

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF Data Science And Business Systems

AI HEALTHCARE BOT SYSTEM: Improving Healthcare Access in Rural Areas

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Under Supervision of Dr. D. Prabakar/ Asst. Professor / Dept of DSBS



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Abstract

- The AI Healthcare Bot System aims to address the healthcare accessibility challenges prevalent in rural areas of India.
- By leveraging artificial intelligence (AI) technology, the system provides personalized medical advice, facilitates doctor appointments, and offers location-based assistance for finding nearby healthcare facilities.
- This presentation provides an overview of the project, including its objectives, methodology, and potential impact on improving healthcare access and outcomes in rural communities.



Introduction

- The project titled "AI HEALTHCARE BOT SYSTEM: Improving Healthcare Access in Rural Areas". The introduction sets the context for the AI Healthcare Bot System, highlighting the significant challenges faced by rural communities in accessing quality healthcare services
- Enhancing healthcare accessibility and quality in rural areas through AI technology...
- Introducing the Al Healthcare Bot System, a virtual assistant for medical support.
- It emphasizes the need for innovative solutions to bridge the gap between rural populations and healthcare resources, leading to the development of the Al Healthcare Bot System.
- Improved access, cost-efficiency, timely intervention, scalability, empowerment.



Motivation

- The motivation behind the AI Healthcare Bot System stems from the pressing need to address healthcare disparities in rural areas.
- Healthcare disparities in rural areas contribute to poorer health outcomes, increased healthcare costs, and reduced quality of life for residents.
- Factors such as limited access to medical information, difficulty in scheduling doctor appointments, and long distances to healthcare facilities underscore the importance of developing accessible and affordable healthcare solutions for rural communities.
- Addressing these disparities is essential for promoting health equity and ensuring that all individuals have access to the care they need, regardless of where they live.



Literature Review

| YEAR | TITLE | METHOD | AURTHORS | LIMITATIONS |
|--------|--|--|--|--|
| [2024] | "Generative AI for Transformative Healthcare: A Comprehensive Study of Emerging Models, Applications, Case Studies, and Limitations" | Dataset preparation, feature extraction, CNN architecture, training and testing, and performance evaluation. | SIVA SAI , AANCHAL GAUR2 , REVANT SAI , VINAY CHAMOLA , MOHSEN GUIZANI , AND JOEL J. P. C. RODRIGUES | Limited dataset, Dependency on lighting conditions, a limited number of bank notes, limited computational resources, and single image recognition. |
| [2024] | "Ethical Framework for Harnessing the Power of AI in Healthcare and Beyond" | Dataset preparation, feature extraction, ensemble classifiers, training and testing, and performance evaluation. | SIDRA NASIR, RIZWAN AHMED KHAN , AND SAMITA BAI | Limited dataset, dependency on image quality, limited computational resources, limited robustness to occlusion, and limited flexibility. |
| [2024] | "Tracking ChatGPT Research: Insights From the Literature and the Web" | Data augmentation, deep learning model, real-time implementation, and performance evaluation. | OMAR MUBIN , FADY ALNAJJAR , ZOUHEIR TRABELSI , LUQMAN ALI , MEDHA MOHAN AMBALI PARAMBIL , AND ZHAO ZOU | Limited dataset, performance under different conditions, lack of explanation for misclassifications, recognition of damaged banknotes, and limited hardware |
| [2019] | "Effective Heart Disease Prediction Using Hybrid Machine Learning Techniques" | Enhanced robust local ternary patterns, multi- feature fusion, classification model, and dataset | SENTHILKUMAR MOHAN , CHANDRASEGAR THIRUMALAI , AND GAUTAM SRIVASTAV | Limited dataset, feature extraction time, sensitivity to image quality, limited applicability. |



Challenges and limitations in existing system

- This slide discusses the challenges and limitations faced by current healthcare systems in rural areas, such as limited access to medical resources, Language barrier and lack of internet connectivity.
- Many rural areas suffer from inadequate internet infrastructure, hindering access to online healthcare services like the AI Healthcare Bot System, Poor internet connectivity can lead to slow response times, dropped connections, and overall user frustration, Addressing this challenge may require investment in expanding broadband infrastructure or alternative communication technologies.
- Rural areas often face shortages of healthcare professionals, limiting the availability of remote consultations through the system.
- Strategies to overcome this challenge may include recruiting and incentivizing healthcare professionals to serve rural communities or implementing telemedicine training programs.



