DSA_202101_2: A4 - Chatbot Development

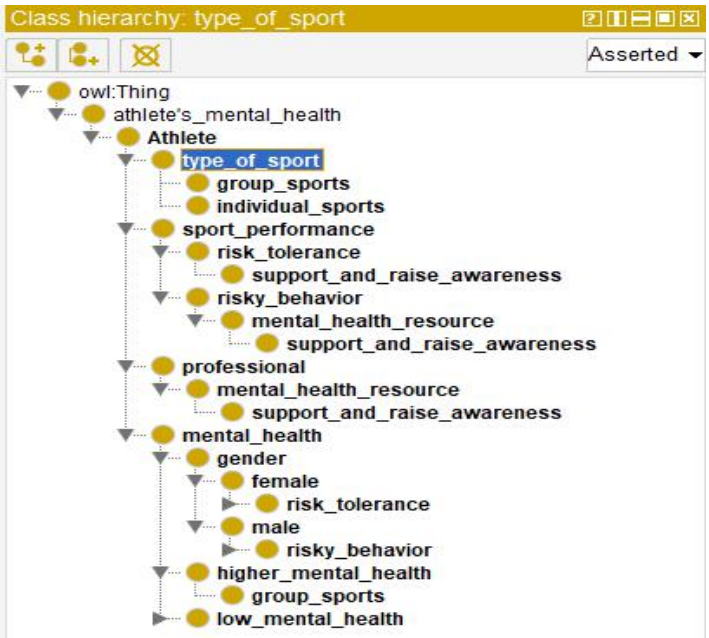
Introduction

One of the bad point of living in the 21th century is that mental health of people became more weak and it became easier to hurt each other so we decided to make a chatbot that will try to shield people and help them in passing their daily life.

The idea of our Chatbot is to help athletes and support them for a better mental health.We tried in our Chatbot to motivate them if they felt desperate, and we have made an analysis on a bigger scale in our ontology.

Ontology

Our project is about the athlete's mental health, we have made some main classes and some sub classes as we can see in the following figure:



The first main class is the athlete's mental health and it have one subclass which the athlete.

The athlete class has 4 subclasses which are

- Type of sport
- Sport performance
- Professional
- Mental health

Each class of the main 4 subclasses have a couple of subclasses as we saw in the previous figure.

Now we will talk about the data property, we have 4 data properties which are:

- Type of sport: Its domain is athlete and its type is string.
- Join On: Its domain are professional and athlete and its type is dateTime.
- Athlete ID: Its domain is athlete and its type is string.
- Professional ID: Its domain is professional and its type is string.

Then we will talk about the object property hierarchy:

We have 2 properties which are affect and support.

The domain of the affect's property is the type of sport and its range is the mental health so this means that the type of sport affect the athlete's mental health.

The domain of the support's property is the mental health and its range is the professional so this means that the professional support the athlete's mental health.

Now we will put some examples for the individuals

We will put 2 instances for athletes

Mike:

Type of sport: football player, athlete ID: athlete1.

Adam:

Type of sport: basketball player, athlete ID: athlete2.

And 2 instances for professional

John:

Professional ID: doctor1, Joined On: 2021-01-22T08:00:00.

Doctor John support athlete "mike".

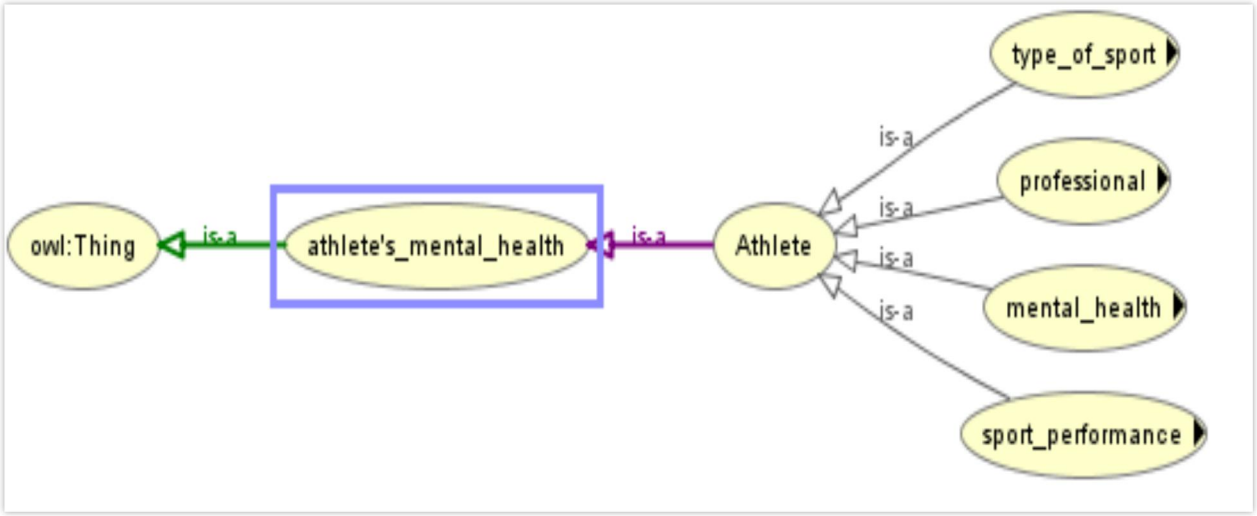
Smith:

Professional ID: doctor2, Joined On: 2020-02-10T09:00:00.

