

CHATBOT BASED ON DIALOGFLOW

PIZZABOT



Pablo Panero Rodríguez
Valentín Santos Pérez
Óscar Calvo Pintado

1. Introduction

Dialogflow is a platform created by Google for building chatbots and speech recognition systems based on Natural Language Processing (NLP) technology. It enables the creation of chatbots that can recognize and interpret users' natural languages and respond to their questions and commands in a coherent and understandable manner. Dialogflow also allows integration with various platforms such as Google Assistant, Facebook Messenger, Slack, and others, extending the reach of chatbots across different communication channels. Dialogflow is available both as a cloud service and as locally deployed software.

2. Project Goal

The goal of the project is to create a bot based on the Dialogflow platform. The theme of the bot is an assistant for a pizzeria - in this case, specifically the "PizzaBot" pizzeria. The functionalities offered by the assistant include:

- Providing the address of the pizzeria,
- Booking a table for a specific day and time,
- Redirecting to the pizzeria's website.

3. Dialogflow Capabilities

3.1 Intents

Intents in Dialogflow are a way to define what the chatbot should do in response to users' questions or commands. Each intent has a group of keywords or phrases assigned to it that determine when it should be used. Intents are a crucial element in configuring chatbots in Dialogflow, as they allow for better recognition of users' intentions and appropriate responses to their questions or commands. Through intents, the chatbot can be better tailored to users' needs and enable better interaction with them.

3.2 Custom Payload

Custom payload is an optional feature in Dialogflow that allows sending additional data in response to an intent. It can be used to send various types of data, such as multimedia files, data from external applications, or any other information you want to convey in response to an intent. Custom payload is a useful tool when the goal is to provide the user with more information than a simple text or voice response. It can also be used to send feedback to an external application or for other purposes.

3.3 Entities

Entities in Dialogflow are a way to define details regarding users' intentions. For example, if a user asks about the weather in a specific city, an entity allows for recognizing the city name and passing it to the chatbot, which can then provide a response containing weather information for that location. Entities can be created in Dialogflow in two ways: by manually adding entities to an intent using the visual interface, or by configuring Dialogflow to automatically detect entities using model training tools or external databases. Entities are an important element in configuring chatbots in Dialogflow, as they allow for better recognition of details in users' intentions and enable the chatbot to better interact with them. Through entities, the chatbot can provide more personalized responses and better adapt to individual user needs.

3.4 Fulfillment

Dialogflow Fulfillment is a mechanism that allows integrating Dialogflow with various external services and applications. It is used to handle requests sent by Dialogflow to applications or other services, such as databases, APIs, etc. Configuring Fulfillment in Dialogflow involves handling requests sent by the user during a conversation with the assistant. Fulfillment allows integrating Dialogflow with various external services and applications, expanding the assistant's capabilities and enabling it to handle more complex queries and commands.

3.5 Web Demo/Messenger

Web Demo and Messenger are useful tools for quickly testing the Dialogflow model without the need to install software or configure an environment. It can also be a useful tool for presenting the model or for preliminary testing before integrating it with an application. Web Demo also allows testing the model using voice by pressing the microphone button in the chat interface. Different languages for the model can also be selected to see how it handles different languages.

4. Implementation

To create a bot based on Dialogflow, first, register on the Dialogflow website and create a new project. Next, add a new agent responsible for handling the chatbots. The next step is to create intents. To create an intent in Dialogflow, go to the "Intents" section in the project panel and click the "Create new intent" button. Then enter the name of the intent and add keywords or phrases that will be used to identify this intent. Responses for the given intent can also be added, and other settings, such as chatbot behavior when there is no matching intent, can be configured. Below is the implementation of specific intents, which include training phrases and responses:

Specific intents are as follows:

- Address: Used to inform about the location of the pizzeria.
- Welcome: Used to greet the user.
- Page: Used to display a link to the pizzeria's website.

To use custom payload, add it as an additional option in the response to the intent in the Dialogflow console. It can then be used to process data or display additional information for the user.

