

# Health care Chatbot

## Group Members:

- Veni. M | AP21110010835
- Sree Annapurna. M | AP21110010791
- Jyothirmai. B | AP21110010794
- Madhurya. G | AP21110010798
- Nandita. M | AP21110010829



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# Abstract

- Our healthcare chatbot is a user-friendly virtual assistant designed to provide personalized medical guidance and support. By leveraging advanced technologies like artificial intelligence and natural language processing, the chatbot offers instant access to reliable health information, symptom assessment, and assistance in scheduling doctor appointments.
- Key features include personalized interaction, real-time responses, and a commitment to data privacy. Through its intuitive interface, the chatbot aims to improve healthcare accessibility and empower individuals to make informed decisions about their health.



# Introduction

- Healthcare is a fundamental aspect of well-being, yet accessing timely medical information and assistance can be challenging.
- Introducing our Healthcare Chatbot – a virtual assistant leveraging artificial intelligence to provide personalized medical guidance.
- Our chatbot empowers users with instant access to reliable medical information, support, and guidance.
- Seamlessly integrating AI and natural language processing, our chatbot ensures accurate responses to user queries.



# Description of the project

- This project builds a chatbot like a virtual assistant for healthcare. You can talk to it and ask basic healthcare questions.
- It will try to understand what you're looking for (like info on a cold or help figuring out if you should see a doctor) and give you answers based on what it's learned.



01

Here's the key idea: imagine the chatbot has a big filing cabinet with different folders for different health topics. When you ask a question, the chatbot searches the folders to find the answer that best fits your question. It does this search using a special kind of computer program called a machine learning model.

02

This is like training a friend to answer your health questions by showing them lots of examples of questions and answers. The more examples the chatbot sees, the better it gets at finding the right folder (intent) and giving you a helpful answer.

# Objectives

**Provide basic healthcare information:** The chatbot can answer user questions about common health conditions, symptoms, and preventative measures. It achieves this by identifying the user's intent (e.g., "fever symptoms") from their input and responding with pre-defined information associated with that intent.



**Assist with basic triage:** By understanding user symptoms through conversation, the chatbot can offer suggestions for self-care or recommend consulting a specialist.

**Improve patient experience:** The chatbot can provide a convenient and accessible way for users to get basic healthcare information 24/7. This can be helpful for simple questions or concerns, potentially reducing the burden on human healthcare professionals.

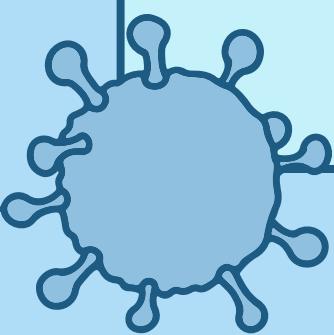
**Promote preventative healthcare:** The chatbot can offer information on disease prevention and healthy habits based on user queries. This can empower users to take a more proactive approach to their health.

# Implementation of Health care Chatbot



## Data Preprocessing:

The project begins with data preprocessing, where textual data, including user queries and corresponding intents, is cleaned, tokenized, and transformed into suitable representations for model training.



## Model Development:

Machine learning models, particularly deep learning models such as neural networks, are developed to classify user intents and generate responses. These models are trained on labeled datasets containing examples of user queries and their associated intents.



## Integration with User Interface:

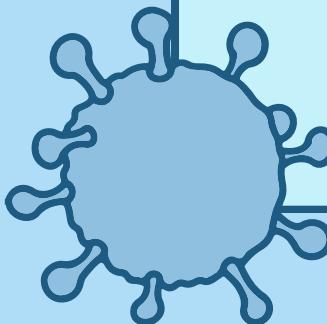
The chatbot is integrated into a user interface, typically a web or mobile application, where users can interact with it through a chat interface. The user interface allows users to input queries, receive responses, and engage in conversations with the chatbot.

# Implementation of Health care Chatbot



## Deployment and Testing:

Once developed, the chatbot is deployed to a suitable platform or environment where it can interact with users in real-time. Extensive testing is conducted to ensure that the chatbot functions as intended, accurately understands user queries, and delivers appropriate responses.



## Monitoring and Maintenance:

Post-deployment, the chatbot is monitored for performance, user satisfaction, and system metrics. Regular maintenance and updates are performed to address any issues, incorporate new features or improvements, and keep the chatbot up-to-date with evolving healthcare knowledge and practices.

