A.I. Powered Chatbot for Healthcare

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Abstract: *Chatbots are software and computer programs that are able to chat and react to human users in voice, written, and visuals. Chatbots are capable of being useful tools for people with physical and psychological healthcare. Those who are afraid to seek physical and mental health advice due to humiliation. There are number of studies that have been proved about using chatbots for physical and psychological healthcare, there is a need to systematically bring this concern together in order to provide both types of healthcare and users about the features of chatbots and their uses, and to inform future research about the main loopholes of the previous literature.*

Keywords: Chatbots.

I. INTRODUCTION

Chatbots can be used by medical clinicians to interact with their patients during the recent Covid-19 outbreak, while attempting to tackle COVID-19 transmission along all patients and hospitals. Chatbots have the potential to aid patients during this outbreak by allowing them to get supportive care without having to go and visit a hospital or a clinic. An A.I. Powered Chatbot for Healthcare can be used to treat patients. Consequently, chatbot will help in health while rapidly and extremely transforming in-patients care to online discussion with patients. It has developed a communication Bot that provides free preliminary and basic healthcare education and prescription to patients based on Natural Language Processing (NLP). The study introduces a web-application acting as a personal 24 x 7 doctor that has been exactly designed and trained to interact with patients. This Web-Based application is based upon a serverless architecture and it can give the services of a doctor by providing proper healthcare measures, catholicon, interactive counselling communication, healthcare tips, and symptoms covering the most widespread diseases in our country India. The paper proposes an A.I. Powered Chatbot for Healthcare for delivering medical aid in India to increase the patient's life in the healthcare area and hold the potentials of artificial intelligence to fill the gap of demand and supply of healthcare suppliers.

II. LITERATURE SURVEY

This paper will give information about products which are useful for consumers to obtain exactly what they want. A Question Answer (QA) system is used to define an information access system that usually answers natural language queries which provides appropriate answers using nlp techniques. The system will take a plain text as input and answer all types of questions output by a qualified user. This will provide a generic solution to this problem. This paper is useful in recognizing the reality in texts and is used to give the past history for introducing a communication which is used in pre-school scenarios. Chatbot for healthcare systems using Artificial Intelligence. Chatbot is used to store the information in the database to recognize the keywords from the whole sentences and make a decision for the question and answer the question. This system uses n-grams and TF-IDF to measure keyword ranking.

Therapy Chatbot: A Relief From Mental Stress And ProblemsPranav Kapoor, Pratham Agrawal[4] Therapy Chatbot, This may assist in checking the mental state of the individual. The user is able to share his feelings without having to worry about being judged. This reduces the risk of depression-related deaths.The chatbot that can feel you - a counseling service using emotional response generation "Dongkeon Lee, Kyo-Joong Oh" This web based application gathers content of conversation based on history (NLP) methods with emotion recognization. This continuous observation of communication allows them to detect flow. They generate personal consolation responses from users inputs. We use additional coercion to generate a model for the proper and regular response generation we can detect conversational context, users core emotion and expected reaction. Ai consolation Healthcare Chatbot System Uses Pattern Matching G. Niveditha, K. Rahul The System is a text-to-
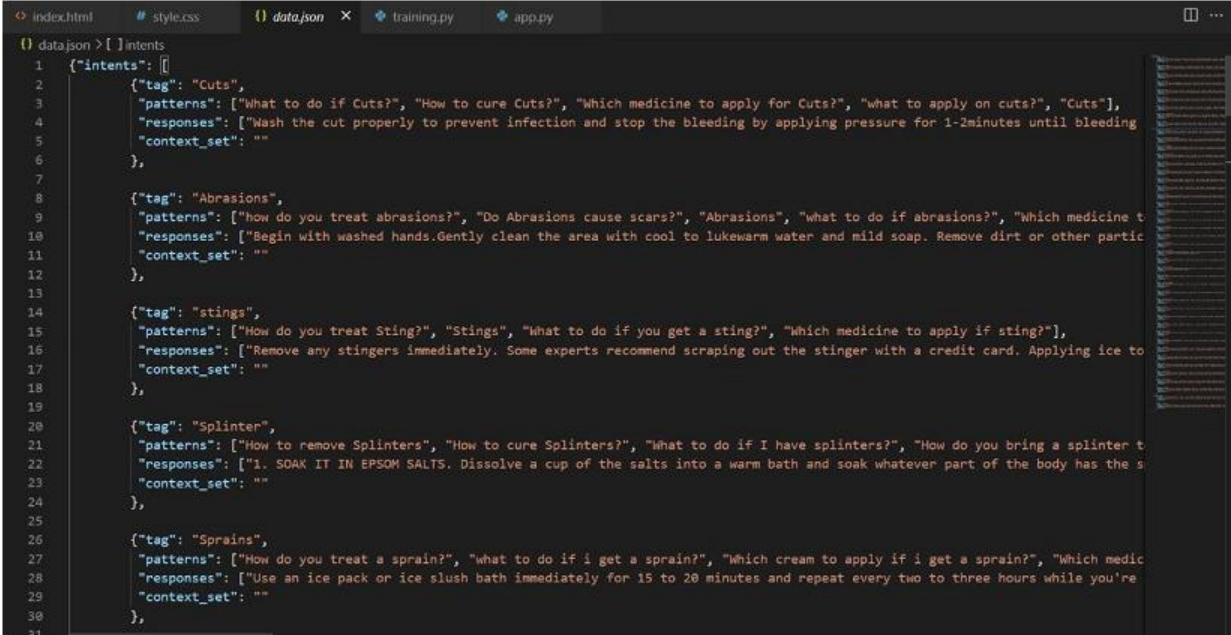
text diagnosis chatbot that will engage patients in conversation Based on their symptoms and profiles, they are provided with a personalized diagnosis.

