

# Health Care Chat bot System

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## *Abstract—*

Health chat bot systems have grown in popularity in recent years to provide timely and timely health advice to patients. These chat bot systems use artificial intelligence (AI) algorithms to analyze patient data, describe symptoms and provide treatment recommendations. They can be integrated into existing healthcare systems and provide 24/7 access to medical information and advice. Medical chat bots can also help doctors manage their patient load and provide more efficient and cost-effective treatment. The idea is to create a medical chat bot that can diagnose the diseases and provide basic details about the diseases before consulting a doctor. This will help to decrease healthcare costs and improve accessibility to medical knowledge through medical chat bot. symptoms.

**Keywords—**Python Libraries, Machine Learning, Training data set, Hidden testing data set

## **I.INTRODUCTION**

The healthcare industry is constantly changing and technology is becoming an integral part of the healthcare ecosystem. One of the most exciting developments in healthcare is the development of chatbot systems that use artificial intelligence to provide personalized medical advice to patients. Health chatbots can change the way patients receive medical information and advice. The use of chatbot systems in healthcare has skyrocketed in recent years as patients seek more convenient and efficient ways to manage their healthcare needs. Chatbots can provide 24/7 health advice to patients, reducing the need for patients to wait to see a doctor or go to the emergency room. In addition, medical chatbots help doctors manage their patients more effectively, allowing doctors and nurses to focus on more complex cases. Despite the many benefits of health chatbots, there are also challenges that need to be addressed. For example, accurate diagnosis is important so that patients receive appropriate medical advice. There are also privacy concerns about sharing pers

onal health information via chat bot systems. It is also important to constantly monitor and update meeting room information so that the meeting room receives accurate up to date medical advice. Against this background, this report explores the use of chatbots in healthcare and their potential to improve healthcare, while addressing the challenges that need to be addressed for the safe and effective use of this device in clinical practice.

Additionally, medical chat bots help doctors manage their patients more effectively, allowing doctors and nurses to focus on more complex cases. Despite the many benefits of health chat bots, there are also challenges that need to be addressed. One of the most exciting developments in healthcare is the development of chat bot systems that use artificial intelligence to provide personalized medical advice to patients.

## II. LITERATURE SURVEY

[1] An application of recommending chat bot, which provides conversational service for mental health care based on emotions recognition methods and chat assistant platform. This application doesn't consider the user's psychiatric status through continuous user monitoring.

[2] This chat bot is strive to let users recognize the symptoms which they are facing and get a basic information's about the diseases it could be having complex interface, time consuming, high installation cost.

[3] A chat bot is an interactive software application to simulate natural user interactions based on AI modeling. We have proposed a datasets for commonly occurring medical conditions together with a prototype model to provide quick assistance to the patients.

[4] Conversational agents have many technical, design and linguistic challenges. They introduced the nature of conversation user interface (CUI) for the health and described UX design. Some limitations such as voice message are not correct, some issues are occurred because of network.

[5] The Bot Transition program gives a framework and resources based on AAP, AFP and ACP recommendation to promote skill attainment in self-care. It is designed only for people with special health needs transition into adolescents.

[6] This provides a text-to-text conversational agent that asks the users about their health issues. The user can chat as if chatting with a human. The bot then asks the users a series of questions about their symptoms to diagnose and gives suggestions about the different symptoms to clarify the disease.

[7] In this text-based healthcare chat bots can be designed to effectively support patients and health professional in therapeutic settings beyond on side consultations.

[8] An interactive APP that provides reviews of psychotherapy based on a psychological and interactive support platform. This app doesn't have to take into account the user's brain user tracking. In this paper, medical chat bots can be developed to support patients and doctors in effective treatment.

[9] It offers a text-to-text chat asking users about their health. Users can chat with up to people. The bot then makes suggestions about various symptoms to explain the disease and asks the user about their symptoms to make a diagnosis.

