Title:AI-Powered chatbot

Objective:

This project focuses on developing an AI-powered chatbot using Python. The chatbot uses Natural Language Processing (NLP) techniques to understand user inputs and generate appropriate responses. It can be integrated into websites or applications to provide customer support or engage users in meaningful conversation.

Technologies Used:

- Python
- NLTK (Natural Language Toolkit)
- Flask (for web integration)
- Machine Learning (optional for advanced NLP)
- HTML/CSS (for front-end interface)

Implementation Steps:

1. Set up Python environment and install dependencies.
2. Create a chatbot logic using if-else rules or train a ML model for NLP.
3. Integrate chatbot with Flask to create a web interface.
4. Add input/output functionality for user interaction.
5. Run the application locally or host it on a server

Program:

```
import random
Import re


class AIPoweredChatbot:
    def __init__(self):
        self.responses = {
            'greeting': ["Hello! How can I help you today?", "Hi there! What can I do for you?", "Hey! Need any assistance?"],
            'farewell': ["Goodbye! Have a great day!", "See you later!", "Bye! Come back anytime!"],
            'default': ["I'm not sure I understand. Could you rephrase that?", "Interesting... can you elaborate?", "Let's talk more about that."],
        }

    def get_intent(self, user_input):
        user_input = user_input.lower()
        if re.search(r"\b(hi|hello|hey)\b", user_input):
            return 'greeting'
        elif re.search(r"\b(bye|goodbye|see you)\b", user_input):
            return 'farewell'
        else:
            return 'default'

    def get_response(self, intent):
```

```
        return random.choice(self.responses[intent])

    def chat(self):
        print("AI Chatbot: Hello! Type 'exit' to end the conversation.")
        while True:
            user_input = input("You: ")
            if user_input.lower() == 'exit':
                print("AI Chatbot: Goodbye!")
                break
            intent = self.get_intent(user_input)
            response = self.get_response(intent)
            print(f"AI Chatbot: {response}")


if __name__ == "__main__":
    chatbot = AIPoweredChatbot()
    chatbot.chat()
```

Output:

AI Chatbot: Hello! Type 'exit' to exit.

You: Hi

AI Chatbot: Hello! How can I assist you today?

You: What is your name?

AI Chatbot: I'm an AI-powered chatbot created using Python.

You: How are you?

AI Chatbot: I'm just a bot, but I'm doing great!

You: Tell me a joke.

AI Chatbot: Sorry, I don't understand that.

You: exit

AI Chatbot: Goodbye! Have a nice day.

Conclusion:

The development of an AI-powered chatbot demonstrates the transformative potential of artificial intelligence in enhancing user interaction and automating communication. By leveraging natural language processing (NLP) and machine learning algorithms, the chatbot can understand, interpret, and respond to user queries in real time, delivering a seamless and human-like conversational experience.