Healthcare bot using NLP "Papaya Manjrekar", "Rakesh Washington"[7] Bot will provide which type of disease based on the user symptoms, and provides a doctor and also provides food suggestions that means which type of food you have to take. Thus, people will have an idea about their health and have the right protection.. Chatbots are programs that work on Machine Learning (ML) as well as Artificial Intelligence (AI) (NLP) techniques such as NL TK for Python that can be applied that are used to analyze speech, also intelligent responses can be found by designing an engine to provide appropriate responses.

III. METHODOLOGY

A. Loading and importing the data files in the JSON format

We import a mandatory package for our A.I. Powered Chatbot for Healthcare and initialize the storage variables we will use in our Python Project files. The given data file which is a package downloaded from kaggle is in JSON format so we used the json package to parse the JSON object into Python. Here is a screenshot of our data.json file looks like after we are opening it in Visual studio code.

Data.json

B. Now we are preprocessing the data

While we are working with the text data, we need to perform various preprocessing techniques in order to do data before designing an ANN model. The most basic and scratch thing we can do on raw data is T okanization . The process of breaking down a full text into small different and sub parts, like words in order to make sentences. We will iterate through the pattern and tokenization the sentence using the nltk.word_tokenize() function and append each word in the words list. We also create a list of classes for our tags.
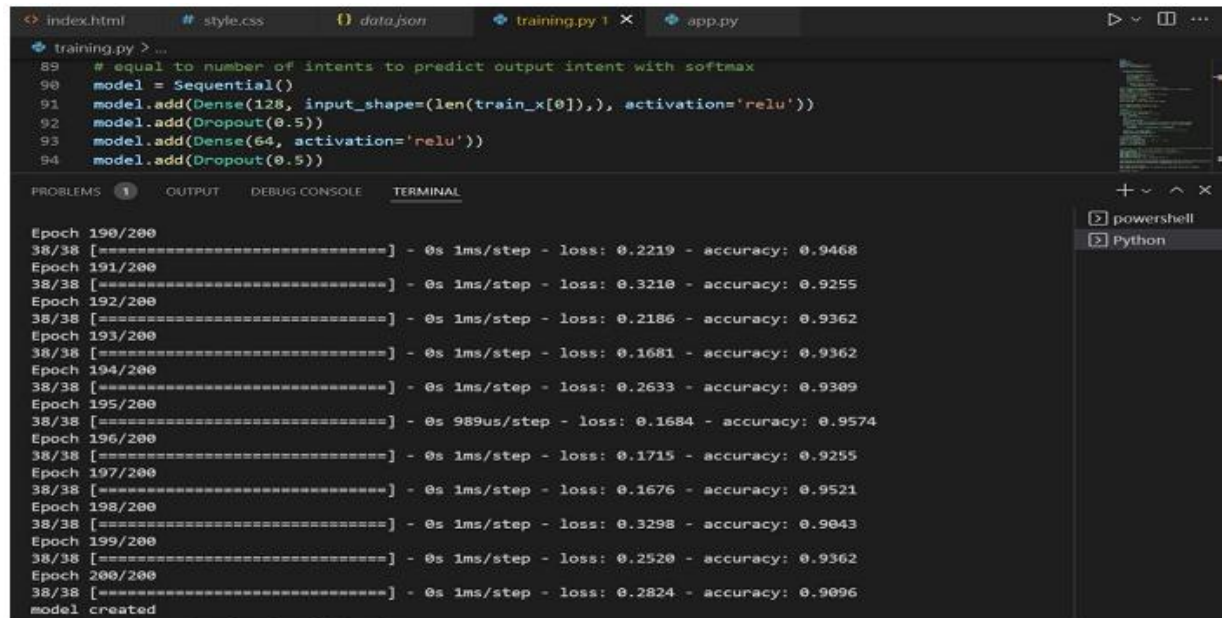
Now we will lemmatize each word and remove duplicate words from the list. The process of converting a word into its lemma form and then create a pickled file to store the Python objects which we will use while predicting is known as Lemmatizing.

