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AI ON HEALTH BOT

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ABSTRACT

The Healthcare chatbots system will heip hospitals to provide helth care support online 24X7,it answers deep as well as genral questions. It also helps generate leads and automatecly delevars the information of leads to sale. By asking questions in series it helps the pationts by guiding what exactly he/she looking for it saves time and money. There are countless cases where a digital persional assistant where a chatbot could help physicens nurses, patients or they families.

Though Chatbots one can communicate with text of voice interface and get reply though artificial intelligences. Artificial Intelligences chotbot is a technology that makes interaction between man and machine in their natural language. The main goal of the chatbot is to make the conversation between students and machine . The chatbot consists of core and interfacce. Typically,a chatbots will communicate with a real person. . Chatbots can be programmed to respond the same way each time , to respond differently to messages containing certain keywords and even to use machine learning to adapt their responses to fit the situtation.

***Keywords**: Artificial Intelligence, chatbot, healthcare, human computer intraction, content, Question Answering.*

I. INTRODUCTION

Our bot will keep people informed about their medical conditions by providing answers to frequently asked questions. They may ask questions relating to normal blood pressure, blood sugar levels, diabetes grades and signs, best sleeping positions for babies, and others. And also ask the questions related to cardiology and nephrology. we will help people in locating doctors or specialists in their area and booking appointments with them.

The bot will remind patients about their appointments. It will also allow patients to setup reminders for their pills in terms of timing and dosage, so they don't forget when it is time to take the next dose – intelligent reminder. we will also be able to track and monitor patients' improvements or health status, but this feature is reserved for the future.

AI can be used to analyse and identify patterns n large and complex datasets faster and more precisely than has previously been possible. It can also be used to search the scientific literature for relevant studies, and to combine different kinds of data; for example, to aid drug discovery.

Chatbot will give solutions for the users queries and problems. In this paper a chatbot is designed to answers both general questions and FAQ's. AIML is the artificial markup language. The AIML template is defined with almost all the general queries like "Hi, Hello, How are you?"etc.

It is used to deal with general questions and greetings. AIML simple language, which can give random poses for single query (or) scripts.Chat box can be built on any closed platform which may support PL ,that allows to make a web API. Programming language.

II. LITEARTURE SURVEY

RikCrutzenPh.D.[a]Gjalt-Jorn Y.PetersPh.D.[b]Sarah DiasPortugalM.Sc.[b]Erwin M.FisserB.A.[c]Jorne J.GrollemanM.Sc.[d] has proposed about An Artificially Intelligent Chat Agent That Answers Adolescents' Questions Related to Sex, Drugs, and Alcohol: An Exploratory Study, The aim of this study was to investigate *if* and *how* an artificially intelligent chat agent (chatbot) that answers questions about sex, drugs, and alcohol is used and evaluated by adolescents, especially in comparison with information lines and search engine[1]

Kowalski, Robert Hoffmann, Rohan Jain, Majid Mumtaz Has proposed Using Conversational Agents to Help Teach Information Security Risk Analysis, New social eco-systems and globalization are creating new challenges to educational institutions. Teacher need now not only to consider personal differences among their students, but also to take care of different cultural behaviors .Teachers are now expected to provide both a standardized and individual knowledge transfer to their students. This conflict may be resolved by utilizing results from artificial intelligence research, in particular chat bots. By giving the teacher a virtual assistant who can take care of the basic knowledge provisioning, the teacher has more freedom to handle the complex situations. [2]

Bii Patrick Kiptonui has proposed about Chatbot technology: A possible means of unlocking student potential to learn how to learn This paper explores the possibility of implementing a constructivist learning environment using chatbot technology as a basis of enabling students acquire global economy and technological information age skills and competencies (21st century skills) within the context of a developing country. The suggested approach is to integrate chatbot technology into the prevailing teaching-learning environment taking into consideration enabling and constraining factors. Social constructivism provides the basis for concretization of this approach, where social interaction plays a fundamental role in the development of cognition, with mediation using cultural tools and scaffolding contributing to the process of learning.[3]

