Medical Chatbot Using Question Answering Model

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Abstract: **Admittance to emergency clinic information is usually a difficult, exorbitant and tedious cycle requiring broad cooperation with network overseers. This prompts potential deferrals in obtaining bits of knowledge from information, like conclusion or other clinical results. Medical care managers, clinical professionals, specialists and patients could benefit from a framework that could separate significant data from medical services information in constant. In this paper, we present an inquiry addressing framework that permits wellbeing experts to interface with a enormous scope information base by posing inquiries in normal language. This framework is based upon the BERT and SQLOVA models, which make an interpretation of a client's solicitation into a SQL question, which is then passed to the information server to recover pertinent information. We additionally propose a profound bilinear comparability model to work on the created SQL inquiries by better matching terms in the client's question with the information base mapping and substance. This framework was prepared with just 75 genuine inquiries and 455 backinterpreted inquiries, and was assessed north of 75 additional genuine inquiries regarding a genuine wellbeing data set, accomplishing a recovery precision of 78 percent.**

INTRODUCTION

This chapter describes the term of chatbot and introduces the concept of Medical Data Enquiry Using Question Answer Model System. It also gives the overview of the Medical Chatbot System which describes the deliverables of the project.

MOTIVATION

An automatized medical chatbot is a system with human interaction using natural language diagnosis to provide medical aid. The vast amount of information that is available on the internet allows chatbots to provide accurate and systematic statistics based on the user's demand and requisite. Chatbots are used in domains like Customer Support and Services, Virtual Assistance, Online Trainers, and Online Reservations and also for general conversations.

PROBLEM DEFINITION

This chapter explains the need of Medical Chatbot System and also describes the importance of high quality Medical Chatbot System application. It introduces the basic concept of the Medical Data Enquiry Using Question Answer Model System.

LITERATURE SURVEY

In this chapter we will see the various studies and research conducted in order to identify the current scenarios and survey of Medical Chatbot System.

2.1 Automated Medical Chatbot, Krishnendu Rarhi This paper aims to present a design for a medical Chatbot that provides diagnosis and remedies based on the symptoms provided to the system. The system will be able to measure the seriousness of the diagnosis and if needed, it will connect the user to a doctor available online [1].

2.2 MEDICAL DATA INQUIRY USING A QUESTION ANSWERING MODEL, Zhibin Liao Access to hospital data is commonly a difficult, costly and time-consuming process requiring extensive interaction with network administrators. This leads to possible delays in obtaining insights from data, such as diagnosis or other clinical outcomes. Healthcare administrators, medical practitioners, researchers and patients could benefit from a system that could extract relevant information from healthcare data in real-time. In this paper, we present a question answering system that allows health professionals to interact with a large-scale database by asking questions in natural language. This system is built upon the BERT and SQLOVA models, which translate a user's request into an SQL query, which is then passed to the data server to retrieve relevant information. We also propose a deep bilinear similarity model to improve the generated SQL queries by better matching terms in the user's query with the database schema and contents. This system was trained with only 75 real questions and 455 back-translated questions, and was evaluated over 75 additional real questions about a real health information database, achieving a retrieval accuracy of 78 percent[2].

2.3 BayMax: A Smart Healthcare System Provide Services to Millennials Using Machine Learning Technique, G. Nalinipriya Health is the utmost importance to any human being. To take care of oneself in this busty world we need some assistance. The world is revolving with smart technologies so we need a smart health care assistance that tracks one's activities, moods and suggest precautious actions when required. The primary objective of this product is to be time efficient along with being as an easily accesses able personal health assistant. To build a cost efficient personal assistance with good quality, monitoring of the messages from user is necessary. At present they are managed in an impromptu way. The paper will put forward the use of a Personal assistance chatbot

to handle the messages from users and collectively provide the appropriate answers to it. A model has been proposed to enumerate precautions for the health related issues.[3].

2.4 The Stanford CoreNLP Natural Language Processing Toolkit, Christopher D. Manning We describe the design and use of the Stanford CoreNLP toolkit, an extensible pipeline that provides core natural language analysis. This toolkit is quite widely used, both in the research NLP community and also among commercial and government users of open source NLP technology. We suggest that this follows from a simple, approachable design, straightforward interfaces, the inclusion of robust and good quality analysis components, and not requiring use of a large amount of associated baggage[4].

PROPOSED SYSTEM

A Chatbot is a system that can interact with human users with natural language. The vast amount of information that is available on the internet allows Chatbots to provide accurate and efficient information based on the user's requirements. Chatbots are used in domains like Customer Support, Virtual Assistance, Online Trainings, and Online Reservations and also for general conversations. The proposed Medical Chatbot can interact with the users, giving them a realistic experience of chatting with a Medical Professional. Our Chatbot can detect human message patterns using AIML (Artificial Intelligence Mark-up Language) which is a mark-up language based on XML to build AI applications.It retrieves keywords from the initial messages to know the possible medical problems that the user has based on their input.