[10] Plan is a chat bot based Health service that can respond instantly to changes in the daily lives and conditions of chronically ill patients. Humanoid Robot Framework also

recommended effective use of interactive chat bot services. Although it has a total of advanced features, it is a text-based robot.

#### A.GAPS IN STUDY

Many existing systems communicate via text. The limitation of these chat bots are, that they cannot give instant response to the users,they have to wait for complete acknowledgement for a long time. Other issues is that there are limited number of diseases in the datasets.Technical issues like voice message are not accurate in the existing system.

#### B. PROPOSED SYSYTEM

In our system, users can interact with chat bot through text and would interact using voice and text manner.According to users queries,the bot recognize the diseases if user chatting with the chat bot. According to the the diseases of the user,bot gives suggestions for the diseases and also advice specialist doctors.

#### IV.OBJECTIVE

- 1.To Extract symptoms from users chat.
- 2.To classify and predict the diseases using decision tree classifier.
- 3.To develop a healthcare chat bot to predict diseases by symptoms taken as input.

#### A. ALGORITHMS

1. Insert user query in the chat bot windows .
2. The details will be extracted from the user chat.
3. Decision tree classifier algorithm is used to process the query.
4. The response in fetched from the chat bot like Disease Prediction and Diseases Precaution and output to the user.
5. Exit.

#### V. IMPLEMENTATION

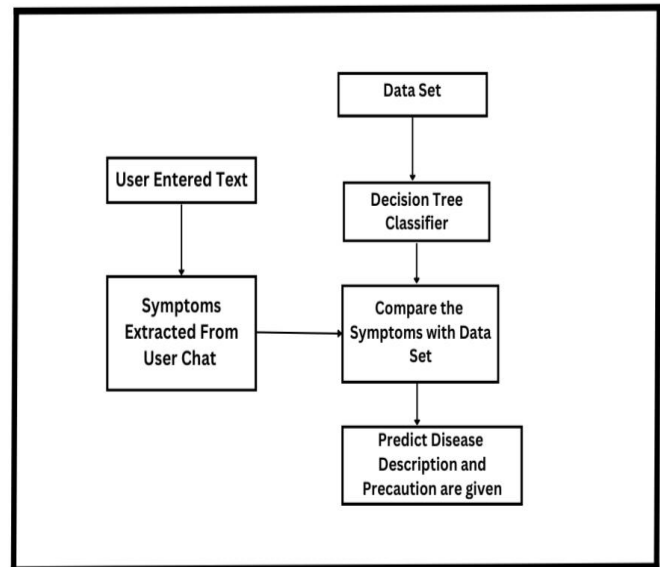


Figure 1. Architectural Design

Initially the chat bot also to enter the name of the user,one major symptoms that they are facing and period of facing that symptom. In the next step the chat bot ask the specific symptoms,and user us facing. For example type 0 for heavy fever or type 1 for mild fever . Next the bot will ask some series of symptoms, and user have to answer in “yes or “no” sense. Decision tree is supervised learning technique that can used for both classification and regression problems,but mostly it is preferred for solving classifications problems. It is a tree-structured classifier where,internal nodes represent the features of data set branches represent decision rules and each leaf node represent outcomes.

#### A. MODULE

Modules is in our proposed system.

