SUPERIOR UNIVERSITY

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Roll no:

068

Class:

BSAI

Section:

4B

Subject:

Programming for Artificial Intelligence

Submitted to:

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Task 10

Restaurant Information ChatBot

Objective:

In this project we have to develop a simple, dynamic, and interactive **food chatbot** using **Flask**, **HTML/CSS**, and **Python**.
The chatbot can answer customer queries about the menu, food options, bookings, and some offers.

Functionalities:

- **Menu Inquiry**: Customers can ask about menu items like pizza, burgers, pasta, biryani, BBQ, desserts, and drinks.
- **Food Details**: When a specific item (like "burger" or "pasta") is mentioned, it shows available options.
- **Booking Feature**: Customers can ask to "book a table" or "make a reservation" and get booking instructions.
- **Friendly Interaction**: Replies to greetings like "hi", "hello" and closes conversations with "bye" messages.

How It Works:

1. **Frontend**:
    - User types a message in the chatbot window.
    - Message is sent to `/chat` through API.
2. **Backend (Flask)**:
    - Flask receives the message.
    - Message is matched with predefined **pairs** of question/answers using regular expressions.
    - Appropriate response is sent back.
3. **Response**:
    - Chatbot shows a friendly, dynamic answer on the webpage.

Code for Backend:

main.py:

```
import nltk
from nltk.chat.util import Chat, reflections
from nltk.sentiment import SentimentIntensityAnalyzer

nltk.download('punkt')
nltk.download('vader_lexicon')

pairs = [
    [r"(?i).*hello.*|.*hi.*|.*hey.*",
     ["Hey there! Welcome to Foodie's Paradise! What would you like today?"]],

    [r"(?i).*menu.*",
     ["Our menu is packed with love!We have pizzas, burgers, pasta, biryani, BBQ, desserts, and much more!"]],

    [r"(?i).*burger.*|.*burgers.*",
     ["Our burgers are juicy and delicious! Options: Classic Beef, Chicken Supreme, Veggie Delight."]],

    [r"(?i).*pizza.*|.*pizzas.*",
     ["Hot and cheesy pizzas await you! Options: Margherita, Pepperoni, BBQ Chicken, Veggie Special."]],

    [r"(?i).*pasta.*",
     ["We serve creamy Alfredo, spicy Arrabiata, and classic Bolognese pasta!"]],

    [r"(?i).*biryani.*",
     ["Aromatic biryani for you! Options: Chicken Biryani, Mutton Biryani, and Veg Biryani."]],

    [r"(?i).*bbq.*",
     ["Smoky and tender BBQ dishes! Options: BBQ Wings, Ribs, and BBQ Platters."]],

    [r"(?i).*dessert.*|.*sweet.*",
     ["Dessert time!Options: Chocolate Lava Cake, Cheesecake, Ice Cream Sundae."]],

    [r"(?i).*drinks.*|.*beverage.*",
     ["Refreshing drinks available! Options: Lemonade, Mojito, Cold Coffee, Fresh Juices."]],

    [r"(?i).*booking.*|.*book.*|.*reservation.*",
     ["Sure! To book a table, please call us at +123-456-7890 or visit our website to reserve online!"]],
```

```
    [r"(?i).*thanks.*|.*thank you.*",
     ["You're welcome! Enjoy your meal!"]],

    [r"(?i).*bye.*|.*goodbye.*|.*see you.*",
     ["Goodbye! Come again!"]],
]

# Initialize chatbot and sentiment analyzer
chatbot = Chat(pairs, reflections)
sia = SentimentIntensityAnalyzer()

def get_chatbot_response(user_input):
    response = chatbot.respond(user_input)
    if response:
        return response
    else:
        return "I'm not sure about that. Try asking about food, booking, or offers!"

# Function to analyze sentiment
def analyze_sentiment(text):
    sentiment_score = sia.polarity_scores(text)
    if sentiment_score['compound'] >= 0.05:
        return "Positive Sentence"
    elif sentiment_score['compound'] <= -0.05:
        return "Negative Sentence"
    else:
        return "Neutral Sentence"
```

app.py:

```
from flask import Flask, render_template, request, jsonify
from main import get_chatbot_response, analyze_sentiment  # import functions

app = Flask(__name__)

@app.route("/")
def home():
    return render_template("index.html")

@app.route("/chat", methods=["POST"])
def chat():
    user_input = request.json["message"]

    if user_input.lower() == "sentiment":
```

```
        return jsonify({"response": "Tell me a sentence and I'll analyze the mood!"})

    elif user_input.startswith("analyze:"):
        sentiment_text = user_input.replace("analyze:", "").strip()
        sentiment_result = analyze_sentiment(sentiment_text)
        return jsonify({"response": f"Sentiment Analysis Result {sentiment_result}"})

    else:
        response = get_chatbot_response(user_input)
        return jsonify({"response": response})

if __name__ == "__main__":
    app.run(debug=True)
```

code for Frontend:

index.html:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Foodie's Paradise Chatbot</title>
    <link rel="stylesheet" href="{{ url_for('static', filename='style.css') }}">
</head>
<body>
    <div class="chat-container">
        <h2>🍔 Foodie's Paradise Chatbot</h2>
        <div id="chat-box" class="chat-box"></div>
        <div class="input-container">
            <input type="text" id="user-input" placeholder="Type your message...">
            <button onclick="sendMessage()">Send</button>
        </div>
    </div>

