

Covid-19 Symptoms Prediction Using Chatbot (Machine Learning)

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Abstract: Machine Learning techniques have been used to predict whether patients are infected by the virus based on symptoms defined by WHO and CDC. Machine Learning is also used to diagnose the disease based on x-ray images. For instance, chest images of patients can be used to detect whether a patient is infected with COVID-19.

Covid 19 symptoms prediction using machine learning through chatbot is the project implemented. Basically the chatbot considered works under the technique called Natural Language Processing (NLP).Natural Language Processing is the field in Artificial Intelligence which helps to understand the human language by the chatbot. The chatbot created in the project is using Amazon Alexa. This does not any training data sets, as the bots has the datasets itself

Keywords: Machine learning, Natural Language Processing,Chatbot,Amazon Alexa.

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1. INTRODUCTION

Machine learning (ML) is a study of computer algorithms for automation through experience. ML is a subset of artificial intelligence (AI) that develops computer systems, which are able to perform tasks generally having need of human intelligence. In this topical review, we will highlight how the application of ML/AI in covid-19 communication is able to benefit humans. This includes chat bots for the COVID-19. Machine learning is a technique that utilizes pattern recognition. AI has been implemented in several applications in the clinical field, such as diagnostics, therapeutic and population health management. AI has a considerable impact on cell immunotherapy, cell biology and biomarker discovery, regenerative medicine and tissue engineering, and radiology. Machine learning is computer-based, and its primary objective is to analyze free form text or speech that follows a predefined set of theories and technologies such as linguistic and statistical methods, which obtains rules and patterns from the analyzed data. It can convert the text into a structured format that follows a hierarchy. The itemized elements have a fixed organization and standardized terminology for each element. These texts are easily queried and manipulated. Pattern similarity and linguistic analyses are the primary NLP technologies used. Natural Language Processing or NLP for short, is broadly defined as the automatic manipulation of natural language, like speech to text, by software. The study of natural language processing has been around for more than 50 years and grew out of the field of linguistics with the rise of computers. It is essential to form complex NLP. Stemming is always used in NLP that uses language morphology knowledge to convert a given word down to its simplest form or root. Stemming is, therefore, suitable for agglutinative languages, while other languages need legitimization. Breaking texts into tokens or chunks is another application of pattern matching, also known as tokenizing. Linguistic NLP systems read words as a symbol combined based on grammatical rules, and usually rely on the assumption that words forming sentence/expression/texts are conceptual and meaningful. A computer algorithm uses both syntactic and semantic knowledge to infer what concept modifies another concept.

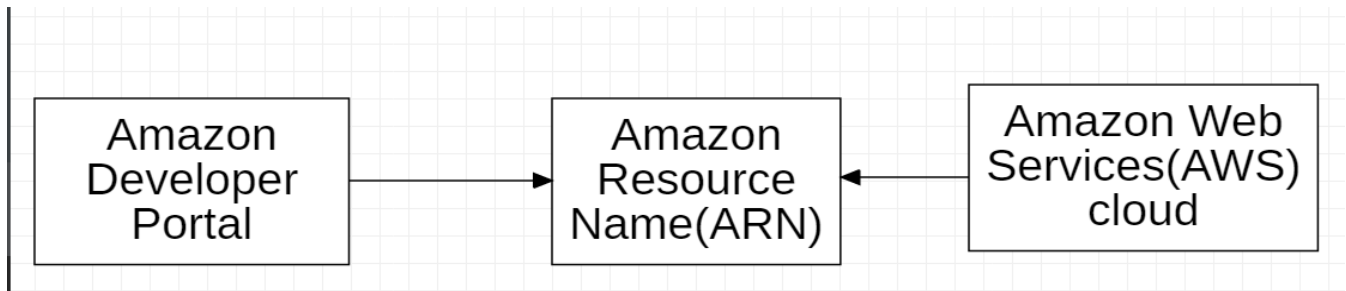
2. DESIGN

Designing a machine learning model to predict the stage of the covid-19. This is like Symptom Checker and also recommends the effected people with preventive measures, medicines. We implement this new system through chat bot which uses Natural Language Processing(NLP). The NLP is the field in machine learning in which computers analyze, understand the human language in a smart and useful way. In this project, we use the chat bot called Alexa which works with the help of NLP. Chat bot is a form of Artificial intelligence used in several applications. For example, you probably asked questions to digital customer services or other online chat services. During such a conversation, the chat bot knows how to answer your questions, ask questions. In the past, chat bots were based entirely on pre-programmed rules, so they had nothing to do with artificial intelligence (AI). Today, AI is increasingly used in implementing chat bots, as the development in natural language processing (NLP).

Alexa is the voice assistant belonging to Amazon. Straight out of the box, Alexa can already perform a wide range of tasks, like set timers, read the news headlines and weather forecast, tell jokes and answer general knowledge questions. Amazon has added plenty of features to Alexa, but the real key to making the smart assistant fit your needs is through the best Alexa skills. The bot interacts with patients and obtains their medical issue through conversation and gives personalized diagnosis that corresponds to their symptoms. It will allow them to have the right protection. A chatbot was used as a medical consultant. If you speak into your phone to order your favorite coffee drink, you are interacting with a chat bot. You can also request a ride from a ride sharing service by using one of the service's chat bots. These are relatively simple "conversations."

