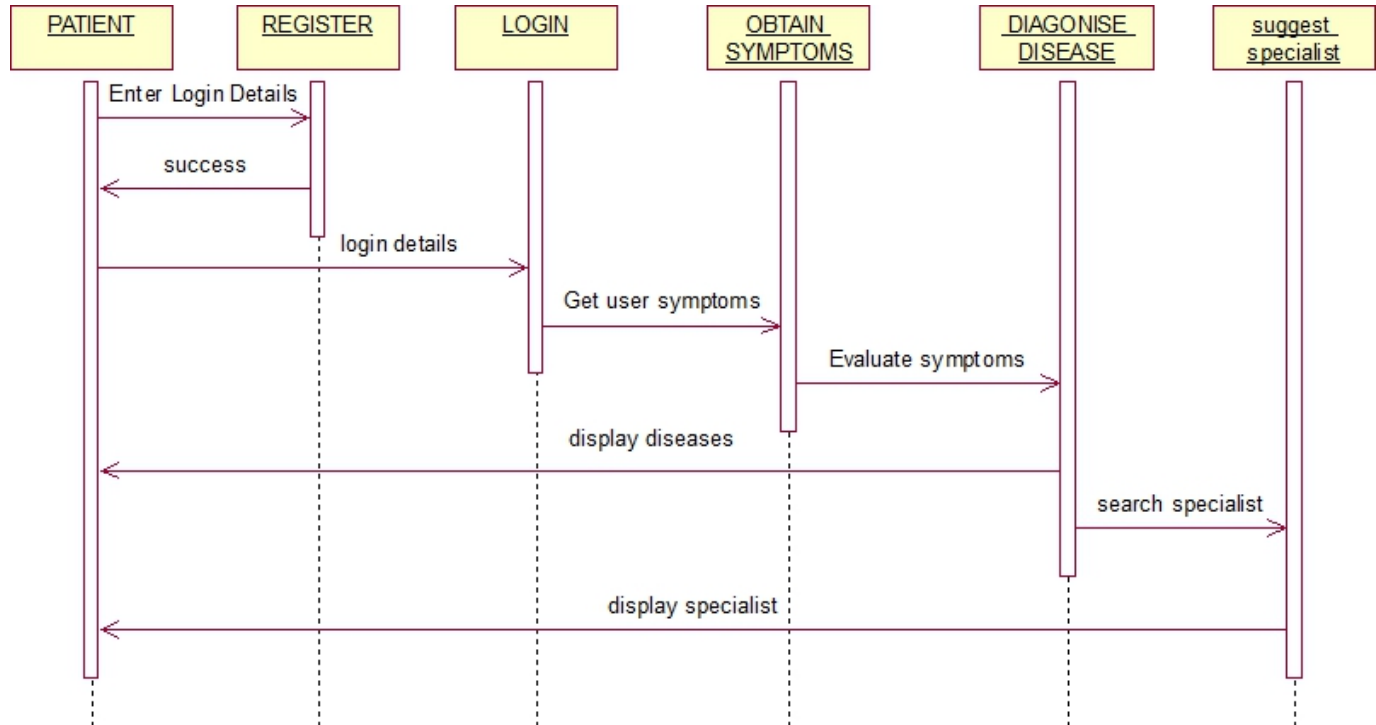
5. <u>DEPLOYMENT DIAGRAM</u>

TESTING (TEST CASES)

S.NO	TEST DESCRIPTION	TEST PREREQUISITE	TEST INPUTS	EXPECTED OUTPUT
1.	Signup page	Click signup button on home page	Name, email, password, confirm password	Directed to login page if password is equal to confirm password
2.	Login page	Click login button on home page	Username and password	Directed to user account if password is correct
3.	Symptom page	Click on the input box	Enter the symptom and click submit	Expected Diseases and specialist
4.	View doctors	move the cursor on icon search doctor	click on icon search doctor	List of doctor's page is opened.
5.	Choose doctor	Click on the search bar to find the doctor	Doctor Name or specialization.	Doctor details
6.	Apply for appointment	Move the cursor on apply button	Single-click	Navigated to appointment – page.
7.	Confirm appointment	Click on apply button	date ,time and click submit	Appointment saved.
8.	View history	Move the cursor on icon history	Single click	List of all saved appointments.
9.	Delete appointment	Move the cursor on delete button	Single-click	Appointment deleted.
10.	logout	Move the cursor to the icon logout	Single-click	Diverted to logic page.

TEST CASE REPORT

S.No	Action	Inputs	Expected Output	Actual Output	Test Browser	Test Result
1.	Enter valid name ,email address, password	Name, email id, age,	Registered successfully	Registered successfully	Chrome	Pass
2.	Enter valid email id and password	Email and password	Login successfully	Login successfully	Chrome	Pass
3.	Enter symptom	Input symptom	Expected diseases	Expected diseases	Chrome	Pass
4.	Move the cursor on icon search doctor	click on icon search doctor	List of doctor's page is opened.	List of doctor's page is opened.	Chrome	Pass
5.	Click on the search bar to find the doctor	Doctor Name or specialization.	Doctor details	Doctor details	Chrome	Pass

6.	Enter date and time in which doctor is not free	Date and time	Appointment rejected	Appointment rejected	Chrome	Pass
7.	Move the cursor on apply button	Single-click	Navigated to appointment – page.	Navigated to appointment – page.	Chrome	Pass
8.	Enter date and time	Input date and time	Appointment saved	Appointment Saved	Chrome	Pass
9.	Click approve button	Free slots matches the date and time	Appointment Approved	Appointment approved	Chrome	Pass
10.	Move the cursor on icon history	Single-click	List of all saved appointments.	List of all saved appointments.	Chrome	Pass

11.	Move the cursor on delete button	Single-click	Appointment deleted.	Appointment deleted.	Chrome	Pass
12.	Logout	Click logo ut button	Logout successfully	Logout successfully	Chrome	Pass

END