



DTI5125: Data Science Applications
ChatBot development Group 15 Assignment 4

Group 15 Members:

Basma Reda Shaban Abd-Elsalam Abd-Elwahab

Amir Safwat Halim Youssef

Nada Ashraf Ismail AboElfetoh

Yasmine Ahmed Elsayed Mohamed

Overview:

Customers increase these days quickly, so we use the chatbot to handle small orders also, decrease the number of the salesperson in addition to reducing overhead costs, uses support staff time better, and enables organizations to provide customer service all-day.

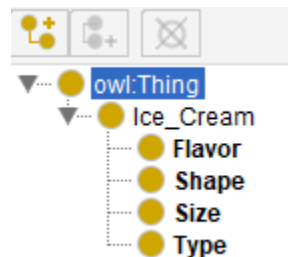
Step 1: prepare and choose the topic for the chatbot:

Make research about ice cream shops, sizes, flavors, types, and shapes of ice cream.

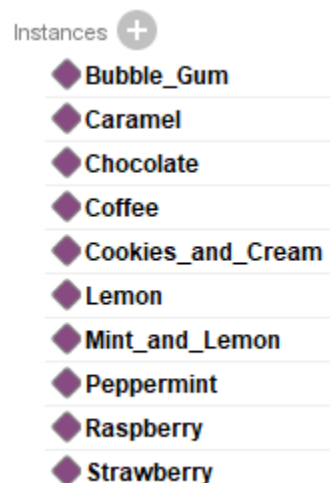
Step 2: create the ontology using protégé:

Protégé is supported by a strong community of academic, government, and corporate users, who use Protégé to build knowledge-based solutions in areas as diverse as biomedicine, e-commerce, and organizational modeling.

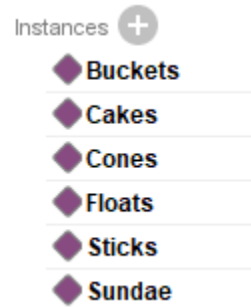
- **Create the ice cream class and sub-classes:**



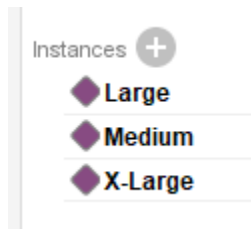
- **Create the instances of flavor:**



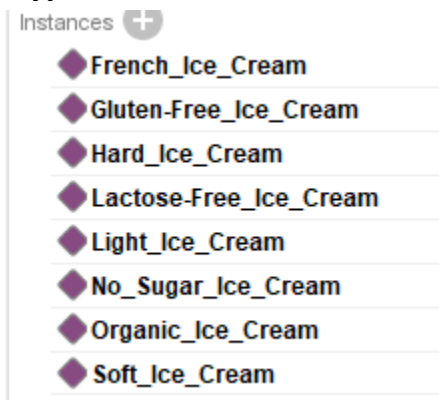
- Create the instances of shape:



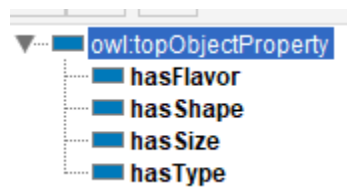
- Create the instances of size:



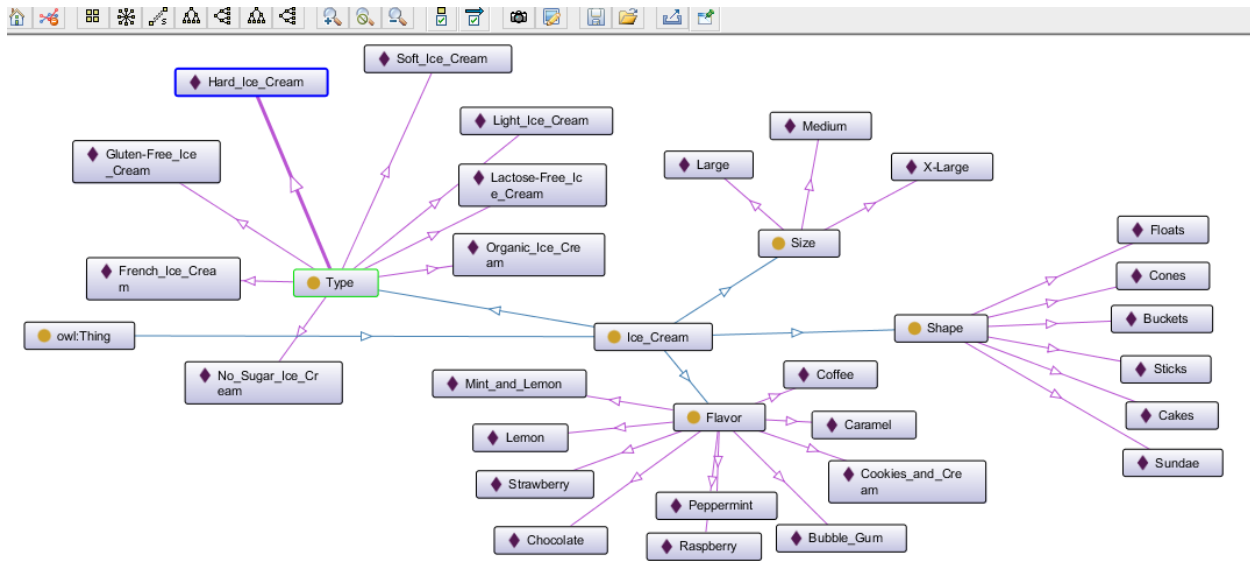
- Create the instances of type:



- Relations between the classes:



- Ontology diagram:



Step 3: prepare the competency questions:

1. Can I take your order, please?
2. What size do you prefer?
3. What flavor do you want?
4. What is the type of ice cream do you want?
5. What is the shape of the ice cream?
6. What is your mobile number?
7. What is your delivery address?

Step 4: Design the test cases questions:

Default welcome and start test cases:

- Hey/ Hi/ Hello sir.
- I'm just going to say hello.
- I want a delivery.

- Can I make a delivery?
- I want take away. / I need a takeaway.

Size and flavor test cases:

- Medium/ Xlarge / X-Large
- Lemon/ Mint.
- I need to eat chocolate.
- I want lemon

Type and shape test cases:

- Sticks/ cones/ Bubble/ Gum.
- No sugar/ light/ French/ hard.
- I need to eat floats.
- I want to eat sticks.

Phone number and address test cases:

- 01034567234
- My number is 01034567234
- My address is 34 Giza street
- 34 Giza st
- 34 Giza street

Step 5: Training Questions-Answers using Dialog Flow:

- Create the entities:

 Entities CREATE ENTITY

@ IceCream_Flavor


@ IceCream_Shape

@ IceCream_Size

@ IceCream_Type

1- IceCream_Size:

SAVE


☒ Define synonyms  ☐ Allow automated expansion

Medium	Meduim
Large	Large
X-large	X-large
Click here to edit entry	

+ Add a row

2- IceCream_Flavor:

SAVE


☒ Define synonyms  ☐ Allow automated expansion

Raspberry	Raspberry
Coffee	Coffee
Caramel	Caramel
Bubble Gum	Bubble Gum
Cookies and Cream	Cookies and Cream
Mint and Lemon	Mint Ice Cream
Strawberry	Strawberry
Lemon	Lemon
Chocolate	Chocolate
Peppermint	Peppermint

3- IceCream_Type:

IceCream_Type

SAVE


☒ Define synonyms  ☐ Allow automated expansion

Hard Ice Cream	Hard Ice Creams
French Ice Cream	French Ice Cream
Light Ice Cream	Light Ice Cream
Organic Ice Cream	Organic Ice Cream
No Sugar Ice Cream	No Sugar Ice Cream
Soft Ice Cream	Soft Ice Cream
Lactose-Free Ice Cream	Lactose-Free Ice Cream
Gluten-Free Ice Cream	Gluten-Free Ice Cream