María Lucila Morales-Rodríguez, Juan Javier González B., Rogelio Florencia Juárez, Hector J. Fraire Huacuja, and José A. Martínez Flores Emotional conversational Agents in Clinical Psychology and Psychiatry
This paper is based on a project at the University of Barcelona to develop the skills to diagnose the generalized Anxiety Disorder (GAD) in students of psychology and psychiatry using a chatbot. The problem we address in this paper is to convert a chatbot in an emotional conversational agent capable of generating a believable and dynamic dialogue in natural language. For it, the dialogues convey traits of personality, emotions and its intensity. We propose to make an AIML language extension for the generation of believable dialogue, this extension will allow to create a more realistic scenario for the student to diagnose the condition simulated by the conversational agent. In order to measure the perception of the emotional state of the ECA expressed by the speech acts a survey was applied[4]

Nicole Radziwill and Morgan Benton has proposed Evaluating Quality of Chatbots and telligent Conversational Agents, Chatbots are one class of intelligent, conversational software agents activated by natural language input (which can be in the form of text, voice, or both). They provide conversational output in response, and if commanded, can sometimes also execute tasks. Although chatbot technologies have existed since the 1960's and have influenced user interface development in games since the early 1980's, chatbots are now easier to train and implement. This is due to plentiful open source code, widely available development platforms, and implementation options via Software as a Service (SaaS). In addition to enhancing customer experiences and supporting learning, chatbots can also be used to engineer social harm -that is, to spread rumors and misinformation, or attack people for posting their thoughts and opinions online.[5]

Abbas saliimi lokman,jasni mohmad zain has proposed chatbot on diabetic patients. it is a technology that makes interaction between man and machine possible by using natural language. In this paper, we proposed an architectural design of a chatbot that will function as virtual diabetes physician/doctor. This chatbot will allow diabetic patients to have a diabetes control/management advice without the need to go to the hospital. A general history of a chatbot, a brief description of each chatbots is discussed. We proposed the design of a new technique that will be implemented in this chatbot as the key component to function as diabetes physician. Using this design, chatbot will remember the conversation path through parameter called Vpath. Vpath will allow chatbot to gives a response that is mostly suitable for the whole conversation as it specifically designed to be a virtual diabetes physician.[6]

Sathyendra Kumar, A K Keerthana has proposed Sanative Chatbot For Health Seekers about Many of the existing systems have some limitation such as There is no instant response given to the patients they have to wait for

experts acknowledgement for a long time. Some of the processes may charge amount to perform live chat or telephony communication with doctors online [7].

Dejan T ILIĆ, Branko Momcilo MARKOVIĆ has proposed POSSIBILITIES, LIMITATIONS AND ECONOMIC ASPECTS OF ARTIFICIAL INTELLIGENCE APPLICATIONS IN HEALTCARE The increasing importance of achieving sustainable development is largely positively influenced the emergence and increasing the level of application of artificial intelligence in different spheres of human activity, but especially in the field of health care. It is this trend and initiated that in work devote special attention to precisely to the analysis of potential opportunities, and economic effects of the use of artificial intelligence in the direction of improving efficiency, but the economic effects of health care [8]

Benilda Eleonor V. Comendador, Bien Michael B. Francisco, Jefferson S. Medenilla, Sharleen Mae T. Nacion, and Timothy Bryle E. Serac have proposed Pharmabot: A Pediatric Generic Medicine Consultant Chatbot ,the paper introduces a Pharmabot: A Pediatric Generic Medicine Consultant Chatbot. It is a conversational chatbot that is designed to prescribe, suggest and give information on generic medicines for children. The study introduces a computer application that act as a medicine consultant for the patients or parents who are confused with the generic medicines. The researchers use Left and Right Parsing Algorithm in their study to come up with the desired result.[9]

