



uOttawa

# Report

**Chatbot Assignment**

**Data Science Applications**

**Group Number: G4**

**Team Members:**

Abdallah Ragab, Hossam Mahmoud

Ahmed Ali Ziada, Shaimaa Mamdouh Ahmed

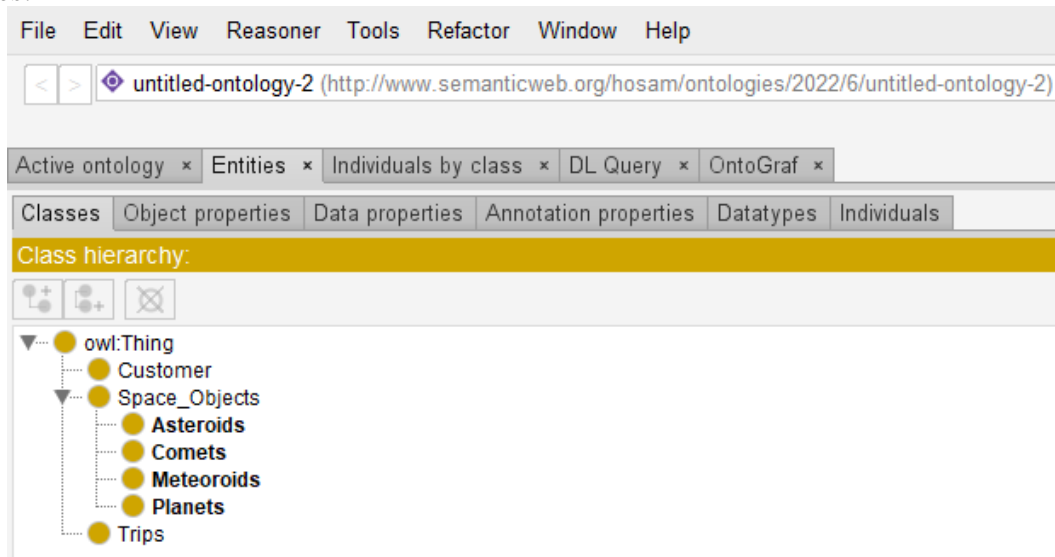
## 1. Overview

The main objective in this assignment is to build a chatbot using google Dialog flow, and to be familiar with this tool, and to understand more about the chatbot.