#### B. ADMIN MODULE

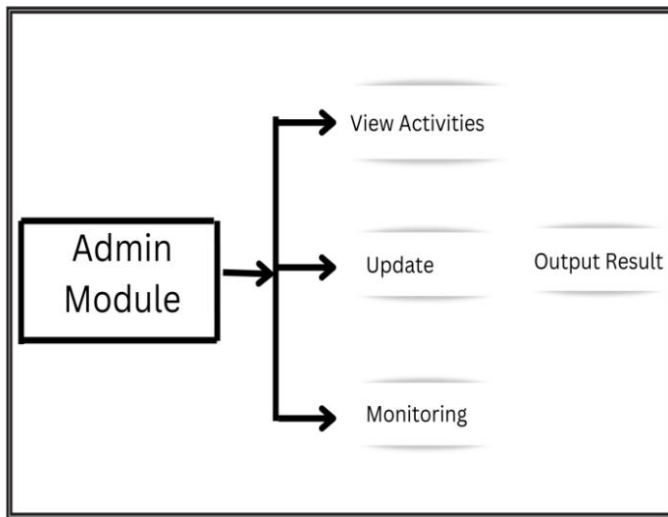


Figure 2. Admin Module

### C. USER MODULE

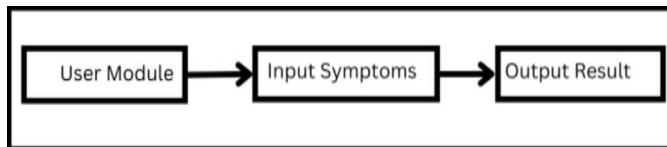


Figure 3: User Module

## VI. METHODOLOGY

The decision tree algorithm belongs to the family of supervised learning algorithms. They can be used to solve both regression and classification problems. Decision trees use a tree representation to solve a problem where each leaf node corresponds to a the class name and attributes are represented in the internal node of the tree. If the value is less than the threshold, move left down node If the value is greater than the threshold, go to the correct child node. If we have a disease, now we have to increase details of the disease and necessary precautions must be taken. If the user has had the relevant symptom for more than 13 years The chat then responds as follows: "You should consult a doctor". If it is less than 13 days, then chat Respond with "It

might not be that bad, but you should take precautions". After predicting the disease, the bot supplies the need precautions After predicting the disease, the bot provides a basic description of the disease, as the user does to get an idea of what disease this user might have. The bot answers everything by voice, for that we used pyttsx3. pyttsx3 is a Python text-to-speech library. Unlike alternative libraries, it works offline and is compatible with both Python 2 and 3. The proposed Chat bot system works based on a decision tree algorithm. It gives answers to the user questions based on the following method.

Front view which user can see in details:

Steps:

1. Start
2. Input number (multiple digits)
3. Program will start processing the data.
4. Input image will change into machine code.
5. It will come to the two-way process where the data save to local memory and along with that it will start processing the input data to the trained model.
6. After doing this part it will make decisions according to the responses.
7. If decision is no then user will get an error message on their end.
8. After the execution the program will Terminate
9. Stop.

Architecture:

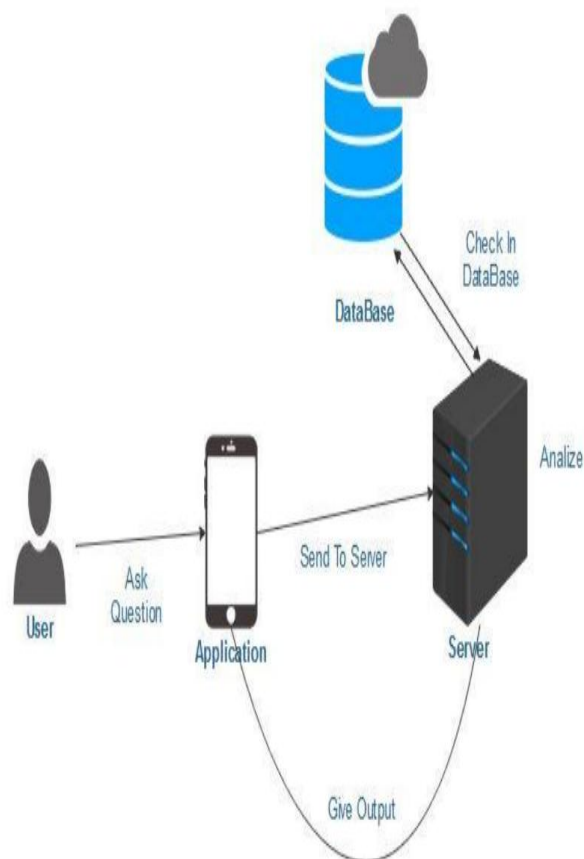


Figure 4: architecture design

VII. .RESULTS AND ANALYSIS

Sample Results

In order to explain the process of calculating the similarity of medical question in model,we found that model has an impressive text expression in understanding the word meaning.Chat bot allows Chat bot users to send their symptoms and get solutions from the bot.

