Smart Disease Chatbot
using the Concept of Python

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Abstract: -A chatbot is a computer software program that conducts a conversation via auditory or textual methods. This software is used to perform tasks such as quickly responding to users, informing them helping to purchase products and providing better service to customers. Chatbot are programs that work on Machine Learning Platform. A computer program designed to simulate conversation with human users, especially over the Internet. A chatbot is an artificial intelligence computer program which performs communication using audio and video system. A person can ask any questions and chatbot will answer accordingly. A chatbot is used in many areas like order food, product suggestions, customer support, weather, personal finance assistance, scheduled a meeting, search and track flights, send money, and many more. The system was implemented using python. In this paper, we streamline machine learning algorithms for effective prediction of chronic disease outbreak in disease-frequent communities. The concepts of artificial intelligence, machine learning and natural language tool kit (NLTK) have provided substantial assistance in the field of healthcare.

Keywords:-Chatbot, Answer agent, Machine Learning, Natural Language Processing, Artificial Intelligence, Python, Natural Language Tool Kit.

I. INTRODUCTION

A chatbot is an automated software program that interacts with humans. A chatbot is merely a computer program that fundamentally simulates human conversations. the disability of the kidney to perform their regular blood filtering function and other is called Chronic Kidney the term "Chronic" describe the slow degradation of the kidney cells over a long period of time. A chatbot is software that conduct conversational. Many chatbot are created to simulate how a human would behave as a conversional partner. Chatbot are in many devices ,for example Siri, Cortona, Alexa and Google Assistant. many chatbot are used now a days for customer service. there are broadly two variants of chatbot: A Rule-Based chatbot that answer question based on some rules that it trained on while Self Learning chatbot is a chatbot that uses some Machine Learning based technique to chat. we will use rule-based approach for responding back to greeting and we will have the chatbot respond to question and queries by talking in some text and having the chat select the best response back from the text .this type of Self Learning is called retrieval based learning .CKD also may lead to sudden illness or allergy to certain medicine.   In recent years chronic kidney disease (CKD) has reached a global prevalence as high as 11–13% with the majority in the stage 3. It is observed that the prevalence is higher for women than for men. Famous chatbots like Google Assistant, Amazon Alexa, Siri, Facebook and many more are in trend. Chatbot can be described as an answering system where a system will be able to answer questions or statements submitted by users and allow users to control over the content to be displayed. A bot is trained on and according to the training, based on some rules on which it is trained, it answers questions. It is called ruled based approach Chatbots are programs that can do talk like human conversations very easily. For example, Facebook has a machine learning chatbot that creates a platform for companies to interact with their consumers through the Facebook Messenger application. According to research, nowadays chatbots are used to solve a number of business tasks across many industries like E-Commerce, Insurance, Banking, Healthcare, Finance, Legal, Telecom, Logistics, Retail, Auto, Travel, Sports, Entertainment, Media and many others.

II. LITERATURE SURVEY

Advancement in technology has a far-reaching effect in the field of Healthcare. Machine Learning algorithms have not only helped the doctors but also have provided a first-hand testing set for the patients. H.A Widarwa.et.proposed and evaluated kernel based Extreme Learning Machine to predict Chronic kidney disease. performance of kernel-based ELM. namely RBF-ELM, Linear-ELM. Natural Language Processing being a part of AI provides data extraction and assistance in understanding the patient's words in a better way.al paper presents on survey of various chatbot implementation techniques. The research is based on the survey of various chatbot and it is shown that how the various chatbot differs from each other's. To make chatbot the various technology has been used to make. A chatbot can be considered as a question-answer. Chatbot are computer programs capable of carrying out natural conversations. AI are becoming a

