```
# Install requests library if not already installed (usually not needed in Colab)
# !pip install requests

import requests
import json # Import json for pretty printing
import sys # To exit the loop gracefully

print("--- IBM Cloud AI Agent Interaction ---")

# --- IMPORTANT: Get your IBM Cloud API Key ---
# 1. Log in to your IBM Cloud account.
# 2. Go to Manage > Access (IAM).
# 3. Click on API keys in the left navigation.
# 4. Click Create an IBM Cloud API key.
# 5. Copy the API key immediately after creation.

# NOTE: For security, never hardcode your API key in shared notebooks.
# This method prompts for input, which is better than hardcoding.
# For truly secure handling, use Colab's Secrets feature (as discussed before)
API_KEY = input("Please enter your IBM Cloud API Key: ").strip()

if not API_KEY:
    print("API Key cannot be empty. Please restart and provide a valid key.")
    sys.exit(1) # Exit the script if API key is not provided

print("\nAttempting to obtain IAM token...")
mltoken = None # Initialize mltoken to None
try:
    token_response = requests.post(
        'https://iam.cloud.ibm.com/identity/token',
        data={"apikey": API_KEY, "grant_type": 'urn:ibm:params:oauth:grant-type:apikey'}
    )
    token_response.raise_for_status() # Raise an exception for bad status codes
    mltoken = token_response.json()["access_token"]
    print("IAM token obtained successfully.")
except requests.exceptions.RequestException as e:
    print(f"Error obtaining IAM token: {e}")
    if 'token_response' in locals():
        print(f"Response: {token_response.text}")
    sys.exit(1) # Exit if token cannot be obtained
except KeyError:
    print("Error: 'access_token' not found in IAM response. Check your API Key.")
    if 'token_response' in locals():
        print(f"IAM Response: {token_response.text}")
    sys.exit(1) # Exit if token is malformed

# ... (your existing code) ...

if mltoken:
    header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}
    deployment_url = 'https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d775e98a-77c0-4876-9b2b-76266ff7b91d/ai_service_stream?version=

    print("\n--- Start Chatting (type 'exit' or 'quit' to end) ---")
    conversation_history = []

    while True:
        user_message = input("You: ").strip()

        if user_message.lower() in ['exit', 'quit']:
            print("Exiting chat. Goodbye!")
            break

        if not user_message:
            print("Please enter a message.")
            continue

        conversation_history.append({"content": user_message, "role": "user"})
        payload_scoring = {"messages": conversation_history}

        print(f"Sending message to AI agent to: {deployment_url}") # Debug print
        print(f"Payload: {json.dumps(payload_scoring, indent=2)}") # Debug print payload

        try:
            response_scoring = requests.post(
                deployment_url,
                json=payload_scoring,
                headers={'Authorization': 'Bearer ' + mltoken},
                stream=True
            )

            print(f"Response Status Code: {response_scoring.status_code}") # Debug print status
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            response_scoring.raise_for_status() # Raise an exception for bad status codes

           # ... (previous code) ...

            ai_response_content = "" # This variable will store the full AI response
            print("Agent: ", end="") # Print "Agent: " once and then stream the response

            for line in response_scoring.iter_lines():
                if line:
                    decoded_line = line.decode('utf-8')
                    # Removed the DEBUG print from previous suggestion for cleaner output
                    if decoded_line.startswith('data:'):
                        try:
                            json_data = json.loads(decoded_line[5:].strip())
                            if "choices" in json_data and len(json_data["choices"]) > 0:
                                if "delta" in json_data["choices"][0] and "content" in json_data["choices"][0]["delta"]:
                                    content_chunk = json_data["choices"][0]["delta"]["content"]
                                    ai_response_content += content_chunk # <--- Accumulating the content here
                                    print(content_chunk, end="", flush=True) # Printing chunks as they arrive
                        except json.JSONDecodeError:
                            print(f"\nWarning: Could not decode JSON from line: {decoded_line}")
                        except Exception as e:
                            print(f"\nWarning: Error processing line: {e} - {decoded_line}")

            print() # Print a newline at the end of the streamed response

            # After the loop, ai_response_content holds the complete message.
            # You are already adding it to conversation_history here:
            if ai_response_content:
                conversation_history.append({"content": ai_response_content, "role": "assistant"})

# ... (rest of the code) ...
        except requests.exceptions.RequestException as e:
            print(f"\nError during scoring request: {e}")
            print(f"Status Code: {response_scoring.status_code if 'response_scoring' in locals() else 'N/A'}")
            if 'response_scoring' in locals():
                print(f"Response Text (on error): {response_scoring.text}") # Get full error message
            print("An error occurred. Please try again or type 'exit'.")
            if len(conversation_history) > 0 and conversation_history[-1]["role"] == "user":
                conversation_history.pop()
        except Exception as e:
            print(f"\nAn unexpected error occurred: {e}")
            print("An error occurred. Please try again or type 'exit'.")
            if len(conversation_history) > 0 and conversation_history[-1]["role"] == "user":
                conversation_history.pop()

print("\n--- Script Finished ---")
```

```
--- IBM Cloud AI Agent Interaction ---
Please enter your IBM Cloud API Key: _Xw6WvZ29X8fdiW7XB5-ctMN4SHsvBe_1E-huZuBg3z8

Attempting to obtain IAM token...
