CREATE A CHATBOT IN PYTHON

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PHASE 2 SUBMISSION DOCUMENT

Chatbot :

- Artificial intelligence is used to construct a computer program known as "a chatbot" that simulates human chats with users. It employs a technique known as NLP to comprehend the user's inquiries and offer pertinent information. Chatbots have various functions in customer service, information retrieval, and personal support.
- As simply as we all know that the Siri, Alexa, and Duolingo are some real-world examples of chatbots.

How Does the Chatbot Python Work?

The main approaches to the development of chatbots are as follows:

1. Rule-Based Approach:

The Chatbot Python adheres to predefined guidelines when it comprehends user

questions and provides an answer. The developers often define these rules and must manually program them.

2. Self-Learning Approach:

Chatbots that learn their use of machine learning to develop better conversational skills over time. There are two categories of self-learning chatbots.

3. RetrievalBased Models:

Based on an input question, these models can obtain predefined responses from a knowledge base. They evaluate user input and compare it to the closest equivalent response in the knowledge base.

4. Generative Models:

Generative models create responses from scratch based on the input query. They employ approaches like sequence-to-sequence models or transformers, for example, to produce human-like answers.

What is ChatterBot Library?

A Chatbot Python library called The ChatterBot makes it simpler to create chatbots. It manages the challenges of natural language processing and provides a specific API. The following are some of Chatterbot's primary features:

1. Language Independence

You can use Chatterbot to create chatbots in various languages based on your target demographic.

2. How Does Chatbot Library Work?

Chatbot combines a spoken language data database with an artificial intelligence system to generate a response. It uses TF-IDF (Term Frequency-Inverse Document Frequency) and cosine similarity to match user input to the proper answers.

This command will download and install the ChattBot library and its dependencies.

- Impoted from Chatterbot is ChatBotOnce setup is complete, add the following code to your Chatbot using Python script or interactive environment to include Chatbot.
- You may now use Chatterbot to begin building your chatbot. Using the ChatterBot guide or other resources, you can learn how to set up and train a chatbot.

Limitat ons With A Chatbot :

While chatbots have come a long

way, there are still some limitations to be aware of:

1. Lack of semantic understanding:

Chatbots may require assistance comprehending the discourse, which could result in misinterpretation or incorrect responses.

2. Dependency on training data:

The caliber and volume of training data greatly impact chatterbotpython performance. There may be a need for more accurate or biased training data, which can result in incorrect responses.

3. Handling complicated queries:

Chatbots could encounter questions beyond simple pattern matching and call for greater comprehension or deductive reasoning.

File: my_chatbot.py

```
# using the ListTrainer class
list_trainee = ListTrainer(myBot)
for i in (small_convo, math_convo_1,
```

```
math_convo_2):
        list_trainee.train(i)
```

Explanation:

In the above snippet of code, we have created an instance of the ListTrainer class and used the for-loop to iterate through each item present in the lists of responses.

Now, the Python chatbot is ready to communicate.

Communicating with the Python chatbot :

We can use the get_response() function in order to interact with the Python chatbot. Let us consider the following execution of the program to understand it.

Output

```
# starting a conversation
>>> print(myBot.get_response("Hi, there!"))Hi
>>>  print(myBot.get_response("What's  your  name?"))
```

I'm Sakura. Ask me a math question, please.

>>> print(myBot.get_response("Do you know Pythagorean theorem"))

a squared plus b squared equals c squared.

>>> print(myBot.get_response("Tell me the formula of law of cosines"))

c**2 = a**2 + b**2 - 2*a*b*cos(gamma)

Explanation:

The above execution of the program tells us that we have successfully created a chatbot in Python using the chatterbot library. However, it is also necessary to understand that the chatbot using Python.