There are few Medical Chatbots that already exist, but they do not provide users with medication to any illness but connect them with a Medical QA Forum and show them similar questions to their symptoms that doctors may have previously answered. The system was compared with Health Tap which is a popular Facebook Messenger Chatbot. Our motive is to show that the proposed medical Chatbot could be a better alternative to many already existing Chatbots in the domain of medicine.
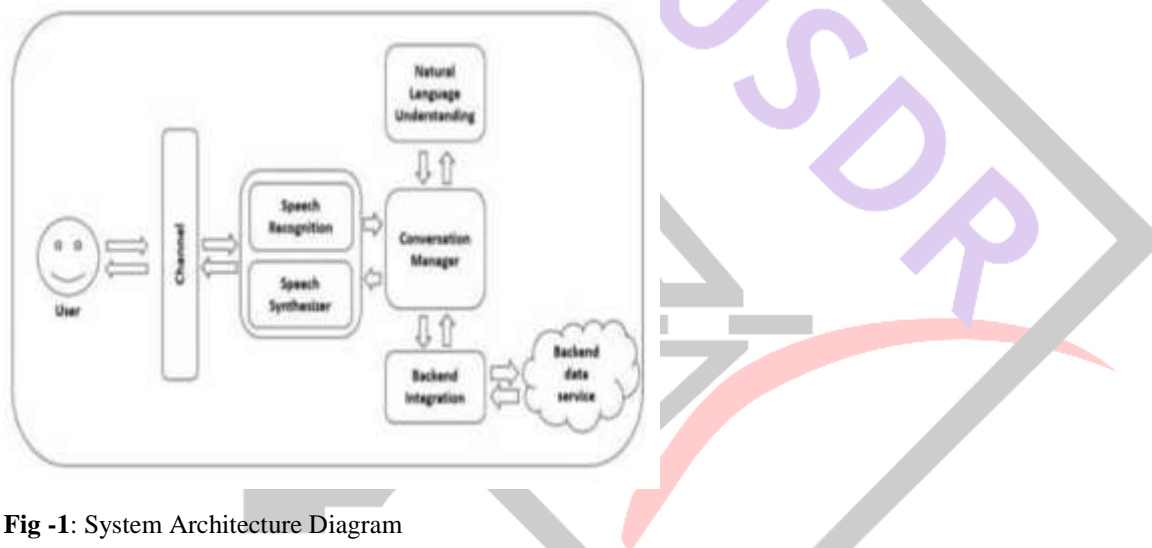
SYSTEM ARCHITECTURE

Fig -1: System Architecture Diagram

ADVANTAGES

1.   Increase efficiency.
2.   Drive better patient Interaction.
3.   Money Saving Tool.
4.   Immediate Customer Attention
5.   Symptom Checking

LIMITATIONS

1.   Prone to make Errors
2.   Internet Connection
3.   Proper Dataset

APPLICATIONS

1.   Diagnostics
2.   Patient engagement outside medical facilities
3.   Mental health

CONCLUSION

Our Medical Chatbot will incredibly affect the existence of its clients. It would give them the upside of conveying a virtual Doctor in their pockets. It would likewise give them the opportunity to counsel a specialist every minute of every day and furthermore can get a genuine specialist's recommendation if necessary. This can be a most well known instrument for individuals with occupied timetable as they will not need to hamper their timetable to counsel a specialist for minor well being questions. This would likewise be a device with high utility among old and actually handicapped individuals as this can assist them with getting answers for all their well being related issue readily available. We would carry Doctors and Medical Professionals to our foundation to take care of the clinical information into our records and furthermore to talk with our clients when required. Having bunches of clinical information would make our Chatbot work all the more effectively and precisely.

FUTURE WORK:

This project has much scope in present as well as future. In present situation the system can be exist both on laptops and Monitor. Medical Chatbot will incredibly affect the existence of its clients. It would give them the upside of conveying a virtual Doctor in their pockets. It would likewise give them the opportunity to counsel a specialist every minute of every day and furthermore can get a genuine specialist's recommendation if necessary. The scope of the project any Monitor device which has the access it's server on which the project has been deployed . The project is developed as web application and it will work for a particular Medical System, Healthcare or Diet Healthcare.

REFERENCES

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[3] March 2019,Bay-Max: A Smart Healthcare System Provide Services to Millennials Using Machine Learning Technique
[4] January 2019, Proceedings of 52nd Annual Meeting of the Association for Computational Linguistics: System Demonstrations, The Stanford Core-NLP Natural Language Processing Toolkit by Christopher D Manning, John Bauer