

IT8303

AI & HUMAN

INTERFACE

Lab 8: Creating our Customer Service Chatbot
and Deployment to Telegram



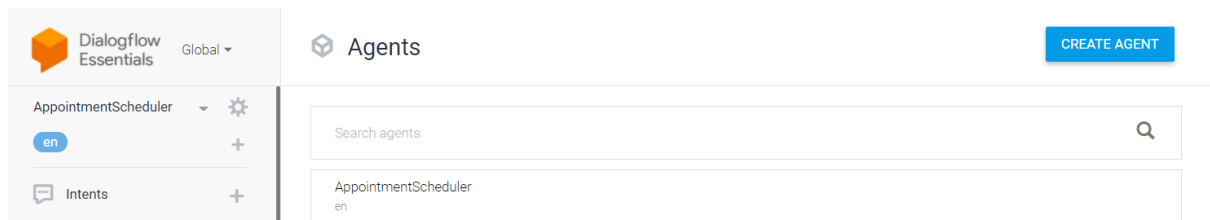
In this exercise, you'll learn to use Dialogflow to build a customer service chatbot for a virtual Milk Tea shop, and how to deploy the chatbot into Facebook Messenger.

What can your chatbot do?

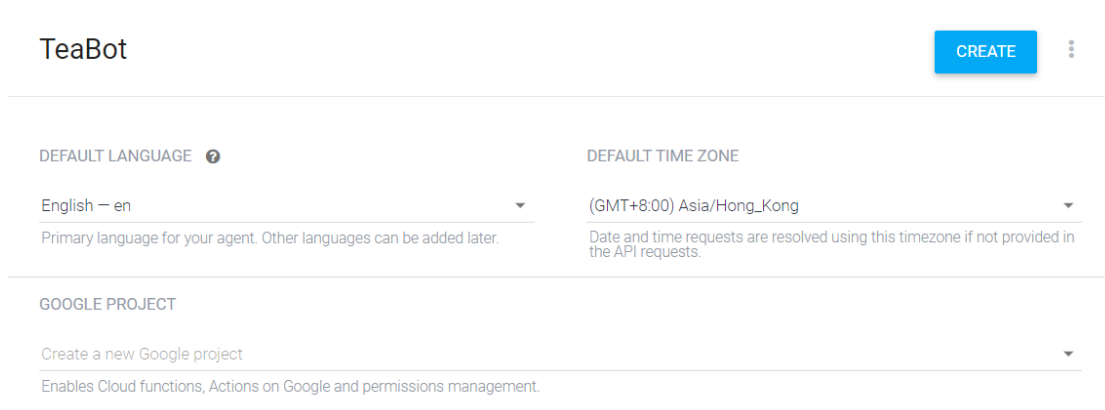
- Answering FAQs
- Providing product information

Exercise 1-1: Creating new Agents

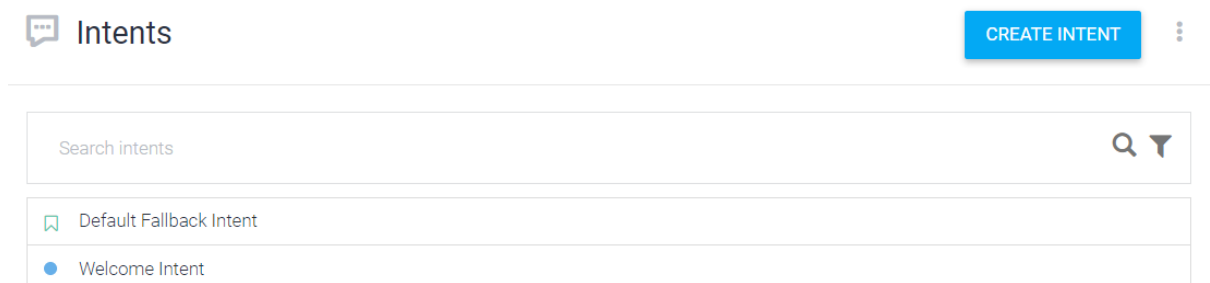
1. Open your Dialogflow console at <https://dialogflow.cloud.google.com/>
2. Click **Create Agent**.