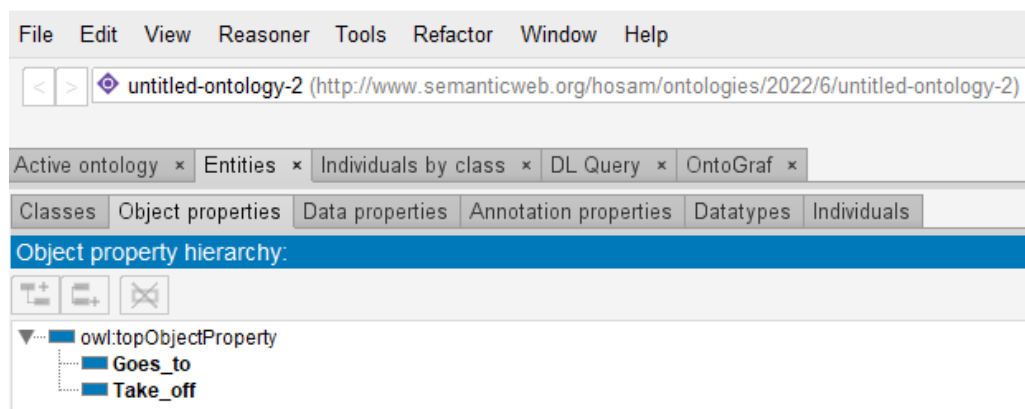
## 2. Methodology

### 2.1 First, we have created the Ontology.

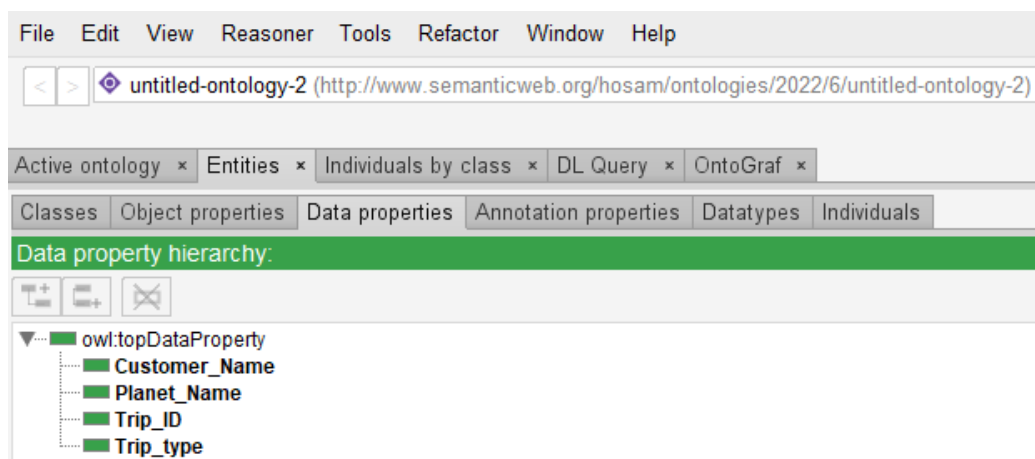
We have used **Protégé version 5.5.0** to create the Ontology, first we have created our classes and subclasses: -



After that we have determined the object properties (the relations between the classes): -



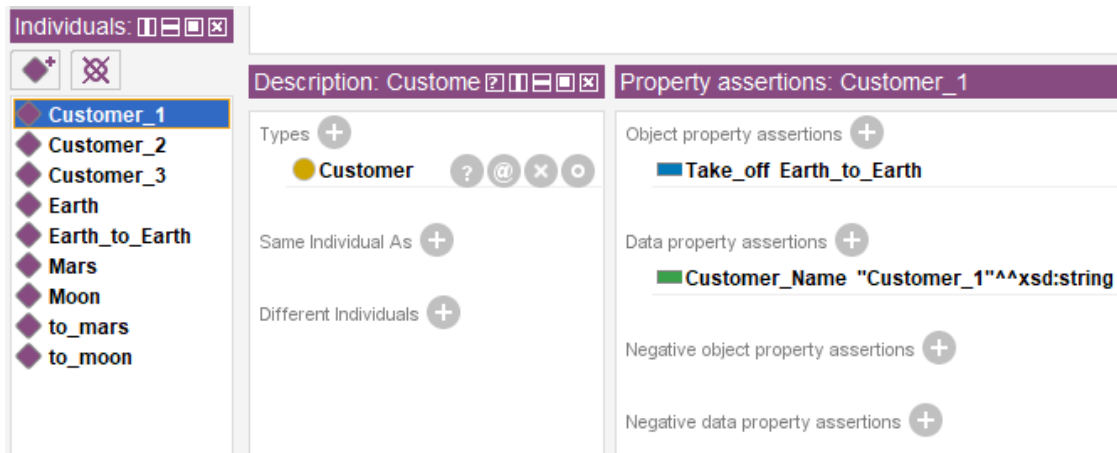
And then we have created the data properties: -



After we have defined these properties, we will start to make a connection between classes by applying the relations between them.

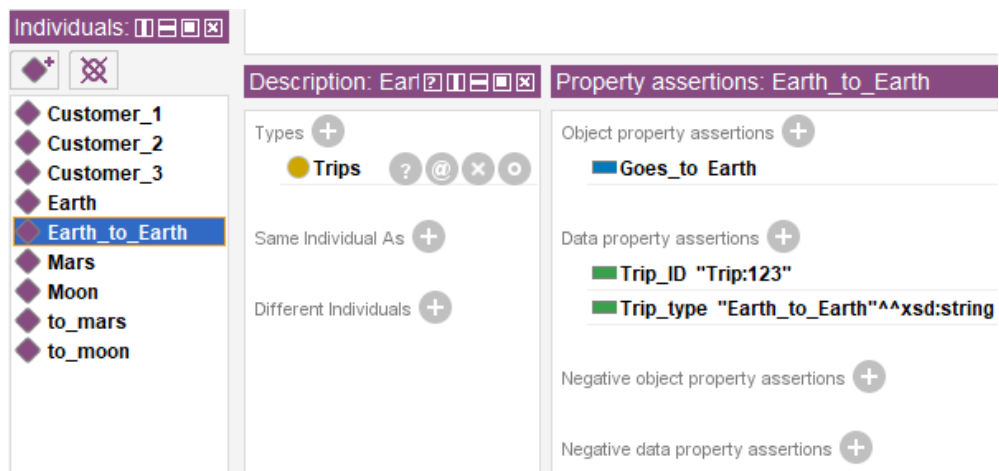
Here we have created instances for our classes and start making the relations, for example the **customer\_1** (which is an instance from class **Customer**) is going to use object property (**Take\_off**) to make a relation with instance (**Earth\_to\_Earth**) which is in class (**Trips**).

