Topic 8
Introduction to Bots

ST0249 (AIML) AI & MACHINE LEARNING

Learning Outcomes

- Introduction to Bots
  - Bots Architecture
  - Bots Applications
  - Developing Bots

Bots Architecture

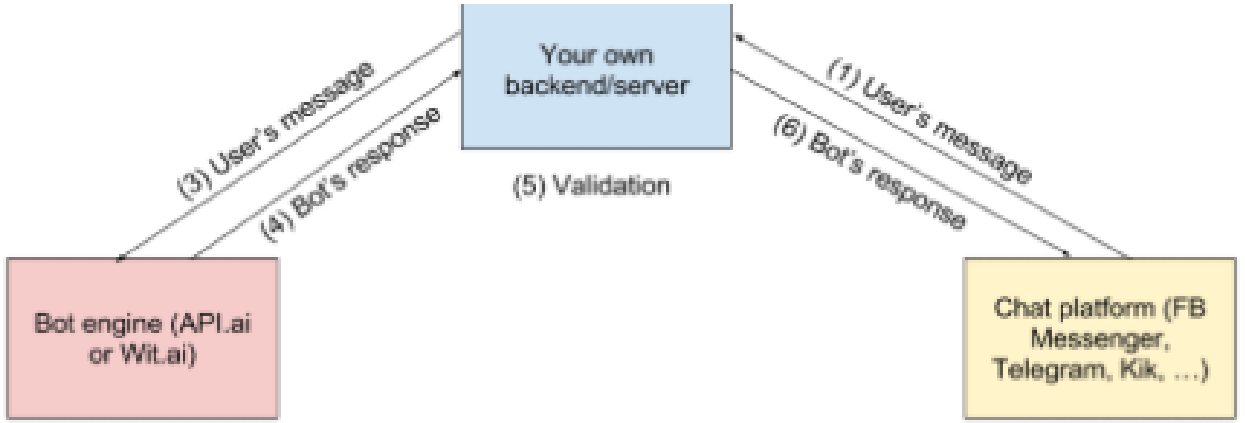
What is a Bot

Bot is a software that automates things we do

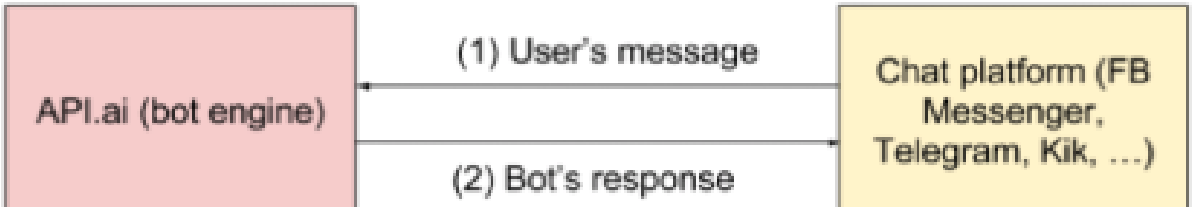
One example is Chatbot

New Channel for businesses to reach new audiences

BOT Architecture

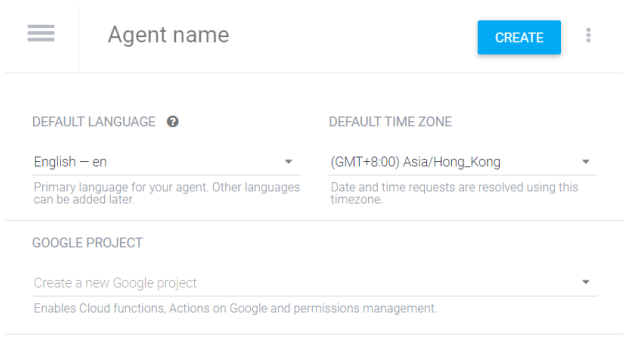


Simple chatbot architecture with API.ai (DialogFlow)