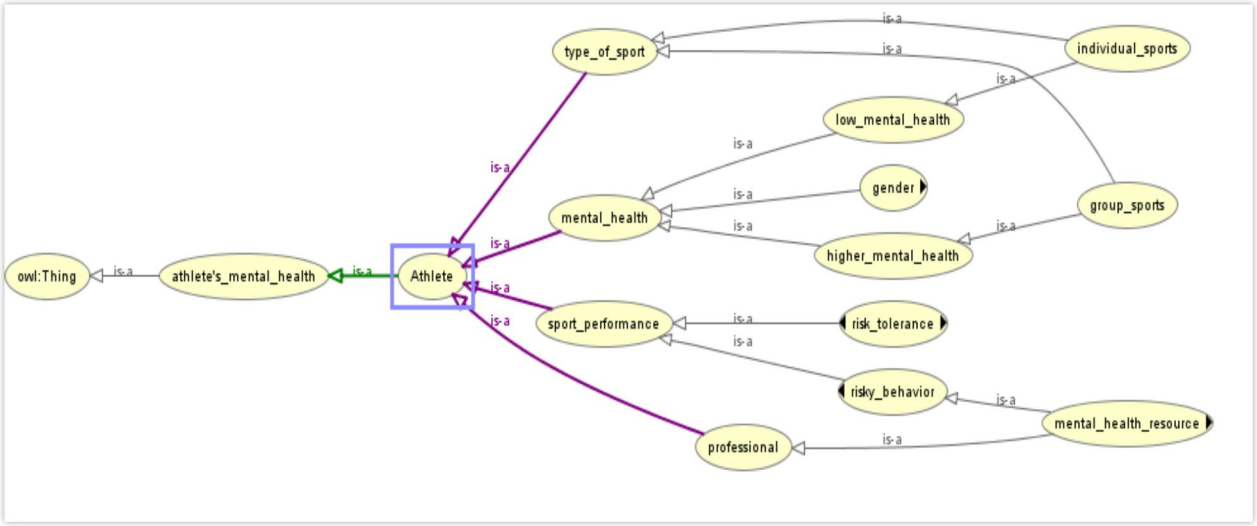
Doctor Smith support athlete "Adam".

Owl visualizations

The main classes:



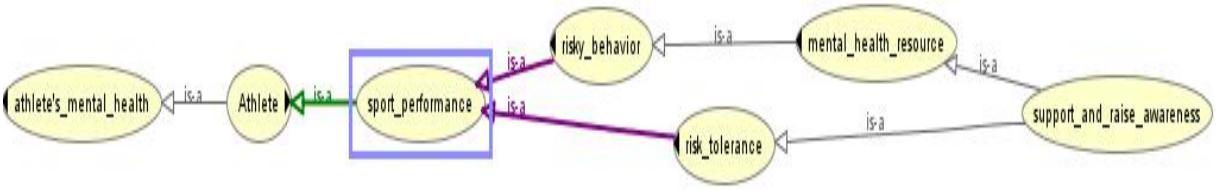
A bigger picture for our project:



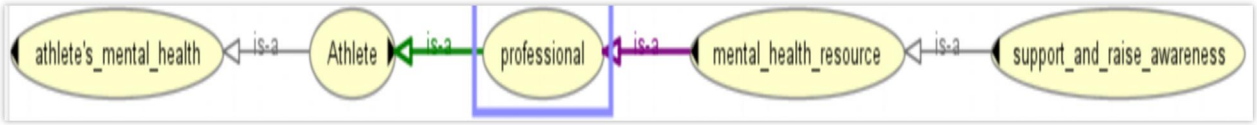
The main 4 subclasses

Type of sport:

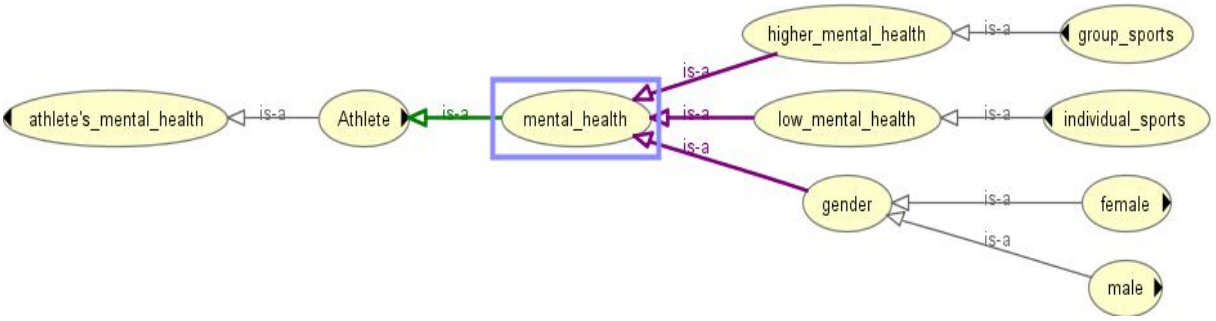
Sport performance:



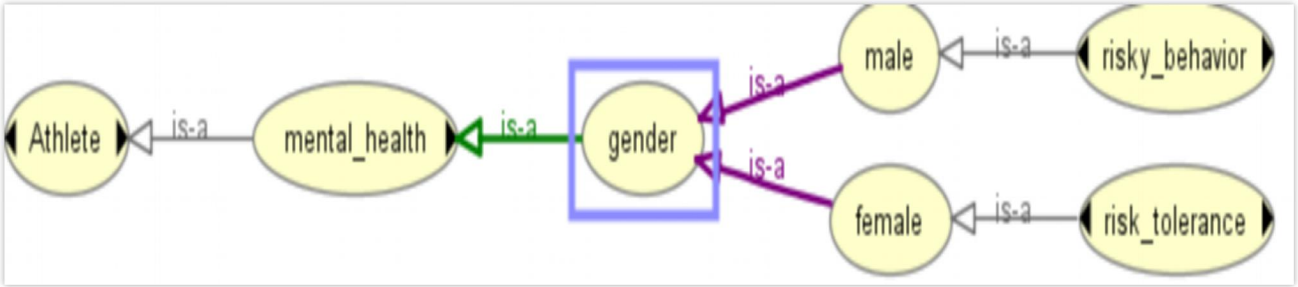
Professional:

