DEVELOPMENT OF CHATBOT USING PYTHON

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Abstract - A chatbot is a PC programming program that directs a discussion through hear-able or literary techniques. This product is utilized to perform undertakings, for example, rapidly reacting to clients, educating them, and assisting with buying items and offering better support to clients. Chatbots are programs that work on Artificial Intelligence (AI) and Machine Learning Platform. Chatbot has gotten more well known in business bunches right now as it can diminish client support expenses and handles various clients all at once. In any case, yet to achieve numerous assignments there is a need to make chatbots as proficient as could be expected. In this undertaking, we give the plan of a chatbot, which gives a real and exact response for any question utilizing Artificial Intelligence Markup Language (AIML) and Latent Semantic Analysis (LSA) with python stage.

***Key Words*: Artificial Intelligence Markup Language (AIML), Latent Semantic Analysis (LSA), Pattern Matching, Chatbot, Flask Web-Framework, HCI**

I. INTRODUCTION

A chatbot is a computerized programming program that interfaces with people. A chatbot is just a PC program that in a general sense reenacts human discussions. A chatbot that capacities through AI and AI has a counterfeit neural organization enlivened by the neural hubs of the human mind. Chatbots are programs that can do talk like human discussions without any problem. For instance, Facebook has an AI chatbot that makes a stage for organizations to connect with their shoppers through the Facebook Messenger application. In 2016, chatbots turned out to be too mainstream on Messenger. By the results is noticed that 2016 was the whole year of chatbots. The product

business is chiefly situated on chatbots. A great many chatbots are concocted on new companies and utilized by the organizations to improve their client care, keeping them hanging by a thoughtful correspondence. As per research, these days chatbots are utilized to tackle various business errands across numerous enterprises like E-Commerce, Insurance, Banking, Healthcare, Finance, Legal, Telecom, Logistics, Retail, Auto, Leisure, Travel, Sports, Entertainment, Media and numerous others. In this way that was the second to take a gander at the chatbots as another innovation in the correspondence field. These days' different organizations are utilizing chatbots to answer rapidly and effectively some frequented posing inquiries from their own clients.

Chat has become the centre of focus in this current era, thus the bots are being utilized to deliver information engagingly and conveniently. A chatbot is standout amongst the most progressive and promising tools of communication among people and machines. Famous chatbots like Google Assistant, Amazon Alexa, Siri, Facebook, Slack, and many more are in trend. These are very much helpful, but in this era of enhancing technology, day by day technology gets updated, and accordingly, user expectations also increase. A user wants more automation in the chatbot. Although every system is not perfect there is always a flaw in the system, so as in the chatbot there are some problems that the user has experienced while using a chatbot. 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. Using these ruled based approach, creation of these bots becomes relatively straight forward. But it is not sufficient for the bot to answer questions whose pattern does not match with the rules on which it is trained. The language by which these bots can be created are Artificial Intelligence Mark-up Language (AIML). It is a language based on XML which allows the developer to write the rules which bot will follow.

AIML and LSA are utilized for making chatbots. Man-made consciousness Markup Language (AIML) and Latent Semantic

Analysis (LSA) are utilized for creating chatbots, which are utilized to characterize general example based questions. This example can likewise be utilized to give arbitrary reactions for a similar question in the chatbot. LSA is a Latent Semantic Analysis innovation in python, which is used to find similarities between words as vector portrayal. With the goal that the unanswered inquiries by AIML will be seen as an answer by LSA.

II. DESCRIPTION:

A chatbot is a normal application which has a database, it has an app layer and APIs to call the other external administrations. However, bots cannot comprehend about what the customer has planned. It is a very much common problem that must be tackled. Bots are generally trained according to the past information which is only available to them. So in most of the organizations, chatbot maintains their logs of discussions so that they can understand their customers behaviour.

Developers utilize these logs to analyse what clients are trying to ask. Developers coordinate with their client inquiries and reply with the best appropriate answer with the blend of machine learning tools and models. Training a chatbot is very much faster and also on a large scale as compared to human beings. A customer support chatbot is filled with a very large number of conversation logs which help the chatbot to understand what kinds of questions should be asked and answers should be given. While a normal customer service representatives are given manual instructions which they have to go through with. The working of chatbots is based on three classification methods:

- **Pattern Matches:**

The pattern matches to group the texts are utilized by the bots and it so it produces an appropriate response to the customers. The standard structured model of these patterns is “Artificial Intelligence Mark-up Language”.