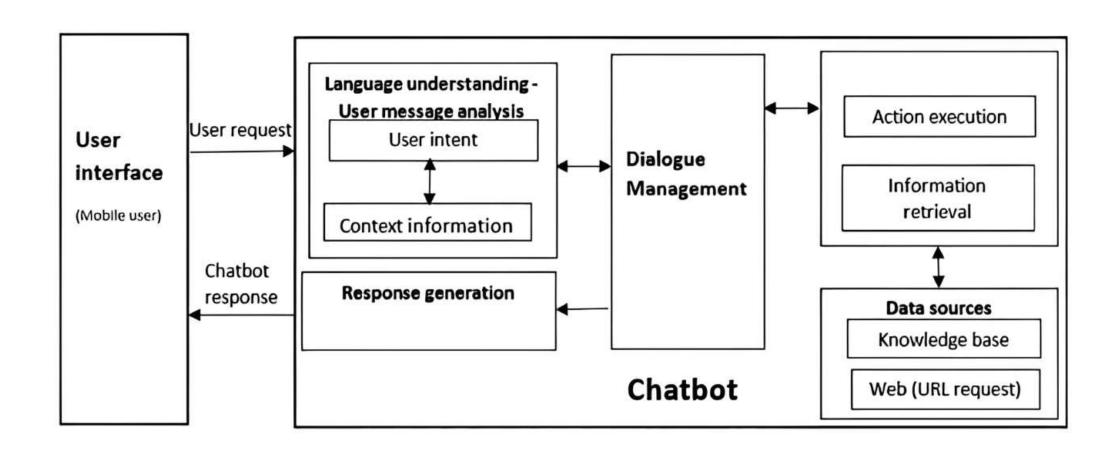
Objectives of the project

- The primary objective of the AI Healthcare Bot System is to mitigate healthcare disparities in rural areas by providing accessible and affordable healthcare solutions.
- The system aims to empower rural residents with readily available medical information and guidance, enabling them to make informed decisions about their health..

To develop a user-friendly interface to Operate the System.

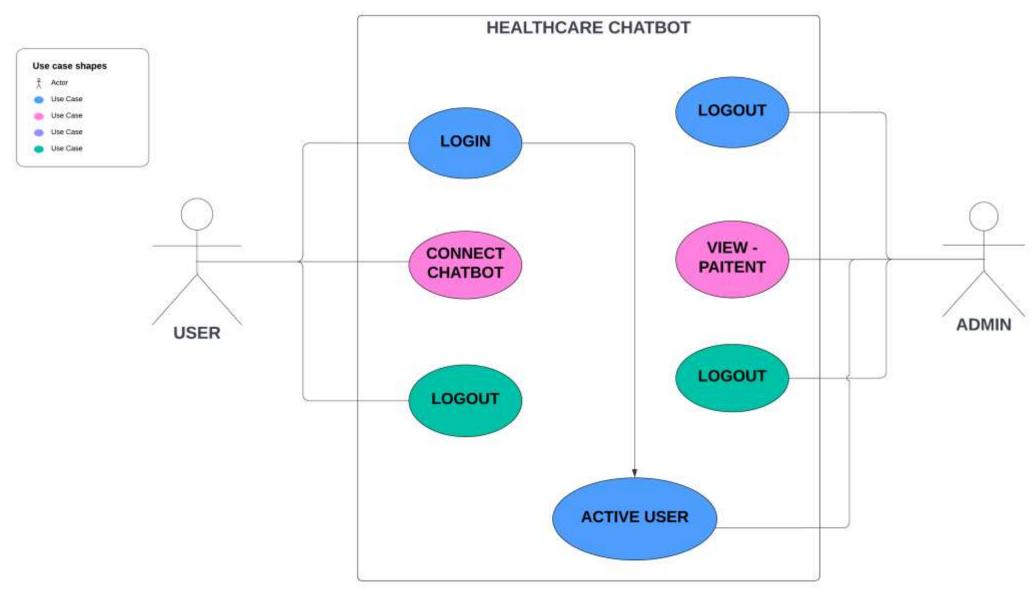


Architecture Diagram





Use Case





Innovation Idea of the project

- The innovative idea behind the AI Healthcare Bot System lies in its use of AI algorithms to provide personalized medical advice and location-based assistance.
- By leveraging AI technology, the system offers tailored healthcare solutions to individual users, thereby improving access and outcomes.
- This predictive healthcare analytics feature aims to revolutionize preventive care and early intervention, ultimately improving health outcomes and reducing healthcare costs.