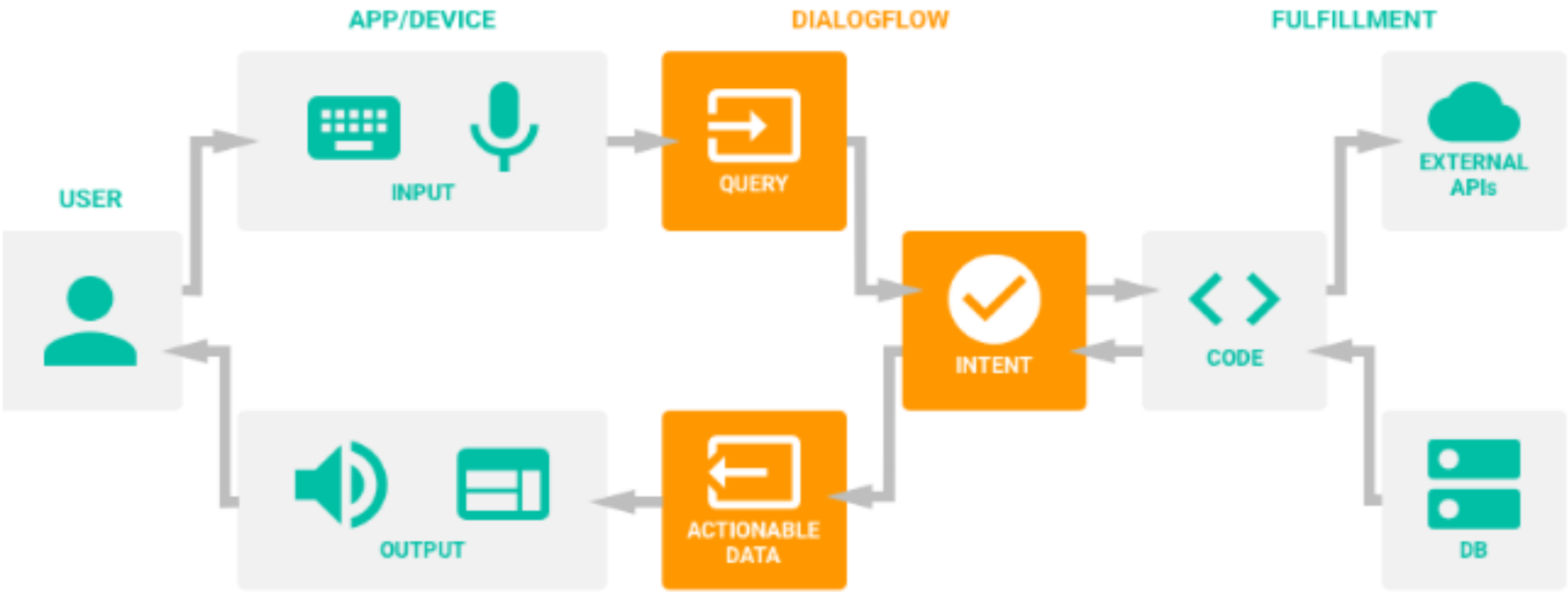


Agents

Agents are best described as NLU (Natural Language Understanding) modules. These can be included in your app, product, or service and transform natural user requests into actionable data.



Agent Conversation Flow



Machine Learning

Machine Learning is the tool that allows your agent to understand a user's interactions as natural language and convert them into structured data. In Dialogflow terminology, your agent uses machine learning algorithms to match user requests to specific intents and uses entities to extract relevant data from them.

An agent “learns” both from the examples you provide in the Training Phrases section and the language models developed by Dialogflow. Based on this data, it builds a model (algorithm) for making decisions on which intent should be triggered by a user input and what data needs to be extracted. This algorithm is unique to your agent.

The algorithm adjusts dynamically according to the changes made in your agent and in the Dialogflow platform. To make sure that the algorithm is improving, your agent needs to constantly be trained using real conversation logs.

Bots Applications

What you can do with Bots

Get customized notifications. i.e. Send you relevant content as soon as it is published

Integrate with other services. i.e. enrich chats with content from external services like IMDB or Wikipedia

Create Custom Tools. Provide you with weather forecasts or translations

Build Social Services. Connect people or friends

Games. i.e. play chess, host a quiz game

Creating a Store

Customer is asking the same things

Takes too much time

Want to create a chatbot to answer frequent questions and take job interviews

Able to use time to do other important things

Create chatbots that learns

Developing Bots

How to Build a Chat Bot

Backend

Data Mining

Machine Learning

Natural Language Processing

Popular Bot Engines

- Google DialogFlow (formerly called API.ai) https://cloud.google.com/dialogflow/
- Microsoft Bot Framework https://dev.botframework.com/
- IBM Watson Assistant https://www.ibm.com/cloud/watson-assistant/
- Rasa (opensource) https://rasa.com/
- Chatfuel https://chatfuel.com/
- OnSequel https://www.onsequel.com/
- Botsify https://botsify.com/

