

Project Title: Basic Rule-Based Chatbot

Project Description:

This project involves the development of a **simple rule-based chatbot** using the Python programming language. The chatbot is designed to simulate a basic conversation by recognizing specific user inputs and responding with predefined outputs. While it does not utilize artificial intelligence or natural language processing, it demonstrates the core concepts behind how chatbots work at a fundamental level.

The chatbot interacts with the user via the console (command line), where the user types in messages and receives corresponding responses. It is capable of recognizing a small set of keywords or phrases such as:

- **"hello"** → Response: *"Hi!"*
- **"how are you"** → Response: *"I'm fine, thanks!"*
- **"bye"** → Response: *"Goodbye!"*

If the user types any message outside of the known phrases, the chatbot responds with a default message like *"Sorry, I don't understand that."* This feature ensures the chatbot can gracefully handle unknown inputs.

The chatbot continues to run in a loop, accepting and responding to inputs until the user types "bye", at which point it exits the conversation.

Project Objectives:

- To understand how rule-based logic can be used to simulate basic conversations.
- To practice using Python control structures such as if-elif-else statements.
- To apply programming fundamentals including functions, loops, and user input/output.
- To demonstrate a foundational approach to building chatbots before moving into more advanced methods like NLP and AI.

Key Concepts Used:

- **Conditional Statements (if, elif, else)** – For matching user inputs to predefined responses.
- **Functions** – To organize chatbot logic into reusable code blocks.

- **Loops (while)** – To continuously take input from the user until an exit condition is met.
 - **Input/Output (input(), print())** – For interacting with the user through the console.
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Technologies Used:

- **Language:** Python 3.x
 - **Platform:** Terminal / Command Line Interface
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Sample Interaction:

Chatbot: Hello! Type 'bye' to exit.

You: hello

Chatbot: Hi!

You: how are you

Chatbot: I'm fine, thanks!

You: what's your name?

Chatbot: Sorry, I don't understand that.

You: bye

Chatbot: Goodbye!

Conclusion:

This Basic Chatbot project is a great starting point for understanding the logic behind conversational programs. While it operates on simple rules, it introduces the foundational programming concepts required to build more complex and intelligent chatbots in the future. It also provides an interactive and fun way to apply Python skills in a real-world scenario.