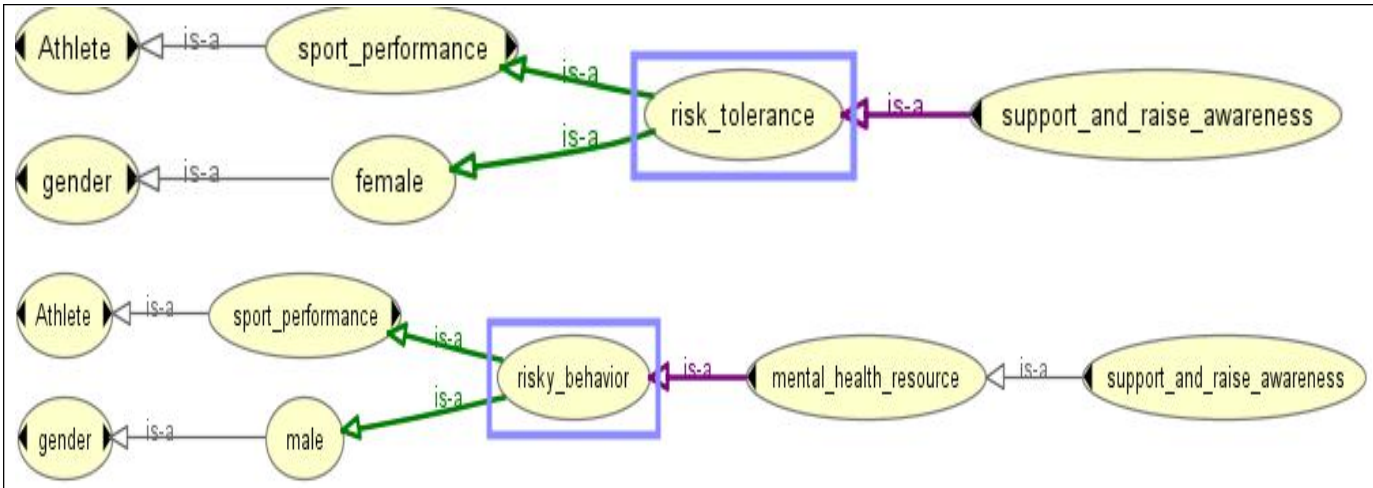


Mental health:



Gender subclass:





Chatbot development

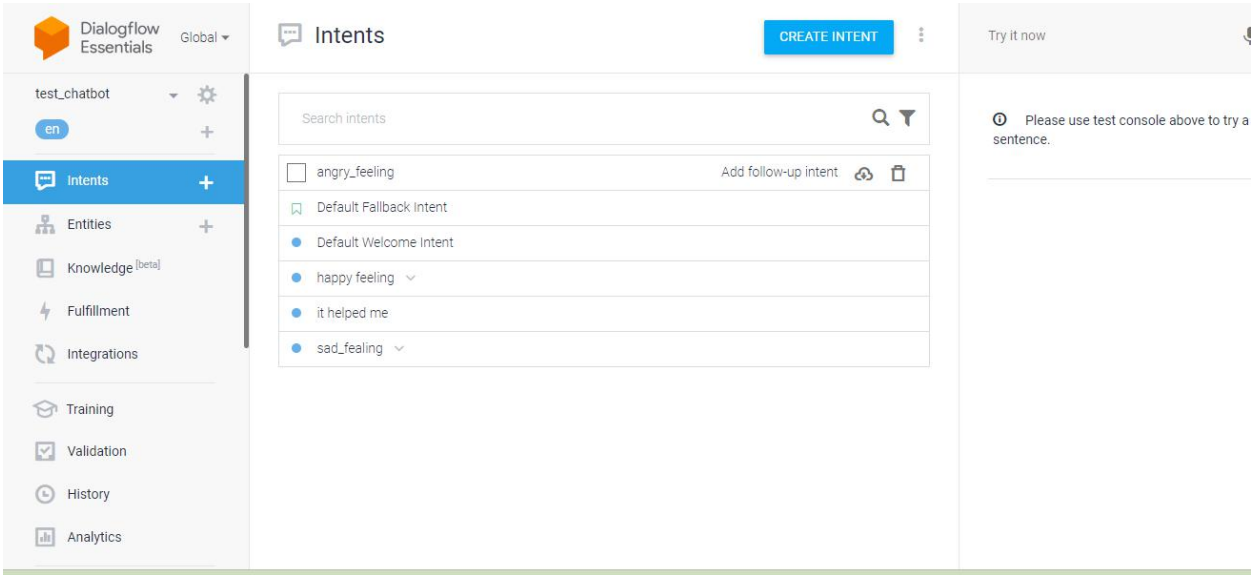
When we built the chatbot we built it on smaller scale than the ontology we made the senario that the player is playing basketball and,this chatbot is intended for children and adolescents to improve their psychological and mental, it is important subject for person's mental health specially those under twenty years old

There are 3 modes : Angry ,Sad ,and Happy

Our optimal case and gaol is to have the user always on the happy mode

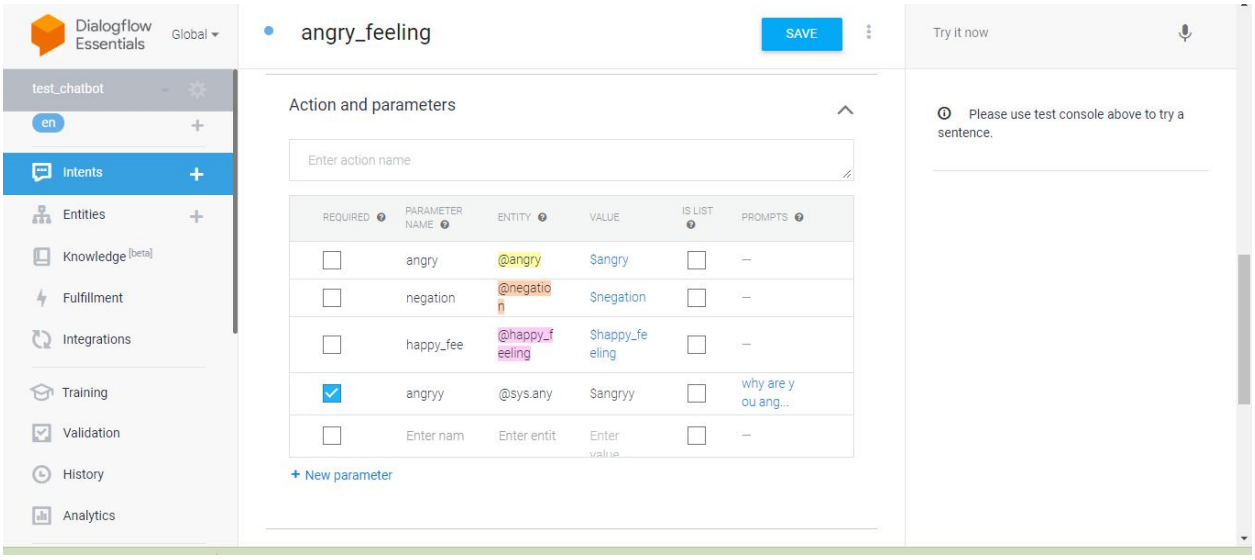
If the user in angry mood or is going through something difficult ,our chatbot will give him some of advices