CODE

```
views.py paitent X 🕏 views.py Aichatbot
EXPLORER:

■ Release Notes: 1.84.0
                      paitent > 🐡 views.py
PROJECT
                              from django.shortcuts import render
Aichatbot
                              from django.http import JsonResponse
 _pycache_
                              from django.contrib import messages

☐ _init_.cpython-37...
                              from paitent.models import paitentmodel

    __init__.cpython-31...
                             from django.views.decorators.http import require GET

    ■ settings.cpython-3...

                              import random
  ≡ urls.cpython-37.pyc
                              import n1tk

    views.cpython-37.p...

                             nltk.download('punkt')

    ■ wsgi.cpython-37.pyc

__init__py
                              # import googlemaps # pip install -U googlemaps
settings.py
urls.py
views.py
                             # Create your views here.
wsgi.py
                              def paitent(request):
assets
                                  return render(request, "paitent.html")
 v static
  > css
                              def userregisterAction(request):

✓ imq

                                  if request.method == 'POST':

→ gallery

                                      name = request.POST.get('uname')
                                      email = request.POST.get('uemail')
   gallery-1.jpg
                                      password = request.POST.get('upassword')
   gallery-2.jpg
                                      phoneno = request.POST.get('uphone')
   gallery-3.jpg
                                      print(name, email, password, phoneno)
   gallery-4.jpg
                                      form1 = paitentmodel(name=name, email=email, password=password, phoneno=phoneno, status='waiting')
   gallery-5.jpg
                                      form1.save()
                                      return render(request, "paitent.html")
    gallery-6.jpg
   gallery-7.jpg
                                      return render(request, "paitent.html")
   gallery-8.jpg
   > team
                              def userloginaction(request):
  hero-bg.jpg
                                  if request.method == 'POST':
  > is
                                      sname = request.POST.get('email')
OUTLINE
                                      spasswd = request.POST.get('password')
TIMELINE
                                      print(sname, spasswd)
```



| EXPLORER | ■ Release Notes: 1.84.0 | 👰 views.py × ↔ admin.html |
|-------------------|-------------------------|---|
| ∨ PROJECT | paitent > 🟺 views.py | |
| 🐶 views.py | 146 | # tneck if the token is present in nospital_remeny_map |
| wsgi.py | 149 | for token in tokens: |
| | 150 | if token in hospital_remedy_map: |
| ∨ assets | 151 | remedy = hospital_remedy_map[token] |
| > static | 152 | hyperlink = f' Click here for more information ' |
| ∨ templates | 153 | response = f"For {token}, you can try: {hyperlink}" |
| ∨ admin | 154 | break |
| adminbase.html | 155 | else: |
| | 156 | response = "Please consult a doctor for a proper diagnosis." |
| adminhome.html | 157 else: | |
| adminpaitent.html | 158 respo | nse = random.choice(greeting responses) |
| > user | 159 | |
| 🤣 admin.html | 160 return Js | onResponse({'response': response}) |
| ♦ base.html | 161 | |



