

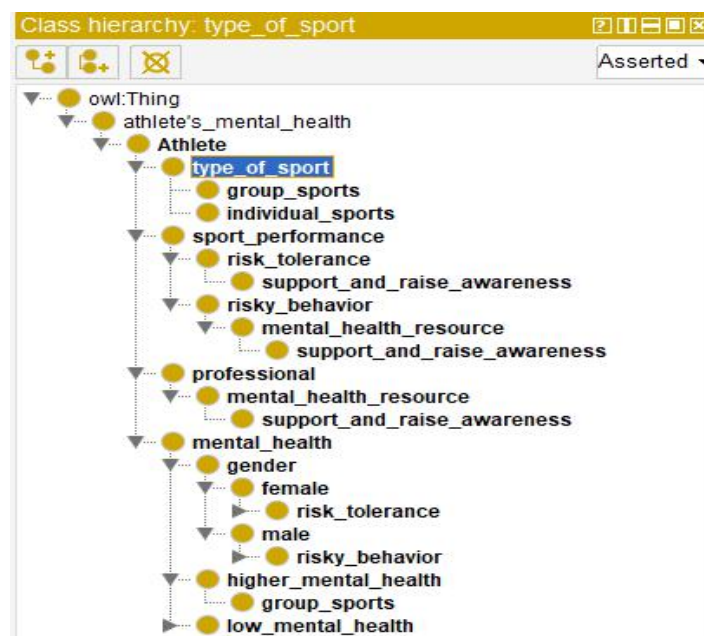
Introduction

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".

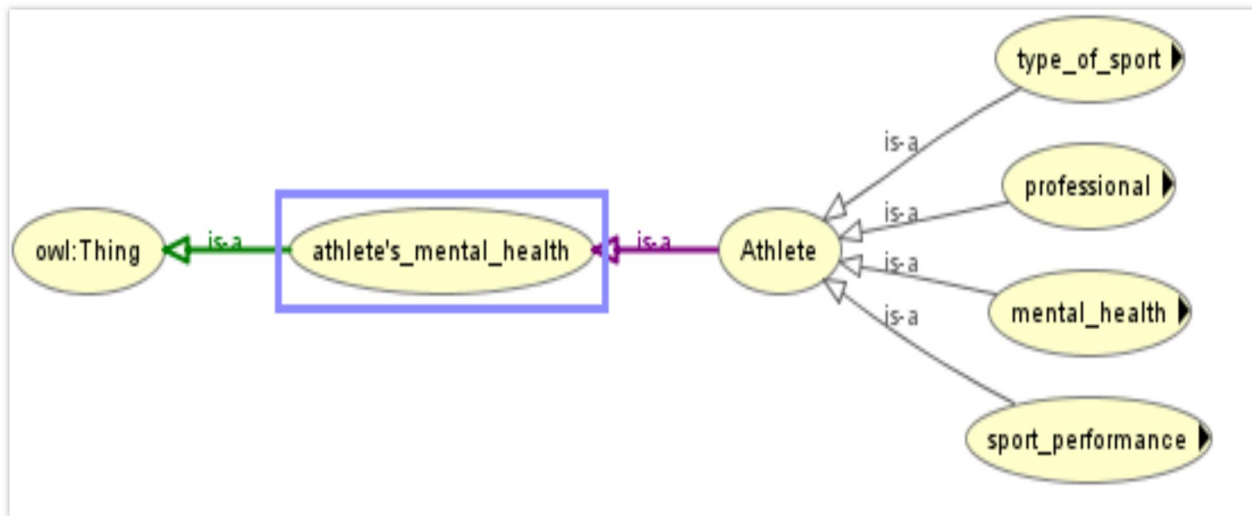
Smith:

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

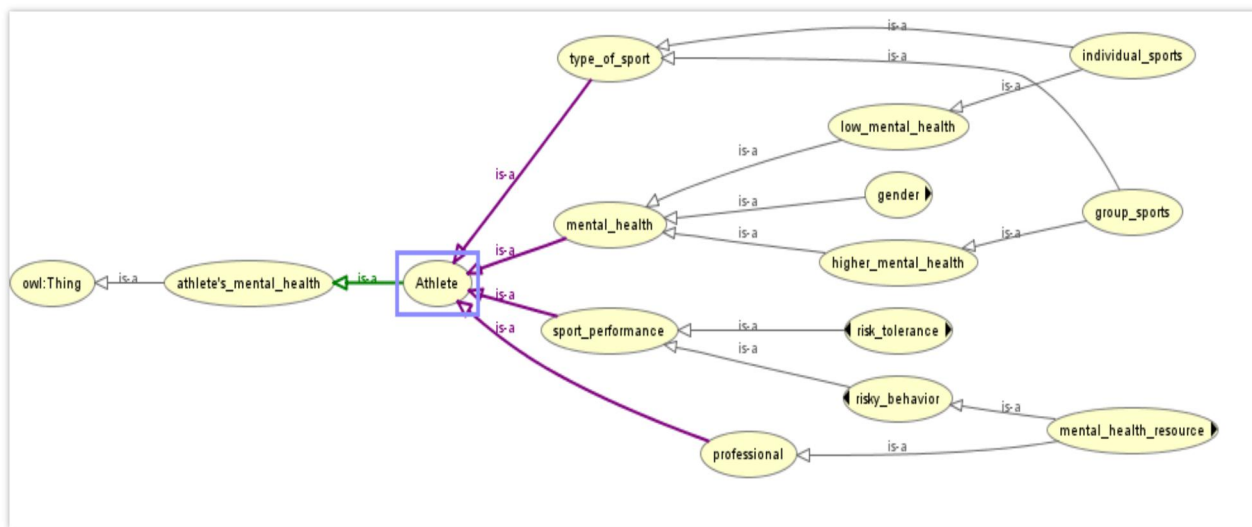
Doctor Smith support athlete "Adam".

Owl visualizations

The main classes:



A bigger picture for our project:

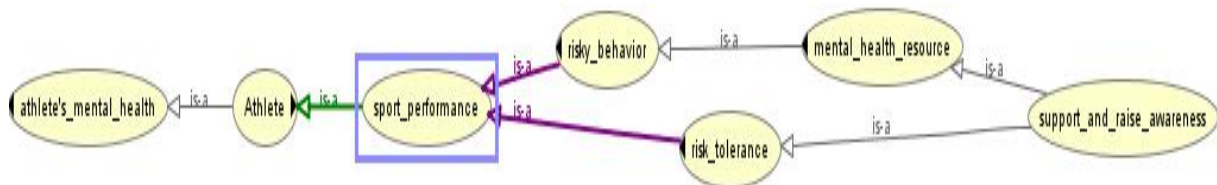


The main 4 subclasses

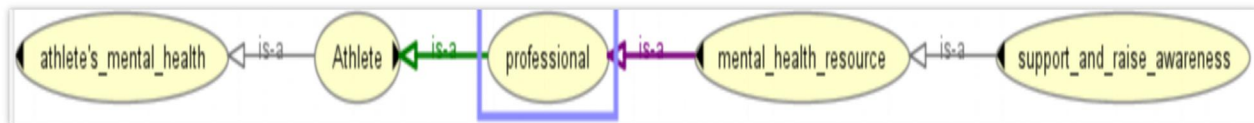
Type of sport:



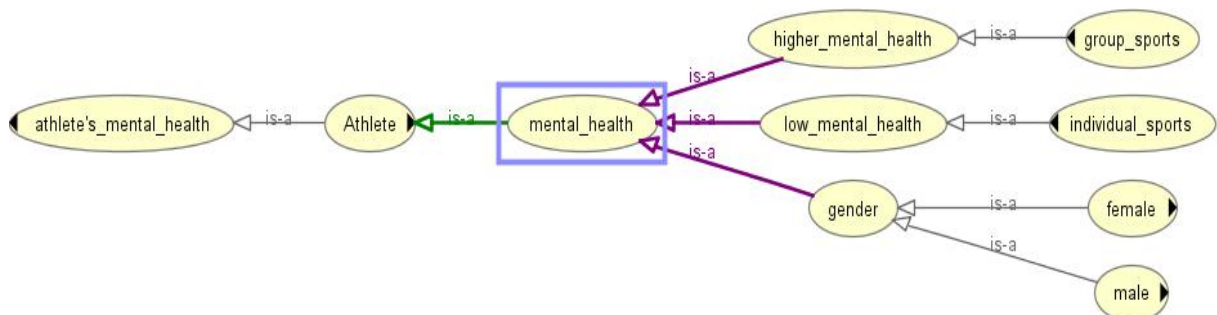
Sport performance:



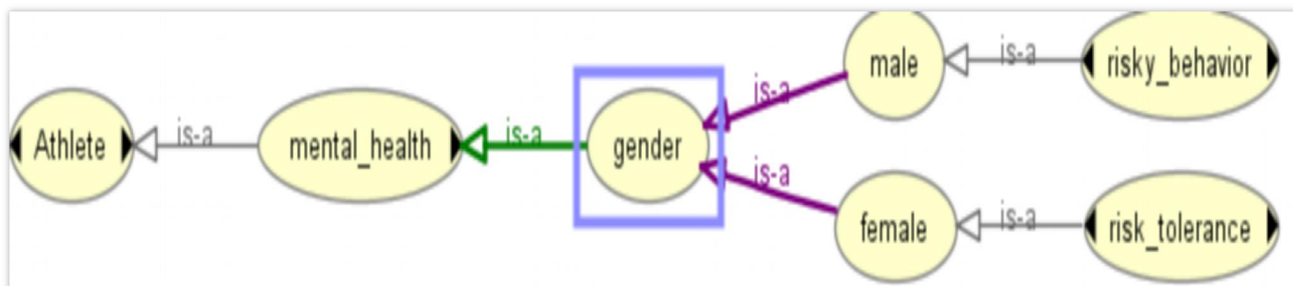
Professional:

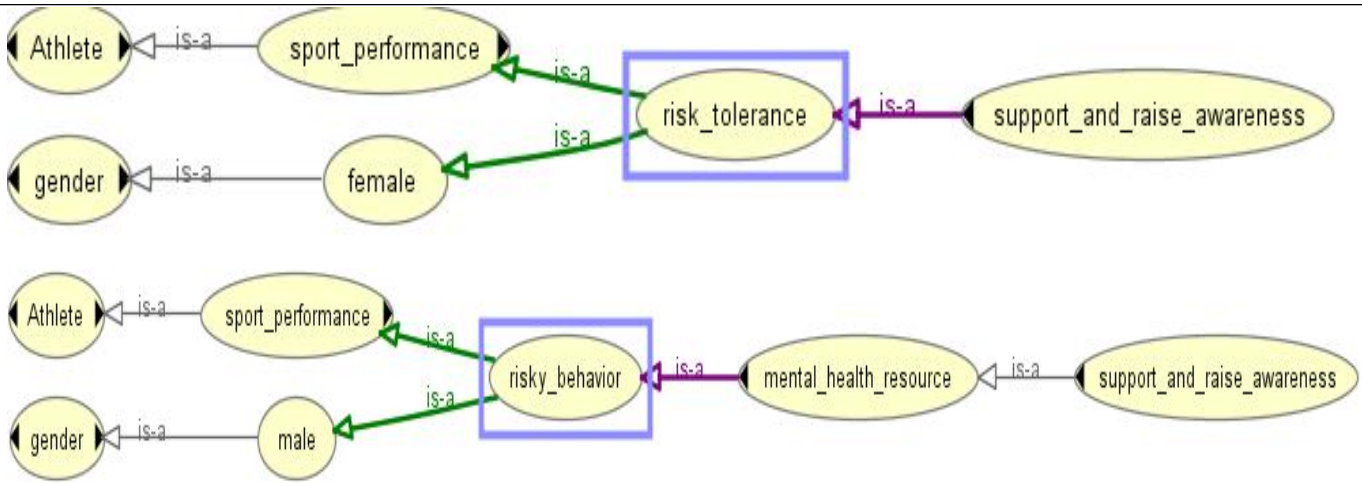


Mental health:



Gender subclass:





Chatbot development

When we built the chatbot we built it on smaller scale than the ontology we made the scenario 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 goal 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

”	I am mad
”	I'm in a foul mood.
”	None too pleased.
”	I'm very displeased
”	I'm fuming like a fire
”	hot under the collar
”	fit to be tied
”	I'm fuming
”	I'm annoyed
”	life is hard

Dialogflow Essentials

Global

test_chatbot

en

Intents

Entities

Knowledge [beta]

Fulfillment

Integrations

Training

Validation

History

Analytics

angry_feeling

SAVE

Try it now

Please use test console above to try a sentence.

Action and parameters

Enter action name

REQUIRED	PARAMETER NAME	ENTITY	VALUE	IS LIST	PROMPTS
<input type="checkbox"/>	angry	@angry	\$angry	<input type="checkbox"/>	—
<input type="checkbox"/>	negation	@negation	\$negation	<input type="checkbox"/>	—
<input type="checkbox"/>	happy_fee	@happy_feeling	\$happy_feeling	<input type="checkbox"/>	—
<input checked="" type="checkbox"/>	angryy	@sys.any	\$angryy	<input type="checkbox"/>	why are you angry...
<input type="checkbox"/>	Enter nam	Enter entit	Enter value	<input type="checkbox"/>	—

+ New parameter

And these chatbot's responses

Global

angry_feeling

SAVE

Try it now

test_chatbot

en

+

Intents

+

Entities

+

Knowledge (beta)

Fulfillment

Integrations

Training

Validation

Responses

DEFAULT

+

Text Response

1

you shouldn't put it in your mind

2

you are cooler than this you should put it behind your back

3

Enter a text response variant

ADD RESPONSES

☒
Set this intent as end of conversation

Please use test console above to try sentence.

And this is the angry entity

Global

angry

SAVE

test_chatbot

en

+

Intents

+

Entities

+

Knowledge (beta)

Fulfillment

Integrations

Training

Validation

History

Analytics

☒ Define synonyms
☐ Regexp entity
☐ Allow automated expansion
☐ Fuzzy matching

foul	foul
displeased	displeased
fuming	fuming
hot under the collar	hot under the collar
fit to be tied	fit to be tied
life is hard	life is hard
annoyed	annoyed
angry	angry
mad	mad
Click here to edit entry	

+ Add a row

The second case if the user are in sadness state

And this is the training of the feeling_sad intent

Dialogflow Essentials

Global

test_chatbot

en

Intents

Entities

Knowledge [beta]

Fulfillment

Integrations

Training

Validation

History

Analytics

sad_fealing

SAVE

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

” not good

” i need help

” it was horrible

” i'm not feeling good

” it wasnot good today

” i'm sad today

” i fell down today

And these are the parameters of the fealing sad intent

Dialogflow Essentials

Global

test_chatbot

en

Intents

Entities

Knowledge [beta]

Fulfillment

Integrations

Training

Validation

History

Analytics

sad_fealing

SAVE

Enter entity name


REQUIRED	PARAMETER NAME	ENTITY	VALUE	IS LIST
<input type="checkbox"/>	date-time	@sys.date-time	\$date-time	<input type="checkbox"/>
<input type="checkbox"/>	sad_fealing	@sad_fealing	\$sad_fealing	<input type="checkbox"/>
<input type="checkbox"/>	negation	@negation	\$negation	<input type="checkbox"/>
<input type="checkbox"/>	happy_feeling	@happy_feeling	\$happy_feeling	<input type="checkbox"/>
<input type="checkbox"/>	Enter name	Enter entity	Enter value	<input type="checkbox"/>