These chatbot's intents

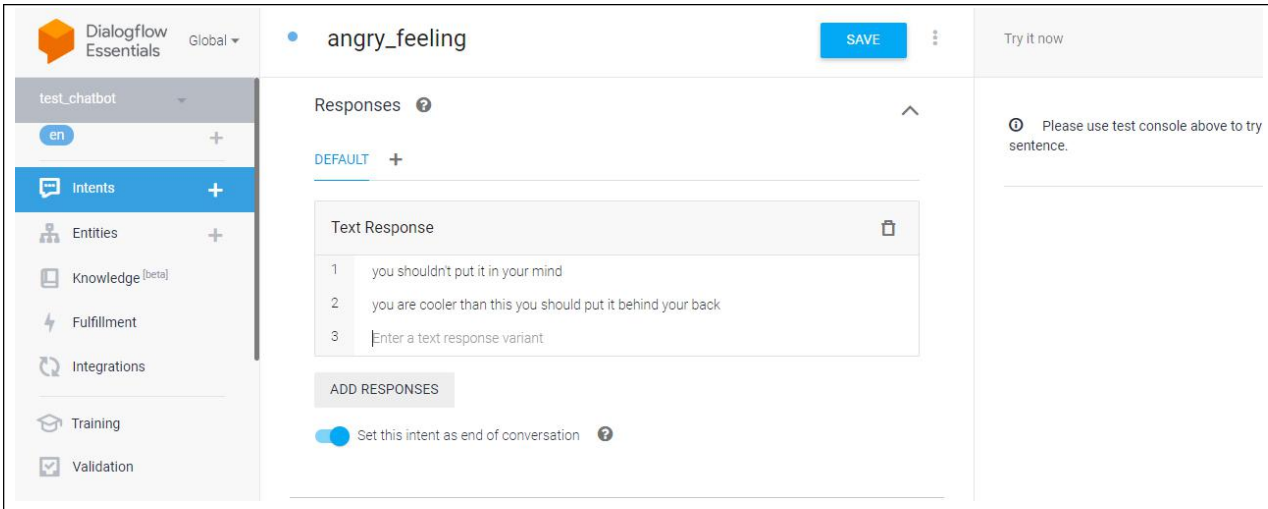


The first case if the user in angry mood , the user begins to describe the user's psychological state and say the reasons for his anger and our chatbot will give him advices to get him out of his anger state