3. You can call the new agent as "TeaBot", then click **Create**.



Dialogflow already provides basic presets like a Default Welcome Intent and a Default Fallback Intent.



This is just telling the bot what to do when welcoming someone or when the bot doesn't know the answer to their question. Click on '**Default Welcome Intent**'. Scroll to the '**Training phrases**' section. Here you will see a set of conversation starter Expressions that a user might say to our TeaBot. Scroll down to the '**Responses**' section. Here you can see the different responses that our TeaBot picked randomly when we entered an expression.

We are going to create a special welcoming response that suits our restaurant:

" . "

Add this text below the existing responses. We can simply delete the other generic responses since we don't need them anymore. To delete, simply press the '**trashcan**' button to the right of every response.

Responses ? ^

DEFAULT +


| Text Response | | |
|---------------|---|--|
| 1 | Hello! Welcome to Will's Milk Tea Shop. My name is Wilson. What can I do for you? | |
| 2 | Enter a text response variant | |

And here is how it would look:

Agent

USER SAYS COPY CURL

good morning

 DEFAULT RESPONSE ▼

Hello! Welcome to Will's Milk Tea Shop. My name is Wilson. What can I do for you?

INTENT

Welcome Intent

Exercise 1-2: Creating new Intents

Let's develop our TeaBot to assist users with some common queries:

"What are your delivery timings?"

"Is there anything new?"

"I'd like to order a burger"

We will create intents for each of those question-types, then feed in the appropriate **Training phrases** and **Responses**.

To create new Intent, simply click the "+" next to the **Intent** button in the left menu. Be organized when naming an Intent so that it is easy for you to recognize later.

Notes: Points to remember:

Add a variety of Expressions

Group Expressions correctly under well-defined Intents

Keep Responses precise

Always click 'Save'.

Please try to develop the first two intents for the TeaBot: **Home Delivery** and **Specials**.

You can find below some examples of training phrases for the intents.

Training Phrases and Responses for **Home Delivery** intent

Home Delivery

SAVE

| |
|------------------------|
| ” when do you deliver? |
| ” delivery time? |
| ” can you deliver? |
| ” Will you deliver? |
| ” delivery? |
| ” please deliver |
| ” opening time? |
| ” home delivery? |

Responses ?



DEFAULT +

| Text Response | | |
|---------------|--|--|
| 1 | Will's Milk Tea shop is open all days of the week from 11:00 to 21:00. However, we only offer home delivery until 19:00. | |
| 2 | Enter a text response variant | |

Training Phrases and Responses for **Special** intent

Specials

SAVE

” What do you have?

” What is good?

” Is there anything new?

” Do you have any specials today?

” Daily specials?

” Any specials?

” What is the best?

Responses ?



DEFAULT +

Text Response



1 There is always something special at Will's Milk Tea! Just check our menu at willmilktea.com and tell me what you'd

2 Enter a text response variant



Exercise 1-3: Entities, Actions & Parameters

Creating Entities

1. Click the "+" next to the **Entities** button in the left menu.
2. Enter the values of the **Teas** and **Toppings** separately.
3. Be sure to add appropriate synonyms.

Entities

CREATE ENTITY

Custom

System

Search entities

@ Teas

@ Toppings

Teas

SAVE

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

| | |
|--------------------------|--------------------|
| Green Tea | Green Tea, Green |
| Milk Tea | Milk Tea, Milk |
| Black Tea | Black Tea |
| Oolong Tea | Oolong Tea, Oolong |
| Click here to edit entry | |

Toppings

SAVE

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

| | |
|--------------------------|----------------------------------|
| bubble | bubble, golden bubble |
| red bean | red bean |
| jelly | jelly, grass jelly, lychee jelly |
| pudding | pudding |
| taro | taro |
| aloe vera | aloe vera |
| Click here to edit entry | |

Let's make one more Intent so that TeaBot can start taking orders.

1. Create the new intent called "**Placing Orders**".
2. Scroll down to **Action and parameters**, name the parameters, enter the "**Entity**" that you created, starting with the "@" symbol.
3. Enter the corresponding "**Value**", starting with the "\$" sign.
4. Check the "**Required**" box to enable Prompts.