And also, we have specified a data property for instance **customer\_1** which is (**Customer\_Name**).

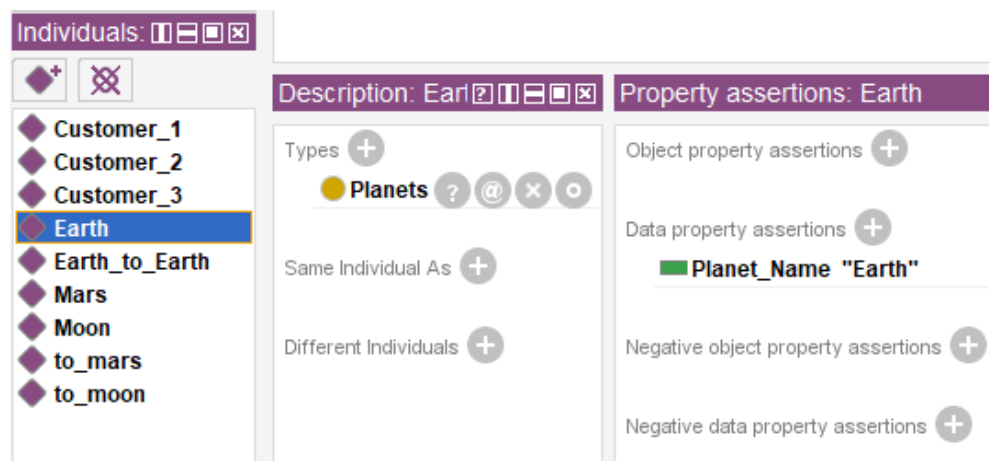


And here is the same idea, (**Earth\_to\_Earth**) is an instance from class (**Trips**) and it's going to use the object properties (**Goes\_to**) to make a relation with instance (**Earth**) which is in class (**Planets**).

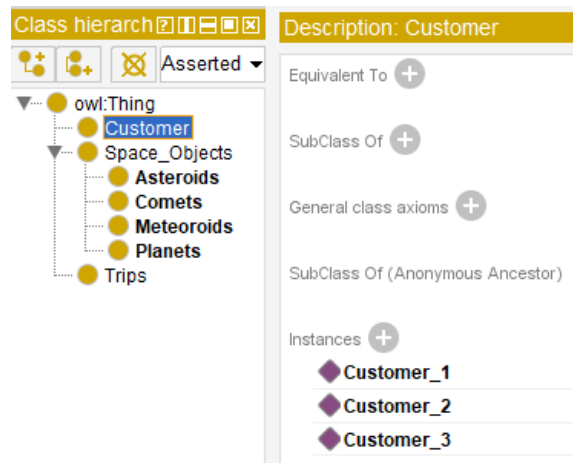
we have specified a data property for instance (**Earth\_to\_Earth**) which is (**Trip\_ID**), and (**Trip\_type**).



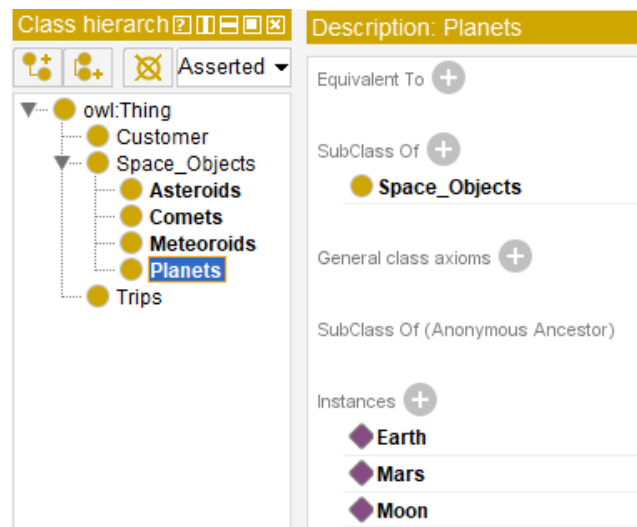
Here is the same idea.



