Lesson 3 Demo 4

Agent Behavior Customization in AutoGen for IT Support

Objective: To demonstrate how AutoGen agents can dynamically adapt their response style, troubleshooting approach, and communication tone based on user preferences

You are developing an AI-powered IT support chatbot that personalizes its responses based on user needs. Users may vary in technical expertise, preferred communication style, and urgency of the issue. Your chatbot should intelligently adjust its troubleshooting steps—offering concise guidance for experts, detailed explanations for beginners, and a formal or casual tone based on user preferences. This adaptive approach enhances user satisfaction and efficiency in resolving IT issues.

Prerequisites:

1. Create a virtual environment
2. Install dependencies

Steps to be followed:

Step 1: Set up the environment

Step 2: Set Up Libraries and Configure OpenAI Client

Step 3: Define the IT Support Chatbot with Customizable Behavior

Step 4: Deploy Using Streamlit for User Interaction

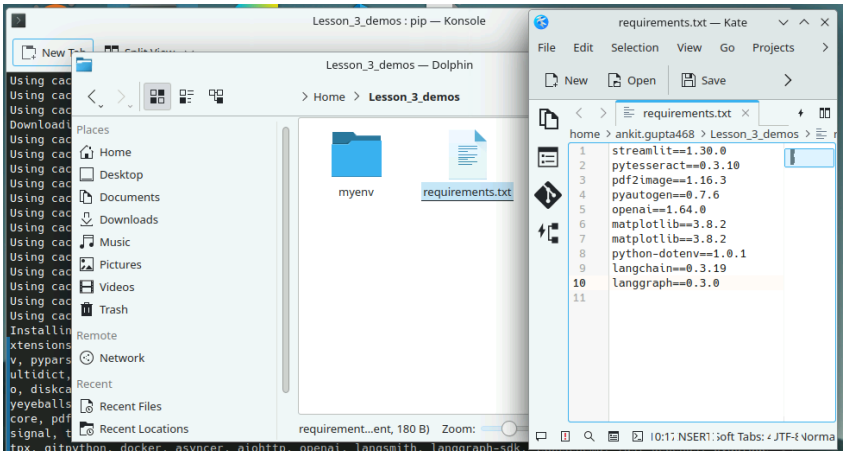
Step 5: Run the code

Step 1: Set up the environment

1.1 Open command prompt and go to the "**Lesson_3_demos**" folder (which we created in Demo_1) using the command given below:
mkdir Lesson_3_demos (not needed if the folder is already created in Demo1)
cd Lesson_3_demos

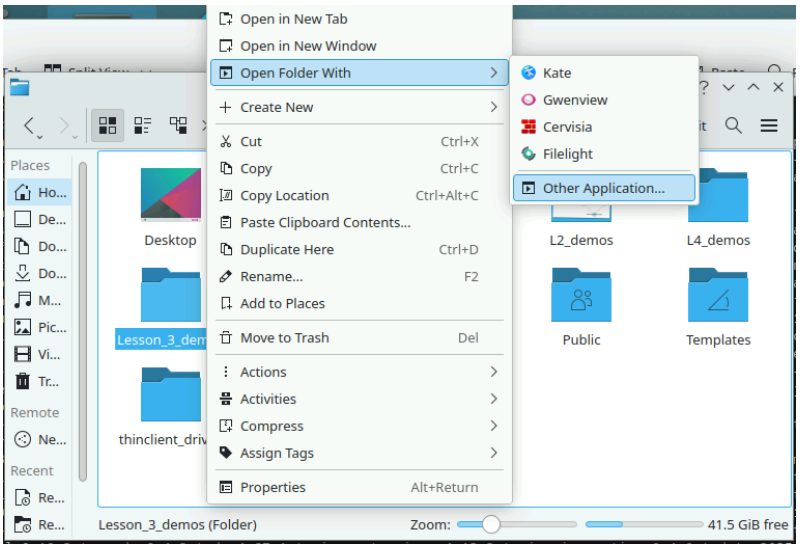
1.2 After this, activate the virtual environment using the command below:
python3 -m venv venv (not needed if the virtual env. is already created in Demo1)
source venv/bin/activate

1.3 Now, create a `requirements.txt` file inside the folder with required libraries (not needed if already done in Demo1):



1.4 Install all the required libraries using the command below:
pip install -r requirements.txt (not needed if already done in Demo1)

1.5 Now, open the folder using VS Code editor:



After this, open a new Python file using the "**New File**" option and name it as "**Demo4**".

Step 2: Set Up Libraries and Configure OpenAI Client

2.1 Begin by importing necessary libraries: streamlit for building the web interface, autogen for creating the assistant agent, openai for the interaction with the OpenAI API, and dotenv for environment variable management.