| EXPLORER | E Release Notes: 1.84.0 |
|--|--|
| ∨ PROJECT | paitent > 🕏 views.py |
| | paltent views.py 75 |
| apps.pymodels.pytests.py | "hyperthyroidism": "eat healthy massage use lemon balm take radioactive iodine treatment", "urinarytractinfection": drink plenty of water increase vitamin c intake drink cranberry juice take probiotics", "varicoseveins": lie down flat and raise the leg high use oinments use vein compression dont stand still for long", "sid" "" "" "" "" "" "" "" "" "" "" "" "" " |
| views.py | "aids" :" avoid open cuts wear ppe if possible consult doctor follow up", "paralysis": "massage eat healthy exercise consult doctor", |
| db.sqlite3 | 105 "typhoid" :"eat high calorie vegitables antiboitic therapy consult doctor medication", |
| manage.py | 106 "hepatitis": "consult nearest hospital vaccination eat healthy medication", |
| ≆ run.txt | "fungalinfection": "bath twice use detol or neem in bathing water keep infected area dry use clean cloths", "hepatitisc": "Consult nearest hospital vaccination eat healthy medication", |
| > OUTLINE | "migraine" : "meditation reduce stress use poloroid glasses in sun consult doctor", |
| > TIMELINE | "bronchialasthma": "switch to loose cloothing take deep breaths get away from trigger seek help", |
| / TIMELINE | "alcoholichepatitis": "stop alcohol consumption consult doctor medication follow up", |



```
■ Release Notes: 1.84.0
 EXPLORER
                                             views.py X admin.html

→ PROJECT

                      paitent > 🐡 views.py
                                 "jaundice" : "drink plenty of water consume milk thistle eat fruits and high fiberous food medication",
 views.py
                                 "hepatitise": "stop alcohol consumption rest consult doctor medication",
 wsgi.py
                                 "dengue" : "drink papaya leaf juice avoid fatty spicy food keep mosquitos away keep hydrated",

✓ assets

                                 "hepatitisd": "consult doctor medication eat healthy follow up".
 > static
                                 "heartattack": "chew or swallow asprin keep calm ",

∨ templates

                                 "pneumonia": "consult doctor medication rest follow up".
  ∨ admin
                                 "arthritis" : "exercise use hot and cold therapy try acupuncture massage",
                                 "gastroenteritis": " stop eating solid food for while try taking small sips of water rest ease back into eating",
   adminbase.html
   adminhome.html
                                 "tuberculosis": " cover mouth consult doctor medication rest",
                                 # Add more symptoms and remedies as needed
   adminpaitent.html
   > user
  admin.html
  base.html
                                 hospital remedy map = {
  index.html
                                 "hyderabad": "https://www.google.com/search?sca esv=c7d05ac6ad01166f&tbs=lf:1,lf ui:2&tbm=lcl&sxsrf=ACOVn08vRIMOLDfN5joSfZYbnZMdhlx0zg:170814097
  paitent.html
                                 "chennai": "https://www.google.com/search?q=best+hospitals+in+chennai&sca esv=c7d05ac6ad01166f&biw=1536&bih=695&tbm=lcl&sxsrf=ACQVn0-u2GlXUUVY5

✓ media \ MasterData

                                 # Add more remedies and links as needed
 symptom Descriptio...
 symptom precautio...
paitent
 > _pycache_
                                 if message:
                                     # Tokenize the message
 > migrations
                                     tokens = nltk.word tokenize(message.lower())
 _init_.py
 admin.py
                                     if "hello" in tokens:
 apps.py
                                        response = random.choice(greeting responses)
                       138
 models.py
                                     elif "goodbye" in tokens:
 tests.py
                                        response = random.choice(goodbye responses)
 views.py
                                         symptom list = [token for token in tokens if token in symptom remedy map]

■ db.sqlite3

manage.py
                                         if symptom list:
 remedy list = [f"For {symptom}: {symptom remedy map[symptom]}, Enter nearby City name to prefer Best hospitals" for symptom in symp
                                             response = remedy list
> OUTLINE
> TIMELINE
                                            # Check if the token is present in hospital remedy map
```



```
EXPLORER

■ Release Notes: 1.84.0
                                               adminpaitent.html X
                                   views.py
PROJECT [ T T U D
                 assets > templates > admin > 4 adminpaitent.html > ...
                      {% extends 'admin/adminbase.html' %}
   gallery-6.jpg
                      {% load static %}
   gallery-7.jpg
  gallery-8.jpg
                      {% block contents %}
  > team
  hero-bg.jpg
 > is
                      <section class="">
                         <div class="container py-4">
 > vendor
                            <div class="row d-flex justify-content-center py-5">
 templates
                                <div class="col-md-12">
 ∨ admin
  adminbase.html
                                adminhome.html
  adminpaitent.html
                                     S.No
 > user
                                        Name
 admin.html
                                        Mobile
 base.html
                                        Email
 index.html
                                        Status
 o paitent.html
                                        Activate

✓ media \ MasterData

symptom_Descriptio...
symptom_precautio...
