Code Documentation

Flask application (app.py) :

```
from flask import Flask, request, jsonify, render_template
import spacy
import json
from fuzzywuzzy import fuzz
```

 # Initialize the Flask application
```
app = Flask(__name__)
```

 # Load spaCy's English model for NLP tasks
```
nlp = spacy.load("en_core_web_sm")
```

 # Load FAQs data from a JSON file
```
with open('Ecommerce_FAQ_Chatbot_dataset.json') as f:
    faq_data = json.load(f)["questions"]


def get_response(user_input):
    """
```
Process the user input and return an appropriate response.
```
    """
    doc = nlp(user_input)
    # Check for basic greetings and farewells
    for token in doc:
        if token.text.lower() in ["hello", "hi", "hey"]:
            return "Hello! How can I help you today?"
        if token.text.lower() in ["goodbye", "bye"]:
            return "Goodbye! Have a great day!"
```

 # Initialize variables for finding the best matching FAQ
```
    max_similarity = 0
    best_match = None
```

 # Loop through each FAQ entry to find the best match
```
    for entry in faq_data:
        question = entry["question"]
```

```python
        similarity = fuzz.token_sort_ratio(user_input.lower(), question.lower())
        if similarity > max_similarity:
            max_similarity = similarity
            best_match = entry

    # Check if the best match meets the similarity threshold
    if max_similarity > 50:  # Adjust the threshold as needed
        response = best_match["answer"]
    else:
        response = "I'm sorry, I don't understand that question. Can you please rephrase?"

    return response + " Need any help?"
@app.route('/')
def index():
    """
    Render the main chat interface.
    """
    return render_template('index.html')


@app.route('/chatbot', methods=['POST'])
def chatbot():
    """
    Handle user messages and return chatbot responses.
    """
    user_input = request.json.get("message")
    response = get_response(user_input)
    return jsonify({"response": response})


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

HTML and JavaScript Code :

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>E-commerce Chatbot</title>
    <style>
        body {
```

```css
    font-family: Arial, sans-serif;
    background-color: #f4f4f4;
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100vh;
    margin: 0;
}
.chat-container {
    background-color: white;
    border-radius: 5px;
    box-shadow: 0 0 10px rgba(0,0,0,0.1);
    width: 400px;
    max-width: 100%;
    padding: 20px;
}
.chat-box {
    border: 1px solid #ddd;
    border-radius: 5px;
    padding: 10px;
    height: 300px;
    overflow-y: auto;
    margin-bottom: 10px;
}
.message {
    margin: 10px 0;
    padding: 10px;
    border-radius: 5px;
}
.bot-message {
    background-color: #f1f1f1;
}
.user-message {
    background-color: #007bff;
    color: white;
    text-align: right;
}
input[type="text"] {
    width: calc(100% - 80px);
    padding: 10px;
```

```
            border: 1px solid #ddd;
            border-radius: 5px;
        }
        button {
            width: 60px;
            padding: 10px;
            border: none;
            background-color: #007bff;
            color: white;
            border-radius: 5px;
            cursor: pointer;
        }
    </style>
</head>
<body>
    <div class="chat-container">
        <div class="chat-box" id="chat-box">
            <div class="message bot-message">Hello! How can I help you today?</div>
        </div>
        <input type="text" id="user-input" placeholder="Type your message here...">
        <button id="send-button">Send</button>
    </div>
    <script>
        document.getElementById('send-button').addEventListener('click', () => {
            sendMessage();
        });

        document.getElementById('user-input').addEventListener('keypress', (event) => {
            if (event.key === 'Enter') {
                sendMessage();
            }
        });

        function sendMessage() {
            const userInput = document.getElementById('user-input').value;
            if (userInput) {
                addMessage(userInput, 'user-message');
                fetch('/chatbot', {
                    method: 'POST',
                    headers: {
```

```
                'Content-Type': 'application/json'
            },
            body: JSON.stringify({ message: userInput })
        })
        .then(response => response.json())
        .then(data => {
            addMessage(data.response, 'bot-message');
        })
        .catch(error => console.error('Error:', error));
        document.getElementById('user-input').value = '';
    }
}

function addMessage(message, className) {
    const chatBox = document.getElementById('chat-box');
    const messageElement = document.createElement('div');
    messageElement.className = `message ${className}`;
    messageElement.textContent = message;
    chatBox.appendChild(messageElement);
    chatBox.scrollTop = chatBox.scrollHeight;
}
    </script>
</body>
</html>
```