Mohr DC[1], Burns MN, Schueller SM, Clarke G, Klinkman M has proposed Behavioral intervention technologies: evidence review and recommendations for future research in mental health. A technical expert panel convened by the Agency for Healthcare Research and Quality and the National Institute of Mental Health was charged with reviewing the state of research on behavioral intervention technologies (BITs) in mental health and identifying the top research priorities. BITs refers to behavioral and psychological interventions that use information and communication technology features to address behavioral and mental health outcomes[10]

III. PROPOSED METHODOLOGY

Architecture of AI chatbot
Figure 1

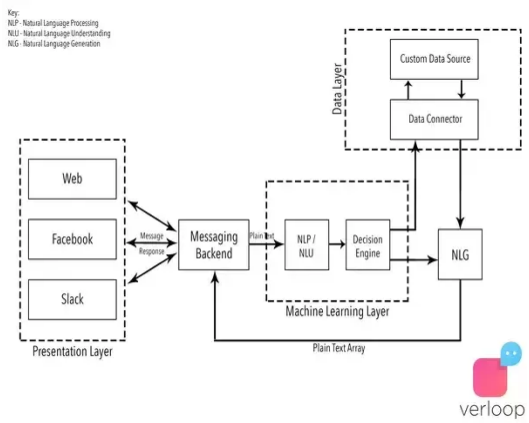

Figure 1: AI chatbot

This is the Architecture of Chatbot which consists of three main layers:

1. Presentation Layer
2. Machine Learning Layer
3. Data Layer

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Here the information is taken in the form of message and comes out in the form of response.

Presentation Layer: This layer is the interface between the user and machine. In this layer the message is send in the form of input either through web, Facebook, stacks etc. This information goes through the message backend block and enters the machine learning layer.

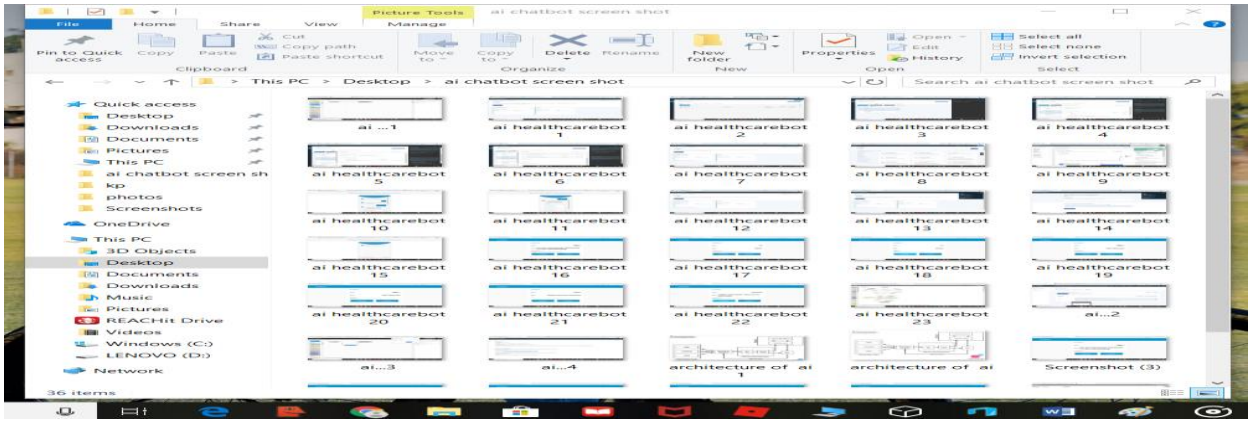
Machine Learning Layer: This layer consists of two blocks one of NLP/NLU and decision engine. Here the send information is converted from the user understandable code to the machine understandable code. After this conversion the decision engine takes the decision whether to send to the NLG Block or through the data layer.

Data Layer: In this layer the machine checks whether the send information is converted to the machine understandable code or not through the custom data service. After checking it will send the information through the NLG block and then sends it through the 'Plain Text Array' to the messaging backend block. And send's it to the presentation layer in the form of user understandable code.