+ New parameter

Responses

DEFAULT

And this is the sad feeling entity

Dialogflow Essentials

Global ▾

test_chatbot ▾ ⚙️

en +

Intents +

Entities +

Knowledge [beta]

Fulfillment

Integrations

Training

Validation

History

Analytics

sad_fealing

SAVE ⋮

☒ Define synonyms ⓘ

☐ Regexp entity ⓘ

☐ Allow automated expansion


☒ Fuzzy matching ⓘ

unhappy	unhappy
sorrowful	sorrowful
dejected	dejected
depressed	depressed
down	down
sad	sad
not good	not good
ahhhh	ahhhh
Click here to edit entry	

+ Add a row

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

Dialogflow Essentials

Global ▾

test_chatbot ▾ ⚙️

en +

Intents +

Entities +

Knowledge [beta]

Fulfillment

Integrations

Training

Validation

History

Analytics

happy feeling

SAVE ⋮

” Add user expression

” it was awesome day I did well

” I'm in a good mood

” I'm delighted

” I'm very cheerful

” I feel good

” I feel happy

” Happy

” On cloud nine.

” I'm happy

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

The screenshot shows the Dialogflow console interface. On the left is a sidebar with navigation options: test_chatbot, Intents, Entities, Knowledge (beta), Fulfillment, Integrations, Training, Validation, History, and Analytics. The 'Intents' section is selected. The main area displays the configuration for the 'happy_feeling' intent. At the top, there's a 'SAVE' button. Below it, a table lists parameters:

Parameter	Value
happy_feeling	@happy_feeling
Shappy_feeling	[checked]
Enter name	Enter entity
Enter value	Enter value

Below the table is a '+ New parameter' link. Under the 'Responses' section, there's a 'DEFAULT' tab with a '+' icon. A 'Text Response' box contains a list of responses:

- 1 it's great that you did
- 2 awesome keep going forward
- 3 good job
- 4 Enter a text response variant

And this is the happy_feeling entity

The screenshot shows the Dialogflow console interface for the 'happy_feeling' entity. The left sidebar is the same as the previous screenshot, but the 'Entities' section is selected. The main area displays the configuration for the 'happy_feeling' entity. At the top, there's a 'SAVE' button. Below it, there are checkboxes for 'Define synonyms' (checked), 'Regexp entity', 'Allow automated expansion', and 'Fuzzy matching'. Below these is a table listing synonyms:

Synonym	Value
cheerful	cheerful, delighted, n a good mood, glad, blissful, contented, euphoric, feel good, felicitous
glad	glad
a good mood	a good mood
blissful	blissful
feel good	feel good
good	good

