A Doctor Recommendation System based on Patients' Symptoms

Project submitted

In partial fulfillmen to the requirements for the degree of

MASTER OF COMPUTER APPLICATION

By

MD MAINUDDIN

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CERTIFICATE

This is to certify that the project entitled "**A Doctor Recommendation System based on Patients' Sysmptoms**" has been completed by MdMainuddin. This work is carried out underthe supervision of Dr. Nandini Mukhopadhyay in partial fulfilment for the award ofthe degree of Master of Computer Application of the department of ComputerScience and Engineering, Jadavpur University, during the session 2021-2022.The project report has been approved as it satisfies the academic requirements inrespect ofprojectwork prescribedforthesaiddegree.

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JadavpurUniversity

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Faculty of Engineering and Technology

Department of Computer Science & Engineering

CERTIFICATE OF APPROVAL

The forgoing project is hereby approved as a creditable study of an engineering subject carried out and presented in a manner saticfactory to warrant its acceptance as prerequisite to the degree for which it has been submitted. It is understood by this approval that the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion in that but approve this project only for the purpose for which it is submitted.

EXAMINER:

_____ _____

INTERNALEXAMINER **EXTERNALEXAMINER**

DECLARATION OF
ORIGINALITYAND
COMPLIANCE OF ACADEMICETHICS

I here by declare that this project contains original work by the undersigned candidate, aspart of his Master of Computer Application (MCA) studies.

All information in this document have been obtained and presented in accordance with academic rulesand ethicalconduct.

I also declare that, as required by the serules and conduct, I have fully citedand referenced all material results that are not original to this work.

Candidate's Name: Md Mainuddin

Exam Roll No: **MCA226034**

Project Title: **A Doctor Recommendation System based on Patients' Sysmptoms**

Signature with Date:

ABSTRACT

In this era full of digital technologies, citizens demand to provide an excellent health system, in order to ensure the citizen and community to be alive and healthy. Health is one of the precious asset for a human being, but due to the ongoing pandemic people are unable to get proper treatment for their diseases from their home. Thus, we aim at developing a doctor recommendation system based on prediction of diseases by providing their symptoms. In this project we provide a user friendly and easily understandable GUI to users to easily get instant guidance on their health issues through an intelligent health care system online. The main objective of the system is to predict disease according to symptoms and also suggest a list of doctors and medicines. We are developing this system so that in future people can consult with their respective doctors via live consultation without physical contact.Therefore, application of dicease prediction and doctor recommendation areconsidered in this report as the best practice to facilitate better healthcare system.

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Chapter 4. System Design

Chapter 5.User Interfaces and Results

Chapter 6.Coding

Chapter 7. Conclusion

CHAPTER #1

Introduction

Contents:

- Introduction
- Problem Definition
- Aim
- Need of System

Introduction to the System:

It might have happened so many times that some of us need doctors' help immediately, but they are not available due to some reason. "**A Doctor Recommendation System based on Patients' Sysmptoms"**is an end user support and online consultation project. Here we propose a system that allows users to get instant guidance on their health issues through an intelligent health care system online. The system is fed with various symptoms and the diseases/illness associated with those symptoms. The system permits user to share their symptoms and medical problems. It then processes user's symptoms to check for various illnesses that could be associated with it. Here we use some intelligent data mining techniques to guess the most accurate illness that could be associated with patient's symptoms. In doctor module, when a doctor login to the system doctor can view the details of his patient and the report related to that patient. Doctor can view details about the patient search and what patient searched according to their prediction. Doctor can view his personal details. Admin can add new disease details by specifying the type and symptoms of the disease into the database. Based on the name of the disease and symptom the data mining

algorithm works. Admin can view various diseases and symptoms stored in database. This system will provide proper guidance when the user specifies the symptoms of his or her illness.

Problem Definition:

Design a remote health care system for any pandemic situation when people can't interact with each other. In this application, patients and doctors can interact directly with each other.

Aim:

The objective of this project is to provide a user friendly and easily understandable GUI to users to easily get instant guidance on their health issues through an intelligent health care system online. The main objective of the System is to predict diseases according to symptoms and also suggest list of doctors and medicines.

- User can search for doctor's help at any point of time.
- User can talk about their illness and get instant diagnosis.
- User may be informed about the type of disease or disorder.
- Doctors can treat more patients online.

Need of the System:

There is always a need of a system that will provide thedisease information according to symptoms shared by user.

This system will helpthe user to find good doctors and medicines.

Outline of the Report:

The entire report consists of seven chapters. These are:

- Chapter 1(Introduction):
  This chapter includes introduction to the system, problem definition, the main objective of this project and why do we need this system.

- Chapter 2(Hardware and Software requirements):
  Chapter 2 includes which softwares and hardwares are required to make this system andsome implementation issues.

- Chapter 3(System Analysis):
  In this chapter "System Analysis", the scope of the project is discussed and asystem overview is provided.

- Chapter 4(System Design):
  This chapter provides the use case diagram, class diagram, sequence diagram for administrator, sequence diagram for user, data flow diagram and entity relationship diagrams for implementation of the system.

- Chapter 5(User Interfaces and results):
  Chapter 5 includes user interfaces and results.

- Chapter 6(Coding):
  This chapter includes the codes of home page, user registration page, disease prediction page, search doctor page, add disease details page, view disease details page, view all doctors page and change password page.

- Chapter 7(Conclusion):
  In this chapter, the advantages and limitations of our system are discussed. We also discuss the future scope of our system.

CHAPTER #2
Hardware and Software Requirements

Contents:

- Software requirement
- Hardware requirements
- Implementation issues

Software Requirements:

- Technology: Python Django
- IDE : Pycharm/Atom
- Client Side Technologies: HTML, CSS, JavaScript , Bootstrap
- Server Side Technologies: Python
- Data Base Server: Sqlite

Operating System: Microsoft Windows/Linux

Hardware Requirements:

- Processor: Pentium-III (or) Higher
- Ram: 64MB (or) Higher
- Hard disk: 80GB (or) Higher

Implementation issues

Python

Python is a widely used general-purpose, high level programming language. It was initially designed by Guido van Rossum in 1991 and developed by Python Software Foundation. It was mainly developed for emphasis on code readability, and its syntax allows programmers to express concepts in fewer lines of code.

Python is a programming language that lets us work quickly and integrate systems more efficiently. Python is dynamically typed and garbage-collected. It supports multiple programming paradigms, including procedural, object-oriented, and functional programming. Python is often described as a "batteries included" language due to its comprehensive standard library.

HTML

HTML (Hypertext Markup Language) is the set of markup symbols or codes inserted in a file intended for display on a World Wide Web browser page. The markup tells the Web browser how to display a Web page's words and images for the user. Each individual markup code is referred to as an element (but many people also refer to it as a tag). Some elements come in pairs that indicate when some display effect is to begin and when it is to end.

CASCADING STYLE SHEET (CSS)

Cascading Style Sheets (CSS) are a collection of rules we use to define and modify web pages. CSS are similar to styles in Word. CSS allow Web designers to have much more control over their pages look and layout. For instance, we could create a style that defines the body text to be Verdana, 10 point. Later on, we may easily change the body text to Times New Roman, 12 point by just changing the rule in the CSS. Instead of having to change the font on each page of our website, all we need to do is redefine the style on the style sheet, and it will instantly change on all of the pages that the style sheet has been applied to. With HTML styles, the font change would be applied to each instance of that font and have to be changed in each spot.

CSS can control the placement of text and objects on our pages as well as the look of those objects.

HTML information creates the objects (or gives objects meaning), but styles describe how the objects should appear. The HTML gives our page structure, while the CSS creates the "presentation". An external CSS is really just a text file with a .css extension. These files can be created with Dreamweaver, a CSS editor, or even Notepad.

The best practice is to design our web page on paper first so we know where we will want to use styles on our page. Then we can create the styles and apply them to our page.

Javascript

JavaScript is a programming languagecommonly used in web development. It was originally developed by Netscape as a means to add dynamic and interactive elements to websites. While JavaScript is influenced byJava, the syntax is more similar to C and is based on ECMAScript, a scripting language developed by Sun Microsystems.

JavaScript is a client-side scripting language, which means the source code is processed by the client's web browser rather than on the web server. This means JavaScript functions can run after a

webpage has loaded without COMMUNICATING with the server. For example, a JavaScript function may check a web form before it is submitted to make sure all the required fields have been filled out. The JavaScript code can produce an error message before any information is actually transmitted to the server.

Like server-side scripting languages, such as PHP and ASP, JavaScript code can be inserted anywhere within the HTML of a webpage. However, only the output of server-side code is displayed in the HTML, while JavaScript code remains fully visible in the source of the webpage. It can also be referenced in a separate .JS file, which may also be viewed in a browser.

Django

Django is a web application framework written in Python programming language. It is based on MVT (Model View Template) design pattern. The Django is very demanding due to its rapid development feature. It takes less time to build application after collecting client requirement.

This framework uses a famous tag line: **The web framework for perfectionists with deadlines.**

CHAPTER #3
System Analysis

Contents:

- Purpose
- Project Scope
- Existing System
- Proposed System
- System Overview

Purpose:

- User can search for doctor's help at any point of time.
- User can talk about their illness and get instant diagnosis.
- User may be informed about the type of disease or disorder.
- Doctors can treat more patients online.

Project Scope:

The project has a wide scope, as it is not intended for a particular organization. This project is going to develop generic software, which can be applied by any businesses organization. Moreover it provides facility to its users. Also the software is going to provide a huge

amount of summary data.

Proposed System:

To beat the downside of the existing application, we have created an application named "S&M Health Supervision System," which is utilised for improving the treatment process. This application checks a patient at an initial level and proposes the possible diseases. It starts by giving the patient information about symptoms, and if the application can recognise the correct illness, it recommends a specialist who is available to the patient in the closest possible territory. Here we utilise some intelligent methods by which a patient can get suggestions from doctors. This application improves the work of the specialists as well as helps the patients by giving vital help at the soonest possible time.

System Overview:

- **Patient Login: -**Patient Login to the system using his ID and Password.
- **Patient Registration: -**If Patient is a new user he will enter his personal details and he will be able to create user Id and password through which he can login to the system.
- **My Details: -** Patient can view his personal details.
- **Disease Prediction: -**Patient will specify the symptoms caused due to his illness. System will ask certain questions regarding his illness and system will predict the disease based on the symptoms specified by the patient and system will also suggest doctors based on the disease.
- **Search Doctor:-**Patient can search for doctor by specifying name, address or type.
- **Feedback:-**Patient will give feedback and this will be reported to the admin.
- **Doctor Login: -** Doctor will access the system using his User ID and Password.
- **Patient Details:** Doctor can view patient's personal details.
- **Notification:** Doctor will get notification about the number of people had accessed the system and what all diseases have been predicted by the system.
- **Admin Login:** Admin can login to the system using his ID and Password.
- **Add Doctor:** Admin can add new doctor details into the database.
- **Add Disease:** Admin can add disease details along with symptoms and type.
- **View Doctor:** Admin can view various Doctors along with their personal details.
- **View Disease:** Admin can view various disease details stored in the database.
- **View Patient:** Admin can view various patient details who had accessed the system.
- **View Feedback:** Admin can view feedback provided by various users.

