🤖 AI Chatbot with Transformers

This project is a simple AI-powered chatbot built using Python and the Hugging Face Transformers library. The chatbot uses a pre-trained GPT-2 model to generate responses based on user input.

# 📌 Features

- Conversational AI using GPT-2

- Text-based interface

- Runs completely offline (after setup)

# 🛠️ Installation & Setup

Follow the steps below to set up the project on your local machine.

## ✅ Step 1: Clone the Repository (or Create a New File)

You can either:

Clone this repo:

git clone https://github.com/your-username/ai-chatbot-transformers.git  
cd ai-chatbot-transformers

OR

Create a new Python file (e.g., chatbot.py) and copy the code into it.

## ✅ Step 2: Create a Virtual Environment (Optional but Recommended)

python -m venv chatbot-env  
source chatbot-env/bin/activate # On Windows: chatbot-env\Scripts\activate

## ✅ Step 3: Install Required Libraries

pip install transformers torch

These are the main dependencies:  
- transformers: for using pre-trained models like GPT-2  
- torch: backend required by transformers

## ✅ Step 4: Run the Chatbot

Create a Python script with the following sample code:

from transformers import pipeline  
  
# Load the text generation pipeline with GPT-2  
chatbot = pipeline("text-generation", model="gpt2")  
  
print("Chatbot is ready! Type 'exit' to quit.\n")  
  
while True:  
 user\_input = input("You: ")  
 if user\_input.lower() == "exit":  
 break  
 response = chatbot(user\_input, max\_length=100, num\_return\_sequences=1)  
 print("Bot:", response[0]['generated\_text'])

Then run:

python chatbot.py

# 💡 Example Conversation

You: What is AI?  
Bot: What is AI? Artificial Intelligence (AI) is the simulation of human intelligence...

# 📎 Notes

- GPT-2 is a powerful model but not trained for safe or filtered conversations.

- This chatbot works offline after downloading the model once.

- You can fine-tune it later or switch to other models from Hugging Face.

# 📚 Resources

- Hugging Face Transformers Docs: https://huggingface.co/transformers/

- GPT-2 Model Card: https://huggingface.co/gpt2

# 🧠 Future Improvements

- Add memory/history to chat

- Build a GUI or web interface

- Add filters to make it safer for all audiences

# 🏁 License

This project is open-source and free to use for educational purposes.