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Panel C, Batch C1

AIES Lab Assignment 6

Aim: Create a chatbot using various NLP libraries.

Objective: Write a program in C/C++/Python/Java to create a Java using NLP libraries.

Theory:

NLP is a field of AI that focuses on the interaction between computers and humans through natural language. It involves the ability of a computer to understand, interpret and generate human like text or speech.

Various libraries for chatbot development-

- 1) NLTK (Natural language Toolkit):- Powerful library for working with human language data.
- 2) Spacy:- An open source library designed for NLP tasks such as entity recognition, part-of-speech tagging and more.
- 3) Rasa NLU:- An open source NLP library for intent recognition and entity extraction.

Output: Chatbot

FAG's

- 1) Explain Natural Language Processing in detail with example.
- Natural language processing (NLP) involves the ability of computers to understand and interpret human language

It encompasses tasks such as text analysis, language translation, sentiment analysis, and speech recognition. NLP algorithms enable computers to process, comprehend and respond to human language in a way both meaningful and contextually relevant.

Ex) Sentiment analysis:- NLP can be used to analyze customer reviews and determine whether they express +ve, -ve or neutral sentiments.

2) Explain limitations and challenges one can face while creating chatbot.

→ a) Limitations:

- Struggles with maintaining conversation context, leading to user query misinterpretation.
- Heavily relies on pre-defined datasets, limiting adaptability to real time changes in language use.

b) Challenges:

- Must cope with diverse ways people express ideas, posing a challenge for accurate interpretation.
- Faces demands to understand nuanced queries requiring advanced programming and AI capabilities.

3) Uses of chat-bot in various domains.

→ 1) Customer Support:- Chatbots can automate responses to frequently asked questions, guide users through troubleshooting processes, and provide instant support.

2) Ecommerce: Assist in recommending products based on user preference, answering inquiries about order status and much more.

3) Finance: They handle basic financial inquiries, assist in transaction history retrieval and provide information on account balances.

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