Care Companion

MEDICAL CHATBOT FOR THE TAMIL NADU HEALTH CARE WEBSITE USING GOOGLE DIALOG FLOW

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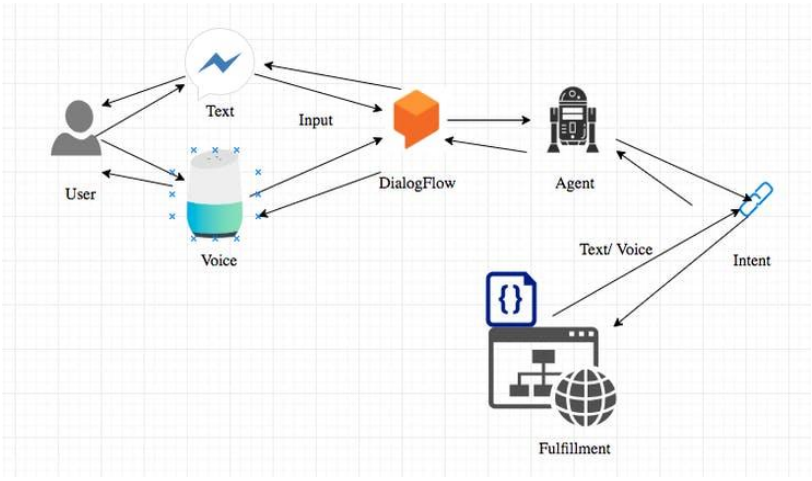
ABSTRACT

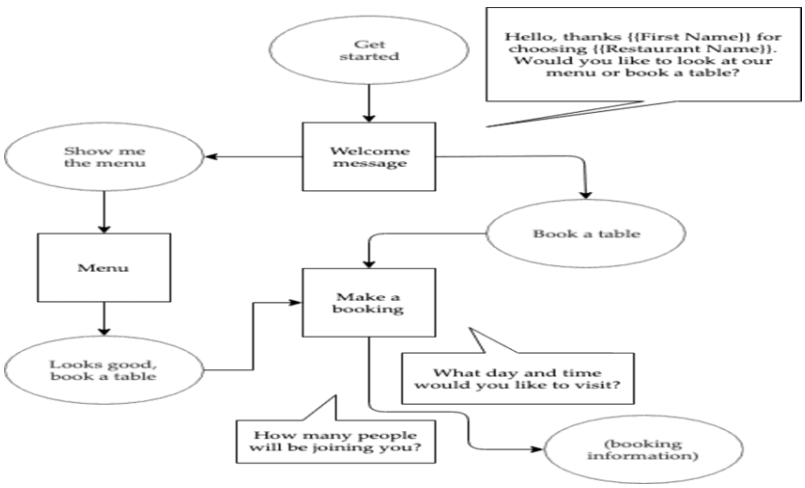
The main aim of this project is to create a chat bot for a given website. Here we are using the Tamil Nadu health website. The data will be scrapped from the website and stored in csv format.

We will be using dialogflow as the main api for building the bot. In dialogflow an intent will be created and data which was scrapped from the website will stored as a knowledge base . Then the bot will be deployed . The code will be stored in the GitHub and integrated with cloud flare .

For the front end we are using tailwind css. And we will integrate the chatbot deployed in dialogflow with the website .

PROJECT-WORKFLOW API





SOFTWARE REQUIREMENTS

1. Dialog-Flow API

3. VSCODE

TECHNOLOGY STACK

1.Python – BERT model and Web Scraping

2.HTML , CSS,Javascript – Website

3.Flask – Integration of model with website

PROJECT IMPLEMENTATION CODE AND SCREENSHOTS

1. METHOD-1 BERT MODEL AND FLASK INTEGRATION

   Harvesting website data, our system elegantly merges it with BERT transformer through Flask. This seamless integration enhances user interaction, creating a visually appealing and efficient platform that transforms raw data into a refined, user-friendly experience.