2.2 Set up the OpenAI client with the appropriate API key and endpoint to connect to the Azure GPT model.

```
import streamlit as st

import autogen

import openai

from dotenv import load_dotenv

import os


client = openai.AzureOpenAI(


api_key="2ABecnfxzhRg4M5D6pBKiqxXVhmGB2WvQ0aYKkbTCPsj0JLKsZPfJQQJ99BDAC77bzfXJ3w3AAABACOGi
3sC",

    api_version="2023-12-01-preview",

    # azure_endpoint="https://openai-api-management-gw.azure-api.net/"

    azure_endpoint="https://openai-api-management-gw.azure-api.net/deployments/gpt-4o-
mini/chat/completions?api-version=2023-12-01-preview"

)
```

Step 3: Define the IT Support Chatbot with Customizable Behavior

3.1 Define the CustomBehaviorITSupportBot class, which extends autogen.AssistantAgent.

3.2 This class includes parameters like response_style (which can be "detailed", "concise", "formal", or "casual") and troubleshooting_priority (which can be "basic" or "advanced").

3.3 The generate_reply method will adjust the bot's behavior based on user settings, while _get_gpt_response will generate responses with a customizable style and troubleshooting priority.

```
# Step 2: Define an IT Support chatbot with customizable behavior

class CustomBehaviorITSupportBot(autogen.AssistantAgent):

    def __init__(self, name, model="gpt-4o-mini", response_style="detailed",
troubleshooting_priority="basic"):

        """

        Initializes the chatbot with:

        - A name for identification.

        - A selected GPT model (default: GPT-3.5 Turbo).

        - A response style that can be modified (e.g., 'detailed', 'concise', 'formal',
'casual').

        - A troubleshooting priority that determines whether to start with 'basic' or
'advanced' solutions.

        """

        super().__init__(name=name)

        self.model = model

        self.response_style = response_style  # Customize how the bot replies

        self.troubleshooting_priority = troubleshooting_priority  # Determines problem-
solving approach



    def generate_reply(self, message):

        """

        Step 3: Handles user queries while considering customized behavior.

        - Adjusts response style (detailed, concise, formal, casual).

        - Prioritizes troubleshooting solutions based on user preferences.

        - Dynamically adapts responses based on issue complexity.

        """

        response = self._get_gpt_response(message)

        return response
```

```
    def _get_gpt_response(self, message):
        """
        Step 4: Uses OpenAI's GPT to generate a response based on:
        - Response style (how information is presented).
        - Troubleshooting priority (whether to start with basic or advanced solutions).
        - Adaptability to user feedback.
        """

        prompt = f"""
        The user reported an IT issue: "{message}".
        You are an IT support assistant with the following behavior settings:
        - Response style: {self.response_style}
        - Troubleshooting priority: {self.troubleshooting_priority}

        Follow these guidelines:
        1. If troubleshooting priority is 'basic', suggest simple fixes first before advanced solutions.
        2. If response style is 'concise', keep responses under 3 sentences.
        3. If response style is 'formal', maintain professionalism in wording.
        4. If response style is 'casual', use a friendly and relaxed tone.
        5. Adapt troubleshooting steps dynamically based on user feedback.
        """

        response = client.chat.completions.create(
            model=self.model,
            messages=[
                {"role": "system", "content": "You are an IT support assistant that adapts to user preferences and troubleshooting needs."},
                {"role": "user", "content": prompt}
            ]
        )

        return response.choices[0].message.content.strip()
```

Step 4: Deploy Using Streamlit for User Interaction

4.1 Create a Streamlit interface to allow users to select their preferred response style and troubleshooting priority.

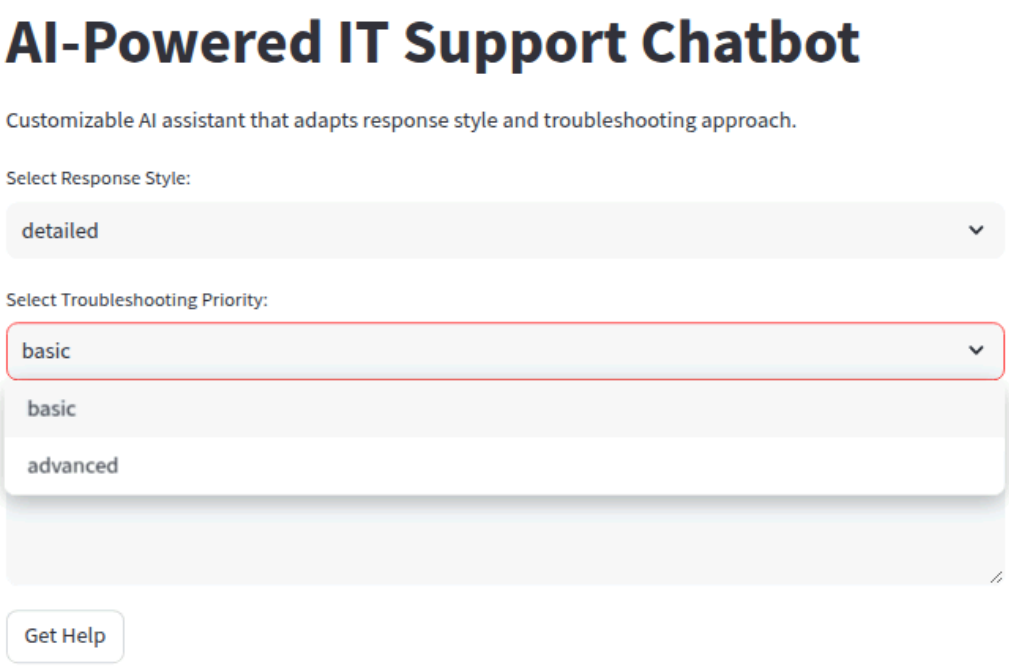
4.2 Display a text input field for the user to enter their IT issue, and when the user submits, the chatbot generates a response according to the user's settings.