NLP: National Language Processing.
NLU: National Language Understanding.
NLG: National Language Generator.

IV. IMPLEMENTATION

Figure 2



Firslty open your IBM cloud go to dashboard and then to catalog and type Watson Assistant give some service name and then create it.click on Launch Tool go to Skills create the new skill.click on add intent give some intent name and then create the intent, give some user examples like (Hi, Hello, Good Morning, Good evening etc) then try it once by clicking on try it box. Go to dialog create one welcome node and then try it again. Click on welcome node add node below open that node and give some name. then click respond with Text enter:Hi and then try it.click on intent, add intent then give intent name as #enquiry click on create intent. give some user examples like: (what are the symptoms? Or would you like us suggest you the top most doctors?) click on add example. Then go to entities and create once entity with the name @entity give some name to the value and add the synonyms if needed. Then again go to dialog add one node below the greetings node name it as enquiry on multiple responses if needed. We can also give the image to our input by clicking on respond with Image instead of respond with Text. And then try it out once again. Create slots if needed. Continue the process accordingly. Go to skills click on assistant and then add assistant give some as name in this we gave it as Medication Chatbot click on create. Add dialog skill go to add existing skill and then click on the bot which it shows below (which is named as Medication Chatbot) click on preview link and then open the link which it shows below. Finally we can see our output screen there. To create a Node-Red click on settings go to manage palette install node-red dashboard. Now open it from dashboard nodes drag Form node on to the flow, click on the node to modify it. Then take a function node place it in between Form

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node and assistant node, click on it give name as input parsing. Edit function as msg.payload=msg.payload.text and the click on done. Take two text nodes click on it give label name as you and for another node give it as bot click on done. Connect you input to the input parsing output and bot input to the output parsing output. Click on deploy. And then we can perform our operation successfully by continuing it accordlingly.

V. RESULTS

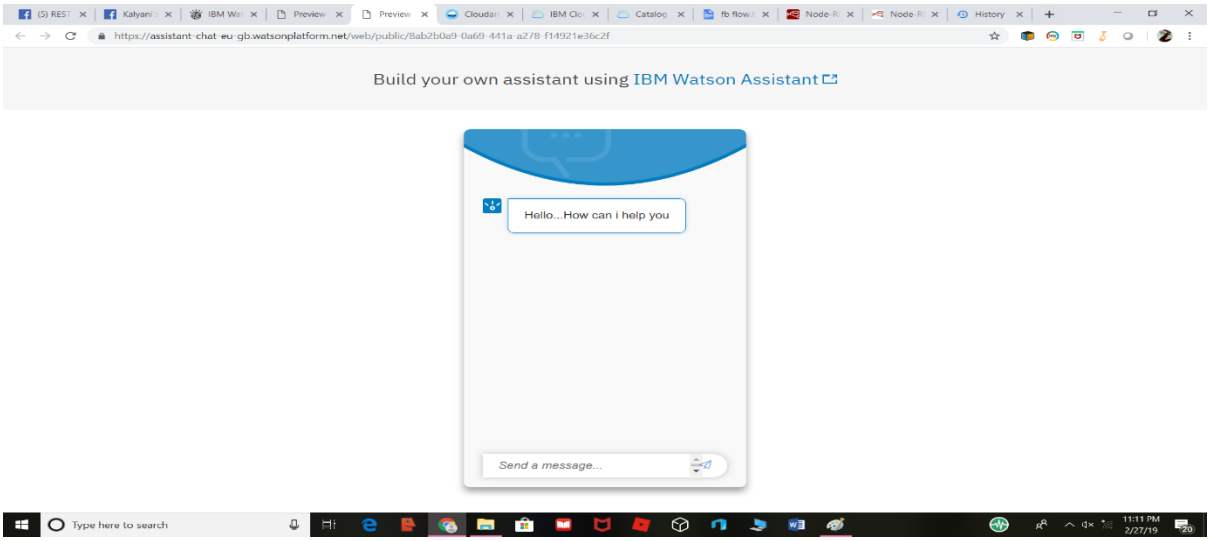

Figure 3: Welcome Message In IBM Watson Assistant.