Action and parameters

| Enter action name | | | | | |
|-------------------------------------|------------------|-----------|------------|-------------------------------------|--------------------|
| REQUIRED ? | PARAMETER NAME ? | ENTITY ? | VALUE | IS LIST ? | PROMPTS ? |
| <input checked="" type="checkbox"/> | TeaOptions | @Teas | \$Teas | <input checked="" type="checkbox"/> | What tea would ... |
| <input checked="" type="checkbox"/> | TeaToppings | @Toppings | \$Toppings | <input checked="" type="checkbox"/> | What toppings w... |

Prompts for "TeaOptions"

| NAME | ENTITY | VALUE |
|------------|--|--------|
| TeaOptions | @Teas | \$Teas |
| PROMPTS | | |
| 1 | What tea would you like to order? We have Green tea, Black tea, Milk tea and Oolong tea. | |

Prompts for "TeaToppings"

| NAME | ENTITY | VALUE |
|-------------|--|------------|
| TeaToppings | @Toppings | \$Toppings |
| PROMPTS | | |
| 1 | What toppings would you like? We have bubble, aloe vera, taro, pudding, and red bean | |

It is time to add training phrases for the **Placing Orders** intent now.

1. Add the training expressions as below
2. Manually annotate by right clicking the phrases and assigning the entities.

Placing Orders

SAVE

” Add user expression

” i want to buy green tea with taro

| PARAMETER NAME | ENTITY | RESOLVED VALUE | |
|----------------|-----------|----------------|---|
| TeaOptions | @Teas | green tea | × |
| TeaToppings | @Toppings | taro | × |

” bubble milk tea please

” I want to buy oolong tea

” I want a tea

” Tea delivery

” Order Milk Tea

Ok, let's add a response now.

1. Draft a concluding response.
2. Include the **\$value** in the message so that it can copy useful information from the Parameters. Refer to the image below.

Responses ?



DEFAULT +

Text Response

1 Done! Your choice with \$TeaToppings in \$TeaOptions has been placed and will be delivered to your registered address. Please enjoy :)

2 Enter a text response variant

Exercise 1-4: Add Chit Chat Intents and Responses

As you can see, there are already some Intents available to serve the potential customers. Therefore, we are going to add **#thank_you** and **#goodbyes** intents with at least 5 appropriate training phrases each. At this point, you will have the most basic chitchat intents a chatbot needs to have. The more the merrier, of course, but this will do for now.

● thank_you

SAVE

⋮

Contexts ?

▼

Events ?

▼

Training phrases ?

Search training phrases

🔍

^

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

” Thanks!

” That really helps. thanks!

” thanks for the support

” I really appreciate that

” Thank you very much

” Thank you

Responses ?

^

DEFAULT +

Text Response

🔍

🗑

1 You're welcome. I'm glad I'm able to support!

2 Enter a text response variant

⌵

Good Bye

SAVE

” bye!

” have a good day

” see you next time

” see you

” good bye

” bye bye

Responses ?

DEFAULT +

Text Response

1 Good Bye. Have a nice day!

2 Enter a text response variant

Now go ahead and try some chitchat in the panel. Feel free to try both examples you provided (e.g., thank you) and expressions that you have not provided as examples. For instance, try howdy and yo. Click **Diagnostic Info**, you can view the **intent detection confidence**. The higher the confidence, the more certain the chatbot classifies the intent.

Diagnostic info

Raw API response

```
15 }
16 }
17 ],
18 "intent": {
19   "name": "projects/milkteabot-yaie/agent/intents/2e587de7-4b62-4b1b-8dc1-cceec258546c",
20   "displayName": "Welcome Intent"
21 },
22 "intentDetectionConfidence": 0.839911,
23 "languageCode": "en",
24 "sentimentAnalysisResult": {
25   "queryTextSentiment": {
26     "score": 0.5,
27     "magnitude": 0.5
28   }
29 }
30 }
31 }
```