# Code :

```
import tkinter as tk
from tkinter import scrolledtext
import random
import numpy as np
import nltk
import pickle
from tensorflow.keras.models import load_model

# Load the trained model
model = load_model('chatbot_model.h5')

# Load the words and classes
with open('words.pkl', 'rb') as file:
    words = pickle.load(file)
with open('classes.pkl', 'rb') as file:
    classes = pickle.load(file)

# Initialize the WordNet lemmatizer
lemmatizer = nltk.stem.WordNetLemmatizer()

# Function to preprocess the user input
def clean_up_sentence(sentence):
    sentence_words = nltk.word_tokenize(sentence)
    sentence_words = [lemmatizer.lemmatize(word.lower()) for word in sentence_words]
    return sentence_words

# Function to create bag of words from the input sentence
def bow(sentence, words):
    sentence_words = clean_up_sentence(sentence)
    bag = [0]*len(words)
    for s in sentence_words:
        for i, w in enumerate(words):
            if w == s:
```



```

def get_response(user_input):
    # Preprocess the input
    bow_input = bow(user_input, words)
    # Predict the class label
    result = model.predict(np.array([bow_input]))[0]
    # Get the index of the highest probability
    predicted_class_index = np.argmax(result)
    # Get the corresponding class label
    predicted_class = classes[predicted_class_index]

    # Filter out responses for the predicted class
    for intent in intents['intents']:
        if intent['tag'] == predicted_class:
            responses = intent['responses']
            break
    else:
        # If no matching intent found, return a default response
        responses = ["I'm sorry, I didn't understand that. Can you please rephrase or ask a different question?"]

    # Return a random response from the list
    return random.choice(responses)

# Create a Tkinter window
root = tk.Tk()
root.title("Healthcare Chatbot")

# Create a scrolled text widget for chat display
chat_box = scrolledtext.ScrolledText(root, wrap=tk.WORD, width=80, height=30)
chat_box.grid(column=0, row=0, padx=10, pady=10)

```



```
# Function to handle sending messages
def send_message():
    user_input = entry_box.get()
    entry_box.delete(0, tk.END)
    chat_box.insert(tk.END, "You: " + user_input + '\n')
    # Generate and display the bot's response
    bot_response = get_response(user_input)
    chat_box.insert(tk.END, "Bot: " + bot_response + '\n\n')

# Create an entry box for user input
entry_box = tk.Entry(root, width=80)
entry_box.grid(column=0, row=1, padx=10, pady=10)

# Create a button to send messages
send_button = tk.Button(root, text="Send", command=send_message, width=10, height=2)
send_button.grid(column=1, row=1, padx=10, pady=10)

# Start the Tkinter event loop
root.mainloop()
```

```
1/1 [=====] - 0s 98ms/step
1/1 [=====] - 0s 14ms/step
```



# Output:

You: who are you?  
Bot: i am Medbot!

You: how can you help me?  
Bot: I am a healthcare chatbot. I can assist you with medical information and advice.

You: i am suffering from Lost interest Increased fatigue and sleep problem  
Bot: It seem that you are suffering from depression

You: what are the preventions for depression  
Bot: medicines you can consume : brexpiprazole, quetiapine,olanzapine, prevention that you must follow :Exercise regularly,Cut back on social media time,Drink Water as Your Primary Beverage,Build strong relationships,Minimize your daily choices, Follow a Very-Low-Carb Diet,SUGGESTED FOODS ARE:Get Enough Vitamin D,Include Omega-3 Fatty Acids,Beans and legumes

You: can i have an appointment with doctor  
Bot: You can contact various doctors here for any kind of consultation: 1.  
<https://www.lmg.com/online-doctor-consultation>, 2.  
<https://www.tatahealth.com/online-doctor-consultation/general-physician>, 3.  
<https://www.doconline.com/>, or you can pay a visit to your local area doctor or family doctor.

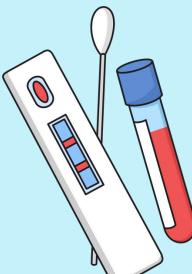
You: okay thanks a lot and bye  
Bot: Yep!! Have a nice day

Send





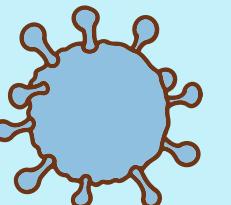
## Project Conclusions



The healthcare chatbot serves as a friendly and accessible resource for people seeking information about their health.