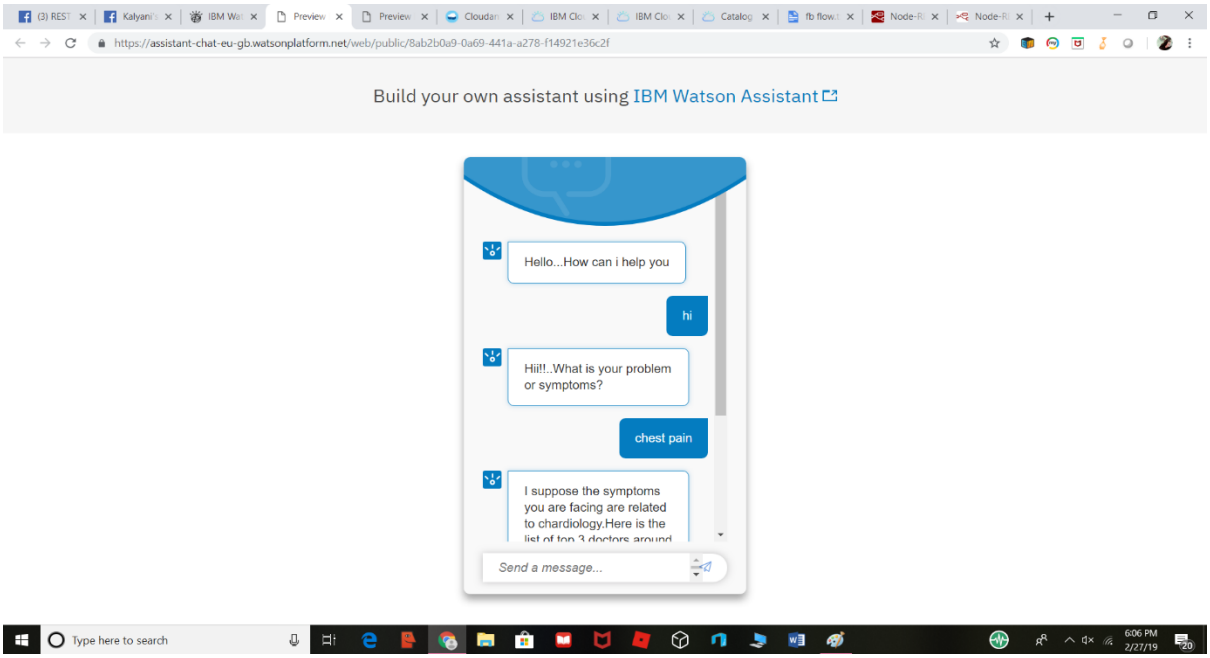

Figure 4: The output for the given symptom.