CLOSE

COPY RAW RESPONSE

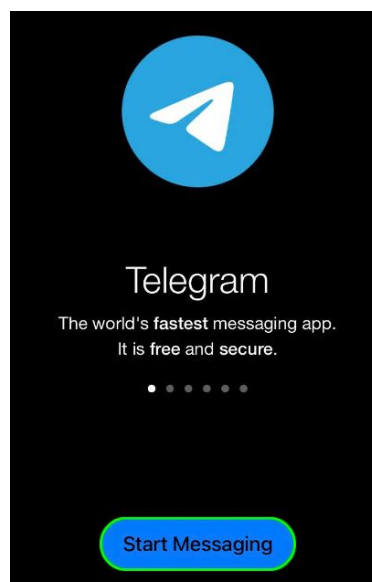
Exercise 2-1: Deploy Your Chatbot to Telegram

In this section, we will teach you how to deploy your Dialogflow chatbot to Telegram. Dialogflow Telegram Integration allows you to easily create Telegram bots with natural language understanding based on the Dialogflow technology.

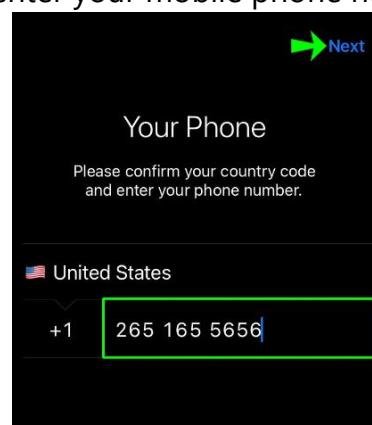
Step 1: Setting Up Telegram

In order to set up the Telegram integration with your chatbot, you will first need to register a Telegram account.

- Download Telegram Messenger into your mobile phone from the Apple Store or Android Store.
- Open the app when it finishes downloading. Tap the “Start Messaging” button to sign up.




- Choose your country, and enter your mobile phone number and tap “Next”.



- Enter the SMS Verification code that will arrive by text, and then type your name to finish the set-up process. Your account is ready to use.

Now open your computer's browser, and go to the web telegram website and login:

<https://web.telegram.org/#/login>



Sign in to Telegram

Please confirm your country and enter your phone number.