4- IceCream_Shape:

IceCream_Shape

SAVE

☒ Define synonyms  ☐ Allow automated expansion



Cones	Cones
Sticks	Sticks
Cakes	Cakes
Buckets	Buckets
Floats	Floats
Sundae	Sundae










- Create the intents:

Intents

CREATE INTENT

Search intents



 Default Fallback Intent
 Default Welcome Intent
 get_address
 get_phoneNumber
 IceCream_getFlavor
 IceCream_getShape
 IceCream_getSize
 IceCream_getType
 IceCream_start

1- Default welcome intent:

• Default Welcome Intent

SAVE

” Good Afternoon

” Good Evening

” Good morning

” welecome

” just going to say hi

” heya

” hello hi

” howdy

” hey there

” hi there

1

OF 2



- Text responses of default intent:

Text Response



- 1 Welcome to our store, we are open everyday from 10 AM to 11 PM How Can I help You?
- 2 Hello, Can I take your order?
- 3 Hi, How can I help You?
- 4 Welcome, Our Ice Cream store ready to help you.
- 5 Hello sir, please let me help you now.

2- Icecream_Start intent:

• IceCream_start

SAVE



“ takeaway

“ take a way

“ i want to make an order

“ I want to eat ice cream

“ I want to order an ice cream

“ I'm interested in getting ice cream.

“ I need ice cream.

“ Can I buy an Ice cream?

- Text responses of Icecream_Start intent:

Text Response



- 1 What size do you prefer, Medium, Large or X-Large ?
- 2 What size do you want, sir? (Medium, Large or X-Large)
- 3 Do you prefer Medium, Large or X-Large?
- 4 Ice Cream sizes are Medium, Large or X-Large, what do you prefer?
- 5 What Ice cream size do you want?

3- IceCream_getSize intent:

• IceCream_getSize

SAVE

extract parameter values; use annotations with available system or custom entity types.

” Add user expression

” my ice cream is medium

” i need large

” I want Medium

” X-Large

” I want the size to be Large

” Please, give me medium

- Text responses of IceCream_getSize intent:

Text Response



- 1 Oh Great! Can I get the Flavor you Want?
- 2 Please, type your flavor.
- 3 Good choice, Please select your Flavor.
- 4 Great!! Can you tell me your flavor?
- 5 Kindly, select your flavor now.



4- IceCream_getflavor intent:


• IceCream_getFlavor SAVE ⋮

”	caramel	please
”	i need	chocolate
”	i want the flavor	coffee
”	Peppermint	
”	Lemon Sorbet	Ice Cream
”	chocolate	
”	Strawberry	
”	Mint and Lemon	
”	Cookies and Cream	
”	Bubble Gum	ice cream

1 OF 2 →

II

- Text responses of IceCream_getflavor intent:

Text Response		
1		
1	Ok your Flavor is \$IceCream_Flavor , please choose your Ice Cream Type.	
2	so, What is your Ice Cream Type?	
3	Good choice, your Ice Cream flavor is \$IceCream_Flavor, you can choose the type.	
4	What type do you prefer?	
5	please, Can you tell me your ice cream type?	

5- IceCream_getType intent:

” Gluten-Free Ice Creams

PARAMETER NAME	ENTITY	RESOLVED VALUE	
IceCream_Type	@IceCream_Type	Gluten	✕

” Lactose-Free Ice Creams

” i need Soft Ice Creams

” No Sugar Ice Cream

” Organic

” Light Ice Creams

” French Ice Creams

” i want Hard

- Text responses of IceCream_getType intent:

Text Response



- 1 Ok, your ice cream type is \$IceCream_Type, what shape do you prefer?
- 2 Good, Can you choose the shape of Ice Cream?
- 3 We have a variety of Ice Cream shapes, please Select one.
- 4 Kindly, select your ice cream shape.
- 5 please, can you select your ice cream shape?