    <script>
        async function sendMessage() {
            const userInput = document.getElementById('user-input').value;
            if (userInput.trim() === "") return;

            const chatBox = document.getElementById('chat-box');
            chatBox.innerHTML += `<div class="user-message">${userInput}</div>`;
```

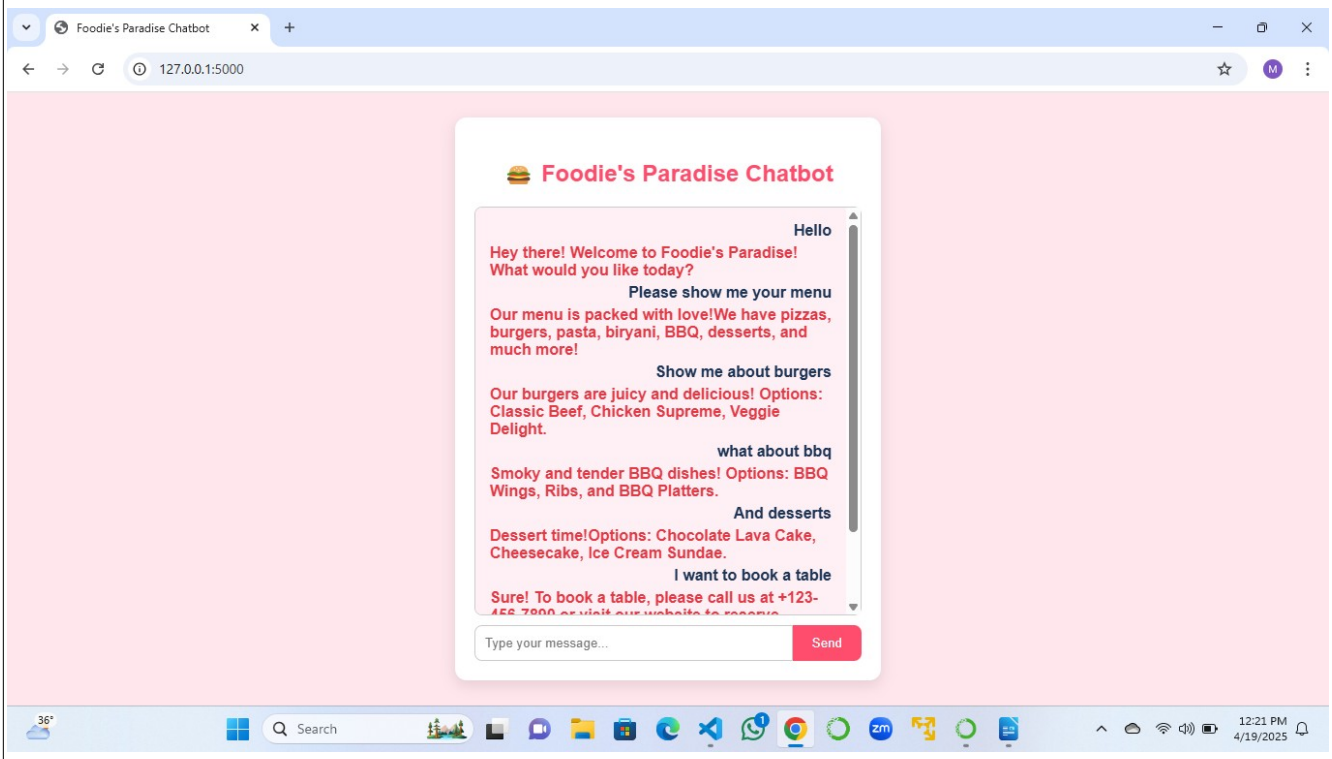
```
        const response = await fetch("/chat", {
            method: "POST",
            body: JSON.stringify({ message: userInput }),
            headers: {
                "Content-Type": "application/json"
            }
        });
        const data = await response.json();
        chatBox.innerHTML += `<div class="bot-message">${data.response}</div>`;