Country

Singapore

Phone Number

+65 -----

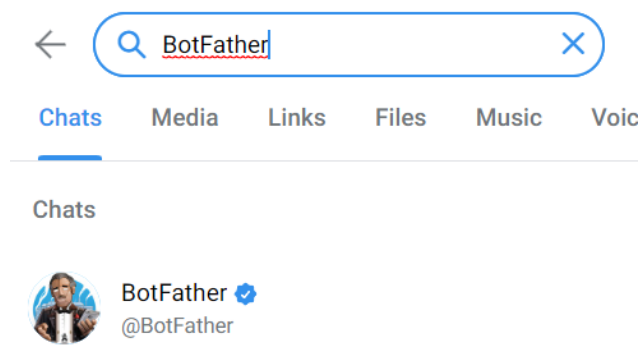
☒ Keep me signed in

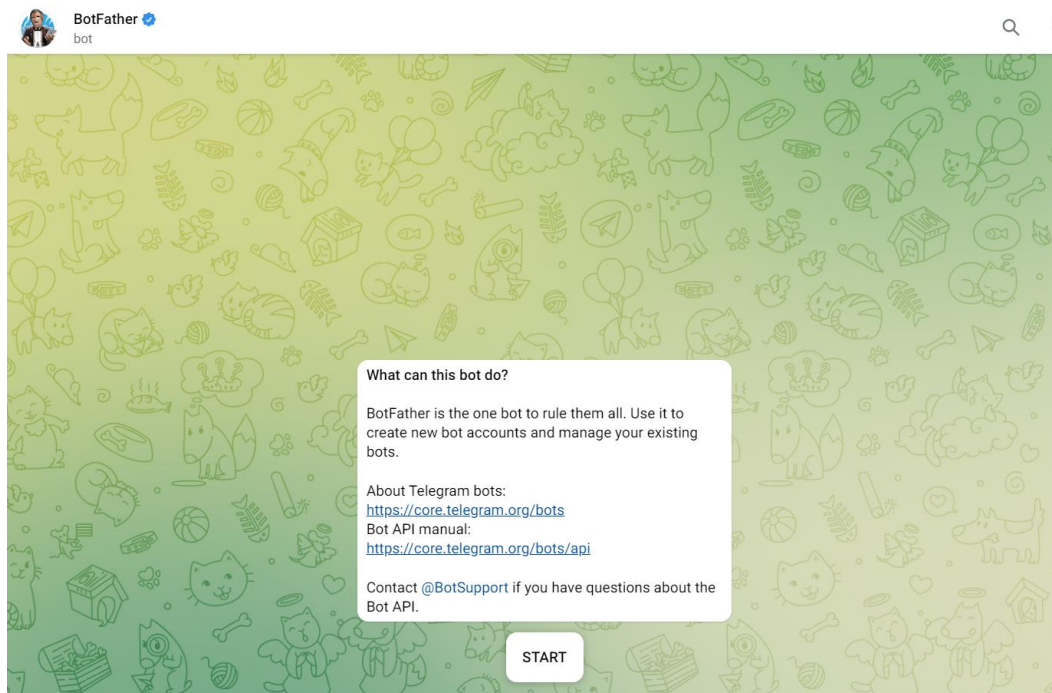
NEXT

[LOG IN BY QR CODE](#)

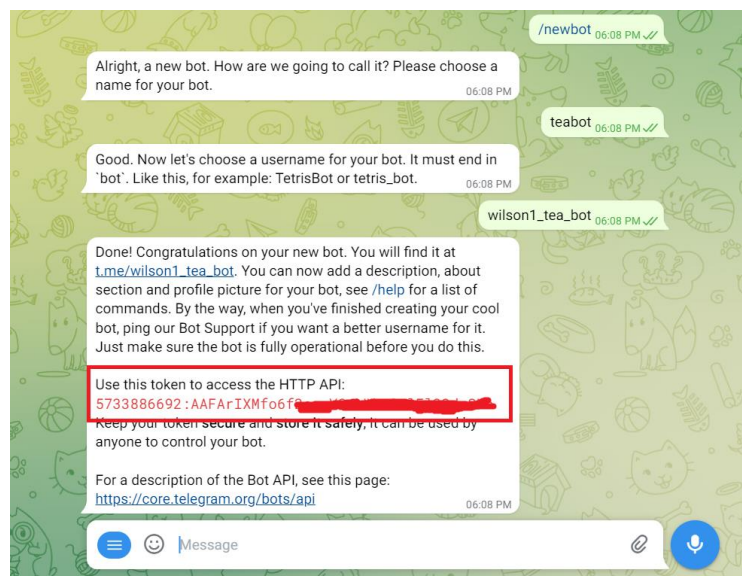
Step 2: Creating a Bot in Telegram

- Type "BotFather" in the Search bar, Click the **Start** button in the web interface.





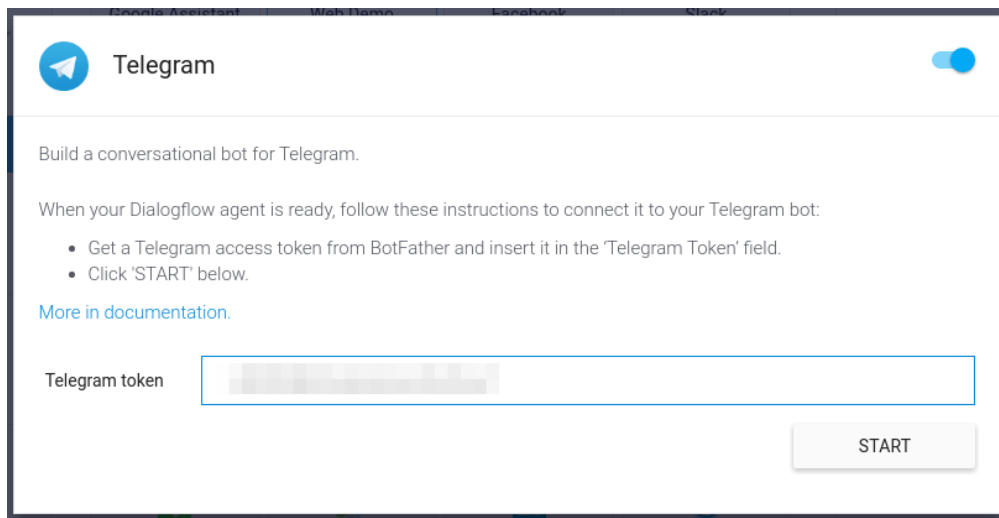
- Type **/newbot** and enter a name for the chatbot, e.g. I enter "teabot" as my chatbot's name. Subsequently, enter a username for the bot, e.g. I enter "wilson1_tea_bot" as the username.