WEB SCRAPING:

```
import requests
from bs4 import BeautifulSoup

def scrape_website():

    url = "https://tnhealth.tn.gov.in/tngovin/dph/dphdbchicken.php"

    response = requests.get(url)


    soup = BeautifulSoup(response.content, "html.parser")


    headings = soup.find_all(["h1"])
    for heading in headings:
        print(heading.text.strip())


    paragraphs = soup.find_all("p")
    for paragraph in paragraphs:
        print(paragraph.text.strip())

if __name__ == "__main__":
    scrape_website()
```

FLASK AND HTML CODE:

```
<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.1.1/css/bootstrap.min.css"
rel="stylesheet" id="bootstrap-css">
<script
src="//maxcdn.bootstrapcdn.com/bootstrap/4.1.1/js/bootstrap.min.js"></script>
<script
src="//cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>

<!DOCTYPE html>
<html>
    <head>
        <title>Chatbot</title>
        <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.css
" integrity="sha384-
MCw98/SFnGE8fJT3GXwEOngsV7Zt27NXFoaoApmYm81iuXoPkFOJwJ8ERdknLPMO"
crossorigin="anonymous">
        <link rel="stylesheet"
href="https://use.fontawesome.com/releases/v5.5.0/css/all.css"
integrity="sha384-
B4dIYHKNBt8Bc12p+WXckhzcICo0wtJAoU8YZTY5qE0Id1GSseTk6S+L3BlXeVIU"
crossorigin="anonymous">
        <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></scrip
t>
        <link rel="stylesheet" type="text/css" href="{{ url_for('static',
filename='style.css')}}"/>
    </head>


    <body>
        <div class="container-fluid h-100">
            <div class="row justify-content-center h-100">
                <div class="col-md-8 col-xl-6 chat">
                    <div class="card">
                        <div class="card-header msg_head">
                            <div class="d-flex bd-highlight">
                                <div class="img_cont">
                                    <img src="https://i.ibb.co/fSNP7Rz/icons8-
chatgpt-512.png" class="rounded-circle user_img">
                                    <span class="online_icon"></span>
                                </div>
                                <div class="user_info">
                                    <span>ChatBot</span>
                                    <p>Ask me anything!</p>
                                </div>
                            </div>
                        </div>
```

```
                        <div id="messageFormeight" class="card-body
msg_card_body">


                        </div>
                        <div class="card-footer">
                            <form id="messageArea" class="input-group">
                                <input type="text" id="text" name="msg"
placeholder="Type your message..." autocomplete="off" class="form-control
type_msg" required/>
                                <div class="input-group-append">
                                    <button type="submit" id="send"
class="input-group-text send_btn"><i class="fas fa-location-
arrow"></i></button>
                                </div>
                            </form>
                        </div>
                    </div>
                </div>
            </div>
        </div>

        <script>
            $(document).ready(function() {
                $("#messageArea").on("submit", function(event) {
                    const date = new Date();
                    const hour = date.getHours();
                    const minute = date.getMinutes();
                    const str_time = hour+":"+minute;
                    var rawText = $("#text").val();

                    var userHtml = '<div class="d-flex justify-content-end mb-
4"><div class="msg_cotainer_send">' + rawText + '<span
class="msg_time_send">'+ str_time + '</span></div><div
class="img_cont_msg"><img src="https://i.ibb.co/d5b84Xw/Untitled-design.png"
class="rounded-circle user_img_msg"></div></div>';

                    $("#text").val("");
                    $("#messageFormeight").append(userHtml);

                    $.ajax({
                        data: {
                            msg: rawText,
                        },
                        type: "POST",
                        url: "/get",
                    }).done(function(data) {
```

```
                        var botHtml = '<div class="d-flex justify-content-
start mb-4"><div class="img_cont_msg"><img
src="https://i.ibb.co/fSNP7Rz/icons8-chatgpt-512.png" class="rounded-circle
user_img_msg"></div><div class="msg_cotainer">' + data + '<span
class="msg_time">' + str_time + '</span></div></div>';
                        $("#messageFormeight").append($.parseHTML(botHtml));
                    });
                    event.preventDefault();
                });
            });
        </script>

    </body>
</html>
```

