A Negotiation Chatbot Using a Pre-trained AI Model

Objective:

This project aims to create a Conversational AI system that simulates price negotiation between a customer and a salesperson in a store named "Electronics World." The AI is designed to handle real-time interactions with customers, providing product pricing, offering discounts up to 20%, and convincing them to close the deal.

Technology Stack:

1. **Langchain**:
   - Used for building the conversation flow by managing prompts and responses between the AI and the customer.
2. **Ollama LLM (Large Language Model)**:
   - Powers the AI, enabling natural and context-aware conversations.
3. **Google Generative AI (Gemini-1.5 Flash)**:
   - Provides dynamic and efficient responses, helping to maintain a fluent and human-like conversation.
4. **Dotenv**:
   - Handles environment variables for secure access to sensitive data like API keys.

Workflow:

1. **Input**: The user (customer) interacts with the AI, initiating the conversation by entering their name. The system stores and uses this name to personalize the interaction.
2. **Prompt Structure**:
   - The interaction starts with a predefined **HumanMessage** that simulates the role of the salesperson at "Electronics World," instructing the AI to negotiate prices based on customer responses.
   - The AI offers a maximum discount of **20%** from the initial product price, aiming to persuade the customer while maintaining the business profitability.
3. **Conversation Flow**:
   - The **ChatPromptTemplate** from Langchain is used to structure the conversation.
   - A placeholder for **chat history** ensures the AI maintains context across multiple exchanges.
   - **StrOutputParser** handles output parsing to format the final AI-generated response appropriately.

4. **AI Responses**:
    - AI-generated responses are contextually aware, adjusting the negotiation based on customer queries.
    - The AI has been programmed to make counteroffers, gradually leading the customer to finalize the purchase while staying within the 20% discount limit.
5. **User Interaction**:
    - Users engage with the AI in real-time. If the user types "exit," the conversation is terminated.
    - The **AIMessage** handles the generated output, ensuring a seamless and logical dialogue.

Usage Scenario:

- **Initiation**: The salesperson initiates by greeting the customer and quoting an approximate product price.
- **Negotiation**: The AI listens to the customer's counteroffers and gradually adjusts the price, not exceeding a 20% discount.
- **Deal Closure**: The AI convinces the customer to accept the final price, concluding the transaction.

Future Enhancements:

- Implement more complex pricing algorithms to account for product types, customer loyalty, and special discounts.
- Integrate this system with a database to pull real-time product prices.

Conclusion:

This AI-driven negotiation simulation demonstrates the capability of modern conversational models to engage in realistic business interactions, with potential applications in e-commerce and customer service automation.