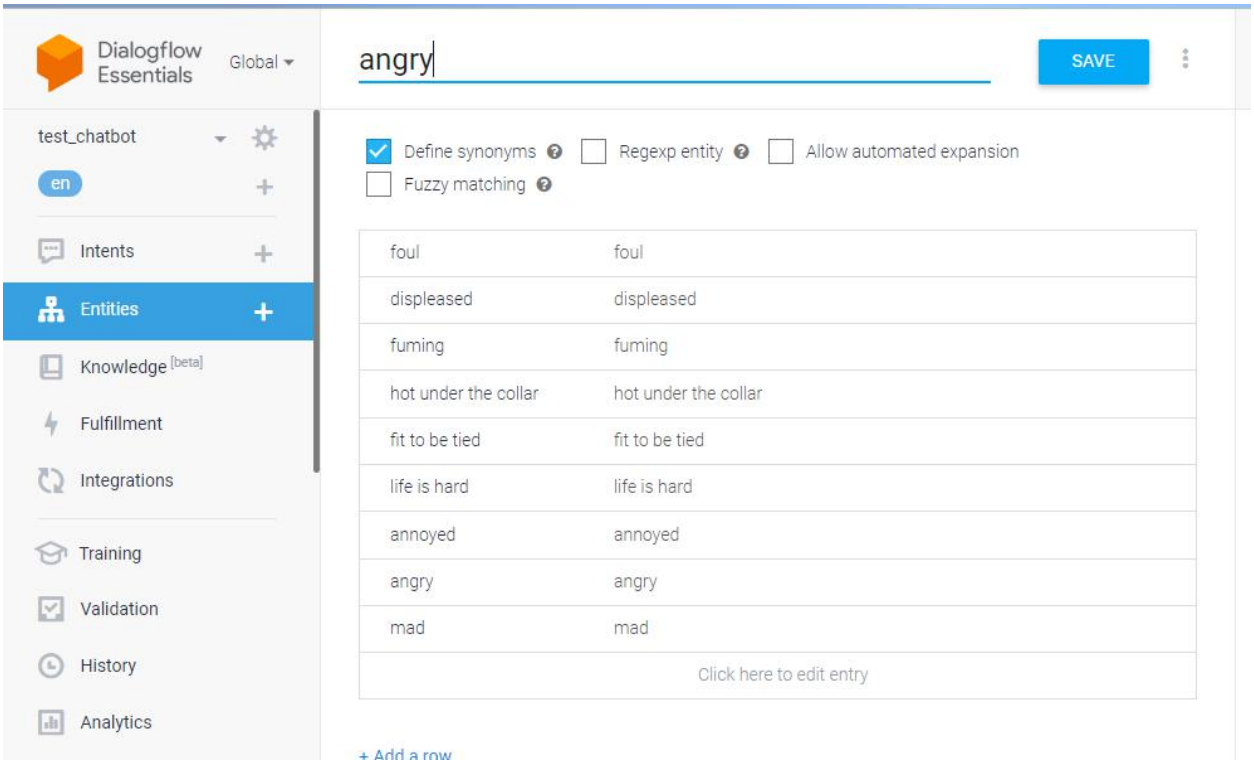
And this is the training of anger state



And these chatbot's responses

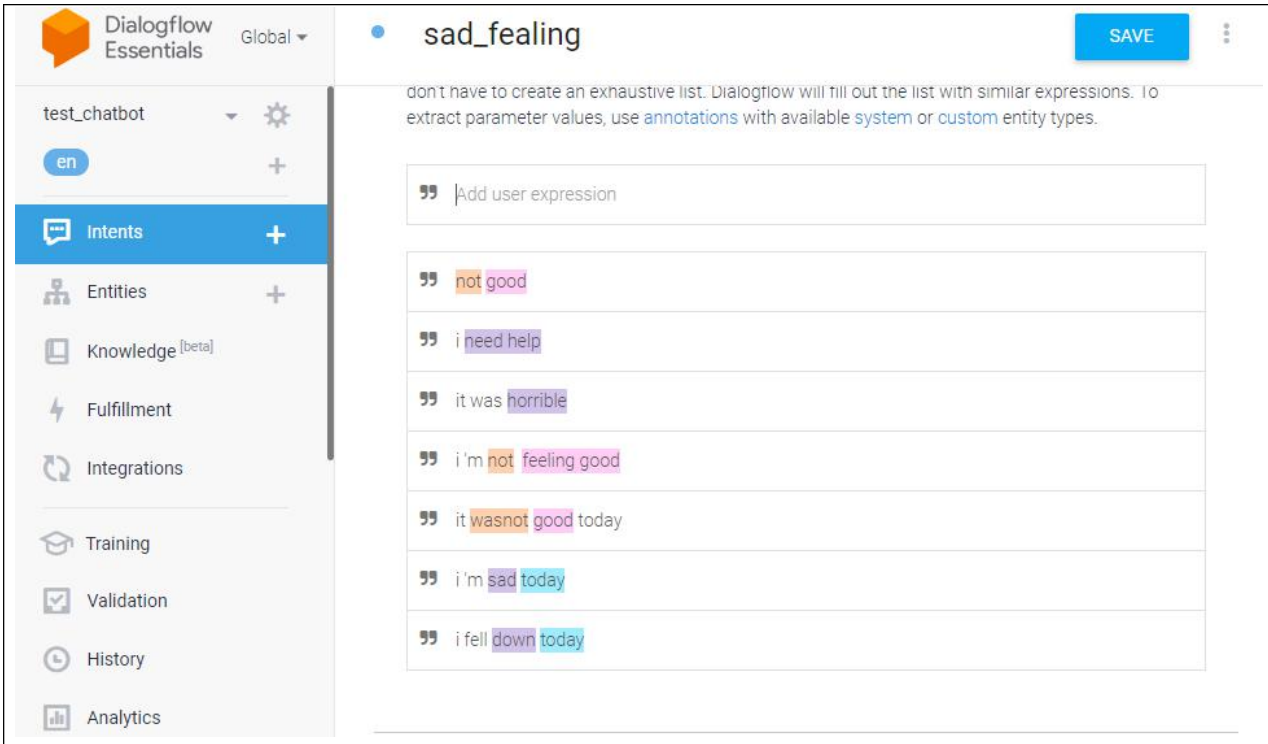


And this is the angry entity