CHAPTER #4

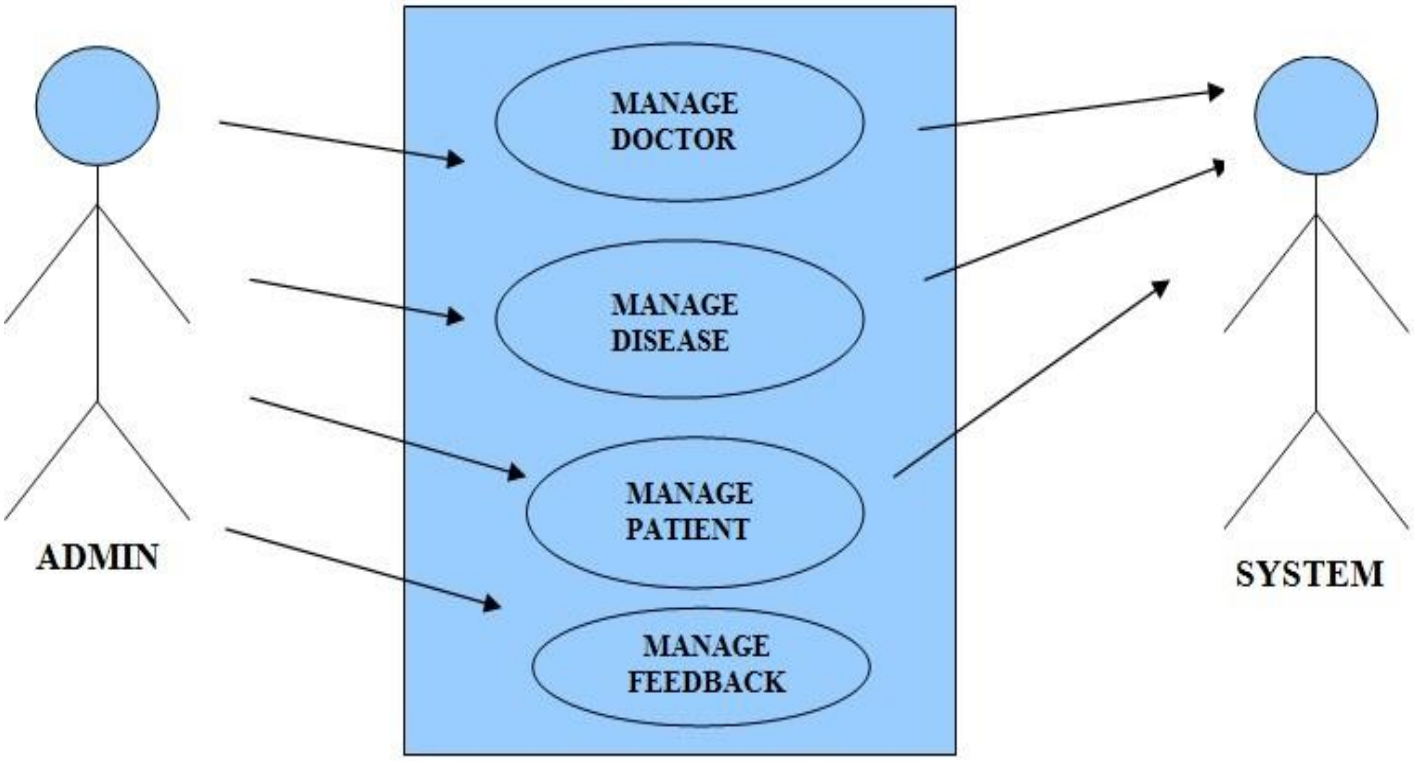
System Design

Contents:

- Use case diagram
- Class Diagram
- Sequence Diagram
- Data flow diagram

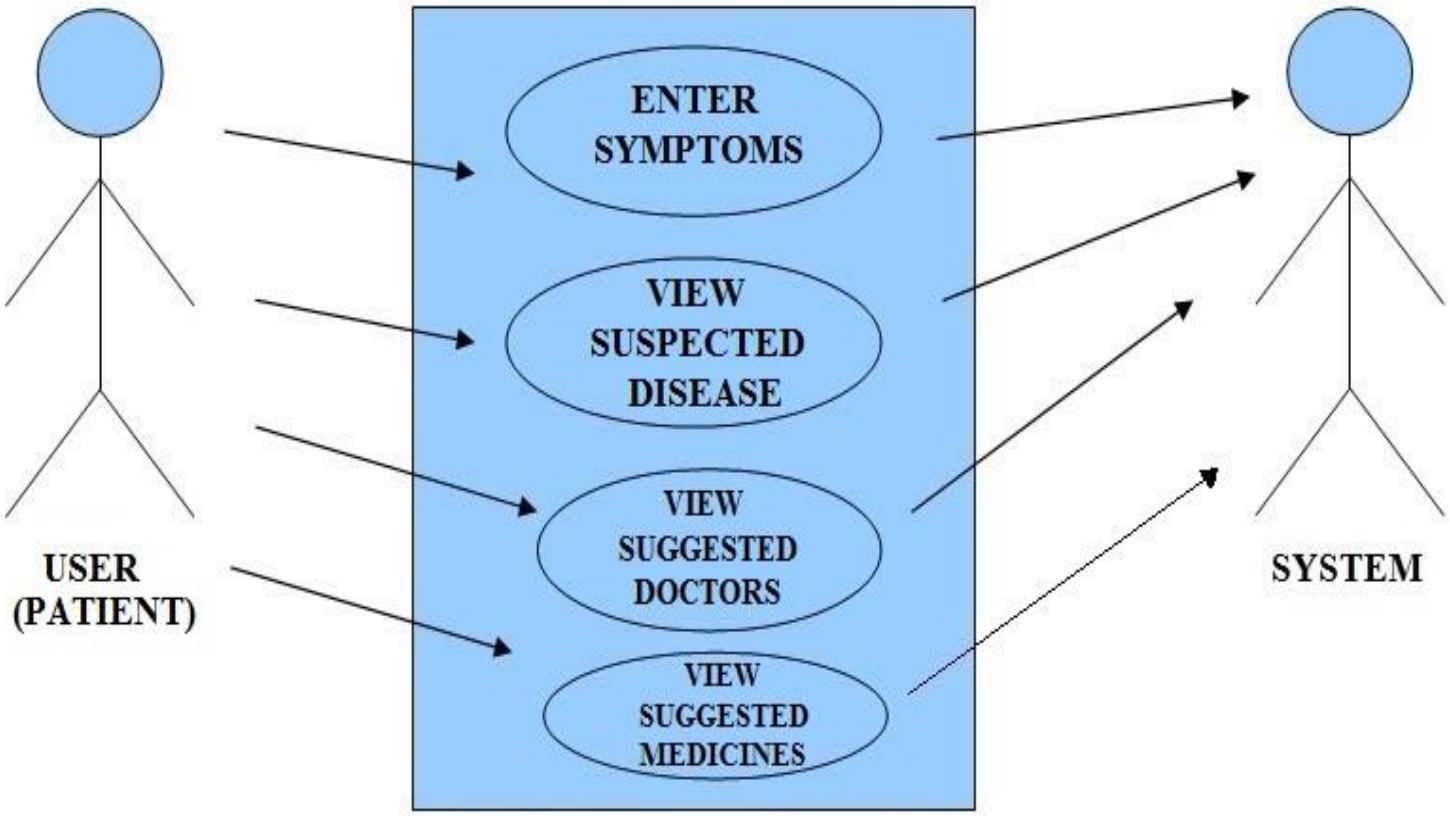
Use Case Diagram:

- Use case diagram consists of use cases and actors and shows the interaction between them. The key points are:
    - The main purpose is to show the interaction between the use cases and the actor.
    - To represent the system requirement from user's perspective.
    - The use cases are the functions that are to be performed in the module.



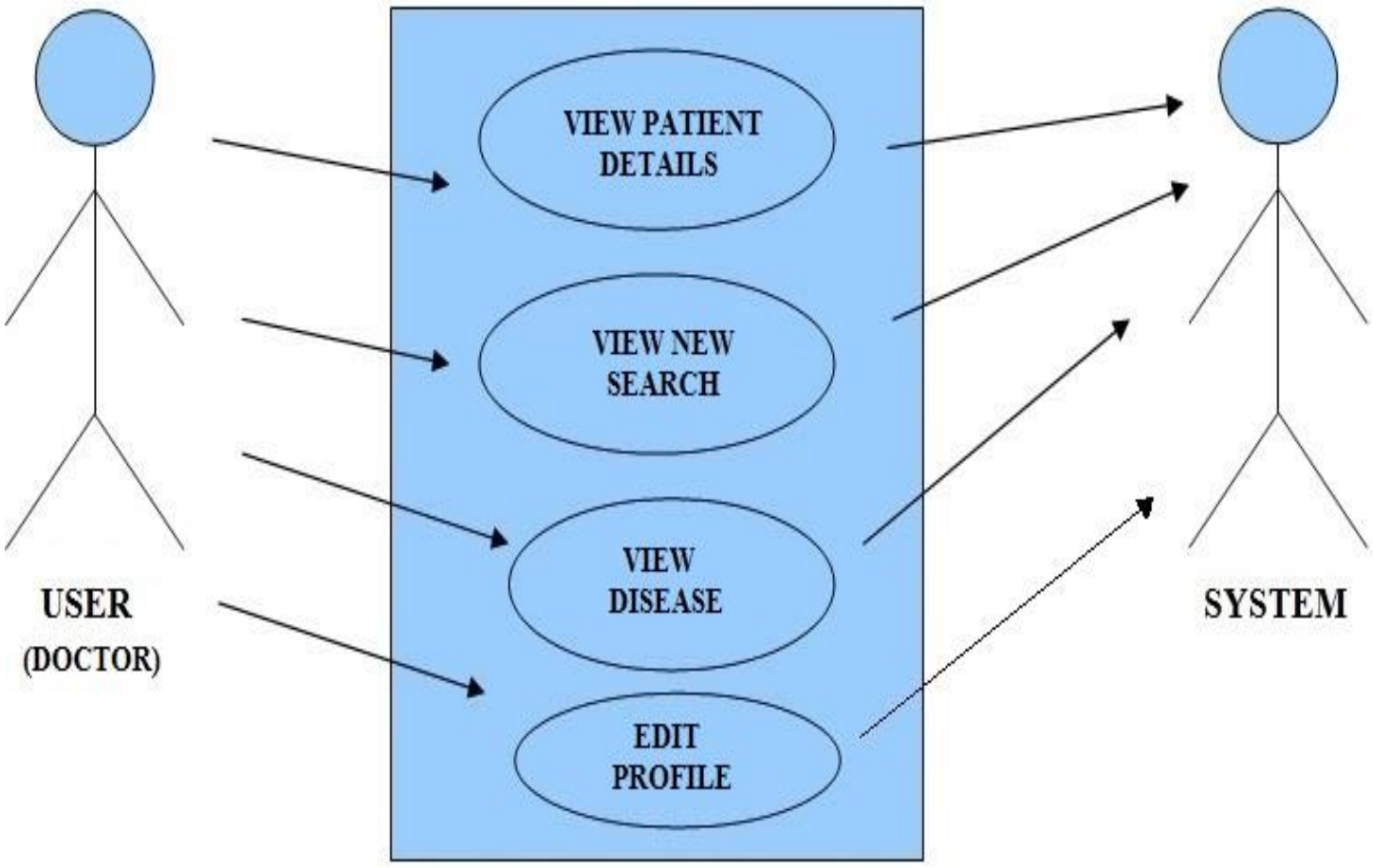
Use Case Diagram between ADMIN and SYSTEM:

Fig-4.1



Use Case Diagram between user and system

Fig-4.2



Use Case Diagram between user and system

Fig-4.3

Sequence Diagram For Administrator:-

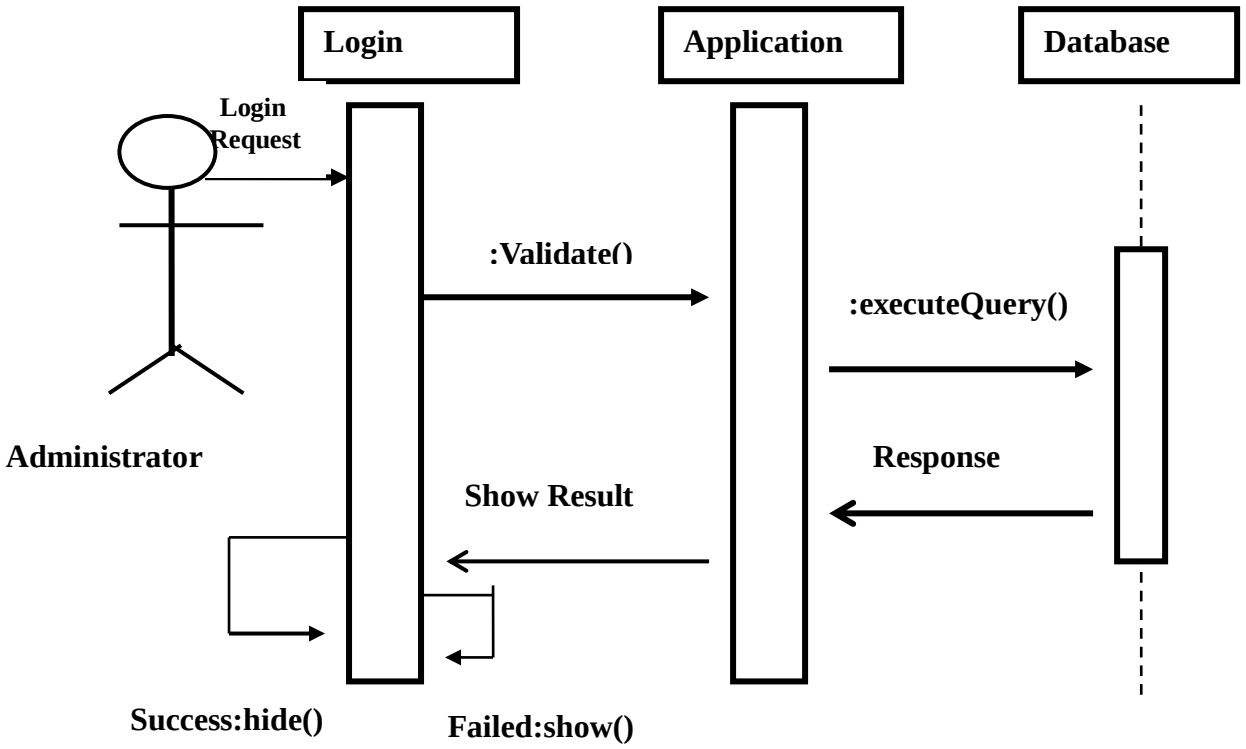


Fig-4.4

Sequence Diagram ForUser:-

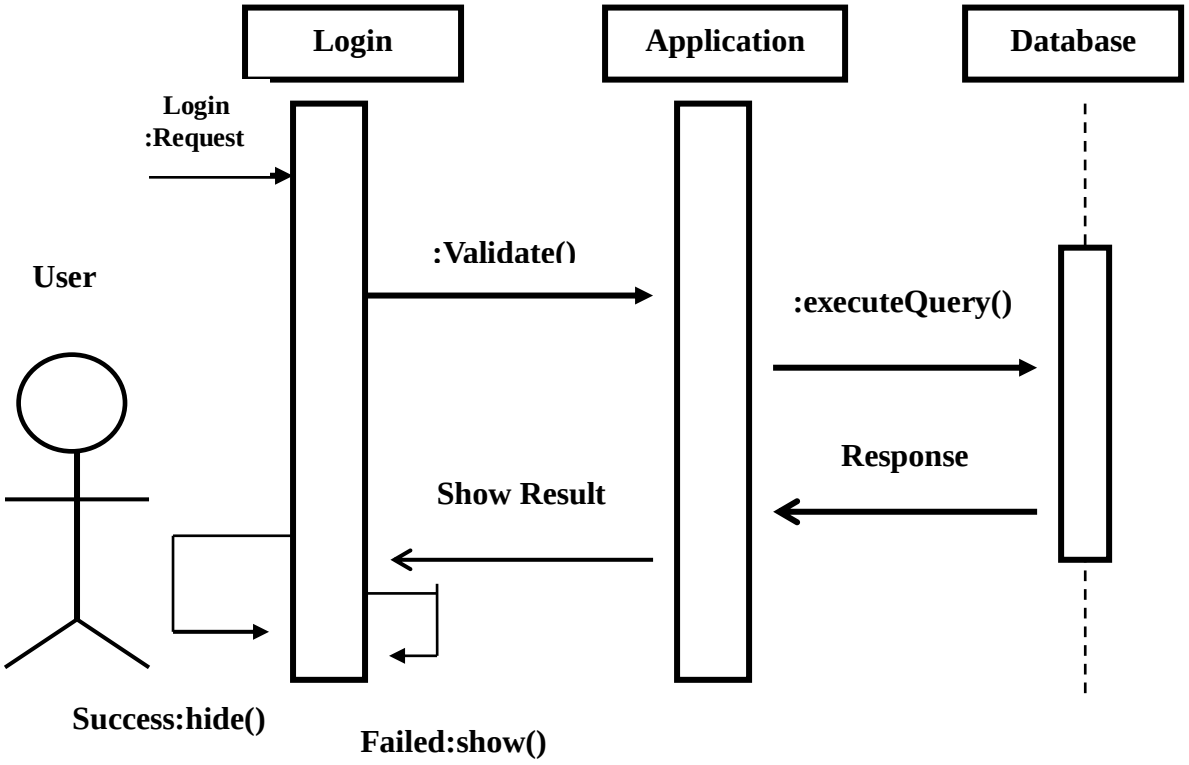


Fig.4.5

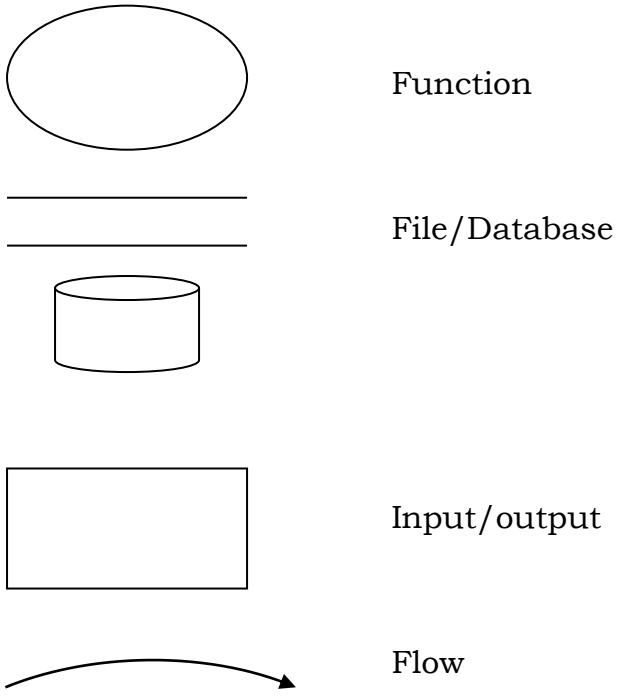
Data Flow Diagram

A Data Flow Diagram (DFD) is a graphical representation of the "flow" of data through an Information System. A data flow diagram can also be used for the visualization of Data Processing. It is a common practice for a designer to draw a context-level DFD first which shows the interaction between the system and the outside entities. This context-level DFD is then "exploded" to show more detail of the system being modeled.

A DFD represents flow of data through a system. Data flow diagrams are commonly used during problem analysis. It views a system as a function that transforms the input into desired output. A DFD shows movement of data through the different transformations or processes in the system.

Dataflow diagrams can be used to provide the end user with a physical idea of where the data they input ultimately has an effect upon the structure of the whole system from order to dispatch to restock how any system is developed can be determined through a dataflow diagram. The appropriate register saved in database and maintained by appropriate authorities.

Data Flow Diagram Notation



DFD(Data Flow Diagram)

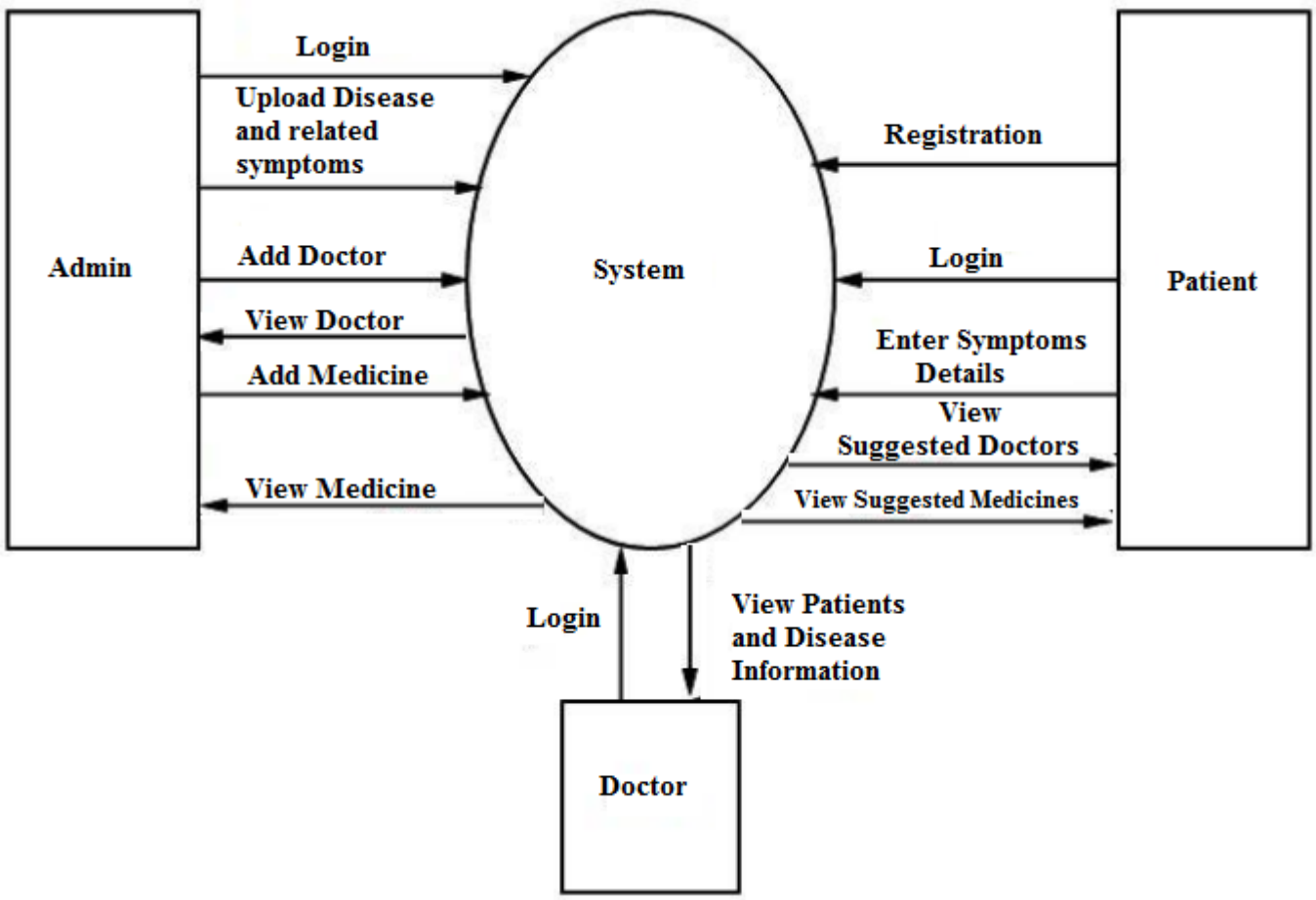


Fig-4.6

Entity Relationship Diagrams (ER-Diagrams):

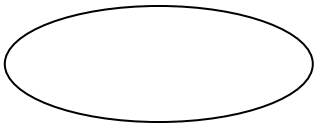
An entity-relationship (ER) diagram is a specialized graphic that illustrates the interrelationships between entities in a database. ER diagrams often use symbols to represent three different types of information. Boxes are commonly used to represent entities. Diamonds are normally used to represent relationships and ovals are used to represent attributes

An **entity-relationship model** (ERM) in software engineering is an abstract and conceptual representation of data. Entity-relationship modeling is a relational schema database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion.

Symbols used in this E-R Diagram:

Entity: Entity is a "thing" in the real world with an independent existence. An entity may be an object with a physical existence such as person, car or employee. Entity symbol is as follows

Attribute: Attribute is a particular property that describes the entity. Attribute symbol is



Relationship: Relationship will be several implicit relationships among various entity types whenever an attribute of one entity refers to another entity type some relationship exits. Relationship symbol is:

Key attributes: An entity type usually has an attribute whose values are distinct for each individual entity in the collection. Such an attribute is called key attribute.