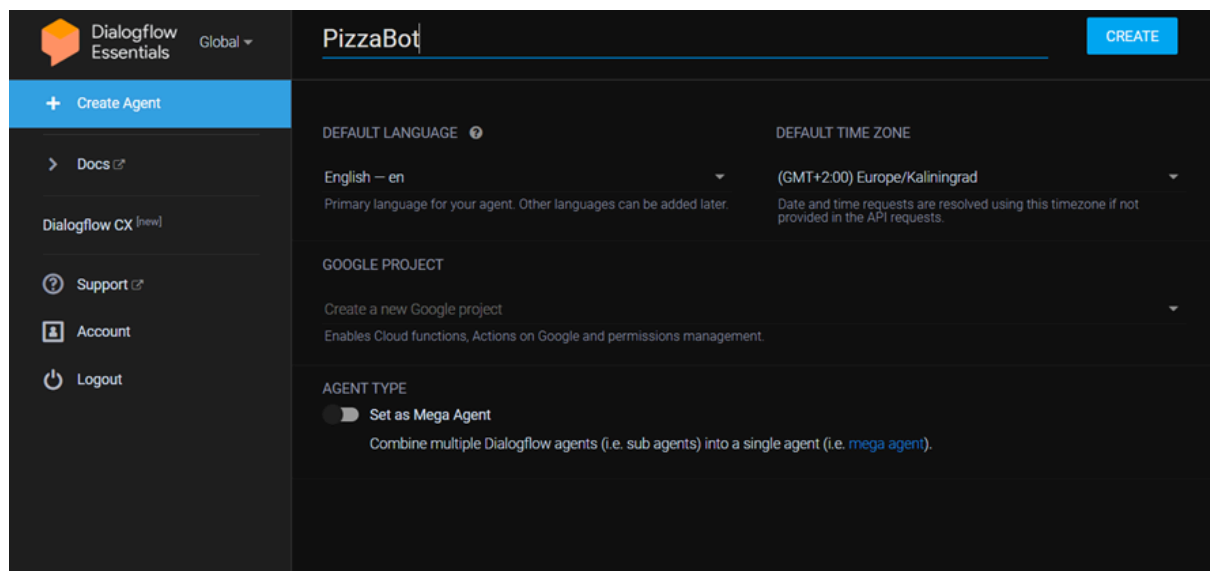
- Booking: Used to book a table at the pizzeria. In this intent, parameters were used to enforce obtaining specific data from the user. The data provided by the user is used in the response via `${parameter}`.

5. Chatbot Operation

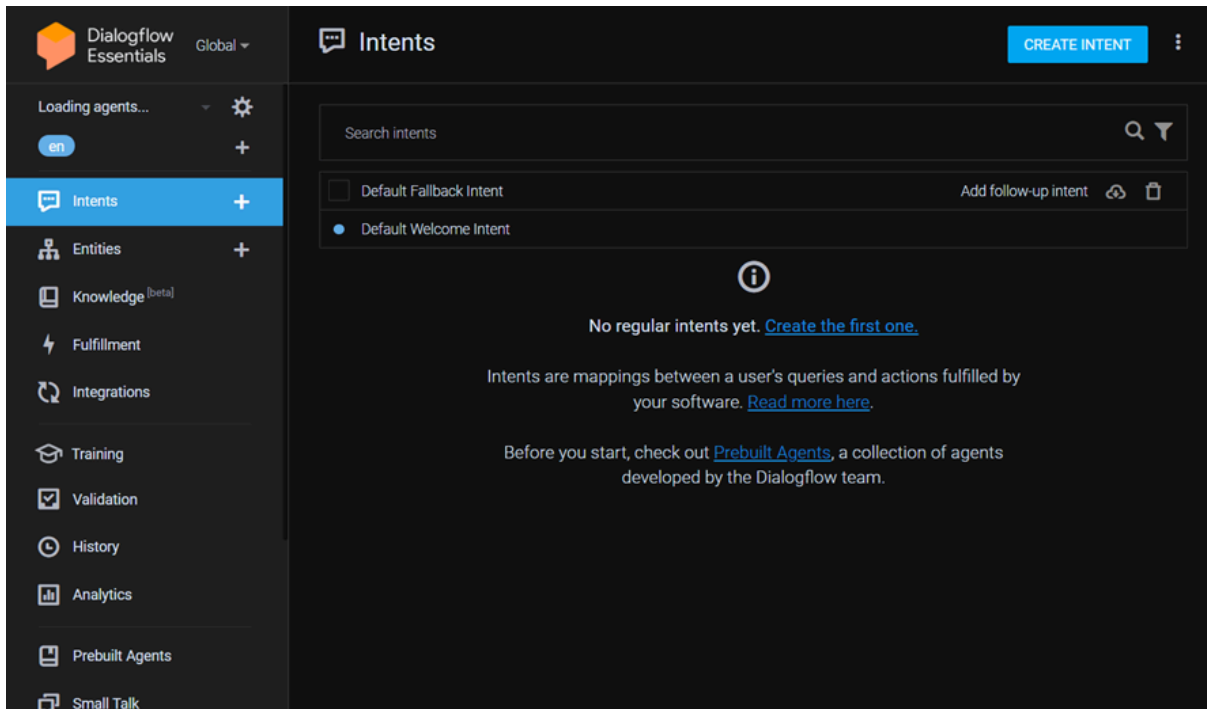
Below are example usage scenarios for the chatbot:

- Obtaining the address of the pizzeria.
- Navigation to the pizzeria's website.
- Booking a table at the pizzeria.