                                     {% for i in data %}

∨ paitent

                                     > _pycache_
                                        {{forloop.counter}}
 > migrations
                                        {{i.name}}
 init_py
                                        {{i.phoneno}}
admin.py
                                        {{i.email}}
                                        {{i.status}}
apps.py
models.py
                                        {% if i.status == 'waiting' %}
tests.py
                                        <a class="btn-link" href="/AdminActiveUsers/?uid={{ i.id }}"
views.py
                                              style="color: Ingb(235, 235, 239)">Activate</a>

≡ db.sqlite3

                                        {% else %}
OUTLINE
                                        Activated
TIMELINE
                                         {% endif %}
```



```
    ■ Release Notes: 1.84.0
                                                               adminbase.html X
EXPLORER
                                              views.pv
PROJECT [ D D
                      assets > templates > admin > o adminbase.html > o html > o body > o header#header.fixed-top > o div.container.d-flex.align-items-center
views.py
wsgi.py
v assets
                               <header id="header" class="fixed-top">
 > static
                                 <div class="container d-flex align-items-center">
 v templates
                                    <h1 class="logo me-auto"><a href="#">Medilab</a></h1>

✓ admin

  adminbase.html
                                    <nav id="navbar" class="navbar order-last order-lg-0">
  o adminhome.html
  adminpaitent.html
                                        <a class="nav-link scrollto active" href="{% url 'adminshome' %}">Home</a>
  > user
                                        <a class="nav-link scrollto" href="{% url 'adminpaitent' %}">Paitent</a>
 admin.html
                                        <!-- <li><!>- <!>- <a class="nav-link scrollto" href="{% url 'admins' %}">Admin</a>
 base.html
                                     <i class="bi bi-list mobile-nay-toggle"></i></i>
 index.html
 paitent.html
∨ media \ MasterData
                                    <a href="{% url 'adminslogout' %}" class="appointment-btn scrollto"><span class="d-none d-md-inline">togout</a>
symptom_Descriptio...
symptom_precautio...
Y paitent
                               </header><!-- End Header -->
 > _pycache_
> migrations
                               <section id="hero" class="d-flex align-items-center">
_init_.py
                                 <div class="container">
admin.py
                                   <h1>Welcome to Medilab Admin</h1>
apps.py
models.py
tests.py
views.py

    ■ db.sqlite3

manage.py
                                 {%block contents%}

≡ run.txt

                                  {%endblock%}
OUTLINE
```



```
E Release Notes: 1.84.0
                                                                    adminbase.html X
PROJECT [] TO D
                        assets > templates > admin > 💀 adminbase.html > 🚱 html > 🚱 body > 🚱 header#header.fixed-top > 😥 div.container.d-flex.align-items-center
 w views.py
wsgi.py
                                  <footer id="footer">

✓ assets

 > static
                                    <div class="container d-md-flex py-4">
 v templates
  ~ admin
                                       <div class="me-md-auto text-center text-md-start">
   adminbase.html
                                         <div class="copyright">
   adminhome.html
                                           © Copyright <strong><span>Medilab</span></strong>. All Rights Reserved
   adminpaitent.html
                                         <div class="credits">
  > user
                                          Designed by <a>Prajwal Reddy</a>
  admin.html
  base.html
  index.html
                                       <div class="social-links text-center text-md-right pt-3 pt-md-0">
  paitent.html
                                         <a class="twitter"><i class="bx bxl-twitter"></i></a>

∨ media \ MasterData

                                             class="facebook"><i class="bx bxl-facebook"></i></a>
symptom Descriptio...
                                         <a class="instagram"><i class="bx bxl-instagram"></i></a>
                                         <a class="google-plus"><i class="bx bxl-skype"></i></a>
symptom precautio...
                                         <a class="linkedin"><i class="bx bxl-linkedin"></i></a>
v paitent
 > _pycache_
 migrations
                                  </free="footer">

<p
 _init_py
                                  <div id="preloader"></div>
 admin.py
                                  <a href="#" class="back-to-top d-flex align-items-center justify-content-center"><i class="bi bi-arrow-up-short"></i></a>>
 apps.py
 models.py
 tests.py
                                  <script src="{% static 'vendor/purecounter/purecounter vanilla.js' %}"></script>
views.py
                                  <script src="{% static 'vendor/bootstrap/js/bootstrap.bundle.min.js' %}"></script>

    ■ db.sqlite3

                                  <script src="{% static 'vendor/glightbox/js/glightbox.min.js' %}"></script>
manage.py
                                  <script src="{% static 'vendor/swiper/swiper-bundle.min.js' %}"></script>
                                  <script src="{% static 'vendor/php-email-form/validate.js' %}"></script>
≡ run.txt
OUTLINE
                                  <script src="{% static 'js/main.js' %}"></script>
```