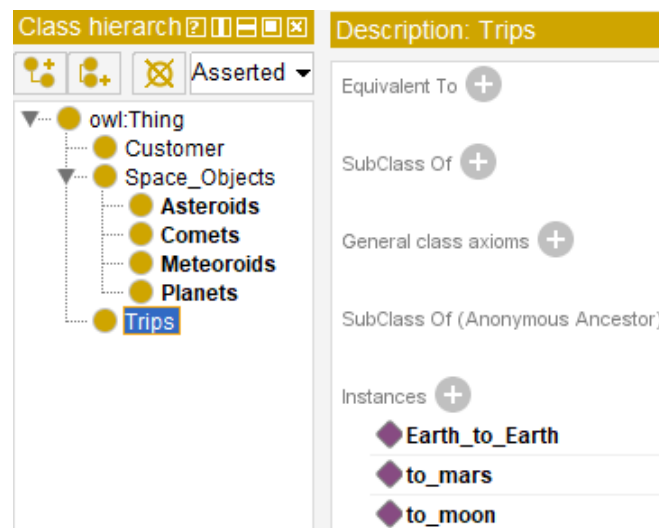
The **(Customer)** class contain 3 instances.



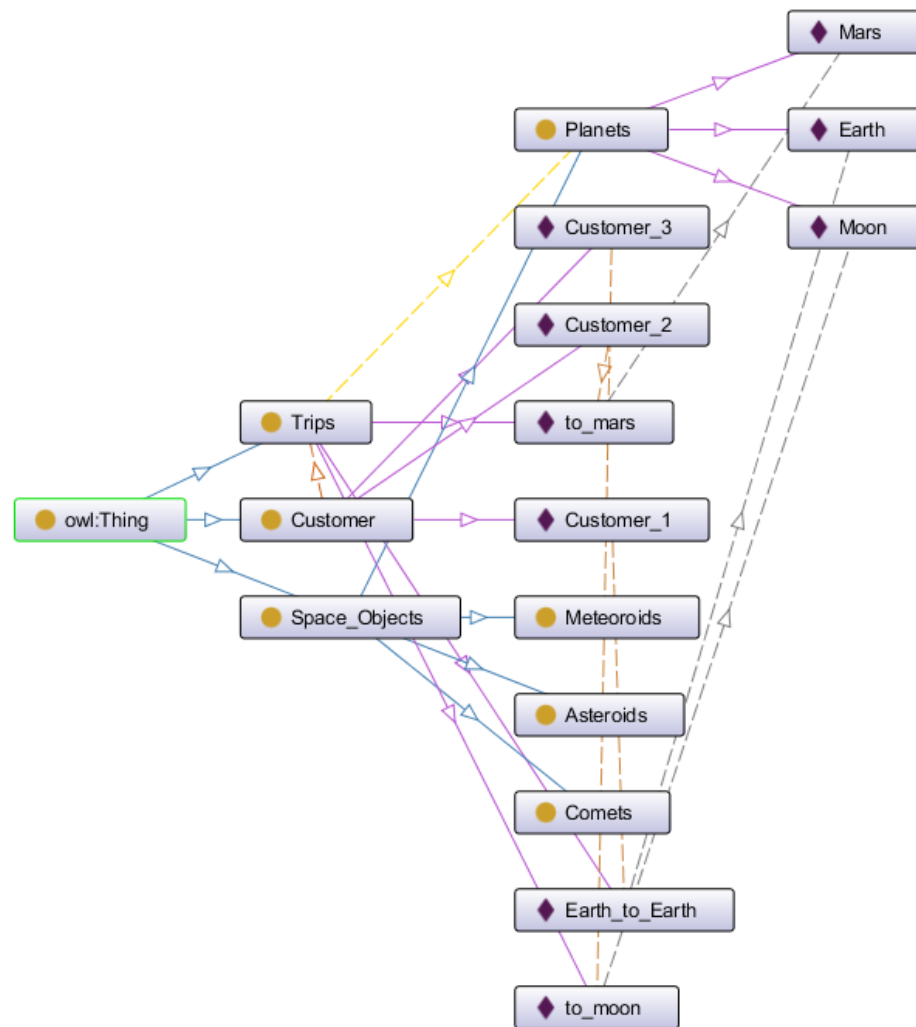
The **(Planets)** class contain 3 instances.



