Master of Technology (IS)

Hawker Bot

Project Group

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Contributions

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| Nirmalendu Prakash | High and low level design, Dialogflow intent creation,data preparation,UI |
| Sidhant Naveria | Fulfillment API,Testing,Documentation |
| Abhineet Mishra | Data preparation, Query handling data layer |

Executive Summary

In this project, we built a Chabot to answer for queries regarding hawker centers in Singapore. This project serves to leverage the techniques learned in the Cognitive Systems course.

Business Problem

For a budget visitor in Singapore, hawker centers are great place to enjoy cheap and delicious food. There are apps available to find details or order from hawker centers but no interactive way to fetch information.

We considered a typical user asking questions such as:

“Find me nearest hawker centers”

“Where can I get chicken rice”

Each of such questions would follow an interactive session with the bot where the bot should keep context of the conversation, so that user doesn’t have to repeat.

Solution Architecture

Response

**USER**

Knowledge Base (JSON file)

**Flask Based fulfilment API**

**Dialog Flow**

Query

**GUI**

Knowledge Base

Singapore hawker center information is available on data.gov.sg in kml file format. Data was transformed into JSON format for easy retrieval in python.

Use Cases

Use Case1: Find something nearby

The user wants to find the nearest Hawker Centers so as to find the nearest options available and possibly order online.

**Problem1:**

In this scenario, the user doesn’t know about the hawker centres.

**Solution**:

So, the user needs to be prompted for location.

**Problem2:**

After the user types in the location, the system needs to find out which are the hawker centres in that area. In the knowledge base, in many instances, the hawker centres have 2 or more aliases. Also, we cannot expect complete location name from user.

**Solution**:

The system does a similarity matching between hawker centre names and location fed by the user and returns hawker centres with top 5 scores.

**Problem3**:

The user wants details of any of the hawker centres of interest or possibly wants to see menu options and order

**Solution**:

The system provides each of the hawker centres after similarity matching as clickable buttons so as to capture which hawker centre user is interested in, and also to avoid user having to type the name again. On click, the hawker centre name is saved for the user session, for follow up queries

Use Case2: User wants information about a hawker centre, such as number of stalls, address etc

In this scenario , we expect hawker centre name from the user

**Problem**:

User is not expected to type complete hawker centre name. For ex-the user may just type “bedok hawker centre”

**Solution**:

The name received from user is used for similarity matching with knowledge base and user is prompted for confirmation.

**Problem**:

After confirmation,user may want to retrieve further information

**Solution**:

After user confirms, the hawker centre name is saved for the session, and changed if user requests for information on a new centre

Future Scope

With a robust architecture base and user friendly UI, we intend to add following features to the system, based on user feedback:

* Currently, the system redirects to food delivery sites, where user can order. We can use APIs from food delivery systems to allow the user to order food in a conversational way.
* We intend to enrich our knowledge base by integrating with google services and providing more information such as rating, analyzing user comments to find out more information, which could be useful
* We want to embed google map location of a hawker centre of interest to the user, so that user can easily navigate to the centre, if the user wishes to.
* We want to find a way to get user exact location, so that nearby search can be more precise and user does not have to enter location.