BERT MODEL:

```
!pip install transformers
import torch
from transformers import BertForQuestionAnswering,AdamW
from transformers import BertTokenizer

model = BertForQuestionAnswering.from_pretrained('bert-large-uncased-
whole-word-masking-finetuned-squad')

tokenizer = BertTokenizer.from_pretrained('bert-large-uncased-whole-
word-masking-finetuned-squad')
question = '''how is it cured?'''

paragraph = '''Chikungunya (chikí-en-GUN-yah), also called chikungunya
virus disease or chikungunya fever, is a viral illness that is spread
by the bite of infected mosquitoes. In Swahili, chikungunya means that
which contorts or bends up.
                Chikungunya is caused by the chikungunya virus, which is
classified in the family Togaviridae, genus Alphavirus.
                Chikungunya usually starts suddenly with fever, chills,
headache, nausea, vomiting, joint pain and rash. Frequently, the
infection causes no symptoms, especially in children. While recovery
from chikungunya is the expected outcome, convalescence can be
prolonged and persistent joint pain may require analgesic (pain
medication) and long-term anti-inflammatory therapy. Infection appears
to confer lasting immunity.
                No. Worldwide statistics and WHO reports clearly show
that Chikungunya do not cause death.There is no specific treatment but
drugs like paracetamol, diclofenac sodium, chloriquine are used to
relieve fever, joint pains and swelling. Drugs like asprin and steroids
should be avoided.
```

```
                Chikungunya is spread by the bite of an Aedes mosquito,
primarily Aedes . Humans are thought to be the major source, or
reservoir, of chikungunya virus for mosquitoes. Therefore, the mosquito
usually transmits the disease by biting an infected person and then
biting someone else. An infected person cannot spread the infection
directly to other persons (i.e. it is not a contagious disease). Aedes
aegypti mosquitoes bite during the day time
                The time between the bite of a mosquito carrying
chikungunya virus and the start of symptoms ranges from 1 to 12
days.Chikungunya is diagnosed by blood tests (ELISA).
                Anyone who is bitten by an infected mosquito can get
chikungunya.There is neither chikungunya virus vaccine nor drugs are
available to cure the infection. In India a major epidemic of
Chikungunya fever was reported during the last millennium viz.; 1963
(Kolkata), 1965 (Pondicherry and Chennai in Tamil Nadu, Rajahmundry,
Vishakapatnam and Kakinada in Andhra Pradesh; Sagar in Madhya Pradesh;
and Nagpur in Maharashtra).'''

encoding = tokenizer.encode_plus(text=question,text_pair=paragraph)

inputs = encoding['input_ids']  #Token embeddings
sentence_embedding = encoding['token_type_ids']  #Segment embeddings
tokens = tokenizer.convert_ids_to_tokens(inputs) #input tokens
tokenized_sentence = tokenizer.encode(paragraph, padding=True,
truncation=True,max_length=10000, add_special_tokens = True)
start_scores, end_scores = model(input_ids=torch.tensor([inputs]),
token_type_ids=torch.tensor([sentence_embedding]), return_dict=False)

start_index = torch.argmax(start_scores)

end_index = torch.argmax(end_scores)

answer = ' '.join(tokens[start_index:end_index+1])
corrected_answer = ''

for word in answer.split(): #alphabet               alpha  bet

    #If it's a subword token
    if word[0:2] == '##':
        corrected_answer += word[2:]
    else:
        corrected_answer += ' ' + word

print(corrected_answer)
```

METHOD-2: USING DIALOG FLOW API

Dialogflow API helps create a smart medical chatbot. It understands what users say, like symptoms or questions, using advanced language skills. The bot can answer, schedule appointments, and more. It's like teaching a computer to chat with you about health, making it easier for people to get information and help.

