

CREATE A CHATBOT USING PYTHON

PHASE : 2 SUBMISSION DOCUMENT



INTRODUCTION :

Creating a chat bot from scratch involves several steps, including importing and cleaning the dataset, performing data analysis, and then implementing the chat bot. Here's a high-level outline of the process, along with Python code and explanations at each step.

1. Import Libraries and Data set :

Start by importing the necessary libraries and loading your dataset. For this example, let's use a simple CSV dataset containing user messages and corresponding chatbot responses.

```
import pandas as pd
import matplotlib.pyplot as plt

# Load the dataset
dataset = pd.read_csv('chatbot_dataset.csv')
```

2. Data Cleaning :

Data cleaning is crucial to ensure the dataset is ready for analysis. Common data cleaning tasks include handling missing values and removing duplicates.

```
# Handle missing values
dataset.dropna(inplace=True)

# Remove duplicates
dataset.drop_duplicates(inplace=True)
```

3. Data Analysis :

Perform exploratory data analysis (EDA) to understand your dataset. Let's create a simple bar chart to visualize the distribution of message lengths.

```
# Analyze message lengths
dataset['message_length'] = dataset['user_message'].apply(len)

# Plot a histogram of message lengths
```

```
plt.hist(dataset['message_length'], bins=20)
plt.xlabel('Message Length')
plt.ylabel('Frequency')
plt.title('Distribution of Message Lengths')
plt.show()
```

Prepare the text data for the chatbot by tokenizing, removing stopwords, and other preprocessing steps.

```
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize

# Download NLTK stopwords
import nltk
nltk.download('stopwords')

# Tokenize and remove stopwords
def preprocess_text(text):
    stop_words = set(stopwords.words('english'))
    words = word_tokenize(text)
    filtered_words = [word for word in words if word.lower() not in
stop_words]
    return ' '.join(filtered_words)

dataset['user_message'] = dataset['user_message'].apply(preprocess_text)
```

5. Train a Chatbot Model :

Implementing a chatbot model, such as a seq2seq or transformer-based model, goes beyond the scope of a simple code example. You can use libraries like TensorFlow or PyTorch to train your chatbot model. This would require a separate dataset of user queries and chatbot responses labeled for training.

6. Interact with the Chatbot :

Once you have a trained model, you can create an interactive chatbot interface where users can input text, and the chatbot will generate responses based on the model's predictions.

PROGRAM :

```
# DEFINE A DICTIONARY OF PREDEFINED RESPONSES
```

```
RESPONSES = {
```

```
"HELLO": "HI THERE!",
```

```
"HOW ARE YOU": "I'M JUST A COMPUTER PROGRAM, BUT THANKS  
FOR
```

```
ASKING!",
```

```
"BYE": "GOODBYE! HAVE A GREAT DAY!",
```

```
}
```

```
# FUNCTION TO GET A RESPONSE BASED ON USER INPUT
```

```
DEF GET_RESPONSE(USER_INPUT):
```

```
# CONVERT THE USER INPUT TO LOWERCASE
```

```
USER_INPUT = USER_INPUT.LOWER()
```

```
# CHECK IF THE USER INPUT MATCHES ANY PREDEFINED  
RESPONSES
```

```
IF USER_INPUT IN RESPONSES:
```

```
RETURN RESPONSES[USER_INPUT]
```

ELSE:

RETURN "I'M NOT SURE HOW TO RESPOND TO THAT."

MAIN LOOP FOR THE CHATBOT

WHILE TRUE:

USER_INPUT = INPUT("You: ")

IF USER_INPUT.LOWER() == "EXIT":

BREAK

RESPONSE = GET_RESPONSE(USER_INPUT)

PRINT("CHATBOT:", RESPONSE)

OUTPUT :

TO RUN THIS CODE:

- 1. COPY AND PASTE IT INTO A PYTHON SCRIPT (`.PY`) FILE.**
- 2. RUN THE SCRIPT IN YOUR PYTHON ENVIRONMENT.**
- 3. YOU CAN START A CONVERSATION BY TYPING YOUR INPUT, AND THE CHATBOT WILL RESPOND BASED ON THE PREDEFINED RESPONSES.**

FOR EXAMPLE, IF YOU TYPE "HELLO," THE CHATBOT WILL RESPOND WITH "HI THERE!" YOU CAN EXIT THE CHATBOT BY TYPING "EXIT."

THIS IS A BASIC RULE-BASED CHATBOT, AND IT PROVIDES PREDEFINED RESPONSES TO SPECIFIC USER INPUTS. MORE ADVANCED CHATBOTS USE NATURAL LANGUAGE PROCESSING AND MACHINE LEARNING TO UNDERSTAND AND GENERATE RESPONSES BASED ON THE CONTEXT AND INTENT OF THE USER'S INPUT.

**COLLEGE : THANTHAI PERIYAR GOVERNMENT INSTITUTE
OF TECHNOLOGY
REG NO : 513121106070
NAME : P.PRIYA
CLASS : III- YEAR ECE-B
DEPT: ELECTRONICS AND COMMUNICATION ENGINEERING**