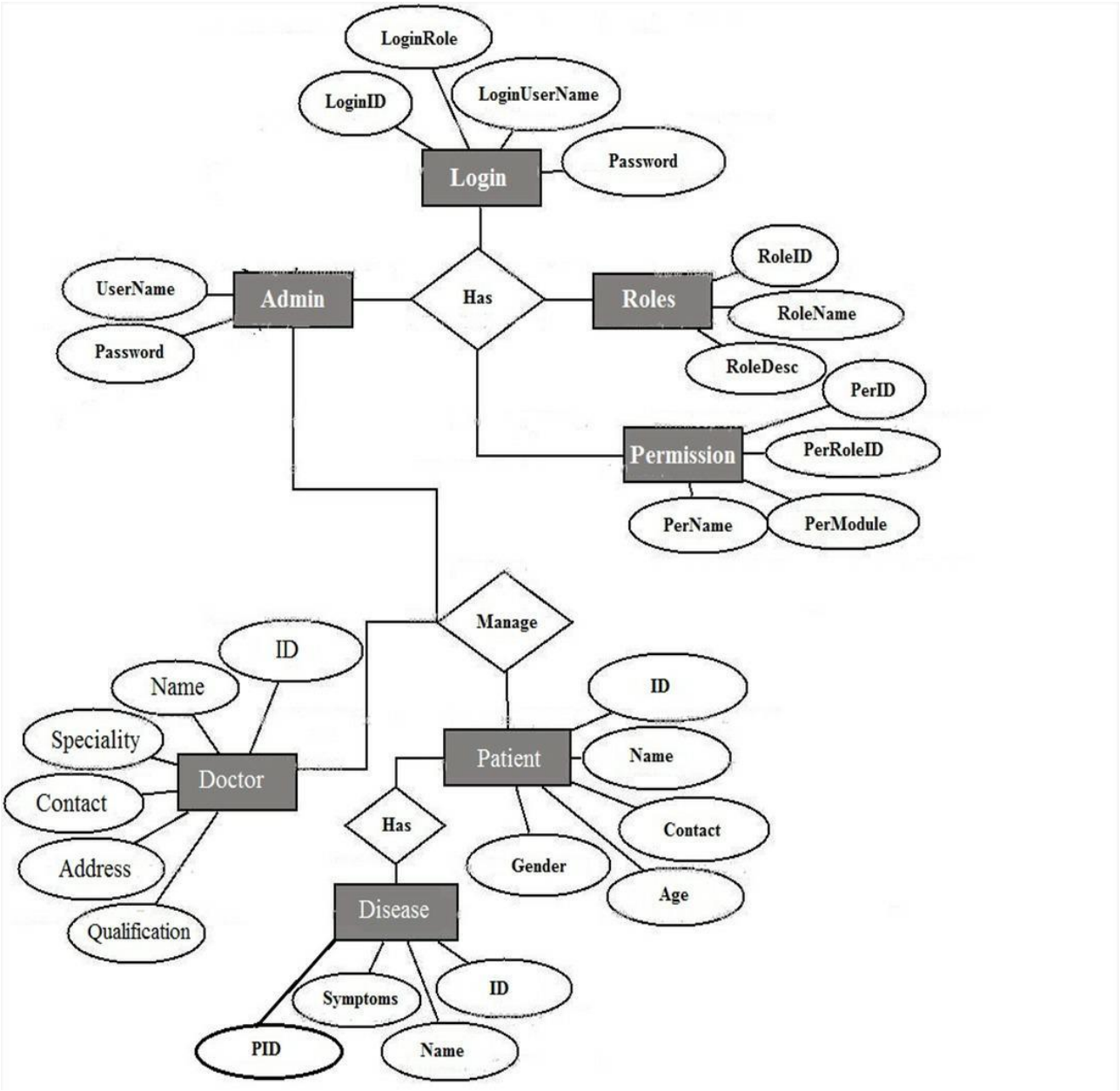

LoginRole
LoginID
LoginUserName
Login
Password
UserName
Admin
Has
Roles
RoleID
RoleName
Password
RoleDesc
PerID
Permission
PerRoleID
PerName
PerModule
Manage
ID
Name
Speciality
Doctor
Contact
Address
Qualification
ID
Patient
Name
Has
Contact
Gender
Age
Disease
Symptoms
ID
PID
Name

Fig-4.7

Outline Of The System:

The entire project mainly consists of 4 modules, which are

- Main
  - About us
  - Contact us
  - Gallery
  - Login and Logout
- Admins
  - Give access to Doctors
  - Give access to patients
  - Give access to user feedback module
  - Give access to addition of diseases
- Patients
  - Patient Login: - Patient login into the system using their ID and password.
  - Patient Registration: -If the patient is a new user, he will enter his information and will receive an ID and password that can be used for log in to the system.
  - Disease Prediction: - The patient will enter the symptoms caused by his illness. The program will ask specific questions about the illness and then predict the disease according to the patient's symptoms and the program will also identify the doctors having specialization for treating the illness.
  - Search Doctor: - A patient can search for a doctor by specifying a name, address or specialization.
- Doctors
  - Doctor Login: - The doctor will log into the system using his / her User ID and password.
  - Doctor Registration: -If the doctor is a new user they will enter their information and will receive an ID and password that can be used for log in to the system.
  - Patient Details: The doctor may view personal information.

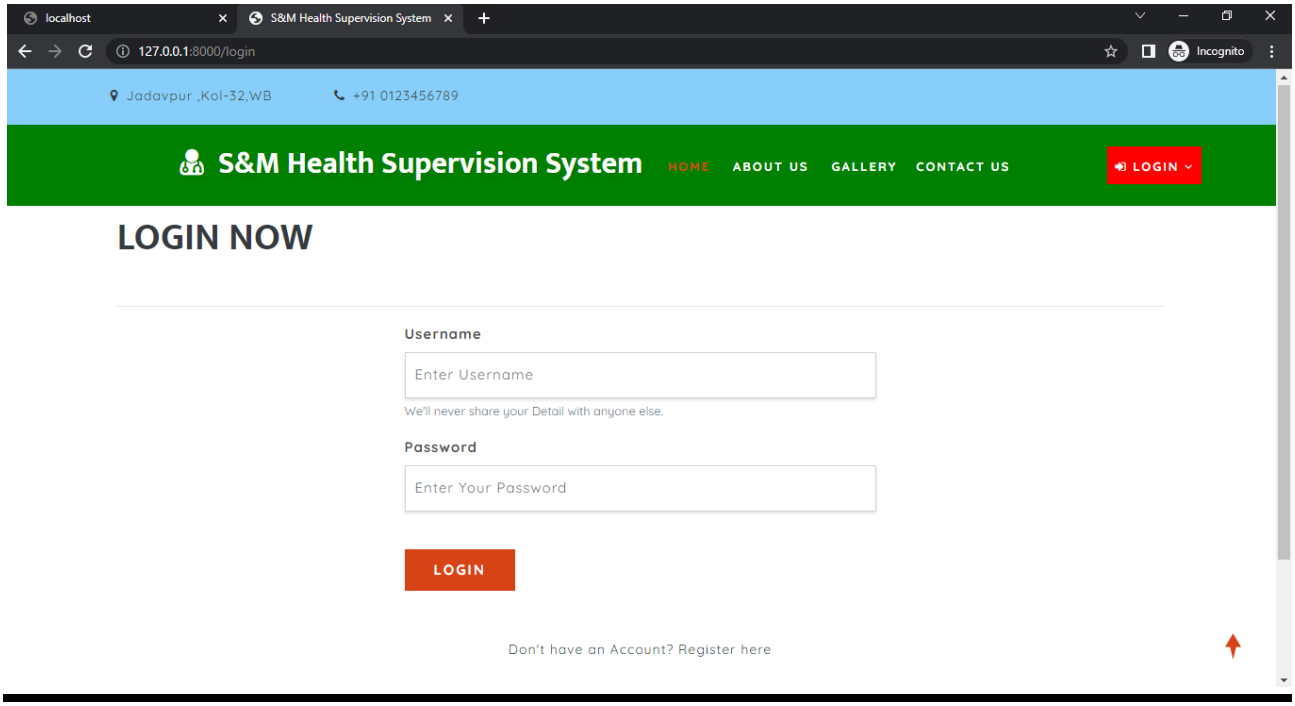
CHAPTER #5

User Interfaces and Results

HOME PAGE

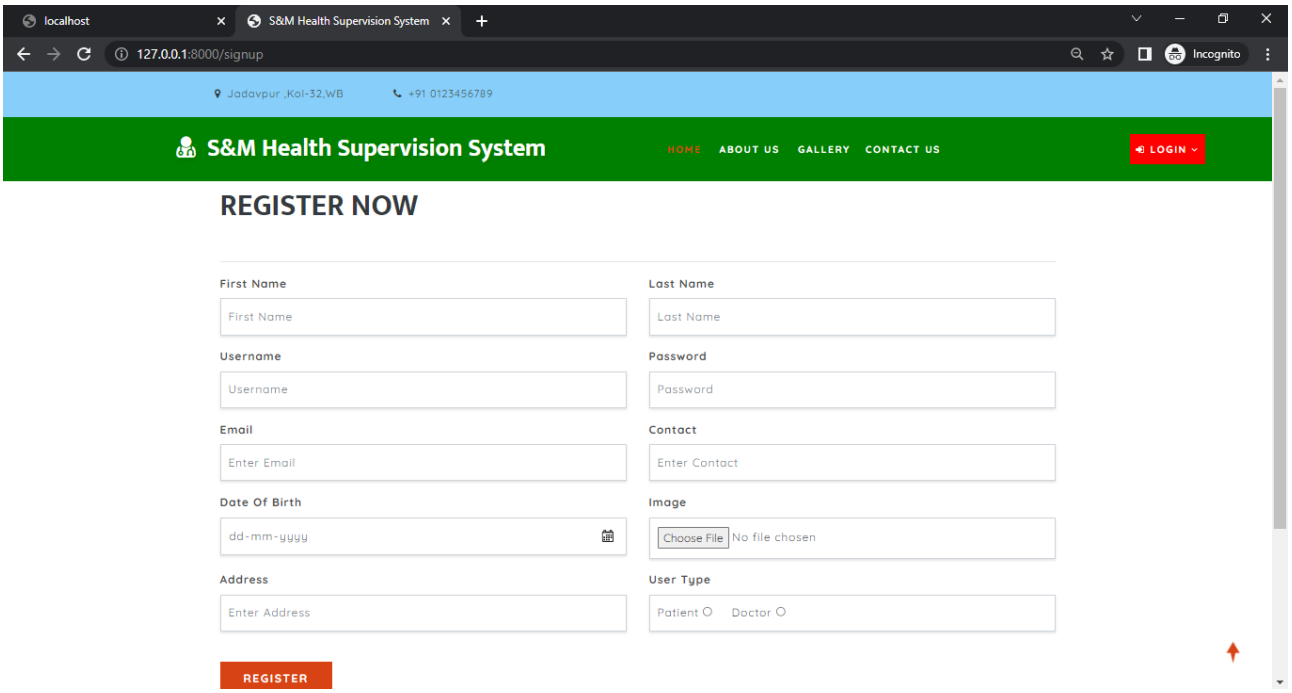
This is the home page of our system. From here user can go to the login page. They can also check contact details and view gallery.

USER (PATIENT) LOGIN PAGE



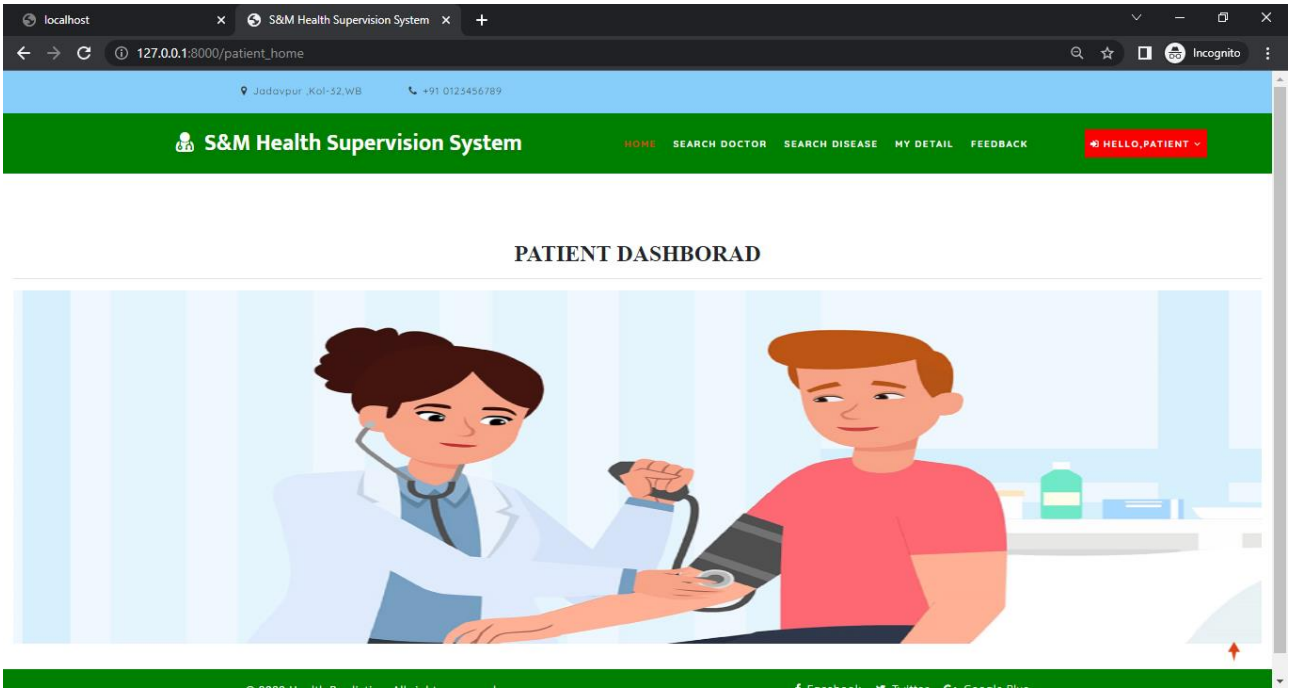
Here any patient or doctor can login into the system using their Id and Password. If they don't have any account they can register themselves by click on "Register here".