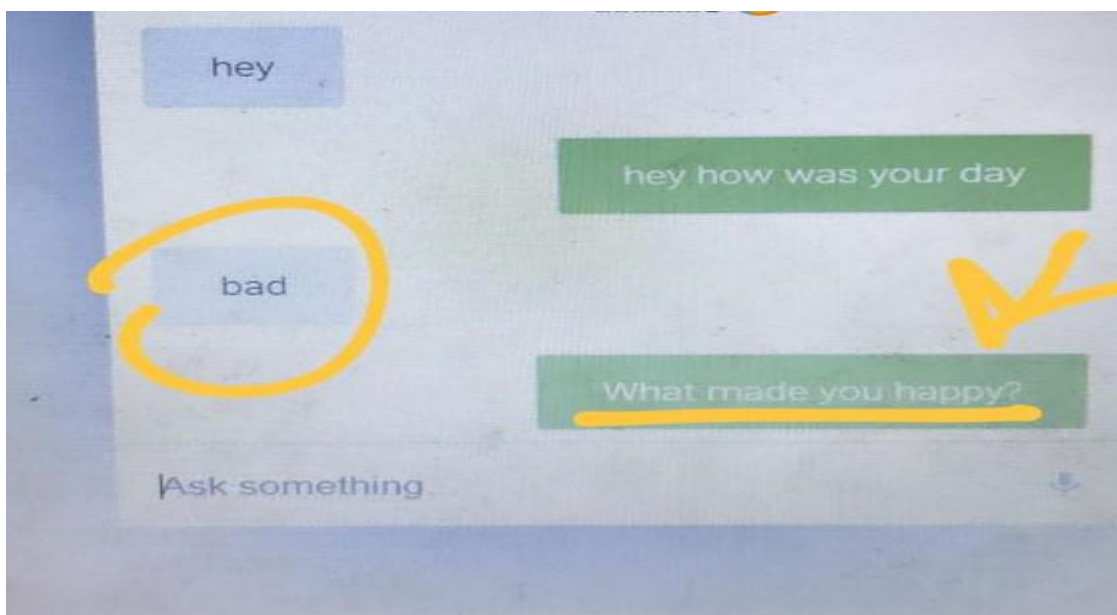
Below the table is a link 'Click here to edit entry' and a '+ Add a row' link.

The test cases

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

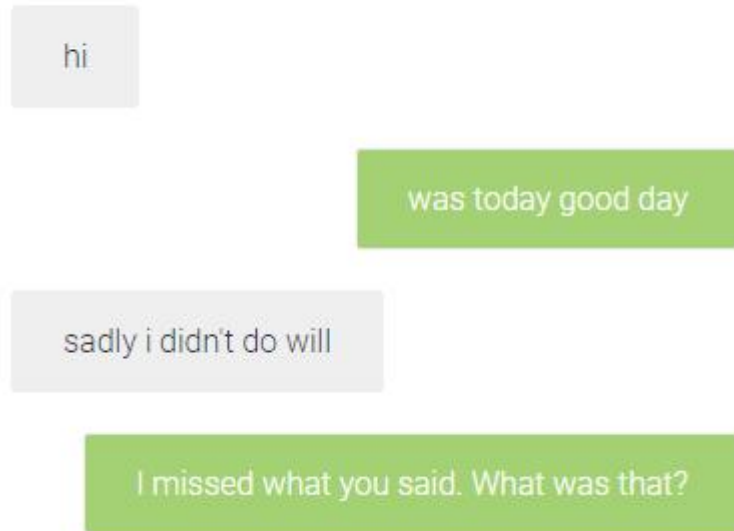
Evaluating :

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

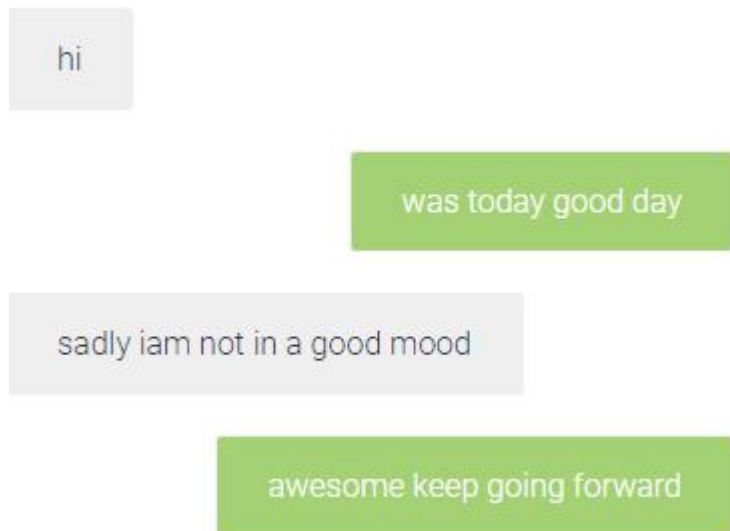


So the solution was to make a negation entity and that helped with the problem

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>