feasible customer service channel and reduces manpower Literature Review or Background was conducted in order to study and obtain knowledge from previous researches and surveys. Some Survey papers are also mentioned describing the comparison between various existing chatbot. This survey paper aims to present an overview of an existing approaches of implementing a chatbot system. In this paper it as compares various chatbot from the first chatbot ELIZA to one of the latest chatbot like ALEXA, not only this is shown various chatbots like IBM Watson, Siri, Tay, etc Similarities & Differences with some Influential factors in designs of Chatbots like voice/text, creating new chatbots, using available chatbot. CKD increase the risk factor of Cardio Vascular Disease like hypertension, diabetes mellitus and metabolic syndrome CKD also leads to end stage renal disease which has no cure U.N.Dullhare.et extracted action rules based on stages but also predicted CKD. Natural Language Tool Kit (NLTK) is a python library which offers assistance for Natural Language processing (NLP). NLTK has built tokenizers the NLTK in corporate a wide scope of tokenizer the most usually utilized tokenizer is the word-punkt tokenizer which part the sentences at the blank spaces .

 Chatbot: Are They Really Useful? Author: Bayan Abu Shawar, Eric   Atwal   the paper is basically focused on an academic paper highlighting some case studies and including a brief history of chatbots that extends back to the earliest experiments such as ELIZA.

III. PROPOSED METHODOLOGY

Systems design is the process of defining the architecture, components, modules and data for a given system to satisfy specified requirements. Chronic Kidney Disease the chatbot will be able to answer the questions outside of its dataset and which are currently happening in the real- world Concerning libraries is used in this context for some utilities such splitting a dataset. The chatbot comprises two concepts of Natural Language Processing namely tokenization and wordnet. Synset is a simple interface that is present in NLTK (Natural Language Toolkit) to look up the words present in Word Net. This section describes a chatbot architecture based on our literature review. It shows a basic common workflow of a chatbot system in both Python-based and rule-based.
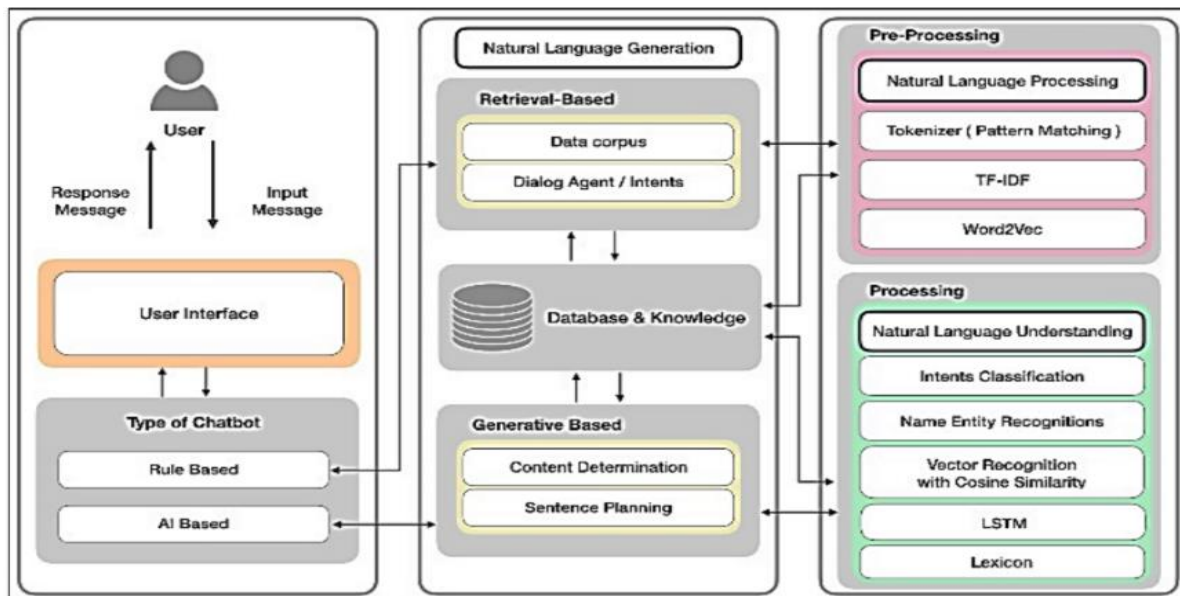