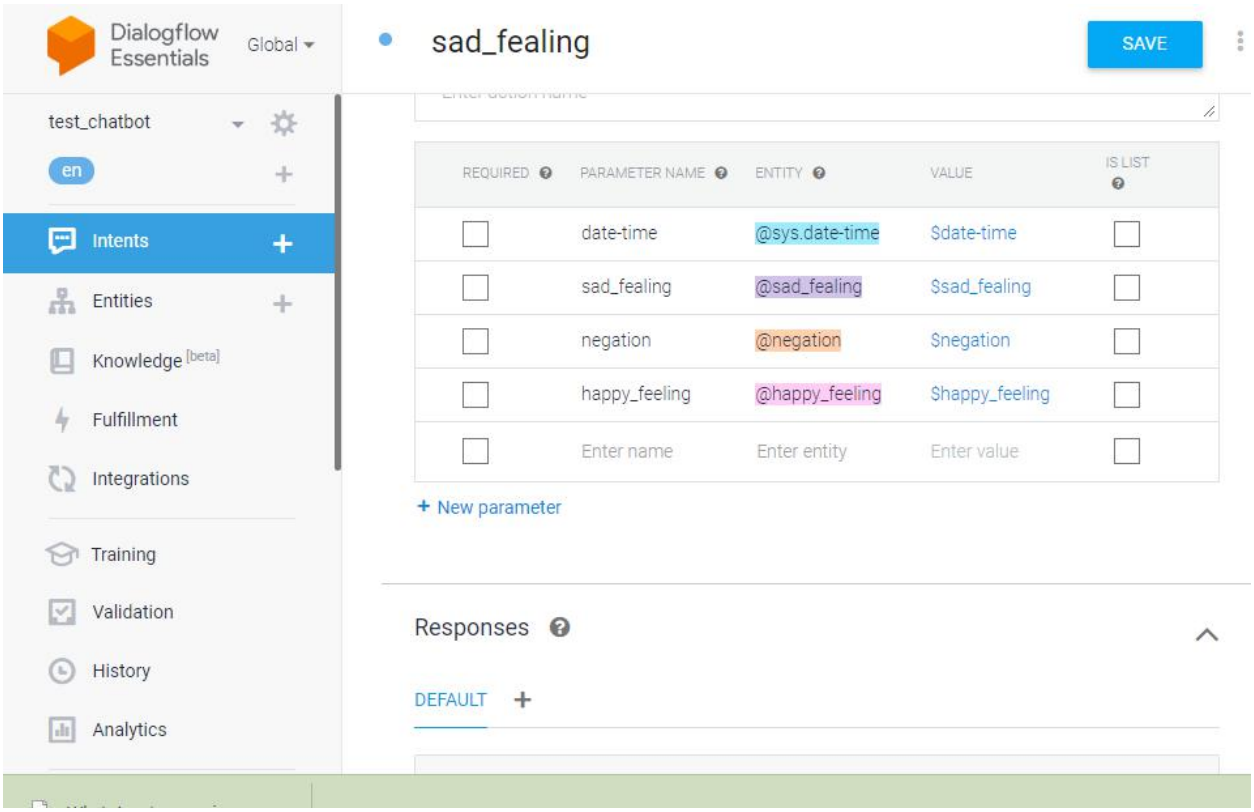


The second case if the user are in sadness state

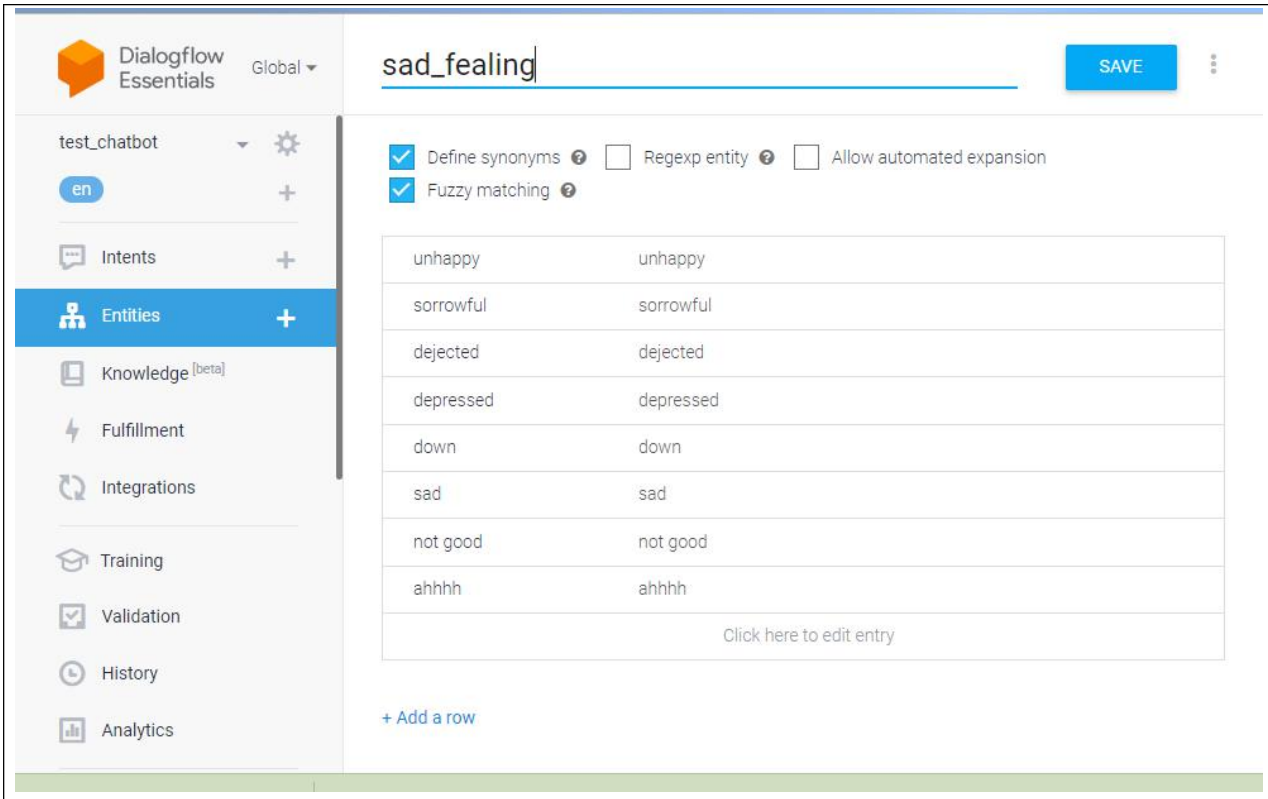
And this is the training of the fealing_sad intent