SIGNUP PAGE



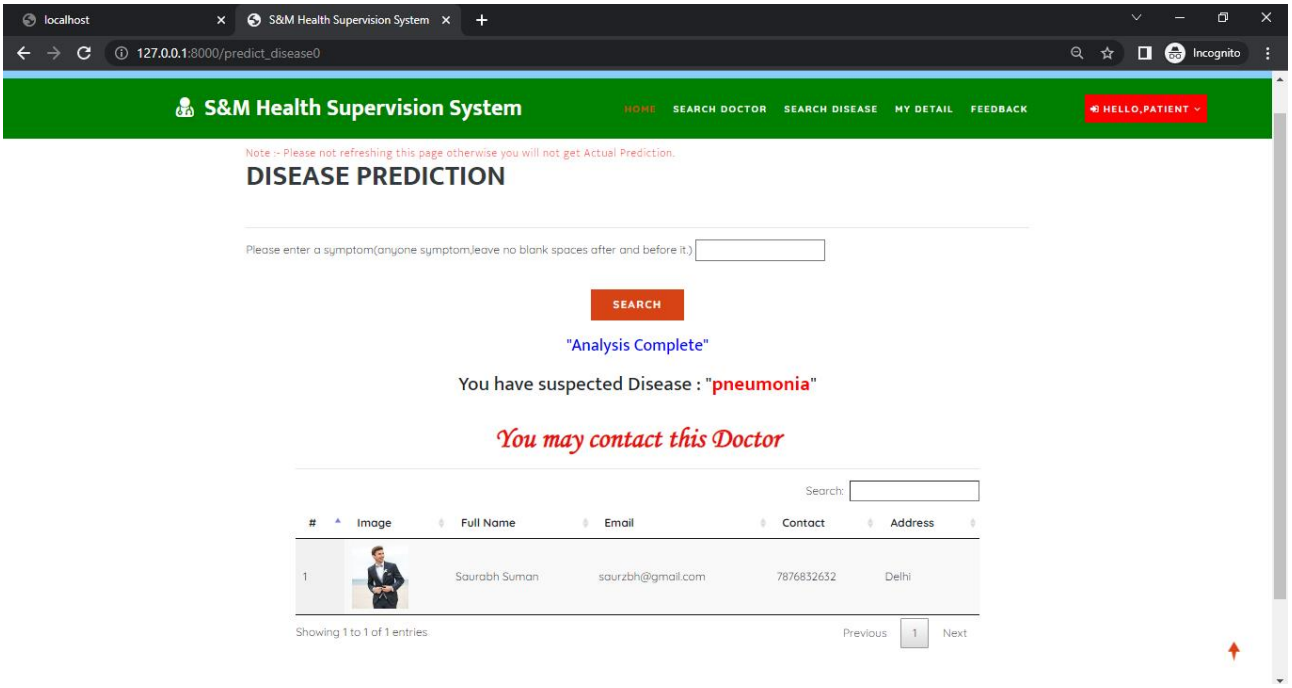
If the patient or doctor is a new user they will enter their information and will receive an ID and password that can log in to the system. In this page they have to fill the information like their First Name, Last Name, Username, Password, Email, Contact, Date Of Birth, Address, User Type and also upload their image.

PATIENT HOME PAGE



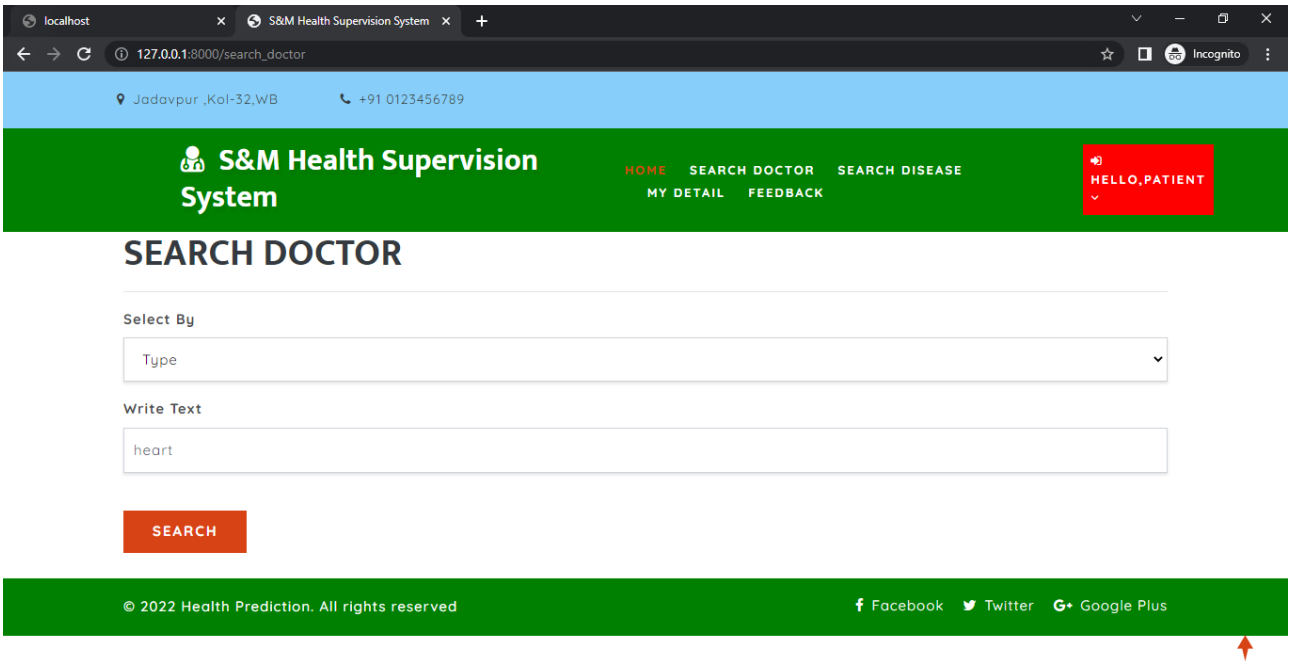
If the user is a patient then after login this page will open. Here the user can search for a doctor, view their details or search disease.

VIEW DISEASE PREDICTION RESULT PAGE



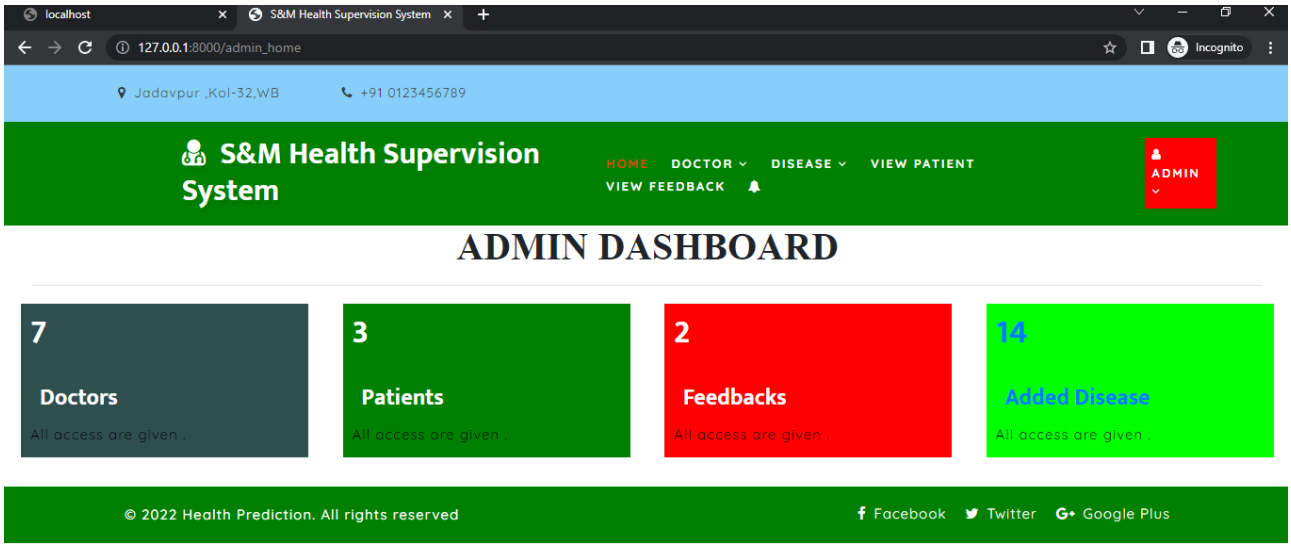
The patient will clarify the symptoms caused by his illness. The program will ask specific questions about the illness and then predict the disease according to the patient's symptoms and the program will also identify the disease-based doctors.

SEARCH DOCTOR PAGE



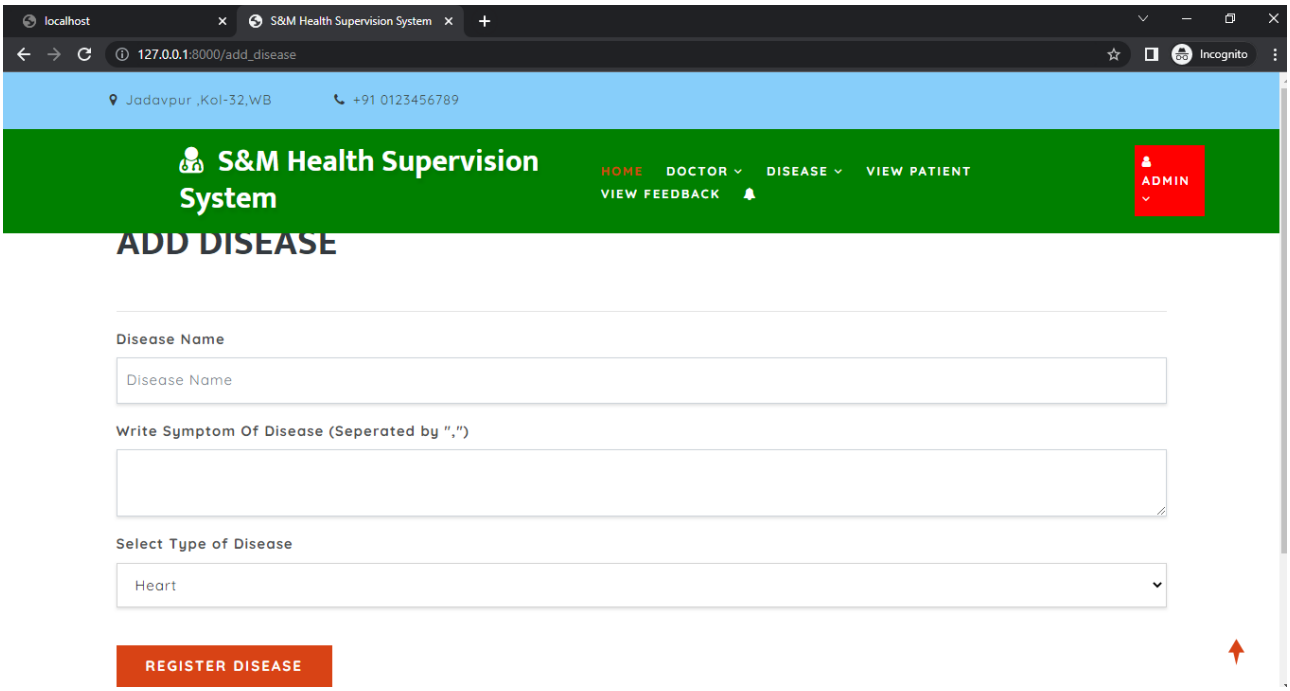
A patient can search for a doctor by specifying a name, address or type.

ADMIN HOME PAGE



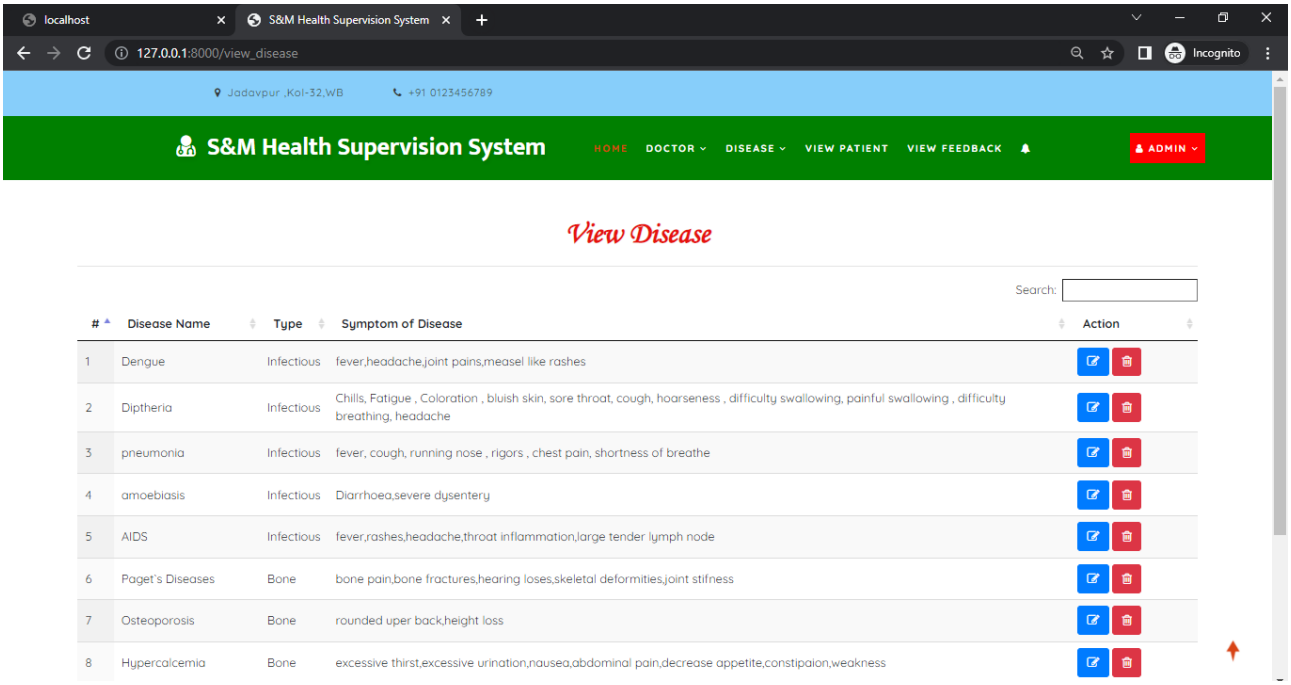
This is admin home page. Here admin can give access to the doctors or patients and also add diseases.