- **Importance Artificial Intelligence Mark-Up Language**

Extensible Mark-up Language (XML) is the base for the induction of Artificial Intelligence Mark-up Language (AIML). It has a class of information object called an AIML object that depicts the conduct of PC programs. It comprises of units or label called subjects and classes. In AIML, classes are essential units of information. There every classification comprises of an example that contains information and format which contain the appropriate response of chatbot dependent on inquiries. To fabricate a Chatbot, essentially an adaptable, straightforward and all-inclusive language is required which will be AIML. AIML, a subordinate of XML, is one of the broadly utilized methodologies that fulfil the prerequisites dependent on broad inquiries. AIML addresses the information put into Chatbots and depends on the product innovation created for A.L.I.C.E. (the Artificial Linguistic Internet Computer Entity). It can portray the sort of information protest and depict fractional conductance of the projects that it measures. These items comprise of two units: subjects and classifications. In this manner the information contained in these classifications are either parsed or unparsed.

The reason for the AIML language is to work on the work of conversational demonstrating, in a "improvement reaction" measure. It is additionally an increase language dependent on XML and relies upon labels which are the identifiers that cause pieces of codes to send orders into the Chatbot. The information object class is characterized in AIML as an AIML object, and the obligation of these items is demonstrating conversational examples. Each AIML object is the language label that partners with a language order utilizing designs. The overall construction of AIML objects is advanced by List of boundaries the main article among the AIML objects is class, example, and layout. The errand of the classification tag is characterizing the different examples and their answer based formats. The example tag recognizes the contribution from the client and the errand of layout tag is to react to the particular client input, these are the most incessant labels and the bases to plan AIML Chatbots with an astute reaction to regular language discourse discussions. How about we see the design of classification, example, and format object which is appeared underneath:

```
<category>
        <pattern>User Input</pattern>
            <template>
                Corresponding Response to
            input </template>
</category>
```

To develop a chat bot one must be very clear about what one wants from that chatbot. Often they are developed for business platforms like Net Banking sites to handle costumer Q&A. Another type of chatbots widely developed and used are smart assistants like SIRI, Google assistant, Alexa, Cortana etc.

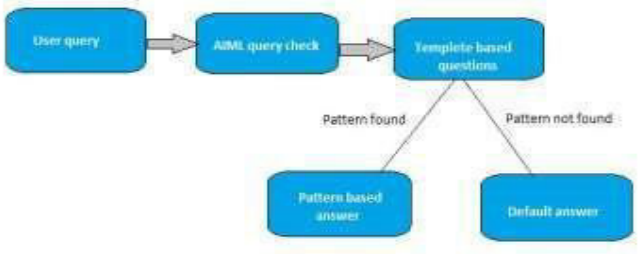
III. HOW SYSTEM WORKS

System analysis is the way toward characterizing the design, parts, modules, interfaces, and information for an offered framework to fulfil determined necessities. Frameworks configuration could be the utilization of different frameworks hypothesis to item improvement. There is some cover with the orders of frameworks investigation, frameworks engineering and framework planning.

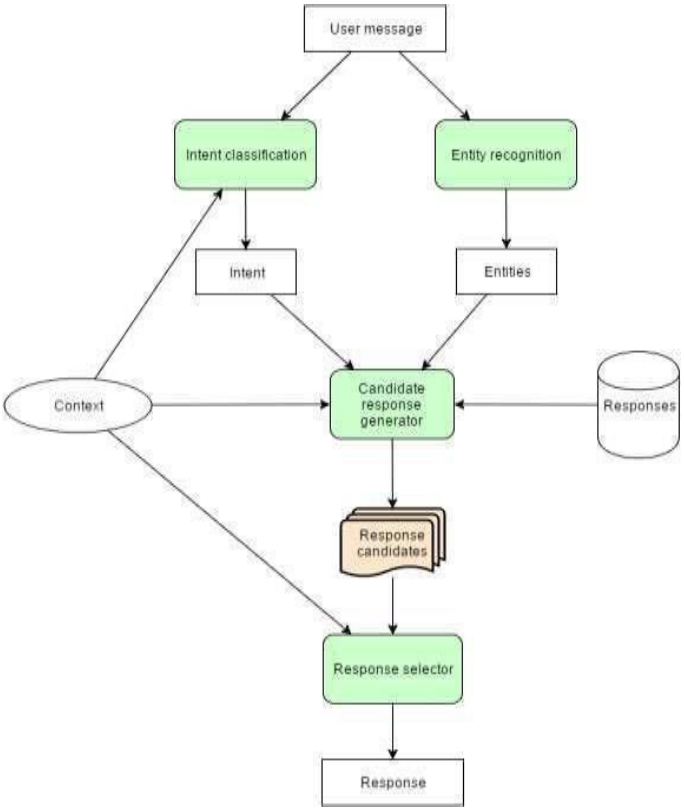
A chatbot is a PC program, which is intended to mimic a discussion with human clients utilizing designs, particularly ludicrous. They are our online partners that offer various administrations through talking over the web. To assemble man-made reasoning chatbots through Python, you will require an AIML bundle (Artificial Intelligence Mark-up Language). In the first place, we need to make a standard start up document with no example and burden aiml b in the portion. Add arbitrary reaction designs that would make discourse fascinating.