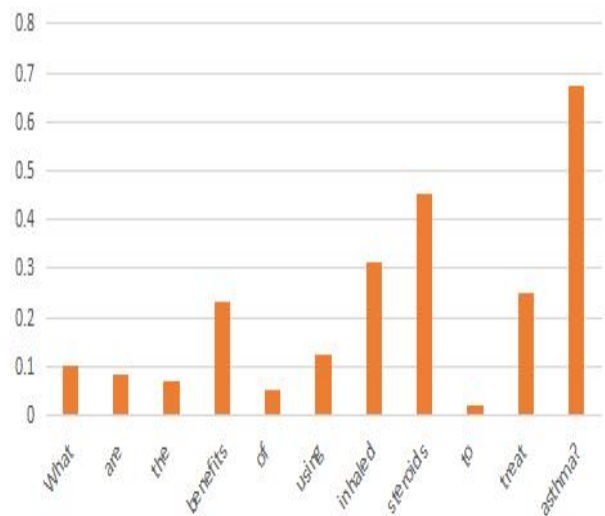
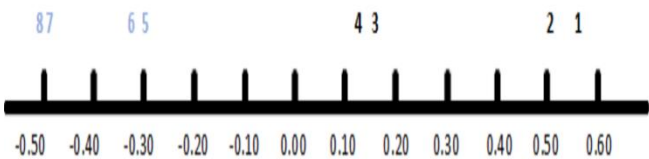


Figure5:Word distribution in two sentences

Each word in a sentence is represented by weight according to he word attention mechanism.As an example, Figure xxx shows a sentence “what are benefits of using inhaled steroids?” The decision tree algorithm belongs to the family of supervised learning algorithms. They can be used to solve both regression and



- 1 How can a non-EU medical graduate get into residency in Italy?
- 2 How can non-Eu medical graduate get into a residency in france?
- 3 Should I give Halloween candy to a trick or treater who is not wearing a costume?
- 4 Is it wrong to give kids who are trick-or-treating and not wearing costumes lower quality candy for Halloween?
- 5 How do medical students study and take notes?
- 6 How do medical students take notes when studying?
- 7 Where can I get best treatment for Hypnotherapy in Sydney?
- 8 Where can I find best treatment for Hypnotherapy in Sydney?

Figure 6:Comparison of positive and negative representation

classification problems. Decision trees use a tree representation to solve a problem. where each leaf node corresponds to the class name and attributes are represented in the internal node of the tree. for more than 13 years The chat then responds as follows: "You should consult a doctor". If it text-to-speech library. Unlike alternative libraries, it works offline and is compatible with both Python 2 and 3. The proposed Chatbot system works based on a decision tree algorithm.

VIII.CONCLUSION

In this article, we propose a framework for chat bots based on data graph and textual representation and similarity model. The advantage of the data graph is that it uses a storage mechanism for specific data fields that makes it easy to maintain and store data. Although the model makes use of traces, it uses deep learning to better represent and understand natural language questions. They can be used to solve both regression and classification problems. That's why we created system that combines the best of both worlds by combining datasets with neural models. The proposed system is an effective, cheap, simple and fast way to help patients talk to each other. A chat room that helps and helps them take care of their health effectively. Chat bot allows Chat bot users to send their symptoms and get solutions from the bot. The system can be conveniently accessed from anywhere and anytime. Discourse The bot is available 24/7. We calculated the accuracy manually and got 87.24 percent. Chat is a great tool for conversation.