HTML and DialogFlow API code:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Tn health Bot</title>
    <link href="/dist/output.css" rel="stylesheet">
    <script src="https://cdn.tailwindcss.com"></script>
    <link href="https://cdn.jsdelivr.net/npm/daisyui@3.9.3/dist/full.css"
rel="stylesheet" type="text/css" />
</head>
<body>
    <div class="hero min-h-screen" style="background-image:
url(https://daisyui.com/images/stock/photo-1507358522600-9f71e620c44e.jpg);">
        <div class="hero-overlay bg-opacity-60"></div>
        <div class="hero-content text-center text-neutral-content">
          <div class="max-w-md">
            <h1 class="mb-5 text-5xl font-bold">Hello there!</h1>
            <p class="mb-5">Get an awareness about diseases admist your busy
schedule.</p>
            <button class="btn btn-primary">Get Started</button>
          </div>
        </div>
      </div>
    <script src="https://www.gstatic.com/dialogflow-
console/fast/messenger/bootstrap.js?v=1"></script>
    <df-messenger
    chat-
icon="https:&#x2F;&#x2F;tnhealth.tn.gov.in&#x2F;images&#x2F;caducis_fly_md_clr
.gif"
    intent="WELCOME"
    chat-title="tn-health"
    agent-id="e543dc4c-d84a-40fd-abb8-0ad6506252f8"
    language-code="en"
    ></df-messenger>
</body>
<style>
    df-messenger {
     --df-messenger-bot-message: #aed9e0;
```