C. Creating training model and testing data model

Now, we will create the training model in which we will be giving the input and the output to them. Our input will be taken as the pattern and output will be the class in order to our input pattern. But the chatbot doesn't understand the text so we will convert text into numbers.

D. Building the model

Now, the training data is ready and we will build a deep neural network which has 3 layers. We have used the Keras API for this. We have trained the model for 200 epochs, and we achieved 100% accuracy on our model.

Training - ANN Model

**E. Predict the response of the chatbot (Flask web - based Graphical User Interface)**

Let's predict the whole sentences and, Let's get a response from the user's end so we can create a new file named 'app.py' using the python's flask web framework

- The static folder contains a sub-folder with name styles. There is a CSS file with name style.css in the styles folder.
- There is T emplates folder with HTML file with the name index.html
- app.py python file for running the flask-app using IDE in our case visual.

Our GUI will predict the response from the chatbot after loading the training model. The model will be only telling us which class it belongs to, so we will be able to implement some feature functions to identify the class and then get those random responses from the list of replies. Again we import the necessary package in order to get the resource and load the texts.pkl and labels.pkl pickle files which we have created and when we gave a training to our model:

To predict the class, we will need to be providing input in the same way as we did while we training. Therefore, we will create functions that will perform the text while preprocessing and then predicting the class. After predicting the classes, we will get a random and response from the list of intents.