Figure 1. Conversational agent architecture

- **Natural Language processing (NLP)** -Acts as a fundamental pillar for recognition of language, which is used by Apple, Siri, Google.it allows technology to recognize human natural language text.
- **Natural Language understanding (NLU)** – is responsible for handling and converting formless data into proper form that the system can easily understand.
- **Natural Language Generation (NLG)** – language generation is responsible for the formation of linguistically correct sentences and phrases the key challenge faced by NLP is to understand the complications of natural human language.
- **Tokenization** -In **Python tokenization** basically refers to splitting up a larger body of text into smaller lines, words or even creating words for a non-English language. The various **tokenization** functions in-built into the NLTK module itself.

- **TF -IDF -**TF-IDF stands for **"Term Frequency — Inverse Document Frequency"**. This is a technique to quantify a word in documents, we generally compute a weight to each word which signifies the importance of the word in the document and corpus. This method is a widely used technique in Information Retrieval and Text Mining.

- **Intent Classifier:** it takes input from user, interprets it meaning and then relates it to that intent which is supported by the chatbot.

Workflow of the CKD prediction: - The main purpose of this chatbot is to respond to user queries without man power. User can work with the chatbot in any web browser. The chatbot receives the request sent by the user, analyses it and responds to the user in return. This analysis is done, using the machine learning algorithm. The queries are predefined with a particular tag for each set. Almost all the queries from the user will be clearly responded, only few are exceptional cases.
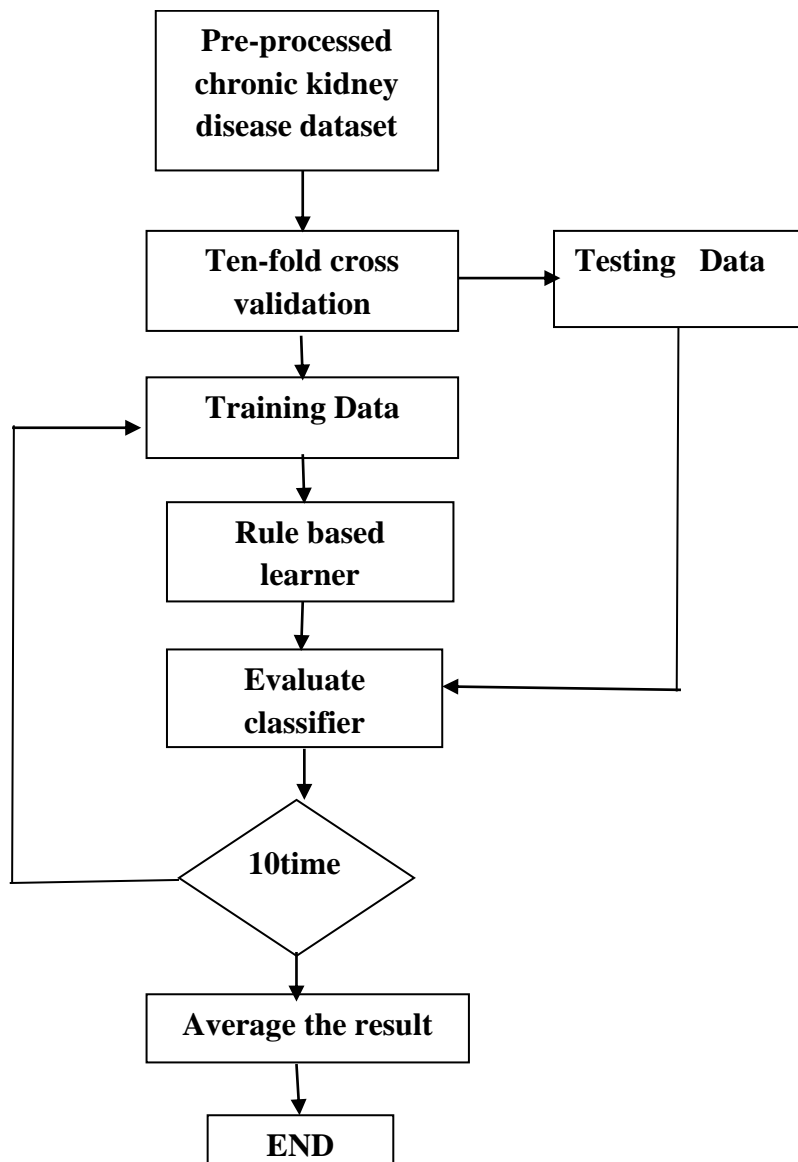