- Copy the generated access token.

Step 3: Creating a Bot in Telegram

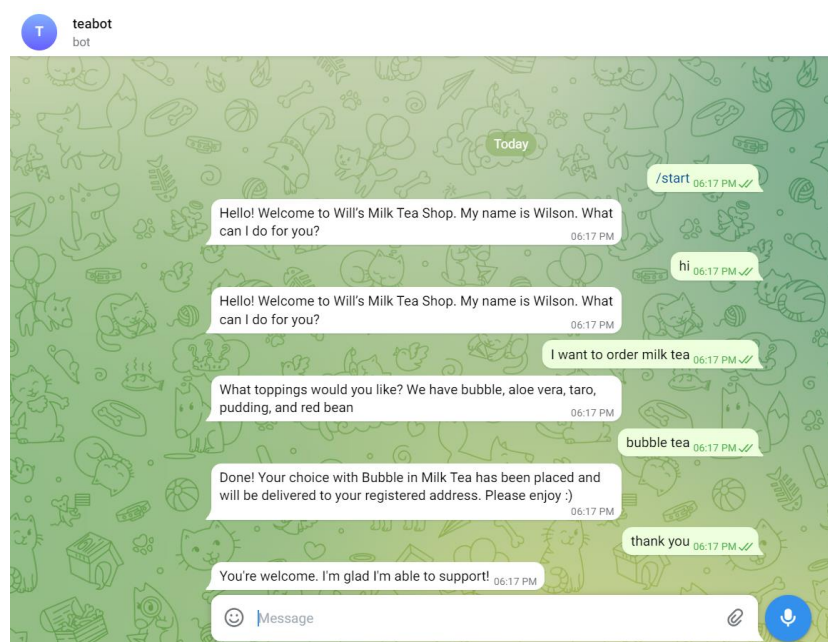
- In Google Dialogflow, select the TeaBot that we just created, and go to Integrations in the left hand menu.
- Click on the **Telegram**
- Paste the **Access Token** into the related field
- Click the **Start** button



The screenshot shows the 'Telegram' integration setup interface. At the top, there's a Telegram logo and the word 'Telegram'. Below it, a toggle switch is turned on. The main text says 'Build a conversational bot for Telegram.' and 'When your Dialogflow agent is ready, follow these instructions to connect it to your Telegram bot:'. There are two bullet points: 'Get a Telegram access token from BotFather and insert it in the 'Telegram Token' field.' and 'Click 'START' below.' A link 'More in documentation.' is provided. Below this, there's a 'Telegram token' label and a text input field containing a blurred access token. At the bottom right, there is a 'START' button.

Step 4: Testing

BotFather will provide a link to your bot once you've completed the setup. Go to this link to test out your agent. Congratulations, you successfully deploy your chatbot!



Exercise 3-1: Contexts Variables (Optional)

1. Create a new agent in Dialogflow Console, and call it "CarBot".

CarBot

CREATE

DEFAULT LANGUAGE ?

English — en

Primary language for your agent. Other languages can be added later.

DEFAULT TIME ZONE

(GMT+8:00) Asia/Hong_Kong

Date and time requests are resolved using this timezone if not provided in the API requests.

GOOGLE PROJECT

Create a new Google project

Enables Cloud functions, Actions on Google and permissions management.

AGENT TYPE

☒ Set as Mega Agent

Combine multiple Dialogflow agents (i.e. sub agents) into a single agent (i.e. [mega agent](#)).