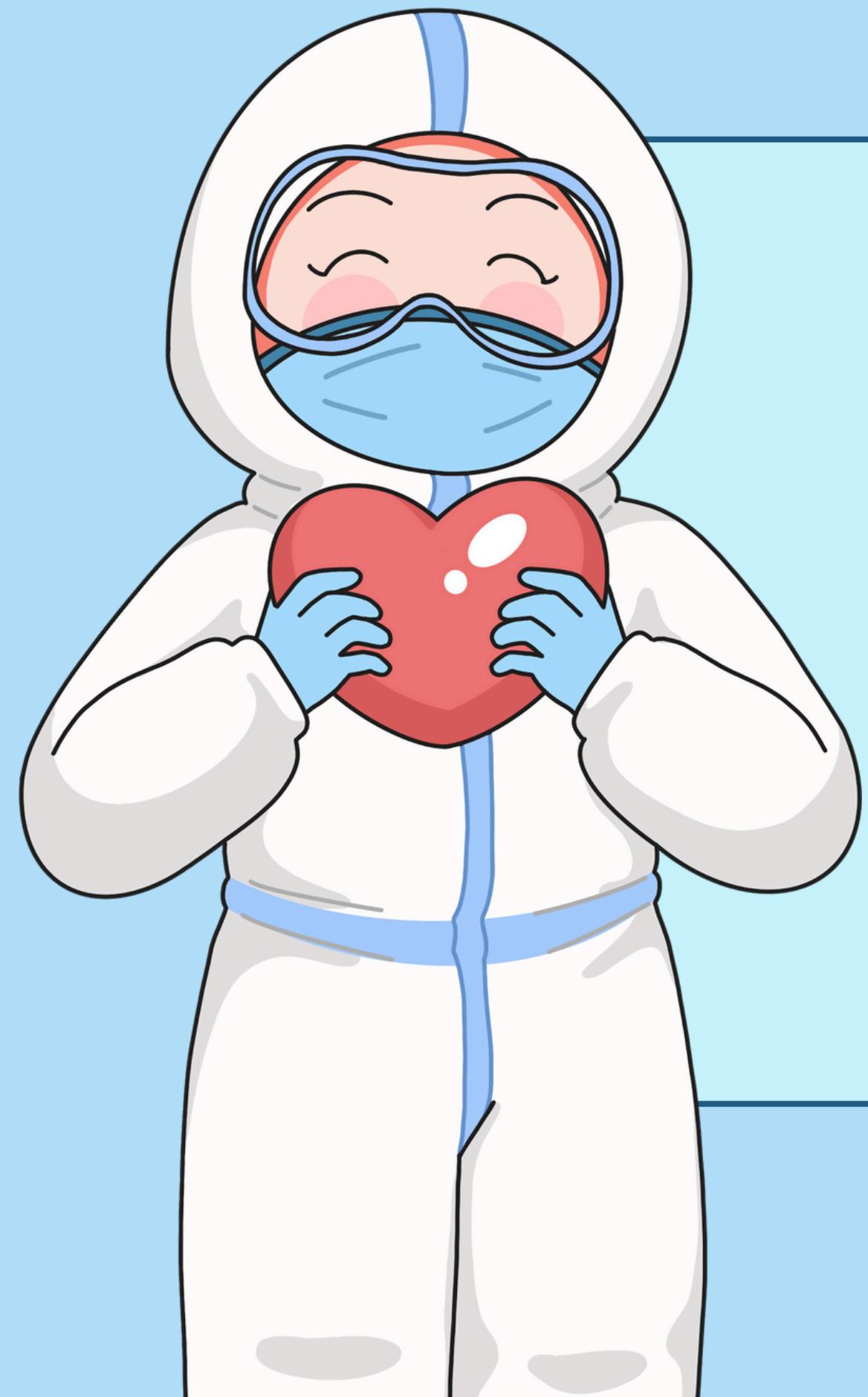


By providing quick and accurate responses, encouraging healthy habits, and supporting decision-making, the chatbot aims to empower users to take control of their well-being.



As it continues to learn and improve over time, the chatbot holds promise for enhancing healthcare accessibility and promoting healthier lifestyles in the future.





**THANK YOU!**