ASSIGNMENT 2

NAME : G.D.M. PRAMODI
INDEX NO. : 21/ENG/028
REGISTRATION NO. : 102829
SUBMISSION DATE : 07/07/2024

Supermarket Chatbot – User Guide

Overview

This Supermarket Chatbot is developed using Python programming language. This chatbot assists users in locating grocery items within a supermarket. It provides the relevant shelf numbers of the items in an interactive form.

Components

This app consists of the following files.

1. model.py: Define the neural network.
2. train.py: Training the model using data from “intents.json”.
3. main.py: Primary logic for processing and response generating using the trained model
4. app.py: Implement GUI for the chatbot.
5. intents.json: Predefine the intents with the relevant possible patterns and responses.

Voice Output: The chatbot speaks the responses using the ‘pyttsx3’ library.

Installation Setup

Ensure that the Python has been installed successfully.

Ensure that the necessary NLTK data files are downloaded:

```
import nltk
nltk.download(‘punkt’)
nltk.download(‘wordnet’)
```

Run “app.py” to launch the chatbot GUI.

Instructions to use the Chatbot

1. When the “app.py” is executed, a window will open with a welcome message with the chatbot's voice.
2. Then the user can type the grocery item one at a time in the text box and press “Enter”.
3. The chatbot will respond with the shelf number relevant to the item.
4. Type “quit” to end the conversation.
5. When “quit” is entered the chatbot will generate a text document listing all the requested items and their shelf numbers.

Libraries used in the chatbot

Python Standard Libraries

- json – Handle JSON data.
- random – Select random responses from the intents
- nltk – Natural Language Toolkit for text processing

External Libraries

- numpy – For numerical operations
- tkinter – Creating the GUI
- pyttsx3 – For text-to-speech conversation

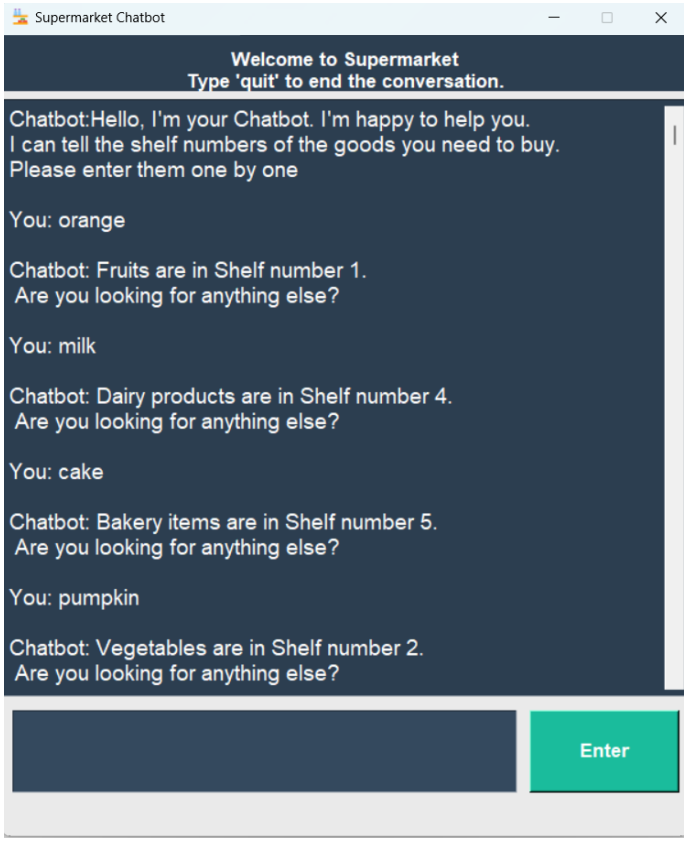
Basic steps used to develop the Chatbot

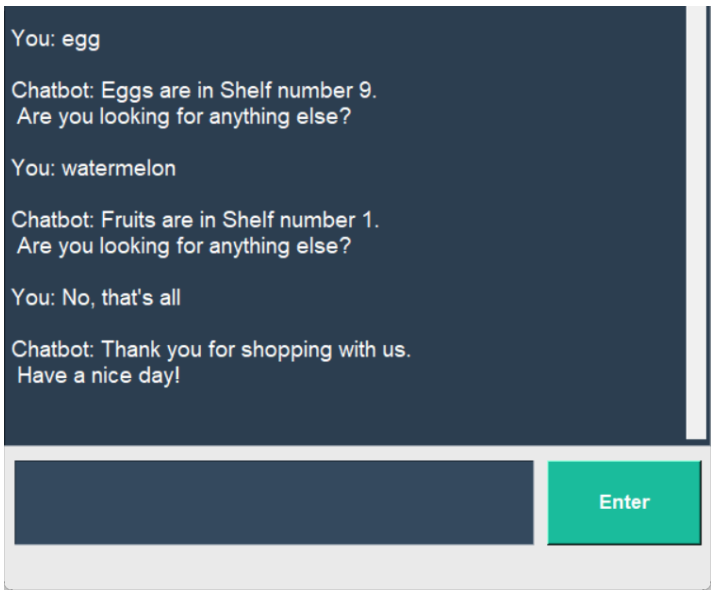
1. Created a JSON file to define the intents, patterns and responses.
2. Data Preprocessing – Tokenization and Lemmatization
3. Training Data – Bag of words is created for each sentence and converted into numerical data.
4. Build the Neural Network Model with adding layers of input, hidden and output layers.
5. Train the model using the training data.
6. Save the model
7. Developed the Chatbot user interface using Tkinter.
8. Enhance the user experience by adding Text-to-speech feature for the chatbot using pyttsx3.
9. Test the chatbot.

Constraints

This Chatbot is only able to output the shelf numbers relevant to the items entered by the user. Therefore it has a limited response scope. The responses are predefined and relies on pattern matching. Use basic NLP techniques.

Example Conversation with Chatbot





Text document generated at the end