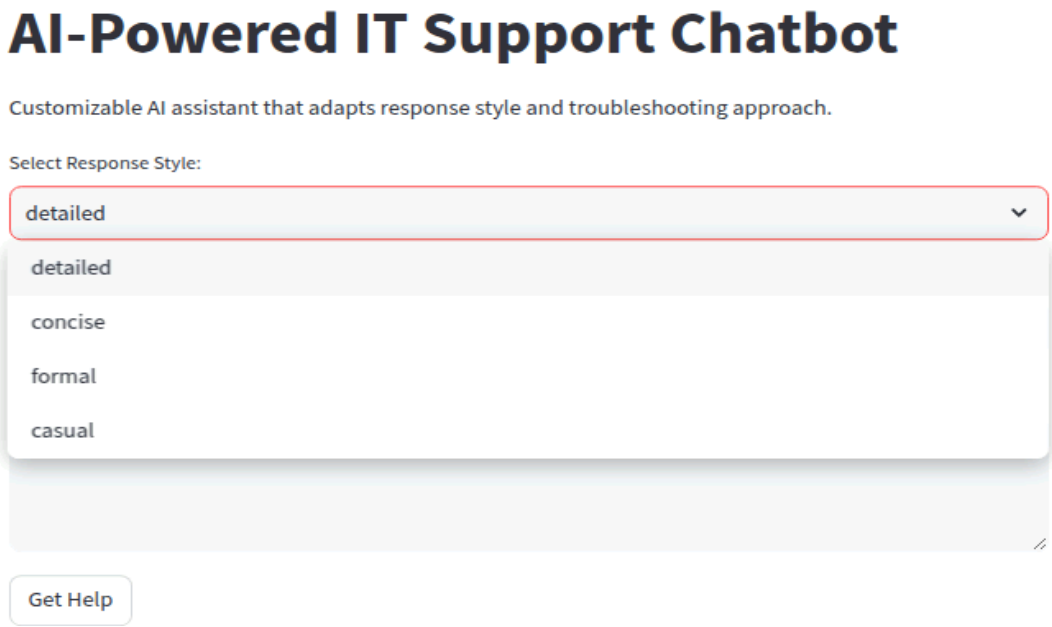
```
# Step 5: Deploy using Streamlit

st.title("AI-Powered IT Support Chatbot")

st.write("Customizable AI assistant that adapts response style and troubleshooting
approach.")



# User settings

response_style = st.selectbox("Select Response Style:", ["detailed", "concise", "formal",
"casual"])

troubleshooting_priority = st.selectbox("Select Troubleshooting Priority:", ["basic",
"advanced"])



# Initialize chatbot with selected settings

bot = CustomBehaviorITSupportBot(name="AdaptiveHelpBot", response_style=response_style,
troubleshooting_priority=troubleshooting_priority)



# User input section

user_input = st.text_area("Enter your IT issue:")



if st.button("Get Help"):

    if user_input.strip():

        response = bot.generate_reply(user_input)

        st.subheader("AI Response:")

        st.write(response)

    else:

        st.warning("Please enter a valid IT issue.")
```

Step 5: Run the code

5.1 Save the file and then run the streamlit webapp from command prompt using the command given below:
streamlit run Demo4.py

Output:





AI Response:

I'm sorry to hear that you're experiencing issues with your Wi-Fi. Let's start with some basic troubleshooting steps:

1. **Check Your Wi-Fi Connection:** Ensure that your device's Wi-Fi is turned on. Sometimes, it can accidentally be disabled.
2. **Restart Your Device:** Rebooting your device can resolve temporary glitches that may be preventing a connection.
3. **Power Cycle Your Router:** Unplug your router, wait for about 30 seconds, and then plug it back in. This can refresh your connection and potentially solve the issue.
4. **Check for Outages:** If possible, verify if there's an internet service outage in your area that could be affecting your connection.

Please let me know if any of these steps help or if you need further assistance!

By following the above-mentioned steps, you have successfully showcased how to customize agent behavior in AutoGen by allowing users to modify response style and troubleshooting priority. By leveraging GPT's adaptability, the chatbot delivers tailored IT support, making interactions more efficient and user-friendly. This approach can be extended to various AI-driven customer support and troubleshooting applications.