ADD DISEASE INFORMATION PAGE



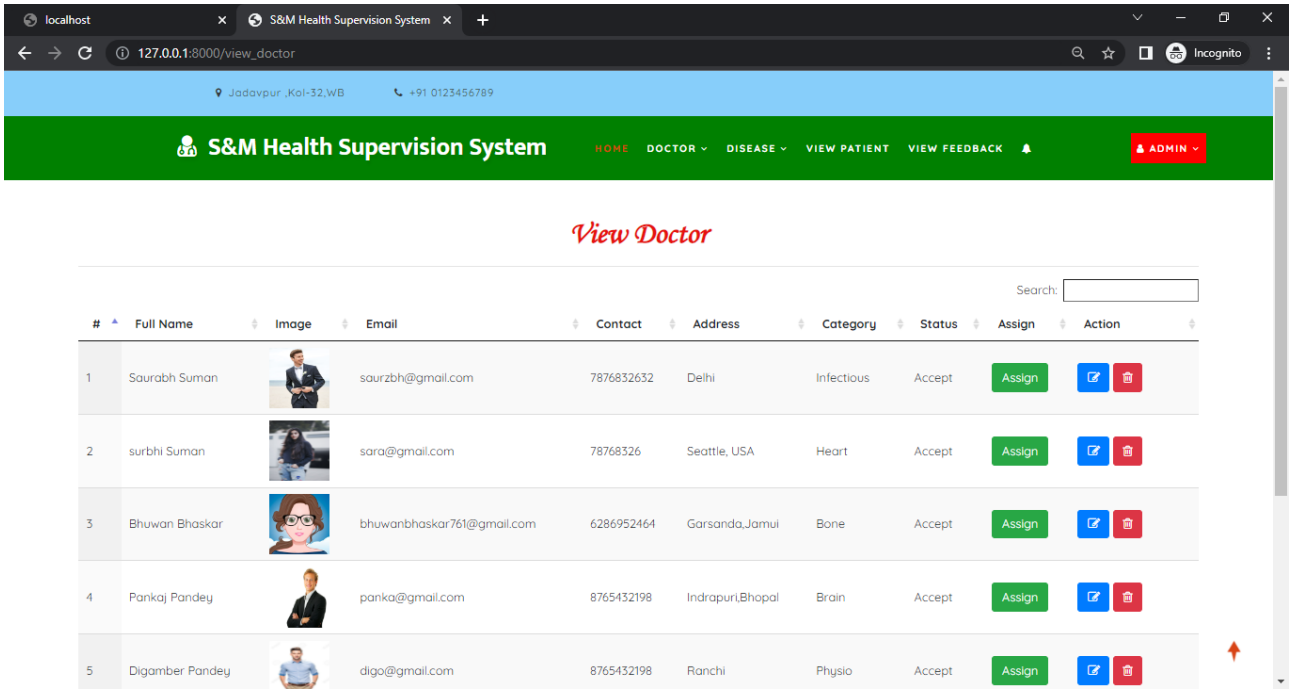
Here admin can add new diseases, their symptoms and their types.

VIEW DISEASE INFORMATION PAGE



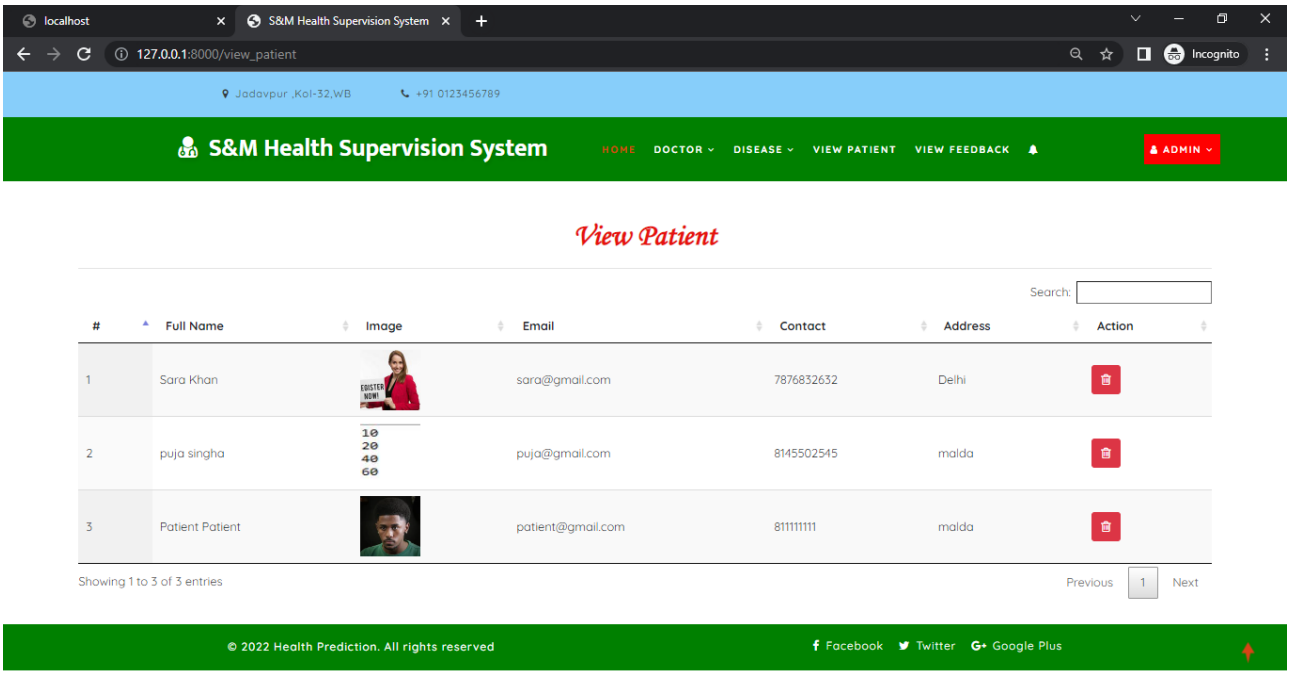
Here we can view diseases, their types and their symptoms.

VIEW ALL DOCTORS PAGE



In this page we can see all the available doctors, their contact details and their specialization.

VIEW PATIENTS DETAIL



Here we can view all the patient's details and their contacts.