2. Go to **Entities**, and create two entities for this agent. The first entity is called "Brand".

Brand

SAVE

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

| | |
|--------------------------|----------------|
| BMW | BMW, bmw |
| Benz | Benz, Mercedes |
| Honda | Honda, honda |
| Toyota | Toyota, toyota |
| Click here to edit entry | |

The second entity is called "Attribute"


Attribute

DONE

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

| | |
|--------------------------|--------------|
| speed | speed |
| color | color |
| displacement | displacement |
| price | price |
| Click here to edit entry | |

3. Now, you will have two entities ready.

 Entities CREATE ENTITY

Custom System

Search entities

Q

@ Attribute


@ Brand

4. Now go to **Intents**, and click **Create Intents**. Name the intents as “Car_attribute”, and then add the following training phrases, then click **Save**. Please take note, the entities within the training phrases will be auto-labelled.

• Car_attribute SAVE

Training phrases ?

Search training phrases Q ^

 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

” May I know the **displacement** of Audi?


| PARAMETER NAME | ENTITY | RESOLVED VALUE | |
|----------------|------------|----------------|---|
| attribute | @Attribute | displacement | X |


” What is the **speed** of **Mercedes**



” Tell me the **color** of **Honda**

” Show me the **price** of **BMW**

5. Now, add the following response for this intent.



Responses 

DEFAULT 



| Text Response | |  |
|---------------|--|---|
| 1 | I see. You want to know about the \$Attribute of \$Brand | |
| 2 | Enter a text response variant |  |

6. Now, you chatbot is able to handle a single user question as shown below:

USER SAYS COPY CURL
can I check the price of Mercedez

 DEFAULT RESPONSE 
No problem. The price of Benz can be found in
our website: www.car.com/Benz


USER SAYS COPY CURL
tell me the color of Toyota?

 DEFAULT RESPONSE 
No problem. The color of Toyota can be found
in our website: www.car.com/Toyota

7. What happens if we want to ask the chatbot two consecutive questions:
- Tell me the color of BMW?
 - What is its price?

Obviously, the chatbot can tackle the first question, but it got confused by the second question, because it doesn't know what "its" is referring to.

USER SAYS COPY CURL
tell me the color of BMW

 DEFAULT RESPONSE ▼
No problem. The color of BMW can be found
in our website: www.car.com/BMW

USER SAYS COPY CURL
what is its price?

 DEFAULT RESPONSE ▼
Not available

Exercise 3-2: Contexts Variables (Optional)

1. Go to **Intents**, and select the intent "Car_attribute". Click **Contexts**, and **Add Context**. Add "car-attribute-set" into output context, and change the Lifespan to 1, as shown below. Then click **Save**.

• Car_attribute

SAVE

Contexts ?

Add input context

1 car-attribute-set

Add output context

2. Now, if you try to type a question "what is the displacement of Benz", you can see the output as below. The **context** variable has been set as "car-attribute-set".

Agent

USER SAYS

COPY CURL

what is the displacement of Benz

DEFAULT RESPONSE

No problem. The displacement of Benz can be found in our website: www.car.com/Benz

CONTEXTS

RESET CONTEXTS

car-attribute-set

INTENT

Car_attribute

3. Go to **Intents**, Click **Create Intent**, name it "change_attribute". And under Contexts, add "car-attribute-set" as input context, and change the lifespan of "car-attribute-set" to 1 in the output context. Then click **Save**.

• change_attribute

SAVE

Contexts ?

car-attribute-set Add input context

1 car-attribute-set Add output context

4. Add some of these training phrases for this intent.

• change_attribute

SAVE

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

” and its price?

” what about its color?

” how about its displacement?

” what is its price?

5. Under **Response**, add the following sentence. Then Save the intent.

Responses ?



DEFAULT +

| Text Response | | |
|---------------|---|--|
| 1 | Oh, you are asking for \$Attribute for #car-attribute-set.Brand | |
| 2 | Enter a text response variant | |

6. Now, you can test the chatbot with consecutive questions:

- Tell me the color of BMW?
- What is its price?

USER SAYS

COPY CURL

Tell me the color of BMW

DEFAULT RESPONSE ▼

No problem. The color of BMW can be found in our website: www.car.com/BMW

USER SAYS

COPY CURL

What is its price?

DEFAULT RESPONSE ▼

Oh, you are asking for price for BMW