Presently, to code your own AIML documents, search for certain records which are accessible already. For instance, peruse all among records from the Alice Bot site. The start up record we will make will go about as a different element. Because of which, we will have more AIML documents without a source code change. The program will begin running when there are sufficient AIML documents for stacking. This was a prologue to how to make AI chatbot utilizing Python. Presently, how about we continue further and see which specific library can be executed for building an AI Chatbot.

System Architecture



System module



➢ **WORKING ALGORITHM**

Step 1) Start

Step 2) Select a data set, for which we need to develop a chatterbot.

Step 3) Prepare the set of tags with the patterns and responses.

Step 4) Install the required packages in Python.

Step 5) Train the Chatbot with predefined queries. Step 6) Develop the GUI Step 7) Execute the codes for the results.

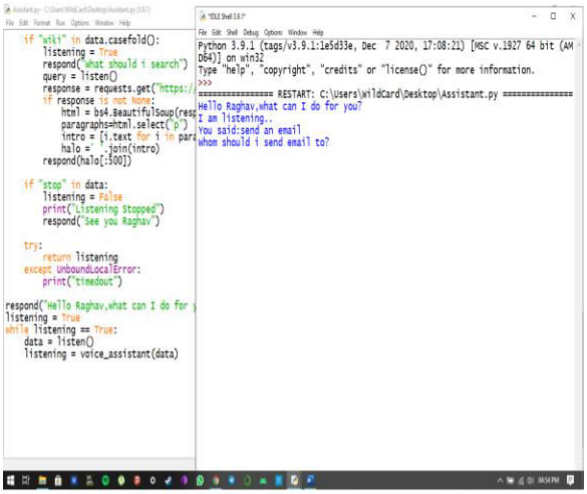
Step 8) Stop.

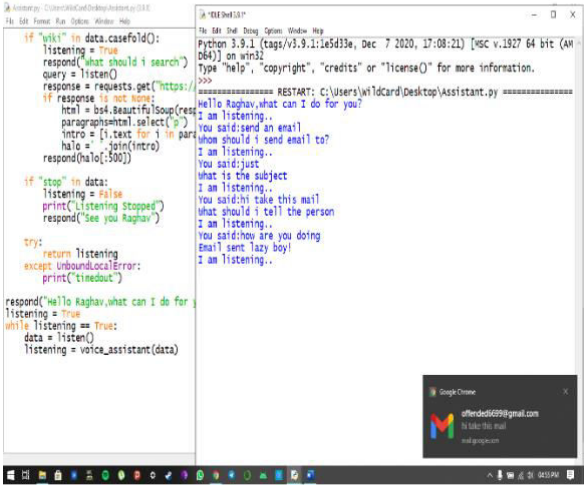
➢ **DESIGN MOTIVE**

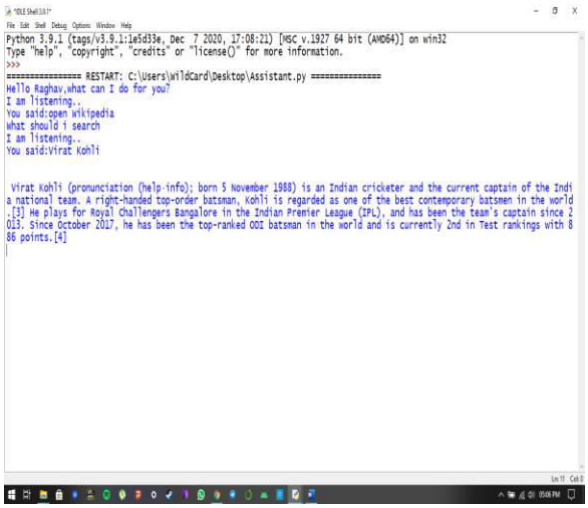
- Reduce man-power: The user can easily be clarified with all his FAQ's within few minutes with the help of the chatbot.
- Accessibility: Any user can easily access the chatbot from any web browser.
- Overall friendliness: Ultimately, the chatbot is a user-friendly artificial machine that satisfies the user query at faster rate.

IV. IMPLEMENTATION

This section covers the design and implementation of a different module of the bot, which contains the design of the PYTHON module, the Translator API and the AIML module.







Implementation and conversations

V. PROPOSED SYSTEM

In this work, we have built up an intuitive chatbot utilizing the Flask structure in python, and the work process of the proposed system is appeared in figure. Client conversation, when in doubt, starts with the basic greeting or general inquiries. Client requests are first dealt with by AIML check, to check if the entered request is AIML script. AIML is portrayed by broad requests, questions, and welcome which is answered by using AIML designs.