CHAPTER # 6

Coding

HOME PAGE CODING

```
<!DOCTYPE html>
{% load static %}
<html lang="zxx">

<head>
<title>A Doctor Recommendation System based on Patients' Sysmptoms</title>
<!-- Meta tag Keywords -->
<meta name="viewport" content="width=device-width, initial-scale=1">
<meta charset="UTF-8" />
<meta name="keywords" />
<script>
addEventListener("load", function () {
setTimeout(hideURLbar, 0);
      }, false);

      function hideURLbar() {
window.scrollTo(0, 1);
      }
</script>
<link rel="stylesheet" href="{% static 'css/bootstrap.css' %}">
<!-- Bootstrap-Core-CSS -->
<link href="{% static 'css/css_slider.css' %}" type="text/css" rel="stylesheet"
media="all">
<!-- banner slider -->
<link rel="stylesheet" href="{% static 'css/style.css' %}" type="text/css"
media="all" />
<!-- Style-CSS -->
<link href="{% static 'css/font-awesome.min.css' %}" rel="stylesheet">
<!-- Font-Awesome-Icons-CSS -->
<!-- //Custom-Files -->

<!-- Web-Fonts -->
<link href="//fonts.googleapis.com/css?family=Quicksand:300,400,500,700"
rel="stylesheet">
```

```
<link
href="//fonts.googleapis.com/css?family=Mukta:200,300,400,500,600,700,800&amp;su
bset=devanagari,latin-ext" rel="stylesheet">
<style><!-- //Web-Fonts -->
.li2{
   border:1px solid red;
   padding:8px;
   }
</style>

<link rel='stylesheet' type='text/css'
href="https://cdn.datatables.net/1.10.21/css/jquery.dataTables.min.css">
<link rel='stylesheet' type='text/css'
href="https://cdn.datatables.net/buttons/1.6.2/css/buttons.dataTables.min.css">

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<script
src="https://cdn.datatables.net/1.10.21/js/jquery.dataTables.min.js"></script>
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ript>
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t>
<script
src="https://cdn.datatables.net/buttons/1.6.2/js/buttons.html5.min.js"></script>

<script>
$(document).ready(function() {
    $('#example').DataTable( {
dom: 'Bfrtip',
        buttons: [

        ]
    } );
} );
</script>
</head>

<body>
<!-- main -->
<div id="home" style="margin-bottom:2%">
<!-- top header -->
<header>
<div class="top-bar py-3 bg-light-blue" id="grab">
<div class="container" >
<div class="row">
<div class="col-xl-6 col-lg-6 col-md-8 top-social-agile text-lg-left text-
center">
<div class="row">
<div class="col-5 header-top_w3layouts">
<p class="text-bl">
<span class="fa fa-map-marker mr-2"></span>Jadavpur ,Kol-32,WB
</p>
</div>
<div class="col-5 header-top_w3layouts">
```

```
<p class="text-bl">
<span class="fa fa-phone mr-2"></span>+91 0123456789
</p>
</div>
<!-- social icons -->

<!-- //social icons -->
</div>
</div>
<div class="col-xl-7 col-lg-6 col-md-4 top-social-agile text-md-right text-
center mt-md-0 mt-2">
<div class="row">
<div class="offset-xl-6 offset-lg-4">
</div>
<div class="col-xl-3 col-lg-4 col-6 top-w3layouts p-md-0 text-right">
<!-- login -->
<a href="login.html" class="login-button-2 text-uppercase text-bl">
</a>
<!-- //login -->
</div>
<div class="col-xl-3 col-lg-4 col-6 header-w3layouts text-md-right text-left">
<!-- register -->
<a href="register.html" class="login-button-2 text-uppercase text-bl">
</a>
<!-- //register -->
</div>
</div>
</div>
</div>
</div>
</div>
</header>
<!-- //top header -->

<!-- second header -->
<div class="main-top" style="background:Green">
<div class="container-fluid">
<div class="header d-md-flex justify-content-between align-items-center py-3">
<!-- logo -->
<div id="logo" style="margin-left:13%">
<h1>
<a href="index.html">
<span class="fa fa-user-md mr-2"></span>
<span class="logo-sp"></span>A Doctor Recommendation System based on Patients'
Sysmptoms
</a>
</h1>
</div>
<!-- //logo -->
<!-- nav -->
                {% if request.user.is_staff %}
<div class="nav_w3ls" style="margin-right:4%">
<nav>
<label for="drop1" class="toggle">Menu</label>
<input type="checkbox" id="drop1" />
<ul class="menu" style="padding:15px;width:100%">

<li class="mx-lg-4 mx-md-3 my-md-0 my-2"><a href="{% url 'admin_home' %}"
class="active">Home</a></li>

<li>
```

```
<label for="drop-2" class="toggle toogle-2"><span class="fa fa-angle-down" aria-
hidden="true"></span>
</label>
<a href="#"> Doctor <span class="fa fa-angle-down" aria-
hidden="true"></span></a>
<ul style="margin-top:2%;width:40%;margin-right:0%">
<li style="width:100%;"><a href="{% url 'add_doctor' %}" class="drop-text">Add
Doctor</a></li>
<li style="width:100%;"><a href="{% url 'view_doctor' %}" class="drop-text">View
Doctor</a></li>
</ul>
</li>

<li class="mx-lg-4 mx-md-3 my-md-0 my-2">
<label for="drop-2" class="toggle toogle-2"><span class="fa fa-angle-down" aria-
hidden="true"></span>
</label>
<a href="#"> Disease <span class="fa fa-angle-down" aria-
hidden="true"></span></a>
<ul style="margin-top:2%;width:40%;margin-right:4%">
<li style="width:100%;"><a href="{% url 'add_disease' %}" class="drop-text">Add
Disease</a></li>
<li style="width:100%;"><a href="{% url 'view_disease' %}" class="drop-
text">View Disease</a></li>
</ul>
</li>


<li><a href="{% url 'view_patient' %}">View Patient</a></li>
<li class="mx-lg-4 mx-md-3 my-md-0 my-2"><a href="{% url 'view_feedback'
%}">View Feedback</a></li>
<li><a href="{% url 'view_notify' %}"><i class="fa fa-bell"></i></a></li>

</ul>
</nav>
</div>
<div class="nav_w3ls" style="margin-right:3%">

<nav>
<label for="drop2" class="toggle">Menu</label>
<input type="checkbox" id="drop2" />
<ul class="menu">
<li class="mx-lg-4 mx-md-3 my-md-0 my-2" style="background:red;padding:8px">
<!-- First Tier Drop Down -->
<label for="drop-2" class="toggle toogle-2"><span class="fa fa-angle-down" aria-
hidden="true"></span>
</label>
<a href="#"><i class="fa fa-user"></i> {{request.user.username}} <span class="fa
fa-angle-down" aria-hidden="true"></span></a>
<ul style="margin-top:10%;width:80%;margin-right:5%">
<li style="width:100%;"><a href="{% url 'change_password' %}" class="drop-
text">Password</a></li>
<li style="width:100%;"><a href="{% url 'logout' %}" class="drop-
text">Logout</a></li>
</ul>
</li>



</ul>
</nav>
```

```
</div>
                {% else %}
                {% if request.user.is_authenticated %}
                {% ifequal error "pat" %}
<div class="nav_w3ls" style="margin-left:5%;font-weight:bold">
<nav>
<label for="drop3" class="toggle">Menu</label>
<input type="checkbox" id="drop3" />
<ul class="menu" style="padding:15px;width:100%">
<li><a href="{% url 'patient_home' %}" class="active">Home</a></li>
<li class="mx-lg-4 mx-md-3 my-md-0 my-2"><a href="{% url 'search_doctor'
%}">Search Doctor</a></li>
<li><a href="{% url 'predict_disease' '0' %}">Search Disease</a></li>
<li class="mx-lg-4 mx-md-3 my-md-0 my-2"><a href="{% url 'profile_doctor' %}">My
Detail</a></li>
<li><a href="{% url 'sent_feedback' %}">Feedback</a></li>
</ul>
</nav>
</div>
<div class="nav_w3ls" style="margin-right:3%">

<nav>
<label for="drop4" class="toggle">Menu</label>
<input type="checkbox" id="drop4" />
<ul class="menu">
<li class="mx-lg-4 mx-md-3 my-md-0 my-2" style="background:red;padding:8px">
<!-- First Tier Drop Down -->
<label for="drop-3" class="toggle toogle-3"><span class="fa fa-angle-down" aria-
hidden="true"></span>
</label>
<a href="#"><i class="fa fa-sign-in"></i> Hello,{{request.user.username}} <span
class="fa fa-angle-down" aria-hidden="true"></span></a>
<ul style="margin-top:8%;width:80%;margin-right:5%">
<li style="width:100%;"><a href="{% url 'change_password' %}" class="drop-text">
Password</a></li>
<li style="width:100%;"><a href="{% url 'logout' %}" class="drop-text">
Logout</a></li>
</ul>
</li>
</ul>
</nav>
</div>
                {% else %}
<div class="nav_w3ls" style="margin-right:4%">
<nav>
<label for="drop5" class="toggle">Menu</label>
<input type="checkbox" id="drop5" />
<ul class="menu" style="padding:15px;width:100%">
<li><a href="{% url 'doctor_home' %}" class="active">Home</a></li>
<li class="mx-lg-4 mx-md-3 my-md-0 my-2">
<a href="{% url 'profile_doctor' %}">My Detail</a></li>
<li><a href="{% url 'notification' %}">Notification</a></li>
</ul>
</nav>
</div>
<div class="nav_w3ls" style="margin-right:3%">

<nav>
<label for="drop6" class="toggle">Menu</label>
<input type="checkbox" id="drop6" />
<ul class="menu">
```

```
<li class="mx-lg-4 mx-md-3 my-md-0 my-2" style="background:red;padding:8px">
<!-- First Tier Drop Down -->
<label for="drop6" class="toggle toogle-2"><span class="fa fa-angle-down" aria-
hidden="true"></span>
</label>
<a href="#"><i class="fa fa-user"></i> {{request.user.username}} <span class="fa
fa-angle-down" aria-hidden="true"></span></a>
<ul style="margin-top:10%;width:80%;margin-right:5%">
<li style="width:100%;"><a href="{% url 'change_password' %}" class="drop-
text">Password</a></li>
<li style="width:100%;"><a href="{% url 'logout' %}" class="drop-
text">Logout</a></li>
</ul>
</li>



</ul>
</nav>
</div>
                {% endifequal %}
                {% else %}
<div class="nav_w3ls" style="margin-right:4%">
<nav>
<label for="drop7" class="toggle">Menu</label>
<input type="checkbox" id="drop7" />
<ul class="menu" style="padding:15px;width:100%">
<li><a href="{% url 'home' %}" class="active">Home</a></li>
<li class="mx-lg-4 mx-md-3 my-md-0 my-2">
<a href="{% url 'about' %}">About Us</a></li>
<li><a href="{% url 'gallery' %}">Gallery</a></li>

<li style="padding-left:20px"><a href="{% url 'contact' %}">Contact Us</a></li>
</ul>
</nav>
</div>
<div class="nav_w3ls" style="margin-right:3%">

<nav>
<label for="drop" class="toggle">Menu</label>
<input type="checkbox" id="drop" />
<ul class="menu">
<li class="mx-lg-4 mx-md-3 my-md-0 my-2" style="background:red;padding:8px">
<!-- First Tier Drop Down -->
<label for="drop-2" class="toggle toogle-2"><span class="fa fa-angle-down" aria-
hidden="true"></span>
</label>
<a href="#"><i class="fa fa-sign-in"></i> Login <span class="fa fa-angle-down"
aria-hidden="true"></span></a>
<ul style="margin-top:10%;width:80%;margin-right:5%">
<li style="width:100%;"><a href="{% url 'login_admin' %}" class="drop-
text">Admin</a></li>
<li style="width:100%;"><a href="{% url 'login' %}" class="drop-
text">User</a></li>
</ul>
</li>



</ul>
</nav>
```

```
</div>
                {% endif %}
                {% endif %}

<!-- //nav -->
</div>
</div>
</div>
<!-- //second header -->

<!-- banner -->
      {% block body %}
      {% endblock %}
<!-- //banner -->
</div>
<!-- //main -->


<!-- footer bottom -->
<!-- copyright -->
<div class="copy-w3pvt" style="background:green;color:white">
<div class="container py-3">
<div class="row">
<div class="col-lg-7 w3ls_footer_grid1_left text-lg-left text-center">
<p style="color:white">&copy; 2022 Health Prediction. All rights reserved </a>
</p>
</div>
<div class="col-lg-5 w3ls_footer_grid_left1_pos text-lg-right text-center mt-lg-
0 mt-2">
<ul style="color:white">
<li>
<a href="#" style="color:white" class="facebook">
<span class="fa fa-facebook-f mr-2"></span>Facebook</a>
</li>
<li class="mx-3">
<a href="#" style="color:white" class="twitter">
<span class="fa fa-twitter mr-2"></span>Twitter</a>
</li>
<li>
<a href="#" style="color:white" class="google">
<span class="fa fa-google-plus mr-2"></span>Google Plus</a>
</li>
</ul>
</div>
</div>
</div>
</div>
<!-- //copyright -->
<!-- //footer bottom -->
<!-- move top icon -->
<a href="#home" style="color:white" class="move-top text-center"></a>
<!-- //move top icon -->

</body>

</html>
```

USER REGISTRATIONPAGE CODING

```
{% extends 'index.html' %}
{% load static %}
{% block body %}
<!-- register -->
{% ifequal error "create" %}
<script>
    alert('Registration Successfull');
window.location="{% url 'login' %}";
</script>
{% endifequal %}


<section class="logins py-5">
<div class="container py-xl-5 py-lg-3">
<div class="title-section mb-md-5 mb-4">
<h6 class="w3ls-title-sub"></h6>
<h3 class="w3ls-title text-uppercase text-dark font-weight-bold">Register
Now</h3>
</div><hr/>
<div class="login px-sm-12" style="width:100%">
<form action="" method="post" enctype="multipart/form-data">
                {% csrf_token %}
<div class="form-group row">
<div class="col-md-6">
<label>First Name</label>
<input type="text" class="form-control" name="fname" placeholder="First Name"
required="">
</div>
<div class="col-md-6">
<label>Last Name</label>
<input type="text" class="form-control" name="lname" placeholder="Last Name"
required="">
</div>
</div>
<div class="form-group row">
<div class="col-md-6">
<label>Username</label>
<input type="text" class="form-control" name="uname" placeholder="Username"
required="">
</div>
<div class="col-md-6">
<label>Password</label>
<input type="password" class="form-control" name="pwd" placeholder="Password"
required="">
</div>
</div>
<div class="form-group row">
<div class="col-md-6">
<label>Email</label>
<input type="email" class="form-control" name="email" placeholder="Enter Email"
required="">
```

```
</div>
<div class="col-md-6">
<label>Contact</label>
<input type="text" class="form-control" name="contact" placeholder="Enter
Contact" required="">
</div>
</div>
<div class="form-group row">
<div class="col-md-6">
<label>Date Of Birth</label>
<input type="date" class="form-control" name="dob" placeholder="" required="">
</div>
<div class="col-md-6">
<label>Image</label>
<input type="file" class="form-control" name="image" required="">
</div>
</div>
<div class="form-group row">
<div class="col-md-6">
<label class="mb-2">Address</label>
<input type="text" class="form-control" name="add" id="password1"
placeholder="Enter Address" required="">
</div>
<div class="col-md-6">
<label>User Type</label>
<div class="form-control">
                    Patient <input type="radio" placeholder="Patient" name="type"
style="margin-right:4%" required="" value="Patient">
                    Doctor <input type="radio" placeholder="Patient" name="type"
required="" value="Doctor">
</div>
</div>

</div>
<button type="submit" class="btn submit mt-4">Register</button>
<p class="text-center mt-5">
<a href="#">By clicking Register, I agree to your terms</a>
</p>
</form>
</div>
</div>
</section>
<!-- //register -->

{% endblock %}
```

DISEASE PREDICTION PAGE CODING

```
{% extends 'index.html' %}
{% load static %}
{% block body %}

<section class="logins py-5">
<div class="container py-xl-5 py-lg-3">
```

```
<div class="title-section mb-md-5 mb-4">
<h6 class="w3ls-title-sub" style="color:red">
                    Note :- Please not refreshing this page otherwise we will
not get Actual Prediction.</h6>
<h3 class="w3ls-title text-uppercase text-dark font-weight-bold">Disease
Prediction</h3>
</div><hr/>
<div class="login px-sm-12" style="width:100%">
<form action="{% url 'predict_disease' '0' %}" method="post"
enctype="multipart/form-data">
              {% csrf_token %}
<div class="form-group">
                        Please enter a symptom(anyone symptom,leave no blank
spaces after and before it.)
<input type="text" name="sym" required="">
</div>
<center><button type="submit" class="btn submit mt-4">Search</button>
</center></form>
</div>
            {% ifequal terror "start" %}
<h5> Are you feeling any of these symptoms too?</h5>

<div class="login px-sm-12" style="width:100%">
                {% for i in li %}
<h4 style="color:red">{{i}}</h4>
                {% endfor %}
<form action="{% url 'predict_disease' '0' %}" method="post"
enctype="multipart/form-data">
              {% csrf_token %}
<div class="form-group row">
<div class="col-md-12">
<label>Please Select</label>
<select class="form-control" name="sym" required>
<option value="">------Select any of these -----</option>
                            {% for i in li %}
<option value="{{i}}">{{i}}</option>
                            {% endfor %}
</select>
</div>
</div>
<div class="row">
<div class="col-md-2">
<button type="submit" class="btn submit mt-4">Next</button>
</div>
<div class="col-md-10">
<button class="btn submit mt-4"><a href="{% url 'predict_disease' 'None' %}"
style="color:white">I have none of the Above Symptom</a></button>
</div>
</div>
</form>
</div>
            {% else %}
            {% ifequal terror 'End' %}

<h4 style="color:blue;margin:2%" align="center">"Analysis Complete"</h4>
<div class="form-group">
<h3 align="center">You have suspected Disease  :
                            "<span style="color:red;font-
weight:bold">{{dis.name}}</span>" </h3>
</div>
```

```
<div class="container-fluid" style="width:90%;margin-top:3%">
<div class="container-fluid">
<h1 align="center" style="font-weight:bold;font-family : 'Monotype Corsiva' ;
color : #E6120E ;margin-top:4%">You may contact this Doctor</h1>
</div><hr>
<table id="example" class="display" style="width:100%">
<thead>
<tr>
<th>#</th>
<th>Image</th>
<th>Full Name</th>
<th>Email</th>
<th>Contact</th>
<th>Address</th>

</tr>
</thead>
<tbody>
                                {% for i in doc %}
<tr>
<td>{{forloop.counter}}</td>
<td><imgsrc="{{i.image.url}}" style="width:80px;height:90px"></td>
<td>{{i.user.first_name}} {{i.user.last_name}}</td>
<td>{{i.user.email}}</td>
<td>{{i.contact}}</td>
<td>{{i.address}}</td>
</tr>
                                {% endfor %}
</tbody>
</table>
</div>
            {% endifequal %}
            {% endifequal %}
</div>
</section>

{% endblock %}
```

