PROJECT: CHATBOT FOR SIMPLE QUESTION USING DEEP LEARNING

1. Project Description

Create a simple chatbot that can answer a set of predefined questions using rule-based logic. The chatbot will match user inputs to a predefined list of questions and provide appropriate answers.

2. Algorithm

Algorithm Steps:

1. **Define the Set of Predefined Questions and Answers:**
    - Create a dictionary where keys are questions and values are corresponding answers.
2. **Preprocess the User Input:**
    - Convert user input to lowercase.
    - Remove any extra spaces or special characters.
3. **Match User Input to Predefined Questions:**
    - Compare the user input to the questions in the dictionary to find a match.
4. **Generate Response:**
    - If a match is found, provide the corresponding answer.
    - If no match is found, provide a default response indicating that the question is not understood.
5. **Loop for Continuous Interaction:**
    - Continuously accept user inputs and provide responses until the user decides to exit.

3. Inputs, Outputs, Conditions, and Loops

- **Inputs:**
    - User's question as a text input.
- **Outputs:**
    - The chatbot's response based on predefined questions or a default response.
- **Conditions:**
    - **Condition 1:** Check if the user's question matches any predefined question.
        - **If True:** Return the predefined answer.
        - **If False:** Return a default response indicating that the question is not understood.
- **Loops:**
    - A loop to continuously accept user inputs and provide responses until the user types "exit" to end the conversation.

4. Required Libraries

- **Python Libraries:**
    - nltk for text preprocessing (optional for more advanced text processing).

Example Libraries Installation:

- pip install nltk

5. Example Dataset

For a rule-based chatbot, the dataset is a simple dictionary rather than a complex dataset. Here's an example of what this data might look like:

Example Dictionary (questions_answers):

```
questions_answers = {
    "what is your name?": "I am a chatbot created to help you with predefined questions.",
    "how are you?": "I am just a program, but I'm functioning well!",
    "what can you do?": "I can answer your questions from a predefined list.",
    "goodbye": "Have a great day!"
}
```

6.Enhancements

Expand the Dataset: Add more questions and answers for better coverage.

Improve Text Preprocessing: Use libraries like nltk for more advanced text preprocessing.

Add Synonym Handling: Implement basic synonym handling to understand variations of questions.

Implement Basic NLP: Use libraries like NLTK or spaCy for more advanced text processing if needed.