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EXPLORER

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                                                               paitent.html X
                                               views.py
PROJECT [ □ □ U □
                      assets > templates > @ paitent.html > ...
views.py
                          C:\Users\91630\OneDrive\Desktop\project\project\project\assets
                             {% load static %}
wsgi.py
assets
                             {% block contents %}
 > static

✓ templates

  ∨ admin
                                 login-btn {
  adminbase.html
                                     display: block;
                                      margin: 0 auto;
  adminhome.html
                                     background-color: ■#1977cc; /* Set button background color to blue */
  adminpaitent.html
                                     color: _white; /* Set text color to white */
  > user
                                     border: none; /* Remove button border */
 admin.html
                                     padding: 10px 20px; /* Add padding to the button */
 base.html
                                     cursor: pointer; /* Change cursor to pointer on hover */
 index.html
                                     border-radius: 5px; /* Add border radius for rounded corners */
 paitent.html

∨ media \ MasterData

symptom_Descriptio...
symptom_precautio...
paitent
                             <section id="appointment" class="appointment section-bg">
 > pycache
                                  <div class="container">
 > migrations
                                    <div class="section-title">
 init_.py
                                     <h2>Make an Login</h2>
admin.py
 apps.py
 models.py
                                    <form action="/userloginaction/" method="post">
 tests.py
                                     {% csrf token %}
                                     <div class="row">
views.py
                                        <div class="col-md-4 form-group">

    db.sqlite3

                                          <input type="text" name="email" class="form-control" id="email" placeholder="Your Email" data-rule="minlen:4" data-msg="Please enter at</pre>
manage.py
                                          <div class="validate"></div>
<div class="col-md-4 form-group mt-3 mt-md-0">
OUTLINE
                                          cinput type="tel" class="form-control" name="password" id="phone" placeholder="Your password" data-rule="minlen:4" data-msg="Please ente
```



```
EXPLORER

    ■ Release Notes: 1.84.0

                                                · views.py
                                                                paitent.html X
PROJECT [ D D D
                      assets > templates > @ paitent.html > ...
                                             tipus tipe tita execu com control name paccinora sa prime paccinorate com paccinora acta act materials
 views.py
                                           <div class="validate"></div>
 wsgi.py

✓ assets

                                       <br />
dr>
 > static
                                       <div class="form-group mb-3">
 v templates
                                           <button class="btn btn-light btn-lig login-btn" type="submit" value="submit"><strong>Login</strong></button>
  ∨ admin
   adminbase.html
                                     </form>
   adminhome.html
                                     {% if messages %}
   adminpaitent.html
                                      {% for message in messages %}
                                           <fort color='red'> {{ message }}</font>
   > user
                                       {% endfor %}
  admin.html
                                  {% endif %}
  base.html
  index.html
  paitent.html

∨ media \ MasterData

 math symptom Descriptio...
                                <section id="appointment" class="appointment section-bg">
 symptom_precautio...
                                  <div class="container">
 ∨ paitent
 > _pycache_
                                    <div class="section-title">
 > migrations
                                      <h2>Make an Registration</h2>
 _init_.py
 admin.py
                                     <form action="/userregisterAction/" method="post" >
 apps.py
                                       {% csrf token %}
 models.py
                                       <div class="row">
 tests.py
                                         <div class="col-md-4 form-group">
 views.py
                                           <input type="text" name="uname" class="form-control" id="name" placeholder="Your Name" data-rule="minlen:4" data-msg="Please enter at le</pre>

    db.sqlite3

                                           <div class="validate"></div>
manage.py
                                         <div class="col-md-4 form-group mt-3 mt-md-0">

    run.txt

                                           cinput type="email" class="form-control" name="uemail" id="email" placeholder="Your Email" data-rule="email" data-msg="Please enter a va
                                           <div class="validate"></div>
OUTLINE
```



```
paitent.html X
 EXPLORER

    ■ Release Notes: 1.84.0

                                                views.py
∨ PROJECT 🖺 🗒 Ü 🗗
                       assets > templates > @ paitent.html > ...
 views.py
                                         <div class="col-md-4 form-group mt-3 mt-md-0">
  wsgi.py
                                           cinput type="email" class="form-control" name="uemail" id="email" placeholder="Your Email" data-rule="email" data-msg="Please enter a va
                                           <div class="validate"></div>
 assets
  > static
                                         <div class="col-md-4 form-group mt-3 mt-md-0">