Figure 2: Flow Diagram

IV. RESULT AND PERFORMANCE

Chatbot system is implemented to meet academic requirements of the users. Simulation or Generating response from a chatbot is a knowledge-based one. Chatbot system is implemented to meet academic requirements of the users. Simulation or Generating response from a chatbot is a knowledge-based one. Chatbot models has been constructed using training data set (280 instances) which is 70% of original CKD dataset constructed models have been validated using test data which is 30% of original data with respect to the parameter accuracy. Chatbot system is implemented to kidney disease requirements of the user. Simulation or Generating response from the chatbot is a knowledge based one.

Wordnet is responsible for retrieving the response and in this case, it contains all logics that is triggered whenever the user context is matched. the query is searched in the database. if the response is found in the database it is displayed to the else system notifies the admin about the missing response in the database and gives a predefined response to the user.
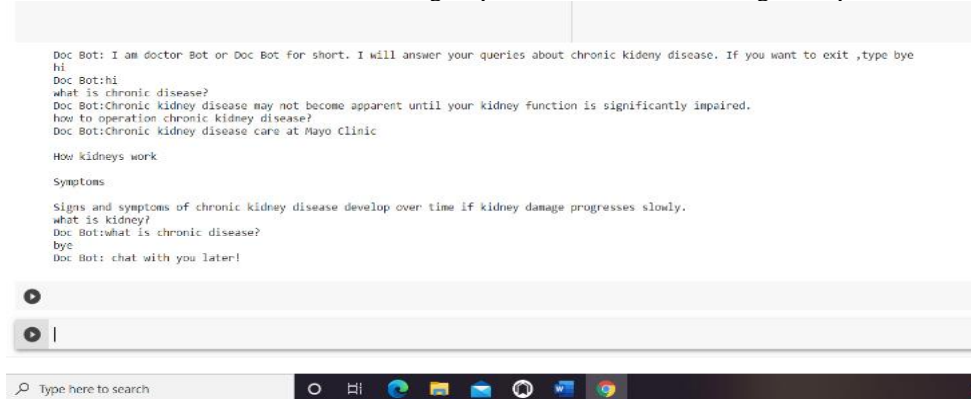

Figure 1: Chatbot answering queries of user

V. CONCLUSION & FUTURE ENHENCEMENTS

In this project. We made a Chronic kidney Disease chatbot system. This chatbot can answer queries in the textual user input. The goal of the project is to reduce man-pawer and respond to user query at faster rate. This paper represents a prediction model driven system that predicts accurate diseases based on the symptoms. The concept of Natural Language Processing is used to design an interactive chatbot to retrieve symptoms provided by the user. Chatbot can overcome this delay, chatbot satisfies the user request or query immediately with relevant responses. Every customer or user needs appropriate answers and so database is used to so that purpose can be solved. This can also be considered as future work. This project can be developed even more by adding multi languages, speech recognition. We can add many more tags to the dataset as the website gets developed. Future Such chatbots, backed by machine-learning technology, will be able to remember past conversations and learn from them to answer new ones. this project is a small initiative to make the website user-friendly and easily understandable by the user.

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