6- IceCream_getShape intent:

IceCream_getShape

SAVE

” Add user expression

” i want floats

” Sundae

” Floats


” Buckets

” Cakes

” Ice Cream Sticks

” i need Ice Cream Cones

- Text responses of IceCream_getShape intent:

Text Response		
1	ok, your ice cream shape is Sicecream_shape, your order is being prepared, Please enter your phone number.	
2	Good choice, your Ice Cream shape is Sicecream_shape, please give me your number.	
3	Can you tell me your number?	
4	Please, type your number for delivery.	
5	Great! Can I take your number?	

7- get_PhoneNumber intent:

• get_phoneNumber

SAVE

⚠

Template phrases are deprecated and will be ignored in training time. More details [here](#).

When a user says something similar to a training phrase, Dialogflow matches it to the intent. You don't have to create an exhaustive list. Dialogflow will fill out the list with similar expressions. To extract parameter values, use [annotations](#) with available [system](#) or [custom](#) entity types.

” Add user expression


” my number is 01554275895

” 0109380866

” my phone number is 01093808655

- Text responses of get_PhoneNumber intent:

Text Response



1

Ok, finally I need your address.

2

Please, Kindly type your address.

3

Great!! Please, tell me your address.

4

Can you tell me your delivery address?

5

Finally, type your delivery address.

8- get_address intent:

” 5 st

PARAMETER NAME	ENTITY	RESOLVED VALUE	
number	@sys.number	5	×
street-address	@sys.street-address	st	×

” 4 street

” my address is 3 hassan st



” my address is 3 hassan street

” 40 omar street

” 12 - elborg st

” 3 hassan street

Text responses:

Text Response		
1	Great! Your order is preparing now.	
2	Oh your order is being prepared now.	
3	Ok, Get ready. Your order is prepared now.	
4	Thank you for using our chatbot, Your order is being prepared.	
5	Thank you, you will get your order after 30 minutes.	
6	Enter a text response variant	

Step 6: Verify, validation and Evaluation of the chatbot:

Our mission to create chatbot easy to use, to facilitate the process of ordering and we concerned all the details of order, if we have any problem, we will contact the customer.

The chatbot interface, titled "Order_Your_Ice_Cream" and powered by Dialogflow, shows the following sequence of interactions across four screenshots:

- Screenshot 1:** The chatbot greets the user with "hello" and a welcome message: "Welcome to our store, we are open everyday from 10 AM to 11 PM How Can I help You?". The user responds with "i want to make order". The chatbot asks, "What size do you prefer, Medium, Large or X-Large ?".
- Screenshot 2:** The user selects "X-Large ?". The chatbot asks, "Please, type your flavor.". The user responds with "strawberry". The chatbot confirms, "Ok your Flavor is Strawberry , please choose your Ice Cream Type."
- Screenshot 3:** The chatbot asks, "Say that one more time?". The user responds with "light Ice Cream". The chatbot confirms, "Ok, your ice cream type is Light Ice Cream, what shape do you prefer?". The user responds with "cone". The chatbot confirms, "ok, your ice cream shape is Cones, your order is being prepared, Please enter your phone number."
- Screenshot 4:** The user enters the phone number "010098080767". The chatbot asks, "Great!! Please, tell me your address.". The user responds with "3 hassan street tanta". The chatbot confirms, "Ok, Get ready. Your order is prepared now." and provides a final "Ask something..." prompt.

Conclusion:

In this assignment we learned how to create an ontology and make a knowledge structure, design a chatbot using dialog flow, make intents and entities for training and testing the chatbot.

References:

chrome-extension://gphandlahdpffmccakmbngmbjnjiiahp/https://cgi.csc.liv.ac.uk/~frank/teaching/comp08/protege_tutorial.pdf

<https://developers.google.com/learn/pathways/chatbots-dialogflow>

chatbot link:

[Order Your Ice Cream \(dialogflow.com\)](#)