And these are the parameters of the fealing sad intent

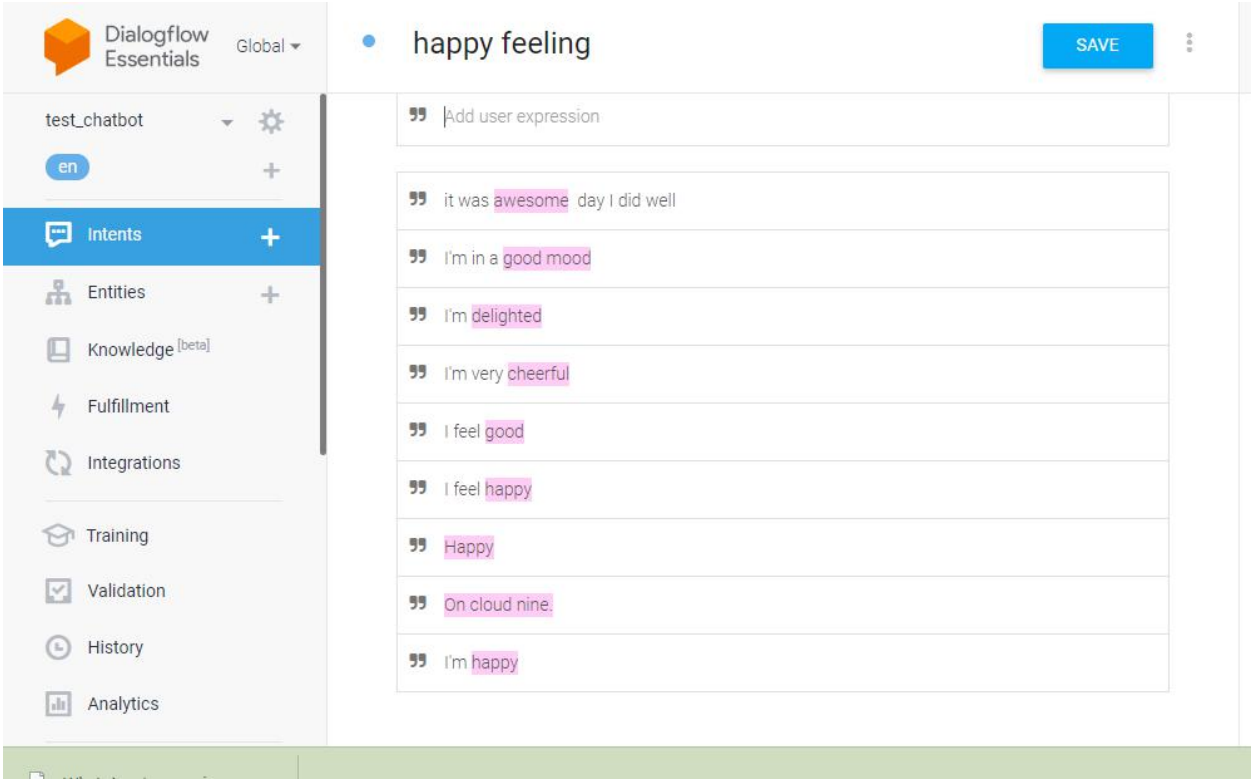


And this is the sad feeling entity

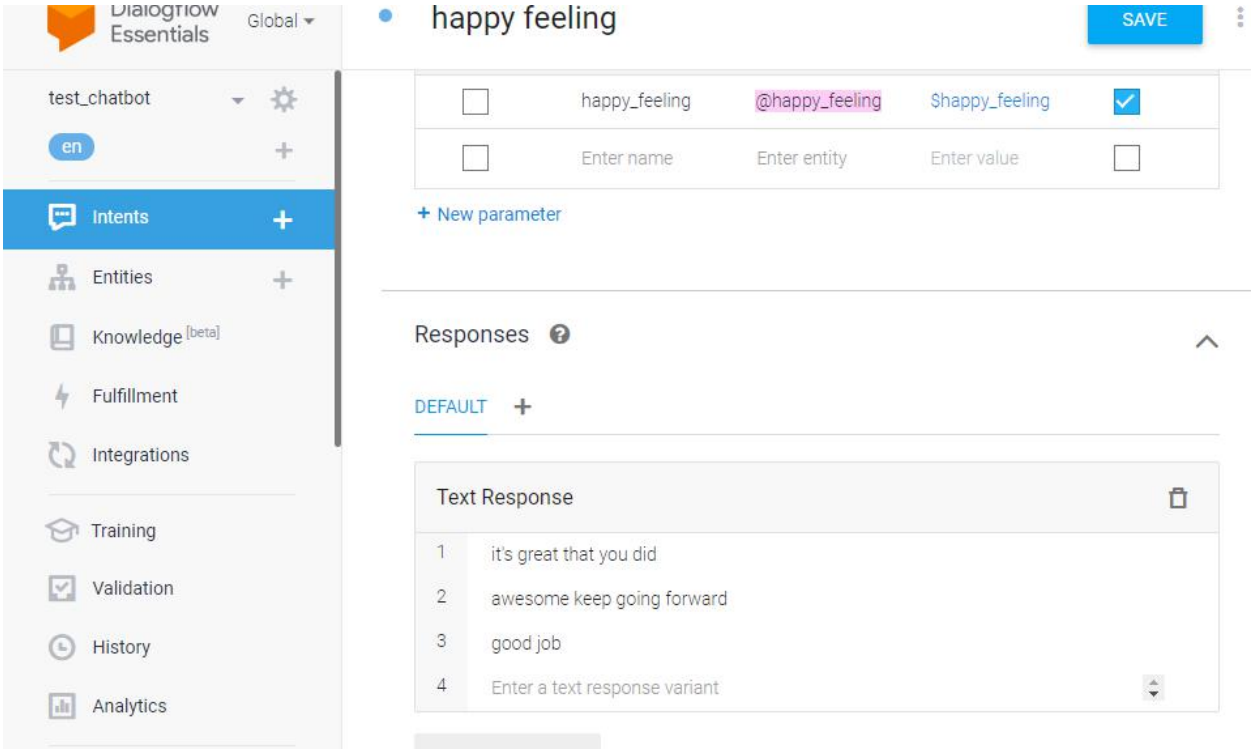


The third case if the user has happy feeling, the Chabot will cheer him up and supported him to keep his happy mood

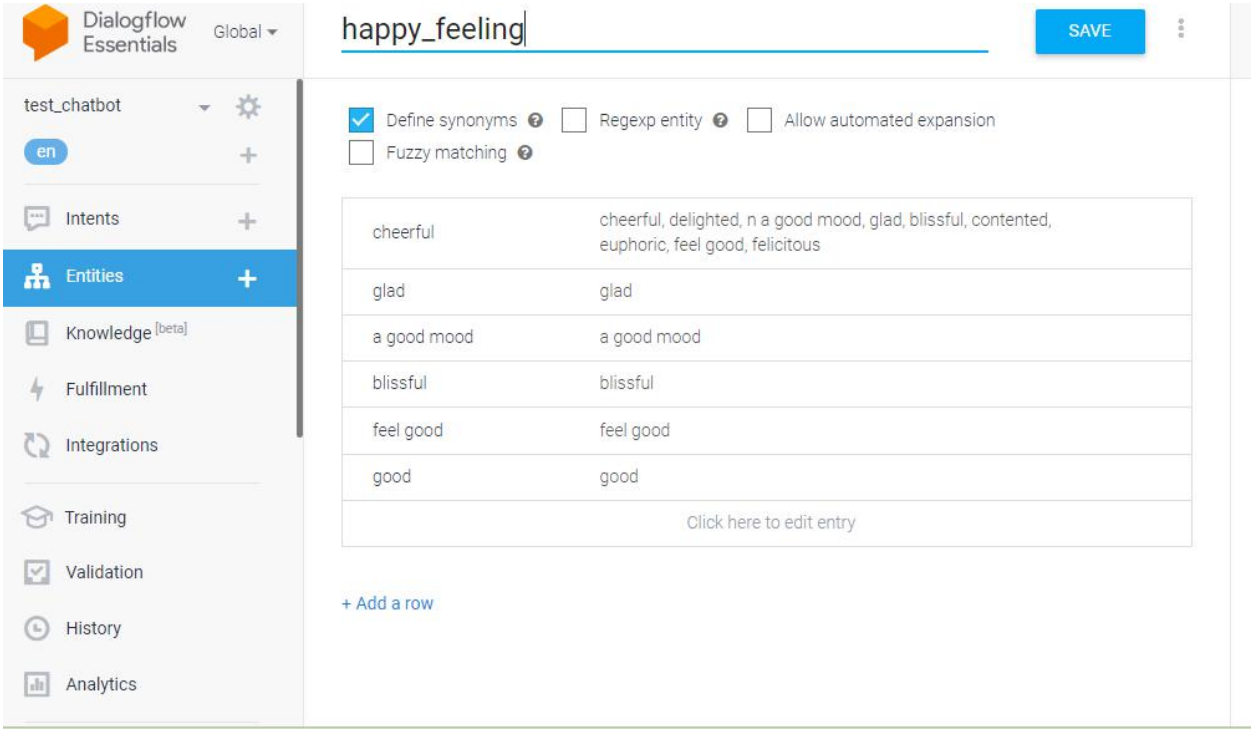
And this is the training of the happy_feeling intent



