SUPERIOR UNIVERSITY

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Section : AI(4-B)

Report : Task 10

Project Report: Hotel Information Chatbot with Sentiment Analysis

Objective:

The goal of this project is to create a simple rule-based chatbot for hotel information using NLTK's chat utilities. Additionally, the chatbot includes sentiment analysis capabilities to evaluate user input tone, enhancing the overall user experience.

Technologies Used:

- Python
- NLTK (Natural Language Toolkit)
- Regular Expressions
- SentimentIntensityAnalyzer from NLTK's VADER
- Rule-based logic for response handling

Key Features:

1. Hotel Chatbot with Predefined Rules:
   - Implemented using nltk.chat.util.Chat and pattern-matching rules.
   - Supports common hotel-related queries:
     - Room types and availability
     - Room pricing
     - Amenities and services
     - Restaurant/dining options
     - Booking and cancellation policies
     - Check-in/check-out times
     - Location and parking
     - Greetings and farewells
2. Sentiment Analysis:
   - Integrated using SentimentIntensityAnalyzer from NLTK's VADER lexicon.
   - Classifies user input as:
     - Positive
     - Negative

- Neutral
    - Helps determine user satisfaction and tailor responses accordingly.
3. Rule-Based Response System:
    - Uses regular expressions to match user input and respond accordingly.
    - Provides multiple response options for varied user experience.

Class-Based Chatbot (Optional):

A secondary SimpleChatBot class was defined with very basic logic for fallback or extension purposes. It can be expanded in future versions.

Conclusion:

This chatbot provides essential hotel-related information through a simple and intuitive rule-based interface. It ensures that users receive helpful, consistent **replies** while also evaluating the emotional tone of interactions for future enhancement opportunities.

Future Enhancements:

- Add dynamic booking or room availability data from a database.
- Integrate with speech recognition and text-to-speech libraries.
- Expand sentiment analysis to affect response tone.
- Migrate to a neural conversational model for smarter interactions.