IAM token obtained successfully.

--- Start Chatting (type 'exit' or 'quit' to end) ---
You: hello
Sending message to AI agent to: https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d775e98a-77c0-4876-9b2b-76266ff7b91d/ai_service
Payload: {
  "messages": [
    {
      "content": "hello",
      "role": "user"
    }
  ]
}
Response Status Code: 200
Agent: Hello! How can I assist you with your research today? Please provide me with the specific topic or question you'd like me to
You: i want to research on how will be the ai helps in health care in future
Sending message to AI agent to: https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d775e98a-77c0-4876-9b2b-76266ff7b91d/ai_service
Payload: {
  "messages": [
    {
      "content": "hello",
      "role": "user"
    },
    {
      "content": "Hello! How can I assist you with your research today? Please provide me with the specific topic or question you'd
      "role": "assistant"
    },
    {
      "content": "i want to research on how will be the ai helps in health care in future",
      "role": "user"
    }
  ]
}
Response Status Code: 200
Agent: Artificial intelligence (AI) is poised to revolutionize healthcare in numerous ways in the future. Here are some key areas wh

1. **Precision Medicine**: AI can analyze a patient's genetic information to predict their susceptibility to certain diseases, allow

2. **Drug Discovery**: AI can expedite the process of drug discovery by predicting how different compounds will behave and interact

3. **Early Disease Detection**: AI algorithms can analyze medical images (like X-rays, MRIs, and CT scans) to detect signs of diseas

4. **Robot-Assisted Surgery**: AI-powered surgical robots can perform complex procedures with greater precision, flexibility, and le

5. **Virtual Nursing Assistants**: AI chatbots can provide patients with 24/7 support, answering their questions, reminding them to

6. **Administrative Tasks Automation**: AI can handle repetitive administrative tasks, such as scheduling appointments, managing pat

7. **Mental Health Support**: AI-powered applications can offer mental health support, such as cognitive behavioral therapy, through

8. **Epidemic and Pandemic Prediction**: AI can analyze vast amounts of data to predict the spread of diseases, helping health autho

These advancements in AI for healthcare are still in their early stages, and ongoing research is crucial to address challenges like
You: can you extend this some more
Sending message to AI agent to: https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d775e98a-77c0-4876-9b2b-76266ff7b91d/ai_service
Payload: {
  "messages": [
    {
      "content": "hello",
      "role": "user"
    },
    {
      "content": "Hello! How can I assist you with your research today? Please provide me with the specific topic or question you'd
      "role": "assistant"
    },
    {
      "content": "i want to research on how will be the ai helps in health care in future",
      "role": "user"
    },
    {
      "content": "Artificial intelligence (AI) is poised to revolutionize healthcare in numerous ways in the future. Here are some k
      "role": "assistant"
    },
    {
      "content": "can you extend this some more",
      "role": "user"
    }
  ]
}
Response Status Code: 200
Agent: Of course! Here are a few more ways AI is expected to shape the future of healthcare:

9. **Wearable Health Technology**: AI can analyze data from wearable devices like smartwatches and fitness trackers to monitor patie

10. **Telemedicine**: AI can enhance telemedicine by providing remote patient monitoring, virtual consultations, and triage services
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11. **Prosthetics and Rehabilitation**: AI-powered prosthetics can learn and adapt to a user's movements, providing a more natural a

12. **Medical Imaging Analysis**: AI can not only detect diseases from medical images but also quantify the severity and track chang

13. **Clinical Decision Support Systems**: AI can analyze a patient's medical history, symptoms, and test results to provide healthc

14. **Public Health Surveillance**: AI can analyze social media, news reports, and other data sources to identify and track public h

As AI continues to evolve, it's essential to ensure that these technologies are developed and deployed ethically, with a focus on pa
You: Thanks you
Sending message to AI agent to: https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d775e98a-77c0-4876-9b2b-76266ff7b91d/ai_service_
Payload: {

```
  "messages": [
    {
      "content": "hello",
      "role": "user"
    },
    {
      "content": "Hello! How can I assist you with your research today? Please provide me with the specific topic or question you'd
      "role": "assistant"
    },
    {
      "content": "i want to research on how will be the ai helps in health care in future",
      "role": "user"
    },
    {
      "content": "Artificial intelligence (AI) is poised to revolutionize healthcare in numerous ways in the future. Here are some k
      "role": "assistant"
    },
    {
      "content": "can you extend this some more",
      "role": "user"
    },
    {
      "content": "Of course! Here are a few more ways AI is expected to shape the future of healthcare:\n\n9. **Wearable Health Tech
      "role": "assistant"
    },
    {
      "content": "Thanks you",
      "role": "user"
    }
  ]
}
```

Response Status Code: 200
Agent: You're welcome! I'm glad I could help. If you have any more questions or need further clarification on any aspect of AI in he
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```
KeyboardInterrupt                         Traceback (most recent call last)
/tmp/ipython-input-1767873903.py in <cell line: 0>()
     55
     56     while True:
---> 57         user_message = input("You: ").strip()
     58
     59         if user_message.lower() in ['exit', 'quit']:
```

1 frames