GroceryBro

A simple yet effective rule based chatbot for a grocery store around you

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**Problem Statement**

**Brief description of the retailer**

* Our chatbot is aimed at grocery retailers off all sizes and all geographies
* Grocery retailers we target can range from small mom & pop shops to the likes of Walmart

**The rationale for developing a chatbot for the retailer**

* Enable a chat-based sales channel for the retailer
* The chatbot can be embedded on their websites or messaging platforms such as WhatsApp

**What’s something new from the current service that they are offering?**

* Chat-Based ordering – Walmart has no options currently
* Order ingredients by recipe – the fundamental idea is to allow grocery retailers market their products as packages to customers that are increasingly looking for low complexity cooking solutions like HelloFresh

**Scenarios**

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No. | Scenario | Function Name | New/Replicated |
| 1 | Find & order ingredients by name – eg. Banana | add\_ingredient\_to\_cart | Replicated – basic functionality |
| 2 | Find & order ingredients by category – eg. Dairy | ingridient\_category | Replicated – basic functionality |
| 3 | Find & order ingredients by Recipes – eg. Chicken Soup | add\_recipe\_to\_cart | New |
| 4 | Find recipes & order based on cuisine – eg. Korean | recipe\_cuisine | New |
| 5 | View & Edit Cart | view\_cart | Replicated – basic functionality |
| 6 | Checkout | view\_checkout | Replicated – basic functionality |
| 7 | Sales Analytics (keyword: mastergogo) | analyze\_sales | New / Replicated |

1. Table

   Description automatically generated**Find & order ingredients by name**

* When the user searches for an ingredient name, details are outputted
* Then the user is prompted for quantity
* Item is then added to the cart

1. Table

   Description automatically generated**Find & order ingredients by category**

* When the user searches for a category of ingredients, all ingredients in that category are listed with details
* User is then prompted to select items from the list – multiple items can be selected during this stage
* Then the user is prompted for quantity for each item
* Items are then added to the cart

1. A screenshot of a computer

   Description automatically generated with medium confidence**Order ingredients by recipe**

* Users can search for recipes, all ingredients in that recipe are listed
* Then the user is prompted for quantity
* Item is then added to the cart

**A screenshot of a computer

Description automatically generated with medium confidence**

1. **Order recipes by cuisine**

* Users can search for recipes by cuisines, all recipes in that cuisine are then listed
* Users can then select a recipe, all ingredients in that recipe are listed
* Then the user is prompted for quantity
* Item is then added to the cart

1. **Table

   Description automatically generatedCart**

* In this scenario the cart is displayed and then the user is prompted to edit, checkout or go back to chat
* After user selects edit cart, user is prompted to select the item to edit quantity
* User can then enter new quantity and the updated cart is displayed

1. Table

   Description automatically generated**Checkout**

* In this scenario the cart is displayed, and the user is prompted to enter their phone number
* If phone number matches a previous order record, the last address is displayed, and user is prompted if they would like to use the same address
* If phone number is not in records, user is prompted to enter address
* This function has been slightly modified since assignment#1 to incorporate storage and reference to a csv file

1. **Chart, bar chart

   Description automatically generatedSales Analytics**

* Keyword to access this feature: “mastergogo”
* When keyword is entered top items are displayed by distinct order counts and total sales($) from all the orders placed with the retailer

**Rationale Behind order ingredients by recipes:**

* How does it help the client experience? ­– provides a similar experience to services from HelloFresh which sell their customers pre-packaged recipes. Reduces time and complexity in ordering ingredients, especially targeted at a young audience which wants to try recipes from all around the world.
* How does it help the retailer? – makes the client happy, increase sales by bundling multiple items in a recipe

**Python libraries used:**

**CSV + Pandas: these libraries to give the chatbot a scalable “memory”; this change has enabled us to use external csv files to for data storage, enabling new features and scalability**

* **Recipes and ingredient data is now stored in a csv (used to be stored as a dictionary previously), making it easier to manage product portfolio**
  + To enable this change new functions were defined to import csv data and convert it into a dictionary object.
  + This approach allowed us to incorporate csv data with minimal changes to overall code
* **Order data is now exported and saved in a csv file**
  + A new function was defined to export the cart data and order specific details to a csv file during checkout
  + View\_checkout function was also slightly modified to incorporate this change
* **Customer profiles are built from order data**
  + A new function was defined to synthesise customer data from orders data
  + This function builds unique customer profiles based on phone number and saves the last address, total number of orders, total value of all orders

**Matplotlib: this library was used to visualise the cumulative orders data to give insights on top selling items to the retailers**

* **Why is this a good feature? As the old adage goes “you cannot fix, what you don’t measure”, this feature allows the retailers to see what their best selling items, recipes, etc are. This can allow them to tailor their offering as per customer preferences and move inventory faster**
  + A new function was defined to visualize the orders data
  + This function refers the data from orders csv file and plots combination graphs
  + Analytics capabilities are fairly limited in this release but can be easily expanded as per client requirements

**Our pitch to the retailers:** retail is all about reaching your customers where they are, chat-based interaction is going to take off immensely in the coming years especially amongst younger people. This chatbot can help you enable a chat-based sales channel on your website or any online messaging platform such as WhatsApp, Telegram etc.

**Future improvements: Integrate LLMs to act as a translation layer from user to code and move towards true “understanding”:** our current approach uses a clever matching mechanism to understand user input, making it very flexible and seem “intelligent” – it understands multiple items eg. user input “I want eggs, milk and cheese” will match with 3 items on records, forgiving on spellings eg. allows user input of “appl” or “apples” or “pple” etc. to match with the item name in our records “apple”. But it is not really comprehending the user input, it merely looks for sub/super string matches, increase a trigger counter and then activate functions; thus has its limitations. A more sophisticated classification mechanism can help improve the overall product and thus the user experience. We believe LLMs will radically & rapidly change how we interact with technology, acting as the universal translation layer between humans and machine.