```
    --df-messenger-button-titlebar-color: #033b06;
    --df-messenger-chat-background-color: #fafafa;
    --df-messenger-font-color: rgb(14, 13, 13);
    --df-messenger-send-icon: #B8F2E6;
    --df-messenger-user-message: #ffa69e;
   }
  </style>
</html>
```

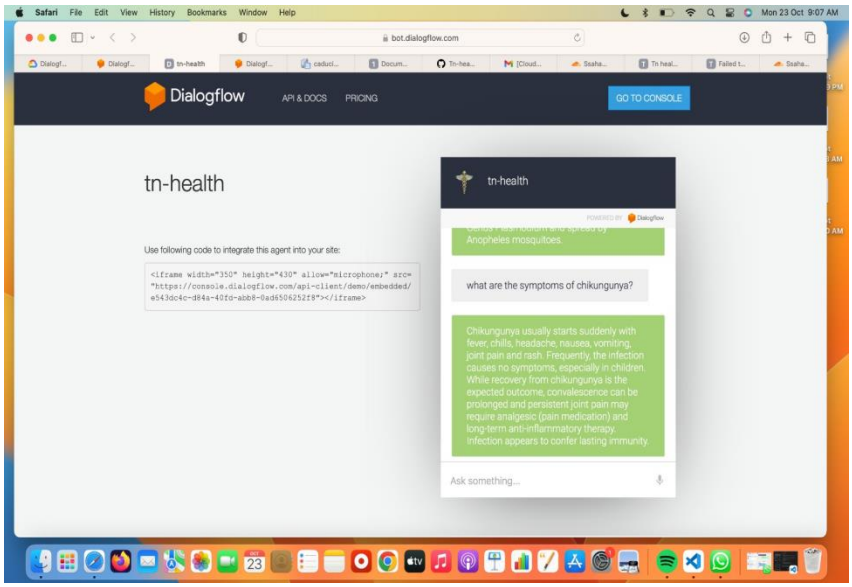
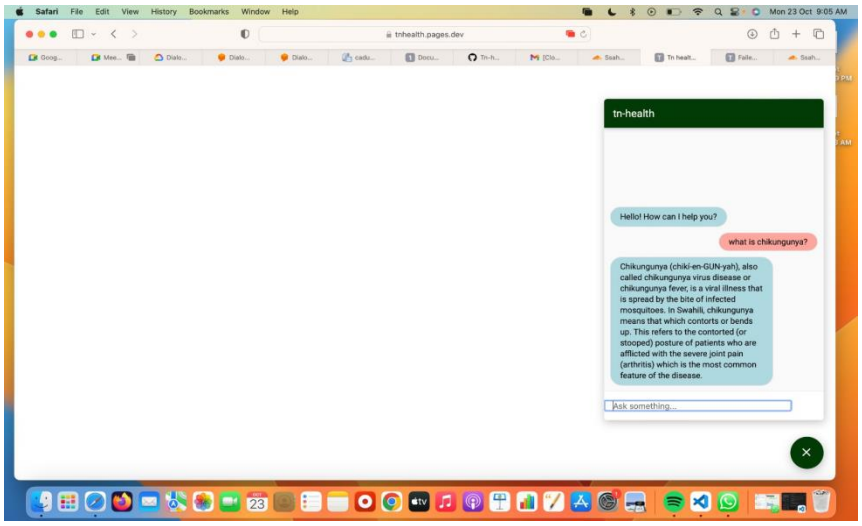
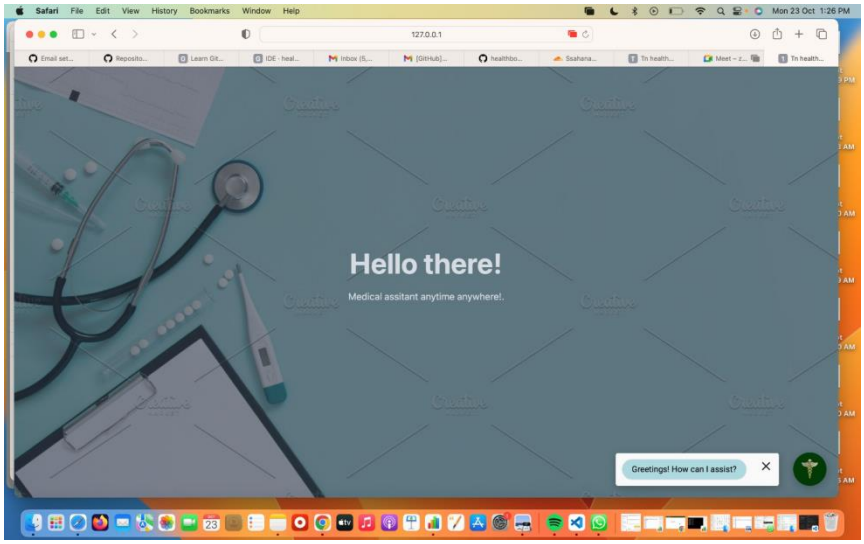


Image showing an user interacting with Dialog flow API





An user asking query with the demo website with chatbot icon on right side

SCOPE AND LIMITATIONS

- Leveraging the DialogFlow API significantly diminishes latency, ensuring a dependable interaction with the chatbot. This technology enhances reliability, facilitating swift and seamless communication between users and the chatbot, thereby optimizing the overall user experience.

- The user interface (UI) boasts simplicity and ease of interaction. However, integrating it with the Flask model presents challenges in terms of complexity. Despite this, efforts are ongoing to refine and enhance the integration process for a more streamlined and user-friendly experience.

- To ensure current information, it is imperative to routinely update our dataset, stored as a CSV file. This practice ensures that our data remains relevant and aligned with the latest developments, thereby upholding the accuracy and efficacy of our system.

CONCLUSION

After meticulous analysis of BERT model results and accuracy, our conclusive finding is that Dialogflow API is the optimal choice. Its performance surpasses alternatives, affirming its suitability for our application.