And these are the parameters of the happy_feeling intent and chatbot's responses



And this is the happy_feeling entity

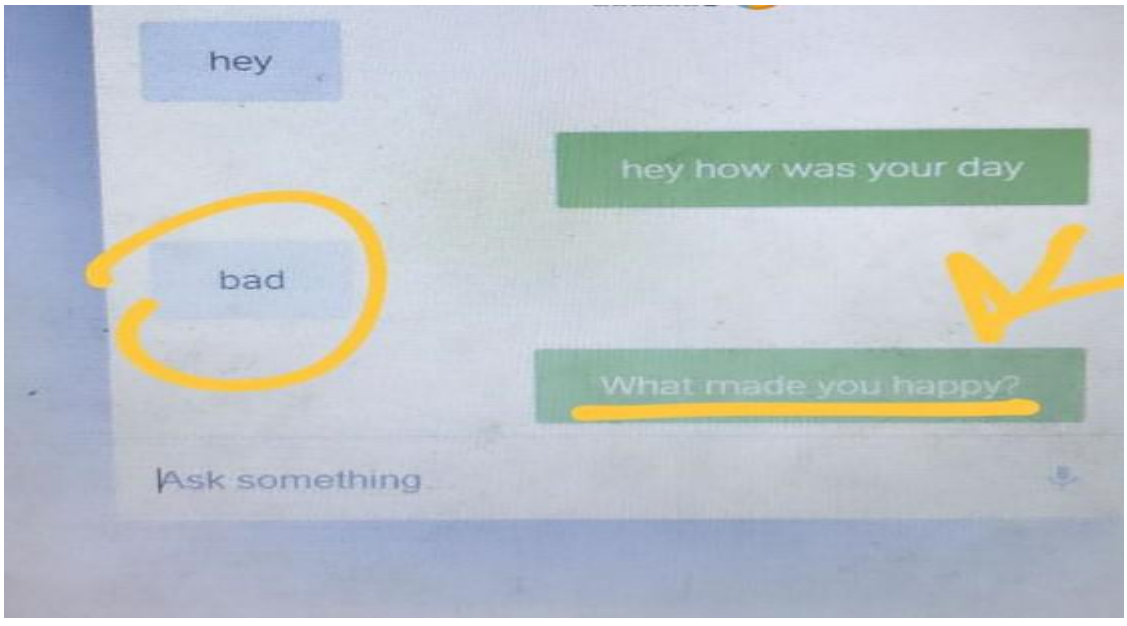


The test cases

Mood State	Happy State	Sad State	Angry State
Conversation	hey how was your day it was well I missed that, say that again? it was awesome awesome keep going forward	hello hey how was your day not good what happened to you i didn't play well how many point did you get 10 point how many minutes did you play 10 then why the long face cant you see that scoring 10 and playing for 10 is huge progress thanks have a good day	why are you angry the coach shouted at me you shouldn't put it in your mind you are right thanks good luck hi was today good day i am mad why are you angry the coach shouted at me

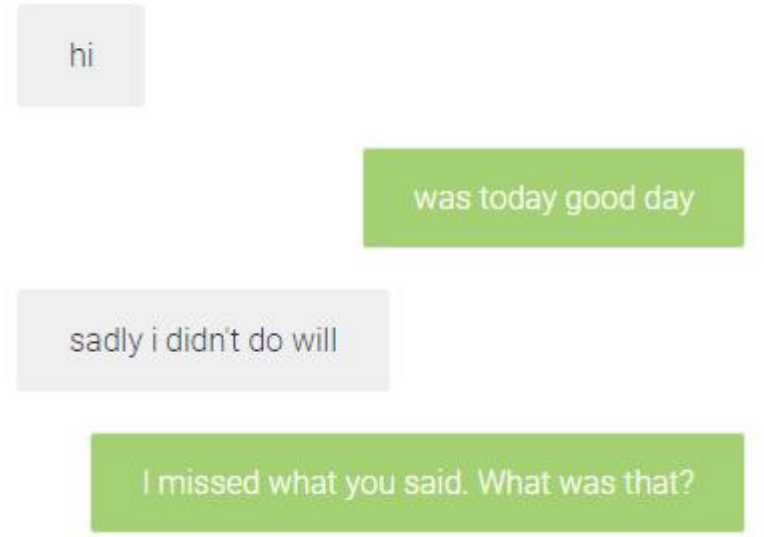
Evaluating :

There has been a lot of problems in the development phase like for example the word bad when we trained the chatbot with having both bad as sad word and not bad as happy word this was the result

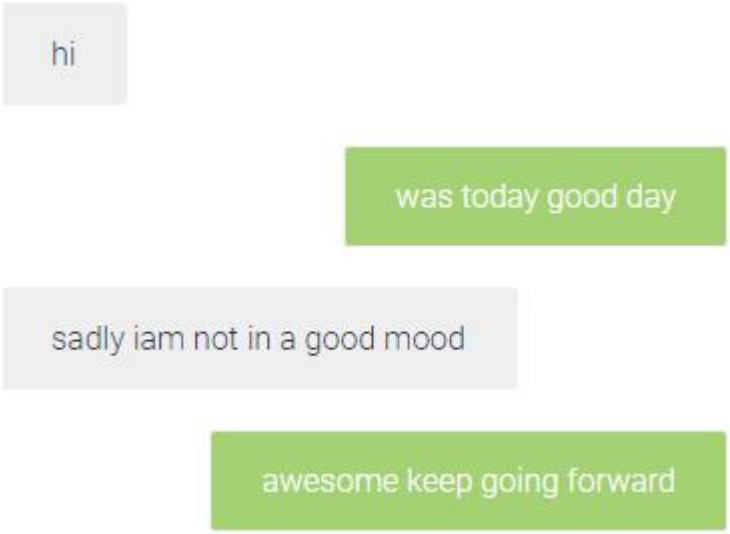


So the solution was to make a negation entity and that helped with the problem

Also there was another problem a lot of time the chatbot will not know what to do even if all the words were trained



Or misinterpret the mining of the text



We concluded that chatbot well need more training and intents

This the link for the chatbot : https://dialogflow.cloud.google.com/#/agent/testg-enlw/intents