The **(Trips)** class contain 3 instances.



And that is the final result.



## 2.2 . Create Competency Questions

Create questions and answers about planets, moon, available flights, activities on space, booking pace flights and Universe FAQ, to train our agent as shown following:

How many moons does each planet have?

- ☞ Planets With The Most Moons
- ☞ How many moons does each planet have?
- ☞ What is the arrangement of planet Earth according to the number of moons?
- ☞ Arrange the planets according to the number of moons
- ☞ What is the planet with the most moons?

What are planets in our galaxy?

- ☞ What are planets in our galaxy?
- ☞ Are there other planets besides Earth?
- ☞ What are planets in the Milky Way?
- ☞ Planets
- ☞ What is the order of the planets?

## Where are we?

- Where are we?
- Where are we within the Universe?
- which galaxy is earth located in
- which galaxy is earth in
- which galaxy do we live in
- Where are we in this universe?

## Who is the largest planet?

- The biggest planet in the galaxy
- Exactly whose planet is the largest?
- The biggest planet belongs to who?
- Whose planet is the biggest?
- Which is the biggest planet?

## What space flights are available?

- Show me the available spaceflight
- Show me the available flights to space
- What kind of space travel is offered?
- Which space flights are offered?
- What space flights are available?

## What activities can we do in space flights?

- How am I supposed to have fun in space?
- What can we do when we're in space?
- How can I have fun when I am in spaceflight?
- What activities are possible during space travel?
- What activities can we do in space flights?

## 2.3 Create Test Questions

Questions	Test Questions
Where are we?	Can you tell me which galaxy that earth belong to?
What are planets in our galaxy?	
Whose planet is the biggest?	giant planet in the milky way galaxy
How many moons does each planet have?	How many moons milky way galaxy plants have
What space flights are available?	list of space flights
What activities can we do in space flights?	I want to have fun in space

## 2.4 Chatbot Performance

### Competency Question

USER SAYS

[COPY CURL](#)

What are planets in our galaxy?



DEFAULT RESPONSE

-Mercury -Venus -Earth -Mars -Jupiter -Saturn - Uranus -Neptune, Do you want to travel to one of these planets?

CONTEXTS

[RESET CONTEXTS](#)

whatareplanetsinourgalaxy-followup

INTENT

What are planets in our galaxy?

USER SAYS

[COPY CURL](#)

Mars



DEFAULT RESPONSE

Please when you want to book a Spaceflight

CONTEXTS

[RESET CONTEXTS](#)

5b199af5-2aa9-4ad0-aa3c-a1594418ea2  
b\_id\_dialog\_context

booking\_spaceflight\_dialog\_context

booking\_spaceflight\_dialog\_params\_date  
-time

whatareplanetsinourgalaxy-followup

\_\_system\_counters\_\_

INTENT

Booking\_Spaceflight

USER SAYS

[COPY CURL](#)

Next sunday at 8 pm



DEFAULT RESPONSE

Alright, I will book a space flight Next sunday at 8 pm to Mars

INTENT

Booking\_Spaceflight

### Test Question



AlienBot

POWERED BY Dialogflow

list our galaxy planets

-Mercury -Venus -Earth -Mars -Jupiter - Saturn -Uranus -Neptune, Do you want to travel to one of these planets?

yes

Where do you want to travel?

I want to travel to the moon

Please when you want to book a Spaceflight

Next Monday at 7 am

Alright, I will book a space flight Next Monday at 7 am to Moon

thanks

You are welcome, I am here for any help

Ask something...



## 2.5 Evaluation

This chatbot has some weakness point like

- It cannot identify the time in a logic way
- It Cannot Compare between planets

## 2.6 Chatbot link

<https://bot.dialogflow.com/2c92dc39-9a31-4db3-99cd-a8f3d6e873c5>

## 3. Conclusion

We have learned many new things through this assignment, like understanding and creating **Ontology**, dealing with **Protégé**, and dealing with google Dialog flow to create a chatbot in a simple way and with a lot of features.