

# Mini Project Report

Chatbot with Rule-Based Responses

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## Abstract

This project demonstrates the implementation of a simple rule-based chatbot using Python programming language. The chatbot operates by matching predefined keywords in user input and generating fixed responses using conditional logic (if-else). It is a basic introduction to the fields of Natural Language Processing and conversational AI systems.

## Objective

To build a chatbot that can simulate a simple conversation using hard-coded rules and conditional statements.

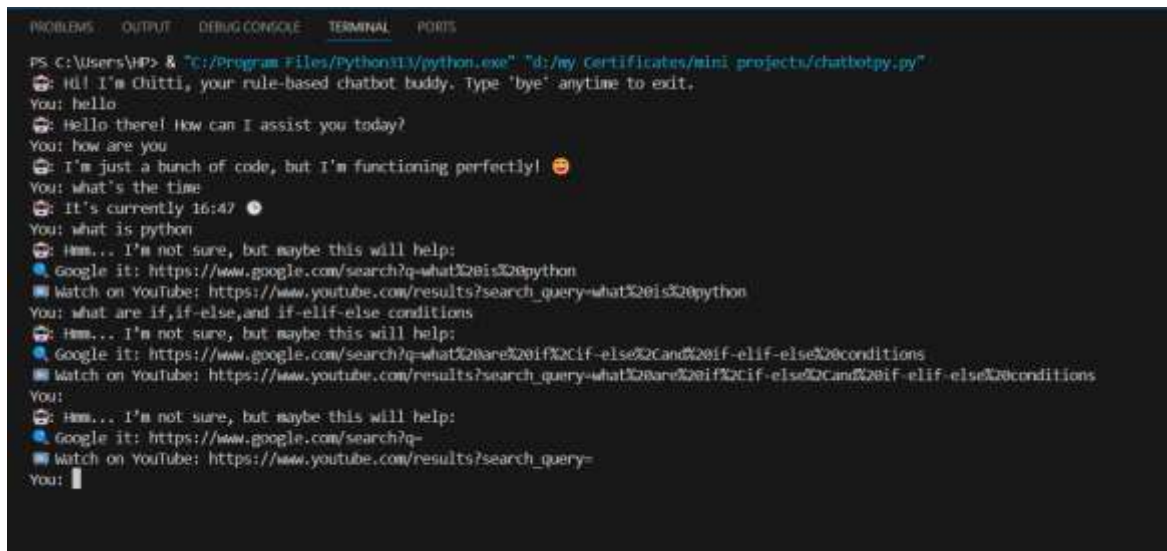
## Technologies Used

- Programming Language: Python
- Platform: Visual Studio code
- Concepts: If-Else Logic, String Handling, User Input Processing

## Methodology

- The chatbot uses a continuous loop to take user input.
- Inputs are converted to lowercase for uniformity.
- The logic checks if specific keywords (like "hello", "how are you", etc.) exist in the user message.
- Based on the matched rule, a predefined response is generated.
- The chatbot continues until the user types an exit command like "bye".

## Screenshot

A screenshot of a terminal window with a dark background. At the top, there are tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', 'TERMINAL' (which is active), and 'PORTS'. The terminal shows a command prompt 'PS C:\Users\HP>' followed by the command '& "C:/Program Files/Python311/python.exe" "d:/my Certificates/mini projects/chatbotpy.py"'. The chatbot, named Chitti, responds with a greeting and instructions. The user interacts with the chatbot by saying 'hello', 'Hello there! How can I assist you today?', 'how are you', 'I'm just a bunch of code, but I'm functioning perfectly!', 'what's the time', 'It's currently 16:47', 'what is python', 'Hmm... I'm not sure, but maybe this will help:', 'Google it: https://www.google.com/search?q=what%20is%20python', 'Watch on YouTube: https://www.youtube.com/results?search\_query=what%20is%20python', 'what are if,if-else,and if-elif-else conditions', 'Hmm... I'm not sure, but maybe this will help:', 'Google it: https://www.google.com/search?q=what%20are%20if%2cif-else%2Cand%20if-elif-else%20conditions', 'Watch on YouTube: https://www.youtube.com/results?search\_query=what%20are%20if%2cif-else%2Cand%20if-elif-else%20conditions', and 'You:'. The chatbot responds with 'Hmm... I'm not sure, but maybe this will help:', 'Google it: https://www.google.com/search?q=', and 'Watch on YouTube: https://www.youtube.com/results?search\_query='.

## Conclusion

This chatbot introduces the fundamentals of rule-based dialogue systems and provides a strong foundation for further exploration into NLP and AI-powered conversational agents.

## Future Scope

This basic rule-based model can be upgraded to:

- Use pattern matching libraries like re (Regular Expressions)
- Incorporate NLP libraries like NLTK or spaCy
- Switch to Machine Learning for learning-based response generation