✓ templates

                                           <input type="tel" class="form-control" name="uphone" id="phone" placeholder="Your Phone" data-rule="minlen:10" data-msg="Please enter at</pre>
   ∨ admin
                                           <div class="validate"></div>
    adminbase.html
    adminhome.html
    adminpaitent.html
                                       <div class="row">
                                         <div class="col-md-4 form-group mt-3">
   > user
                                           cinput type="text" name="upassword" class="form-control datepicker" id="password" placeholder="password" data-rule="minlen:4" data-msg="
   admin.html
                                           <div class="validate"></div>
   base.html
                                         </div>
   o index.html
   paitent.html
                                       <div class="form-group mb-3">
 ∨ media \ MasterData
                                           <button class="btn btn-light btn-lg login-btn" type="submit" value="submit"><strong>Make an Registration</strong></button>
 symptom_Descriptio...
                                     </form>
 symptom_precautio...
 > paitent
                                  </div>
  > pycache_
                                 </section><!-- End Register Section -->
  migrations
  _init__py
                               {% endblock %}
  admin.py
```



OUTPUT

Medilab

Home

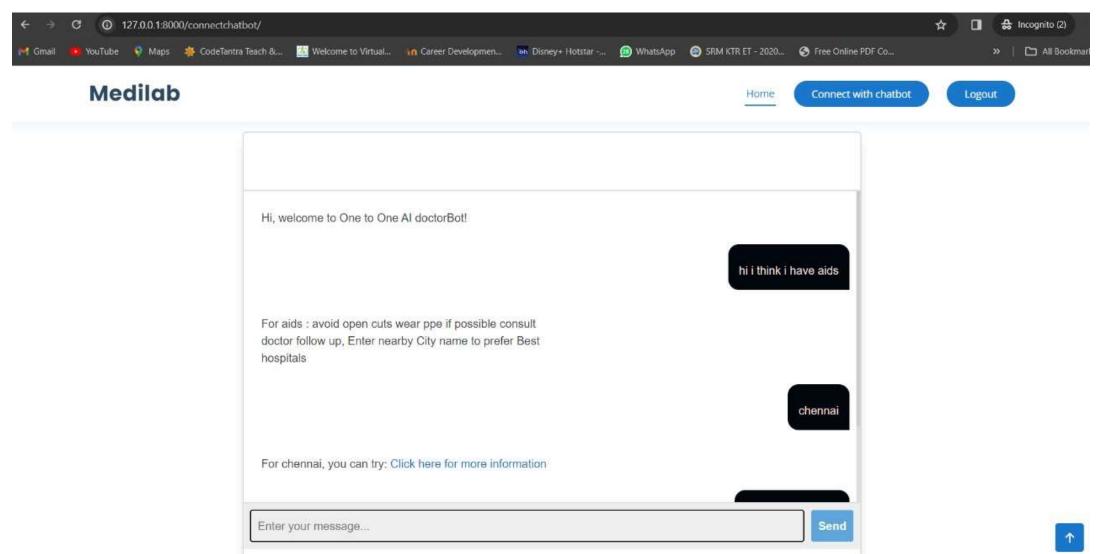
Paitent



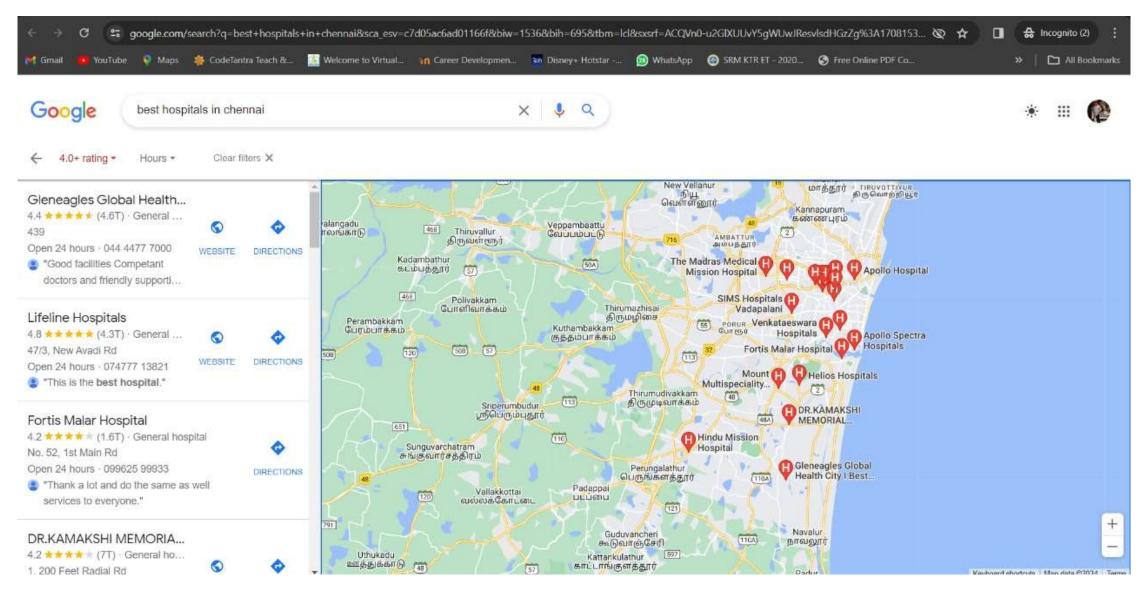
WELCOME TO MEDILAB ADMIN

| S.No | Name | Mobile | Email | Status | Activate |
|------|---------|------------|------------------------|-----------|-----------------|
| 1 | test | 7410235689 | test@gmail.com | activated | Activated |
| 2 | test | 741025 | test@gmail.com | waiting | <u>Activate</u> |
| 3 | Prajwal | 7532104698 | prajwal@gmail.com | activated | Activated |
| 4 | kalyan | 7412568930 | kalyansaggam@gmail.com | activated | Activated |
| 5 | teja | 7585562231 | teja@gmail.com | activated | Activated |

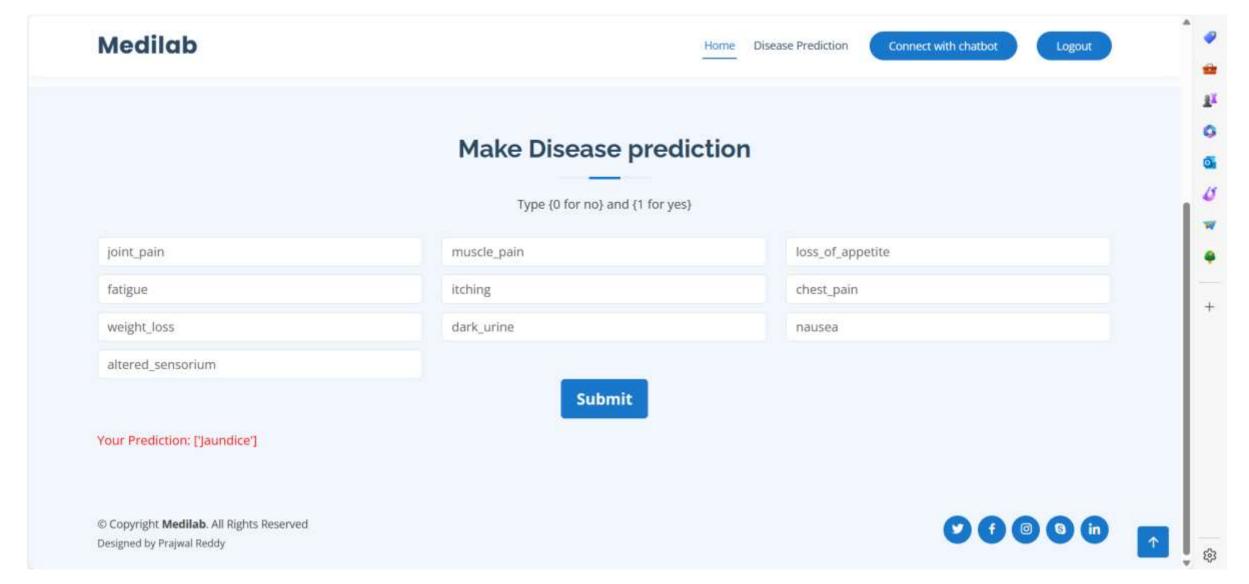














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Thank You