IX. REFERENCES

[1]Amiri, Parham, and Elena Karahanna. "Chatbot use cases in the Covid-19 public health response." *Journal of the American Medical Informatics Association* 29, no. 5 (2022): 1000-1010.

[2] Ahmed, Arfan, Asmaa Hassan, Sarah Aziz, Alaa A. Abd-Alrazaq, Nashva Ali, Mahmood Alzubaidi, Dena Al-Thani et al. "Chat bot features for anxiety and depression: A scoping review." *Health Informatics Journal* 29, no. 1 (2023): 14604582221146719.

[3] Prajapati, Nisarg, Vaishnavi Mhaske, Smaran Dubey, and Piyush kumar Soni. "Chat bot for medical assistance: a review." *International Journal of Recent Advances in Multidisciplinary Topics* 3, no. 3 (2022): 66-70.

[4] Parmar, Pritika, Jina Ryu, Shivani Pandya, João Sedoc, and Smisha Agarwal. "Health-focused conversational agents in person-centered care: a review of apps." *NPJ digital medicine* 5, no. 1 (2022): 21.

[5] Almutairi, Shurooq, Sana A. Khan, Mohammad Amin Kuhail, and Imran Taj. "Chat bot Design Challenges and the

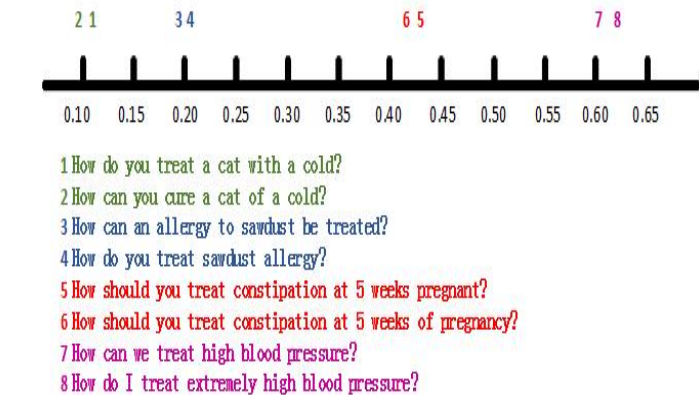


Figure 7:Distribution of different group of sentences representation

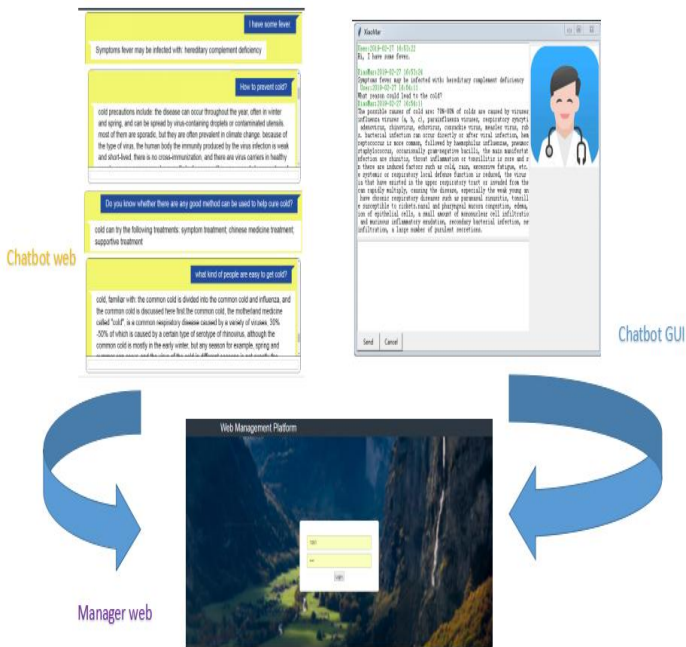


Figure 8:Chat bot Websites,GUI and Manager



Effect on User Behavior." *Trends, Applications, and Challenges of Chat bot Technology* (2023): 24-35.