        document.getElementById('user-input').value = "";
        chatBox.scrollTop = chatBox.scrollHeight;  // Auto scroll to bottom
    }
  </script>
</body>
</html>
```

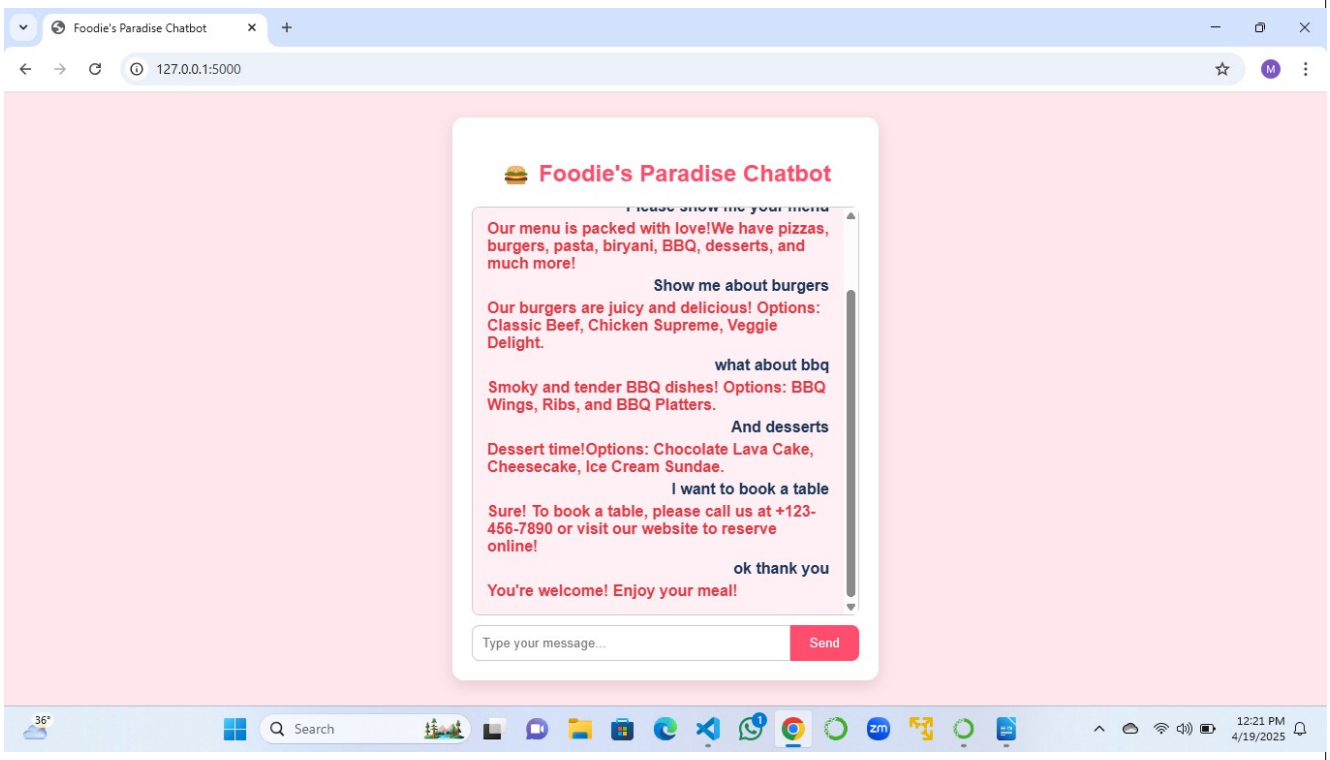
style.css:

```
body {
    font-family: Arial, sans-serif;
    background-color: #ffe5ec;
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100vh;
    margin: 0;
}

.chat-container {
    background: white;
    width: 400px;
    padding: 20px;
    border-radius: 12px;
    box-shadow: 0 5px 15px rgba(0,0,0,0.1);
}

h2 {
    text-align: center;
    color: #ff4d6d;
}

.chat-box {
    height: 400px;
```

```
    overflow-y: auto;
    border: 1px solid #ccc;
    padding: 10px;
    margin-bottom: 10px;
    background: #fff0f5;
    border-radius: 8px;
}

.input-container {
    display: flex;
}

#user-input {
    flex: 1;
    padding: 10px;
    border: 1px solid #ccc;
    border-radius: 8px 0 0 8px;
}

button {
    padding: 10px 20px;
    background-color: #ff4d6d;
    color: white;
    border: none;
    border-radius: 0 8px 8px 0;
    cursor: pointer;
}

.user-message {
    text-align: right;
    margin: 5px;
    color: #1d3557;
    font-weight: bold;
}

.bot-message {
    text-align: left;
    margin: 5px;
    color: #e63946;
    font-weight: bold;
}
```

Output:


Foodie's Paradise Chatbot
127.0.0.1:5000
Foodie's Paradise Chatbot
Hello
Hey there! Welcome to Foodie's Paradise! What would you like today?
Please show me your menu
Our menu is packed with love!We have pizzas, burgers, pasta, biryani, BBQ, desserts, and much more!
Show me about burgers
Our burgers are juicy and delicious! Options: Classic Beef, Chicken Supreme, Veggie Delight.
what about bbq
Smoky and tender BBQ dishes! Options: BBQ Wings, Ribs, and BBQ Platters.
And desserts
Dessert time!Options: Chocolate Lava Cake, Cheesecake, Ice Cream Sundae.
I want to book a table
Sure! To book a table, please call us at +123-
Type your message...
Send
Search
12:21 PM
4/19/2025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Dessert time!Options: Chocolate Lava Cake, Cheesecake, Ice Cream Sundae.
I want to book a table
Sure! To book a table, please call us at +123-456-7890 or visit our website to reserve online!
ok thank you
You're welcome! Enjoy your meal!
Type your message...
Send
Search
12:21 PM
4/19/2025