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Impact Factor- 5.070

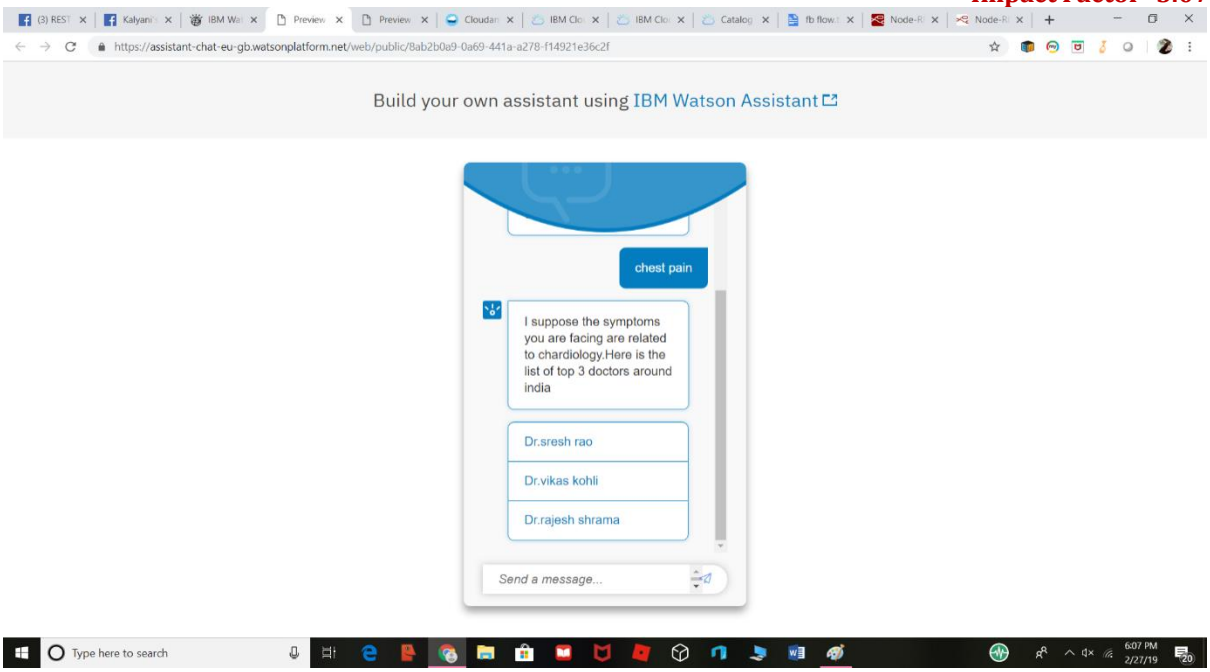

Figure 5: The output of bot suggesting the top 3 doctors in india

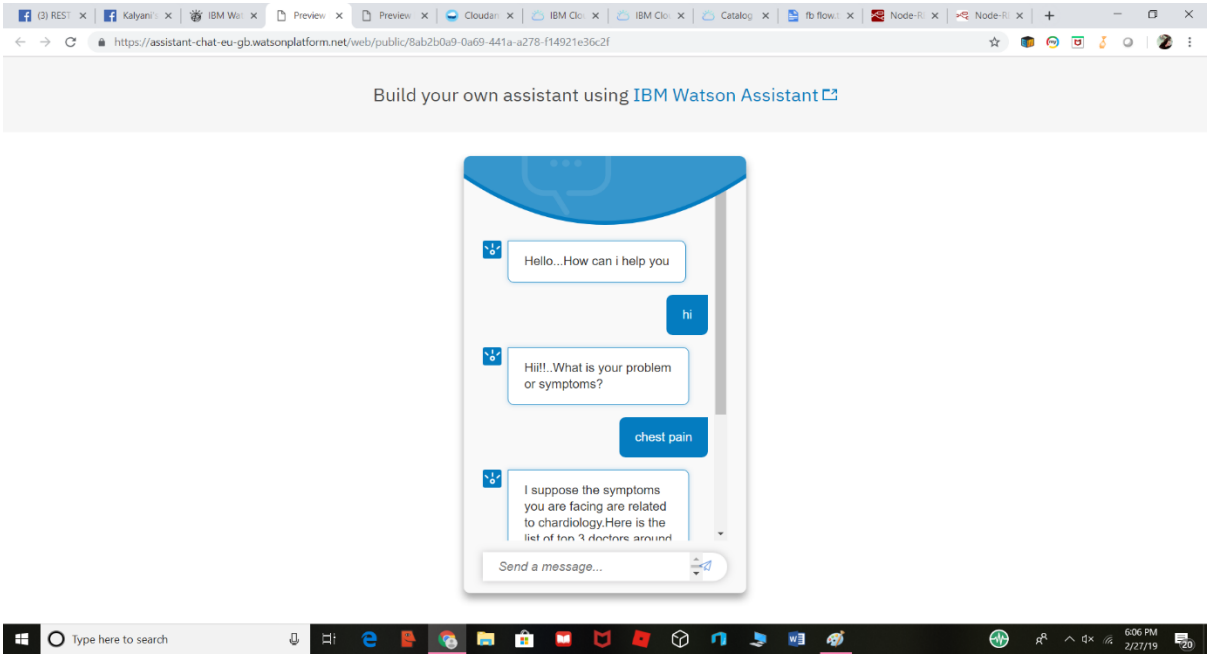

Figure 4: The output for the given symptom.