When the bot-client types in the inquiry in the chatbot, the AIML created chatbot will recognize the classification that contains the question design. Here the bot-client is relied upon to type in the question in a predefined design. When the inquiry design is coordinated, the layout of the classification that contains the reaction is sent back to the bot-client.

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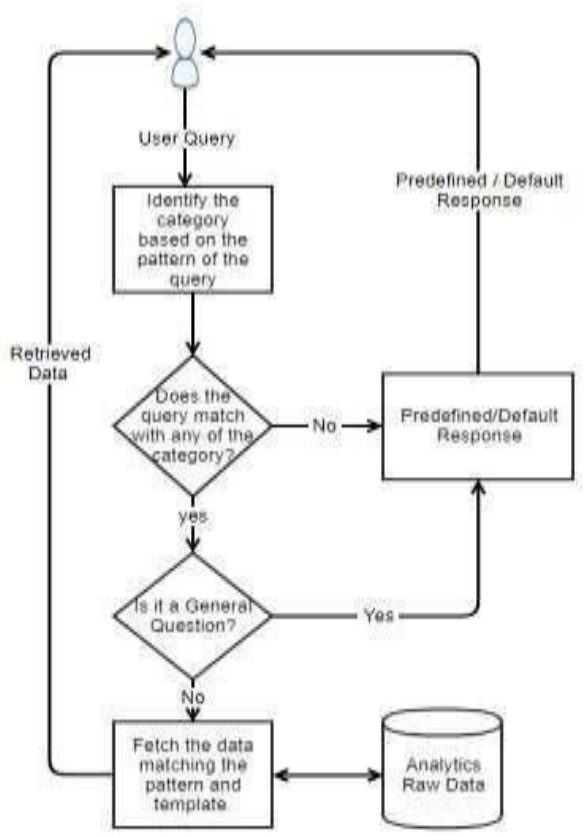

Proposed Model

VI. LIMITATIONS OF CHATBOTS:

One of the significant limitations of the Chatbots is that they do not understand human context. Many times this behavior of Chatbots leads to an irate customer because Chatbots are programmed in such a way that they can only perform functions that are taught to them.

One of the main limitation of the Chatbot is that they cannot make decisions. Due to this lack of decision making ability, they are not able to differentiate between what is good and what is bad. Decision making fails in this case.

Chatbots are not able to do customer retention. A customer retention ability plays a very much vital role in every organization. Retaining the customers holds a more important role than making new customers also. A Chatbot only tries to help the customers at the level of which it can do. It has a very less capability in retaining customers.

Most of the customers do not want to proceed their chat with the Chatbot as soon as they understand they are chatting with Chatbot because Chatbot have a same answer for many type of query and costomer goes off unsatisfied. Chatbots can be easily identified because they have same type of answer for most of the query. For the data which chatbot do not have, they ask for the apology.

Chatbots can surely save a lot of time and money but installing a Chatbot can empty your bank account because it is very much costlier. You will have to hire proper professionals who have knowledge and have rightly programmed the Chatbot that can match the integrity of your organization.

One of the major limitation of the Chatbots is the lack of emotion. They cannot connect with the customers because they do not understand about the seriousness of any topic or how low the situation is is. This effects the business and crucial growth of the organization.

The Chatbots answers the queries only by the data which is available in the system. One of the harsh truth is that Chatbots have a zero research skills. They cannot research on any topic and give answers.

VII. CONCLUSION

In this task, we have presented a chatbot that can interface with clients. This chatbot can answer inquiries in the text based client input. For this reason, AIML with program-o has been utilized. The chatbot can respond to just those inquiries which he has the appropriate response in its AIML dataset. In this way, to expand the information on the chatbot, we can add the APIs of Wikipedia, Weather Forecasting Department, Sports, News, Government and significantly more. In such cases, the client will actually want to talk and collaborate with the chatbot in any sort of space. Utilizing APIs like Weather, Sports, News and Government Services, the chatbot will actually want to respond to the inquiries outside of its dataset and which are at present occurring in reality.

The following stage towards building chatbots includes assisting individuals with working with their work and cooperate with PCs utilizing characteristic language or utilizing their arrangement of rules. Future such chatbots, backed by machine-learning innovation, will actually want to recollect past discussions and gain from them to answer new ones. The test would banter with the different numerous bot clients and various clients.

As future work, we can make a chatbot that depends on AIML and LSA. This innovation will empower a customer to collaborate with a chatbot in a more common design. We can upgrade the conversation by including and changing examples and layouts for general customer inquiries utilizing AIML and the correct reaction are given more frequently than LSA.

VIII. FUTURE SCOPE

This project can be developed even more by adding multi languages, speech recognition. We can add many more tags to the data set, as the website gets developed. The chat history of a particular user can be sent as a mail to him/her after the conversation is over. This can be done by authorizing the users and receiving their mail ids. This project is a small initiative to make the website user-friendly and easily understandable by the user.

IX. REFERENCES

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