

Supermarket Assistant Chatbot using NLP

Objective

Design and implement an intelligent Chatbot Application for a Supermarket Environment using Natural Language Processing (NLP). The chatbot will help customers to identify the shelf locations of requested goods upon arrival.

System Scenario

The chatbot system will be placed at the entrance of a supermarket. A customer interacts with the chatbot by providing a list of goods they intend to purchase. The chatbot responds with the corresponding shelf numbers where each item can be found. The customer will also receive a printed summary of this shelf list.

Functional Requirements

1. The chatbot interface should allow the customer to type a list of goods.
2. The chatbot will extract each item from the input using NLP techniques (Eg: tokenization, POS tagging, named entity recognition).
3. For each item, the chatbot will search a predefined product-location database and respond with the corresponding shelf number.
4. The chatbot will display and optionally print a list of items with their shelf numbers.
5. The chatbot must handle at least 10 different goods and their respective shelf numbers.

Technical Requirements

- Use any programming language and NLP library (Eg: Python with NLTK or spaCy, or JavaScript with NLP.js).
- The user interface can be CLI-based, GUI-based, or web-based.
- You must use NLP techniques to extract and process the user's request.

Submission

Submit a zip file named: <your_index_number_Assignment_2>.zip

The zip file should include the following:

1. User Guide (PDF)

- Description of how to use the chatbot.
- Sample inputs and expected outputs.

2. Source Code

- Well-commented code in your preferred language.
- Include a README.md file with setup instructions.

3. Video Demonstration

- A 1-to-2-minute video demonstrating your working prototype.
- Show the chatbot conversation and printed shelf list generation.

Suggestions and Hints

Start by building a dictionary or JSON database of sample goods and their shelf numbers. Use simple NLP to extract nouns (items) from user input.

Example

Input:

"I want to buy apples, milk, and detergent."

Output:

apples → Shelf 1

milk → Shelf 3

detergent → Shelf 5