IV. RESULTS
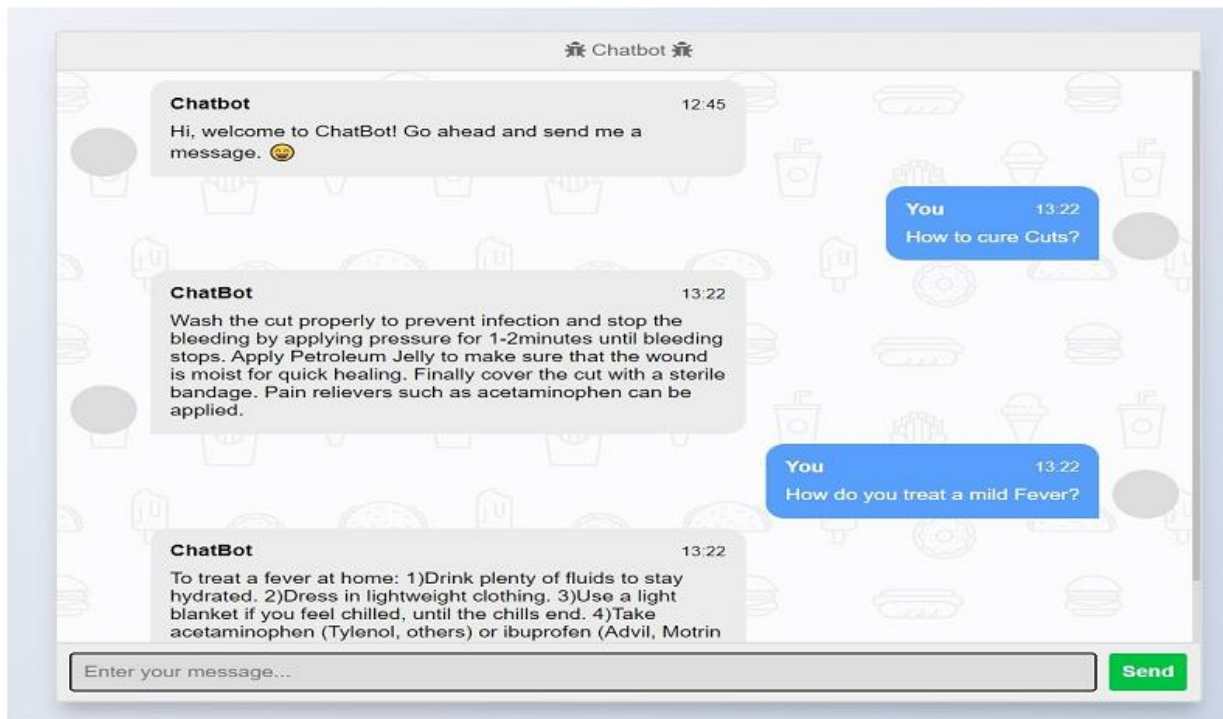
Figure: Chatbot portal
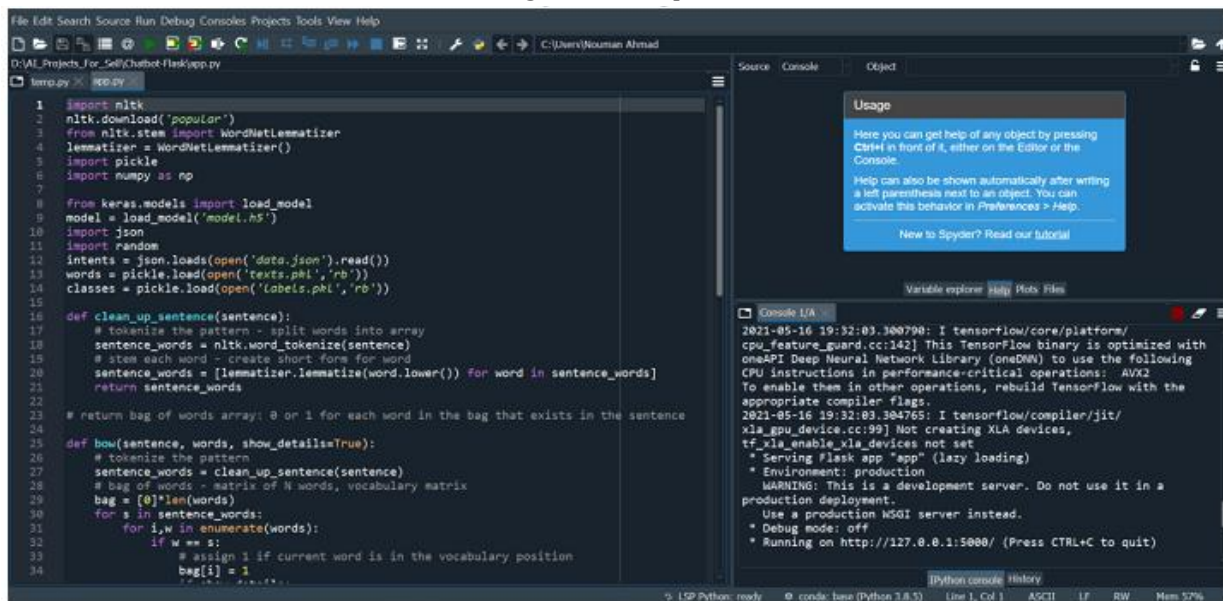
Figure: Run Flask

V. CONCLUSION

Keeping in mind the post effects of pandemic and the dis-balance between demand and healthcare services that are currently rewarded, especially in village areas have tried to bridge the gap by creating an Application with (NLP). Providing generic healthcare information as well as preventing measures for diseases and ailments indigenous to our country , this is

a unique, customized healthcare bot, which is very sensitive with the needs and understanding of the village area population. It has additional features including house remedies, location-based diet recommendations, age, and gender-specific health check-up helpline numbers. Its goal is not just to prevent infectious diseases in the grappling population, but also to help them overall wellness. When users communicate problems and symptoms to chatbot, and respond to questions from the chatbot, our application quite reliable in detecting and suggesting diseases, remedies, and food diets.

VI. FUTURE SCOPE

Even after a covid-19 lockdown, our Chatbot will still help to doctors, without imperil themselves and concern the safety of patients and hospitals and helping patients to get prescription easily and information at their own homes. This will also create a support website for a communication application for people who will like to read more and more information. The authors are constantly working to bring professional healthcare closer to the patients by providing the improvised live connection with doctors and including features like appointments by just one click.

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