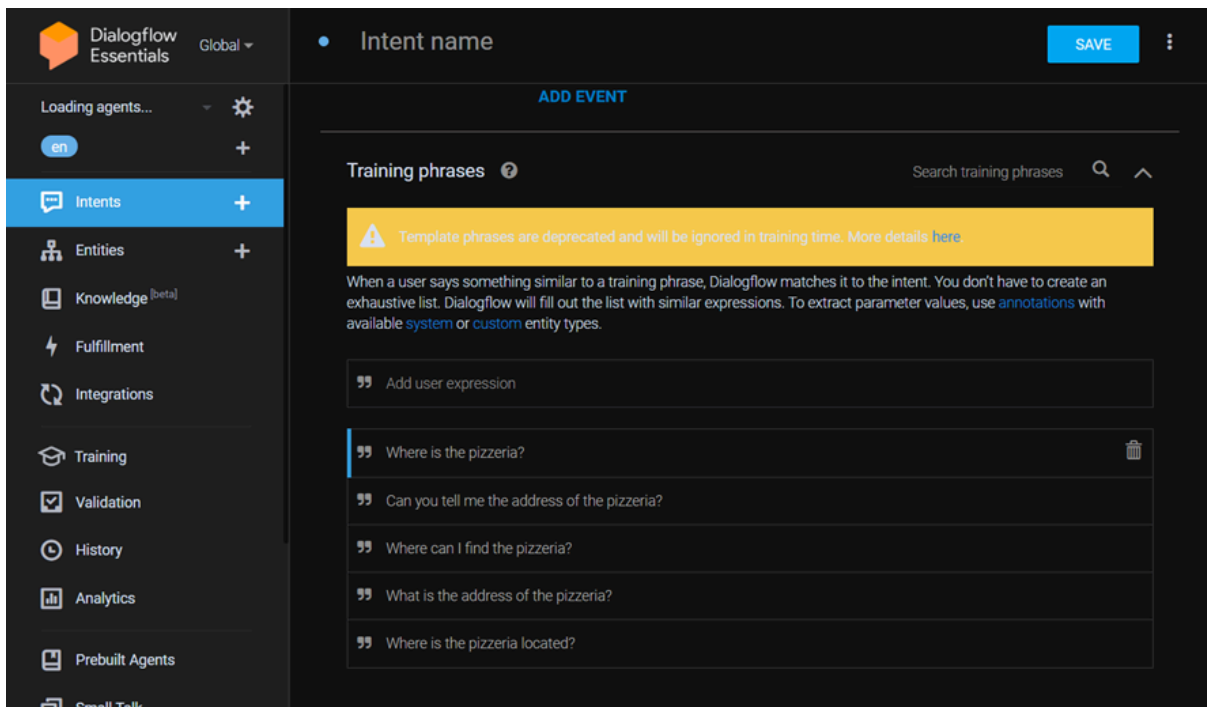
First, we created the chatbot and named it Pizzabot



First, we created the chatbot and named it Pizzabot. Next, we are going to create the intents. Intents in Dialogflow represent the different purposes or goals that a user has when interacting with your chatbot. Each intent corresponds to a specific type of user request or question. When a user inputs a message, Dialogflow matches it to the most relevant intent based on the training phrases you provide. This allows the chatbot to understand and respond appropriately to various user inputs.



Our first intent will be to provide users with information about the location of the pizzeria. To achieve this, we will introduce phrases similar to those a user might input to train the artificial intelligence



Subsequently, we will need to provide some default actions in case the user does not ask key questions that allow us to answer correctly. In this case, it will not be necessary because we only need to provide the address. However, we do need a response to the question asked, so we will add several responses to provide variety

The screenshot shows the Dialogflow Essentials console interface. On the left is a sidebar with navigation options: Loading agents..., Intents (selected), Entities, Knowledge [beta], Fulfillment, Integrations, Training, Validation, History, Analytics, Prebuilt Agents, and Small Talk. The main area is titled 'Where is the pizzeria?' and contains two sections: 'Action and parameters' and 'Responses'.