[6] Phisher, Millie, and Allen Unoriginal. "Health chat bots in Africa literature: A scoping review." *Journal of Medical Internet Research* (2022).

[7] Kuhail, Mohammad Amin, Shahbano Farooq, and Shurooq Almutairi. "Recent Developments in Chat bot Usability and Design Methodologies." *Trends, Applications, and Challenges of Chat bot Technology* (2023): 1-23.

[8] Witty, Jennifer, Kevin Marsh, Eric Low, Altoona Shah, and Mend was Angina. "OP84 Cost Consequence Analysis: A Potential Framework To Incorporate Patient Preferences Into Health Technology Assessment And Reimbursement Decisions." *International Journal of Technology Assessment in Health Care* 38, no. S1 (2022): S31-S32.

[9] Shankar, P. Ravi. "Artificial intelligence in health professions education." *Archives of Medicine and Health Sciences* 10, no. 2 (2022): 256-261.

[11] van Lotringen, Charlotte, Benedetta Lusi, Gerben J. Westerhof, Geke DS Ludden, Hanneke Kip, Saskia M. Elders, and Matthias L. Noordzij. "The Role of Compassionate Technology in Blended and Digital Mental Health Interventions: Systematic Scoping Review." *JMIR mental health* 10, no. 1 (2023): e42403.

[12] Nomura, Hideki, and Takeo Nakayama. "The Japanese healthcare system." *Bmj* 331, no. 7518 (2005): 648-649.

[13] Budrionis, Andrius, and Johan Gustav Bellika. "The learning healthcare system: where are we now? A systematic review." *Journal of biomedical informatics* 64 (2016): 87-92.

[14] Lowe, Henry, Arvilla Payne-Jackson, Stephen M. Beckstrom-Sternberg, and James A. Duke. "Jamaica's Ethnomedicine: Its potential in the healthcare system."

In *Jamaica's ethnomedicine: its potential in the healthcare system*, pp. xiv-250. 2001.

[15] Böhm, Katharina, Achim Schmid, Ralf Götze, Claudia Landwehr, and Heinz Rothgang. "Five types of OECD healthcare systems: empirical results of a deductive classification." *Health policy* 113, no. 3 (2013): 258-269.

[16] Dula, Annette. "African American suspicion of the healthcare system is justified: what do we do about it?." *Cambridge quarterly of healthcare ethics* 3, no. 3 (1994): 347-357.

[17] Massuda, Adriano, Thomas Hone, Fernando Antonio Gomes Leles, Marcia C. De Castro, and Rifat Atun. "The Brazilian health system at crossroads: progress, crisis and resilience." *BMJ global health* 3, no. 4 (2018): e000829.

[18] Atun, Rifat, Thyra de Jongh, Federica Secchi, Kelechi Ohiri, and Olusoji Adeyi. "Integration of targeted health interventions into health systems: a conceptual framework for analysis." *Health policy and planning* 25, no. 2 (2010): 104-111.

[19] Gillies, Robin R., Stephen M. Shortell, David A. Anderson, John B. Mitchell, and Karen L. Morgan. "Conceptualizing and measuring integration: findings from the health systems integration study." *Journal of Healthcare Management* 38, no. 4 (1993): 467-489.

[20] Darshan, K. R., and K. R. Anandakumar. "A comprehensive review on usage of Internet of Things (IoT) in healthcare system." In *2015 International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT)*, pp. 132-136. IEEE, 2015.

[21] Legido-Quigley, Helena, Nima Asgari, Yik Ying Teo, Gabriel M. Leung, Hitoshi Oshitani, Keiji Fukuda, Alex R. Cook, Li Yang Hsu, Kenji Shibuya, and David Heymann. "Are high-performing health systems resilient against the COVID-19 epidemic?." *The Lancet* 395, no. 10227 (2020): 848-850.