SEARCH DOCTOR PAGE CODING

```
{% extends 'index.html' %}
{% load static %}
{% block body %}
<div class="container" style="margin-top:8%">
<h6 class="w3ls-title-sub"></h6>
<h3 class="w3ls-title text-uppercase text-dark font-weight-bold">Search
Doctor</h3>
<hr/>
<div class="login px-sm-12" style="width:100%">
<form action="" method="post" enctype="multipart/form-data">
              {% csrf_token %}
<div class="form-group row">
<div class="col-md-12">
```

```
<label>Select By</label>
<select class="form-control" name="type" style="border:1px solid lightgray"
required="">
<option value="Name">Name</option>
<option value="Type">Type</option>
<option value="Address">Address</option>
</select>
</div>
</div>
<div class="form-group row">
<div class="col-md-12">
<label>Write Text</label>
<input type="text" class="form-control" name="tex" placeholder="Enter Contact"
required="">
</div>
</div>
<button type="submit" class="btn submit mt-4">Search</button>
</form>
</div>
</div>
   {% ifequal t "Name" %}
<div class="container-fluid" style="width:90%;margin-top:0%">
<div class="container-fluid">
<h1 align="center" style="font-weight:bold;font-family : 'Monotype Corsiva' ;
color : #E6120E ;margin-top:4%">View Doctor Detail</h1>
</div><hr>
<table id="example" class="display" style="width:100%">
<thead>
<tr>
<th>#</th>
<th>Full Name</th>
<th>Email</th>
<th>Contact</th>
<th>Address</th>
<th>Specialization</th>
</tr>
</thead>
<tbody>
                              {% for i in doc %}
                        {% if i.user.id in li %}
<tr>
<td>{{forloop.counter}}</td>
<td>{{i.user.first_name}} {{i.user.last_name}}</td>
<td>{{i.user.email}}</td>
<td>{{i.contact}}</td>
<td>{{i.address}}</td>
<td>{{i.category}}</td>
</tr>
                        {% endif %}
                              {% endfor %}
</tbody>
</table>
</div>
   {% else %}
   {% ifequal t "Type" %}
<div class="container-fluid" style="width:90%;margin-top:%">
<div class="container-fluid">
<h1 align="center" style="font-weight:bold;font-family : 'Monotype Corsiva' ;
color : #E6120E ;margin-top:4%">View Doctor Detail</h1>
</div><hr>
<table id="example" class="display" style="width:100%">
```

```
<thead>
<tr>
<th>#</th>
<th>Full Name</th>
<th>Email</th>
<th>Contact</th>
<th>Address</th>
<th>Category</th>
</tr>
</thead>
<tbody>
                                {% for i in doc %}
<tr>
<td>{{forloop.counter}}</td>
<td>{{i.user.first_name}} {{i.user.last_name}}</td>
<td>{{i.user.email}}</td>
<td>{{i.contact}}</td>
<td>{{i.address}}</td>
<td>{{i.category}}</td>
</tr>
                                {% endfor %}
</tbody>
</table>
</div></div>
   {% else %}
   {% ifequal t "Address" %}
<div class="container-fluid" style="width:90%;margin-top:%">
<div class="container-fluid">
<h1 align="center" style="font-weight:bold;font-family : 'Monotype Corsiva' ;
color : #E6120E ;margin-top:4%">View Doctor Detail</h1>
</div><hr>
<table id="example" class="display" style="width:100%">
<thead>
<tr>
<th>#</th>
<th>Full Name</th>
<th>Email</th>
<th>Contact</th>
<th>Address</th>
<th>Category</th>
</tr>
</thead>
<tbody>
                                {% for i in doc %}
<tr>
<td>{{forloop.counter}}</td>
<td>{{i.user.first_name}} {{i.user.last_name}}</td>
<td>{{i.user.email}}</td>
<td>{{i.contact}}</td>
<td>{{i.address}}</td>
<td>{{i.category}}</td>
</tr>
                                {% endfor %}
</tbody>
</table>
</div>
   {% endifequal %}
   {% endifequal %}
   {% endifequal %}
{% endblock %}
```

ADD DISEASE DETAILS PAGE

```
{% extends 'index.html' %}
{% load static %}
{% block body %}
<!-- register -->
{% ifequal error "create" %}
<script>
    alert('Add a new Disease Successfully');
window.location="{% url 'view_disease' %}";
</script>
{% endifequal %}


<section class="logins py-5">
<div class="container py-xl-5 py-lg-3">
<div class="title-section mb-md-5 mb-4">
<h6 class="w3ls-title-sub"></h6>
<h3 class="w3ls-title text-uppercase text-dark font-weight-bold">Add
Disease</h3>
</div><hr/>
<div class="login px-sm-12" style="width:100%">
<form action="" method="post" enctype="multipart/form-data">
               {% csrf_token %}
<div class="form-group row">
<div class="col-md-12">
<label>Disease Name</label>
<input type="text" class="form-control" name="d_name" placeholder="Disease Name"
required="">
</div>
</div>
<div class="form-group row">
<div class="col-md-12">
<label>Write Symptom Of Disease (Seperated by ",")</label>
<textarea class="form-control" name="sym" placeholder="Symptom Of Disease"
required="">
</textarea>
</div>
</div>
<div class="form-group row">
<div class="col-md-12">
<label>Select Type of Disease</label>
<select class="form-control" name="type" style="border:1px solid lightgray"
required="">
                        {% for i in type  %}
<option value="{{i.name}}">{{i.name}}</option>
                        {% endfor %}
</select>
</div>
</div>
<button type="submit" class="btn submit mt-4">Register Disease</button>
</form>
```

```
</div>
</div>
</section>
<!-- //register -->

{% endblock %}
```

VIEW DISEASEDETAILS PAGE CODING

```
{% extends 'index.html' %}
{% load static %}
{% block body %}

<div class="container-fluid" style="width:90%;margin-top:8%">
<div class="container-fluid">
<h1 align="center" style="font-weight:bold;font-family : 'Monotype Corsiva' ;
color : #E6120E ;margin-top:4%">View Disease</h1>
</div><hr>
<table id="example" class="display" style="width:100%">
<thead>
<tr>
<th>#</th>
<th>Disease Name</th>
<th>Type</th>
<th>Symptom of Disease</th>
<th>Action</th>

</tr>
</thead>
<tbody>
                                {% for i in dis %}
<tr>
<td>{{forloop.counter}}</td>
<td>{{i.name}}</td>
<td>{{i.type.name}}</td>
<td>{{i.symptom}}</td>
<td style="width:150px">

<a href="{% url 'edit_disease' i.id %}" ><button class="btnbtn-primary"><i
class="fa fa-edit"></i></button></a>
<a href="{% url 'delete_disease' i.id %}" ><button class="btnbtn-danger"
onclick="return confirm('Are you sure?')"><i class="fa fa-trash-
o"></i></button></a></td>
</tr>
                                {% endfor %}
</tbody>
</table>
```

```
</div>
{% endblock %}
```

VIEW ALL DOCTORS PAGE CODING

```
{% extends 'index.html' %}
{% load static %}
{% block body %}

<div class="container-fluid" style="width:90%;margin-top:8%">
<div class="container-fluid">
<h1 align="center" style="font-weight:bold;font-family : 'Monotype Corsiva' ;
color : #E6120E ;margin-top:4%">View Doctor</h1>
</div><hr>
<table id="example" class="display" style="width:100%">
<thead>
<tr>
<th>#</th>
<th>Full Name</th>
<th>Image</th>
<th>Email</th>
<th>Contact</th>
<th>Address</th>
<th>Category</th>
<th>Status</th>
<th>Assign</th>
<th>Action</th>

</tr>
</thead>
<tbody>
                                {% for i in doc %}
<tr>
<td>{{forloop.counter}}</td>
<td>{{i.user.first_name}} {{i.user.last_name}}</td>
<td><imgsrc="{{i.image.url}}" style="width:80px;height:80px"></td>
<td>{{i.user.email}}</td>
<td>{{i.contact}}</td>
<td>{{i.address}}</td>
<td>{{i.category}}</td>
<td>{{i.status.status}}</td>
<td><a href="{% url 'assign_status' i.id %}"><button class="btnbtn-
success">Assign</button></a></td>
<td style="width:150px">

<a href="{% url 'edit_doctor' i.id %}" ><button class="btnbtn-primary"><i
class="fa fa-edit"></i></button></a>
<a href="{% url 'delete_doctor' i.id %}" ><button class="btnbtn-danger"
onclick="return confirm('Are you sure?')"><i class="fa fa-trash-
o"></i></button></a></td>
</tr>
                                {% endfor %}
</tbody>
</table>
</div>
{% endblock %}
```

CHANGE PASSWORD PAGE CODING

```
{% extends 'index.html' %}
{% load static %}
{% block body %}
<!-- register -->
{% ifequal terror "yes" %}
<script>
    alert('Password Changed.....');
window.location=('{% url 'logout' %}')
</script>
{% endifequal %}
{% ifequal terror "not" %}
<script>
    alert('New Password and Confirm Password are not match');
</script>
{% endifequal %}


<section class="logins py-5">
<div class="container py-xl-5 py-lg-3">
<div class="title-section mb-md-5 mb-4">
<h6 class="w3ls-title-sub"></h6>
<h3 class="w3ls-title text-uppercase text-dark font-weight-bold">Change
Password</h3>
</div><hr/>
<div class="login px-sm-12" style="width:100%">
<form action="" method="post" enctype="multipart/form-data">
               {% csrf_token %}
<div class="form-group row">
<div class="col-md-12">
<label>Old Password</label>
<input type="password" class="form-control" name="pwd3" required="">
</div>
</div>
<div class="form-group row">
<div class="col-md-12">
<label>New Password</label>
<input type="password" class="form-control" name="pwd1" required="">
</div>
</div>
<div class="form-group row">
<div class="col-md-12">
<label>Confirm Password</label>
<input type="password" class="form-control" name="pwd2" required="">
</div>
</div>

<button type="submit" class="btn submit mt-4">Register Disease</button>
</form>
</div>
</div>
</section>
<!-- //register -->
{% endblock %}
```

CHAPTER # 7
CONCLUSION

Advantages of "A Doctor Recommendation System based on Patients' Sysmptoms"

"A Doctor Recommendation System based on Patients' Sysmptoms" provides various features, which complement the general healthcare system and increase the productivity of the system. These features make the system easily usable and convenient. Some of the important features included are listed as follows:

- Intelligent User Forms Design
    - Data access and manipulation through same forms
    - Access to most required information
- Data Security
- Restrictive data access, as per login assigned only.
- Organized and structured storage of facts.
- Strategic Planning made easy.
- No decay of old Records.
- Exact financial position of the Business.
- User can search for doctor's help at any point of time.
- User can talk about their illness and get instant diagnosis.
- Doctors can treat the patients online.

Limitations of "A Doctor Recommendation System based on Patients' Sysmptoms":

Besides the above achievements and the successful completion of the project, we still feel the project has some limitations, listed as below:

1. It is not a large scale system.
2. Only limited information provided by this system.
3. Since it is an online project, customers need internet connection.
4. People who are not familiar with computers cannot use this software.
5. The system is not fully automated; it needs doctors for full diagnosis.

FUTURE SCOPE

In the future, our application can move on to add more features like,

- Patients can schedule pathological tests, ambulance services, oxygen support, and other services.
- The doctor can view the report online remotely on his dashboard and give the prescription directly to the patient.
- The administrative authority will add many more hospitality services like beds, medicines, etc.

CONCLUSION

Our application is a service-based application where there are two types of users (doctor and patient) and an administrator. Here the administrator can verify and add doctors, add diseases and also view the patient's information. Any patient can use this system to register themselves by entering their symptoms.

The system suggests a doctor with a specific specialty who they can contact. In this system, doctors can register themselves to provide service, and on the other hand, the administrator has the access to accept or reject their request. So our application has an excellent user-friendly GUI. In any kind of pandemic situation, our application can provide health care services without any physical interaction. If any patient isn't available to communicate physically with doctors, then by using our application they can remotely interact with doctors.

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