Action and parameters: This section has a text input for 'Enter action name'. Below it is a table for parameters:

REQUIRED	PARAMETER NAME	ENTITY	VALUE	IS LIST
<input type="checkbox"/>	Enter name	Enter entity	Enter value	<input type="checkbox"/>

Below the table is a '+ New parameter' link.

Responses: This section shows a 'DEFAULT' response type. It contains a 'Text Response' list with three items:

- 1 The address of the pizzeria is in Aleja Pokoju 1A, in Krakow, Poland.
- 2 The pizzeria is located in Aleja Pokoju 1A, in Krakow, Poland.
- 3 Enter a text response variant

At the bottom of the Responses section is an 'ADD RESPONSES' button.

Now we can already try the chatbot.

The screenshot shows a chat interface titled 'Agent'. It displays a conversation between a user and the chatbot.

USER SAYS (with a 'COPY CURL' link):
i woudl like to know where is the pizzeria

DEFAULT RESPONSE (with a dropdown arrow):
The address of the pizzeria is in Aleja Pokoju 1A, in Krakow, Poland.

INTENT:
Where is the pizzeria?

ACTION:
Not available

For the other tasks, we follow the same steps as in the previous case.

First for the website:

Training phrases ?

Search training phrases

⚠ 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

” Where can I find more information online about PizzaBot?

” Do you have a website?

” I want to visit your website.

” What is PizzaBot's website?

” Can you give me the link to the [pizzeria's](#) website?

And then for reservations:

Training phrases ?

Search training phrases

⚠ 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

” I would like to reserve a table for [two](#) people on [Wednesday at 7 PM](#).

” I need a table for [four](#) people on [Saturday at 9 PM](#).

” Can I make a reservation for [Friday at 7 PM](#)?

” I want to book a table for [tomorrow at 8 PM](#)

In this last intent, we will have to be sure that the user give us the date of the reservation and the number of people of the reservation. For this, we will use action and parameters.

Reservation

SAVE

Action and parameters

Enter action name

REQUIRED	PARAMETER NAME	ENTITY	VALUE	IS LIST	PROMPTS
<input checked="" type="checkbox"/>	date-time	@sys.date-time	\$date-time	<input type="checkbox"/>	When do you wa n...
<input checked="" type="checkbox"/>	number		\$number	<input type="checkbox"/>	For how many p e...
<input type="checkbox"/>	Enter name	Enter entity	Enter value	<input type="checkbox"/>	—

+ New parameter

Responses

DEFAULT +

Text Response

1

The reservation has been been done. Thanks

2

Enter a text response variant

Now we can already try the bot.

PizzaBot

POWERED BY Dialogflow

Hello! How can I help you?

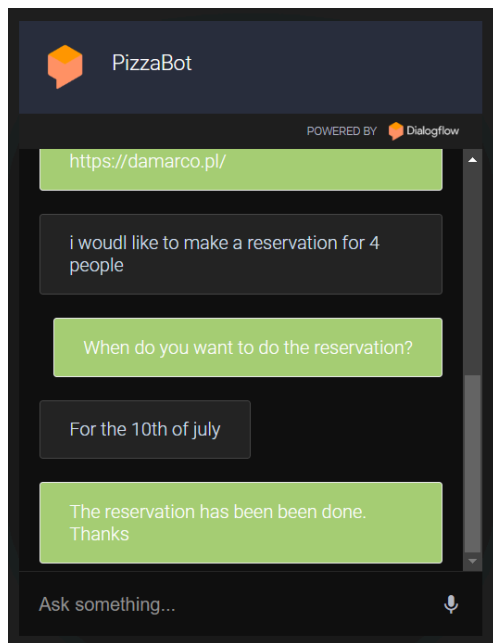
i would like to know where is the pizzeria

The pizzeria is located in Aleja Pokoju 1A,
in Krakow, Poland.

and do you have any website?

The pizzeria's website is
<https://damarco.pl/>

Ask something...



6. Summary

Dialogflow offers many different functionalities that support the creation of custom chatbots and tools for integrating them into various systems. Most configurations can be done through the graphical interface, which is a great advantage. The functionalities presented above are just a part of the possibilities offered by Dialogflow. To learn more about this tool, we encourage you to refer to the Dialogflow documentation. The created chatbot meets its initial assumptions, allows making reservations, navigates to the pizzeria's website, and provides the physical address of the pizzeria. Basic elements of creating bots in Dialogflow and tools for testing the operation were used for its implementation.