3. Figure

The front end is developed on the Amazon developer Console where as the backend is on the AWS services through creating a server less repository function. AWS allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning.

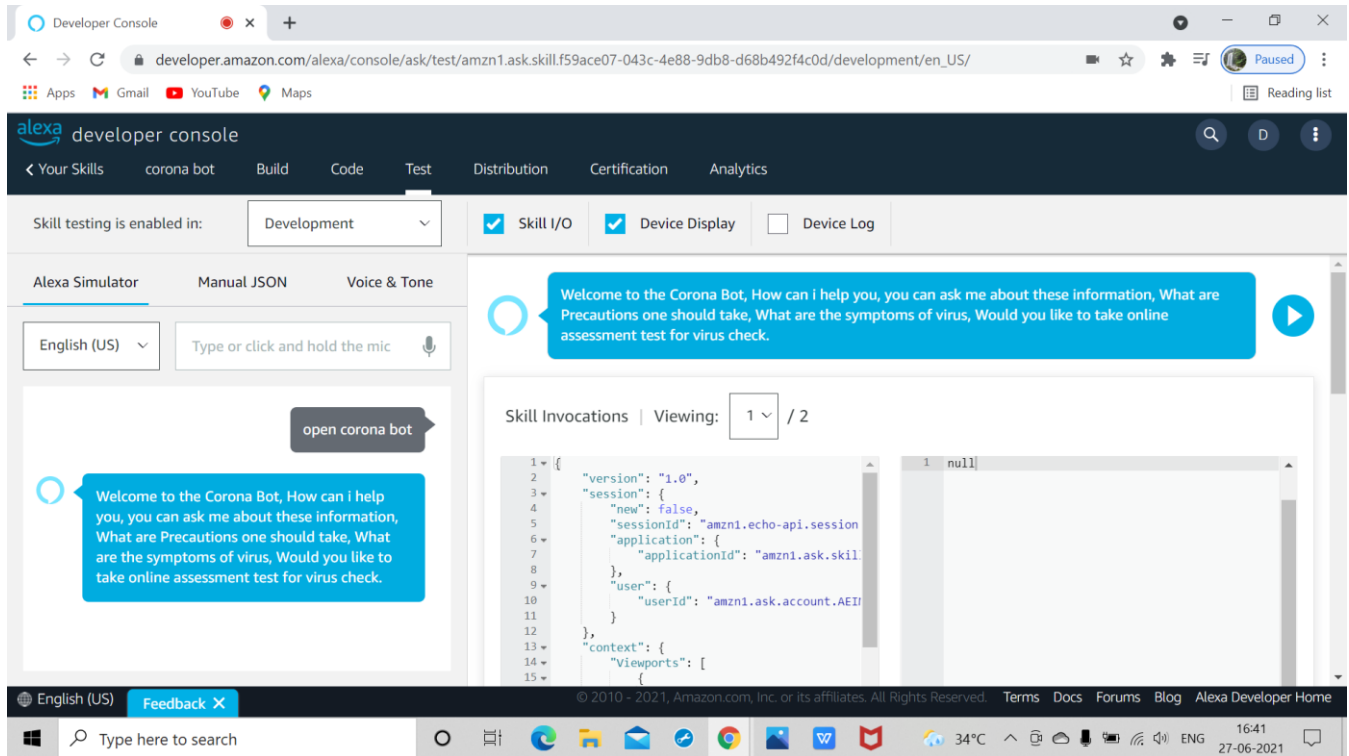


3. ANALYSIS

System Analysis is first stage according to System Development Life Cycle model. This System Analysis is a process that starts with the analyst. Analysis is a detailed study of the various operations performed by a system and their relationships within and outside the system. One aspect of analysis is defining the boundaries of the system and determining whether or not a candidate should consider other related systems During analysis, data is collected from the available files, decision points, and transactions handled by the present system. Logical system models and tools are used in analysis. Training, experience, and common sense are required for collection of the information needed to do the analysis Logical system models and tools are used in analysis. Training, experience, and common sense are required for collection of the information needed to do the analysis. This System Analysis is a process that starts with the analyst. Analysis is a detailed study of the various operations performed by a system and their relationships within and outside the system. We don't have any algorithms or classification techniques used as the chat bot itself takes the training datasets. Chatbots can provide fast or instant responses to patients. Corona-related questions while looking for specific symptoms or patterns in predicting disease.

4. RESULTS

We have done the testing and got the best results. We stored the corona symptoms in the intents. So that by mentioning the symptoms the Alexa calculates the results of the covid. The resultant is the alexa is opened by mentioning with skill name and generates a welcome message ask to mention the symptoms. The front end and back end are connected through ARN(Amazon Resource Name). ARN acts as a bridge between the Amazon Developer Console AWS services. Whenever we open corona bot it connects with the server less repository function created at the backend through lambda service.



5.CONCLUSIONS

In this paper we have discussed the Covid-19 symptoms Prediction using chatbot. The chatbot considered is the Amazon Alexa that uses the Natural Language Processing (NLP) which makes the chatbot understand the human language. Prediction of covid is becoming more difficult in the recent times due to the increasing. Viral symptoms also treating the people of they have covid symptoms. This makes easier to find the results. The Alexa Skill kit is used to create the chat bot and at the same time we used the AWS services for the back end through creating the server less repository function. This project is implemented for predicting the symptoms of the covid-19 in a easy and useful way.

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