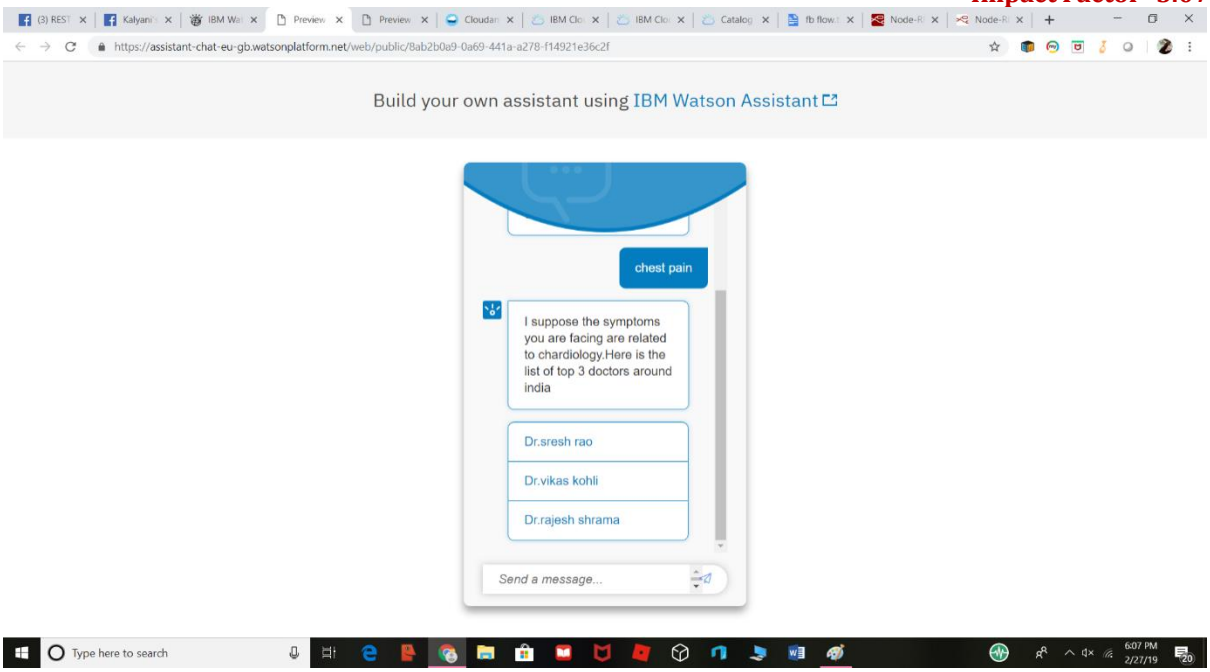

Figure 5: The output of bot suggesting the top 3 doctors in india

VI. CONCLUSION

The healthcare industry is rapidly growing while promising to cost cuts, but science AI is still in its infancy, some fear that this approach is filled with risks and it is safer to let bots handle only non-vital tasks. Yet, for patients living in remote areas with limited access tech tools to healthcare facilities, these tech tools could make o notable differences in the quality of their lives.

Currently, the safest ways to use healthcare chatbot includes :scheduling doctors appointments based on the severity of the symptoms, monitoring the health status and notifying a human nurse immediately if the parameters are out of control, helping homecare assistants stay informed about patients evolution. This is in fact replacing the work of customers service representatives.
These intelligent assistants can also take care of billing inventory, and insurances claim man.Availability and ongoing health monitoring.

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