Bot engines

Do the heavy lifting for you

Requirements

DialogFlow Account (Google account)

- DialogFlow Console:
- https://dialogflow.cloud.google.com/#/login

What is DialogFlow

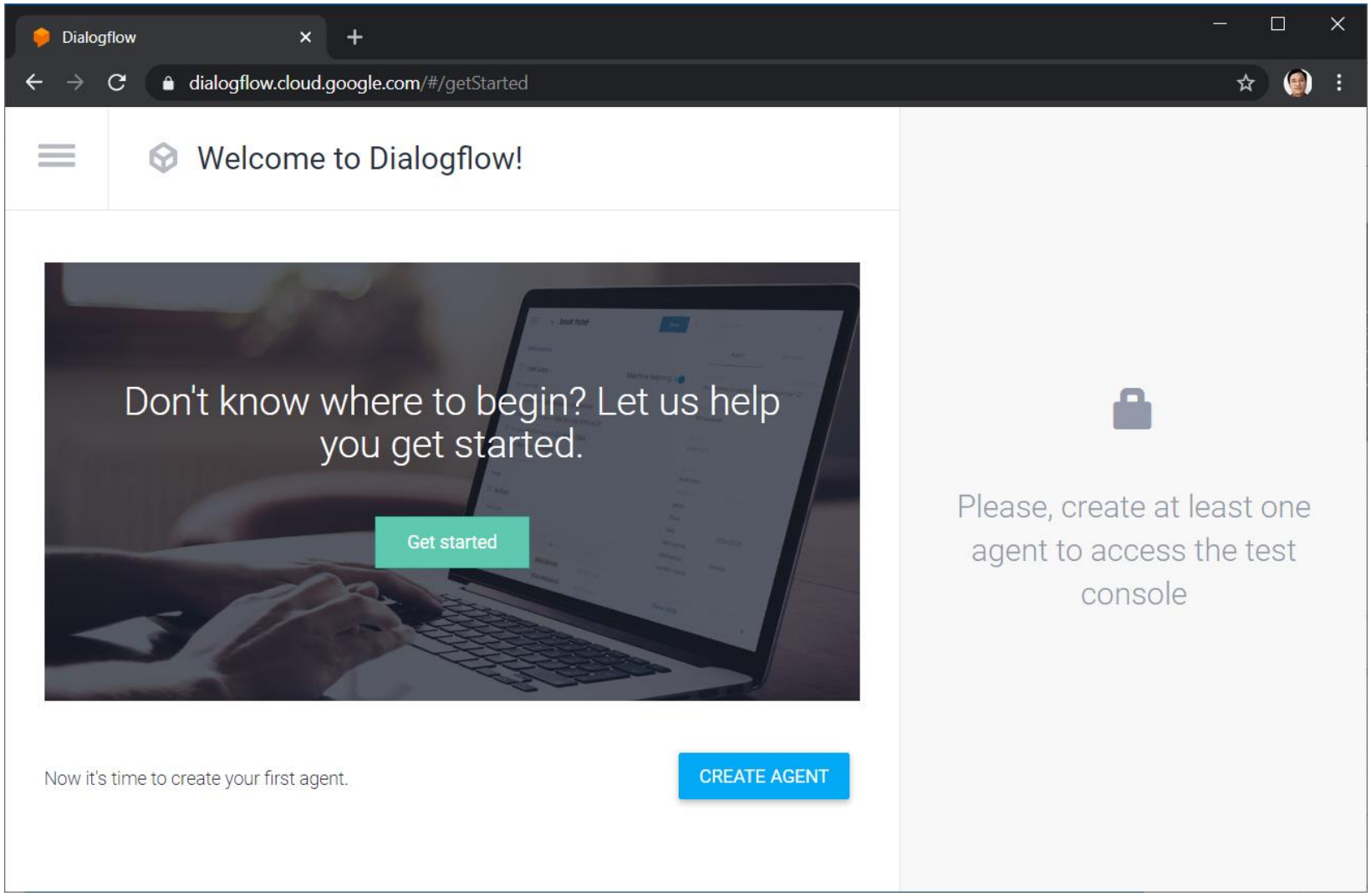
Provides developers and companies advanced tools to build conversational interfaces for apps and hardware devices

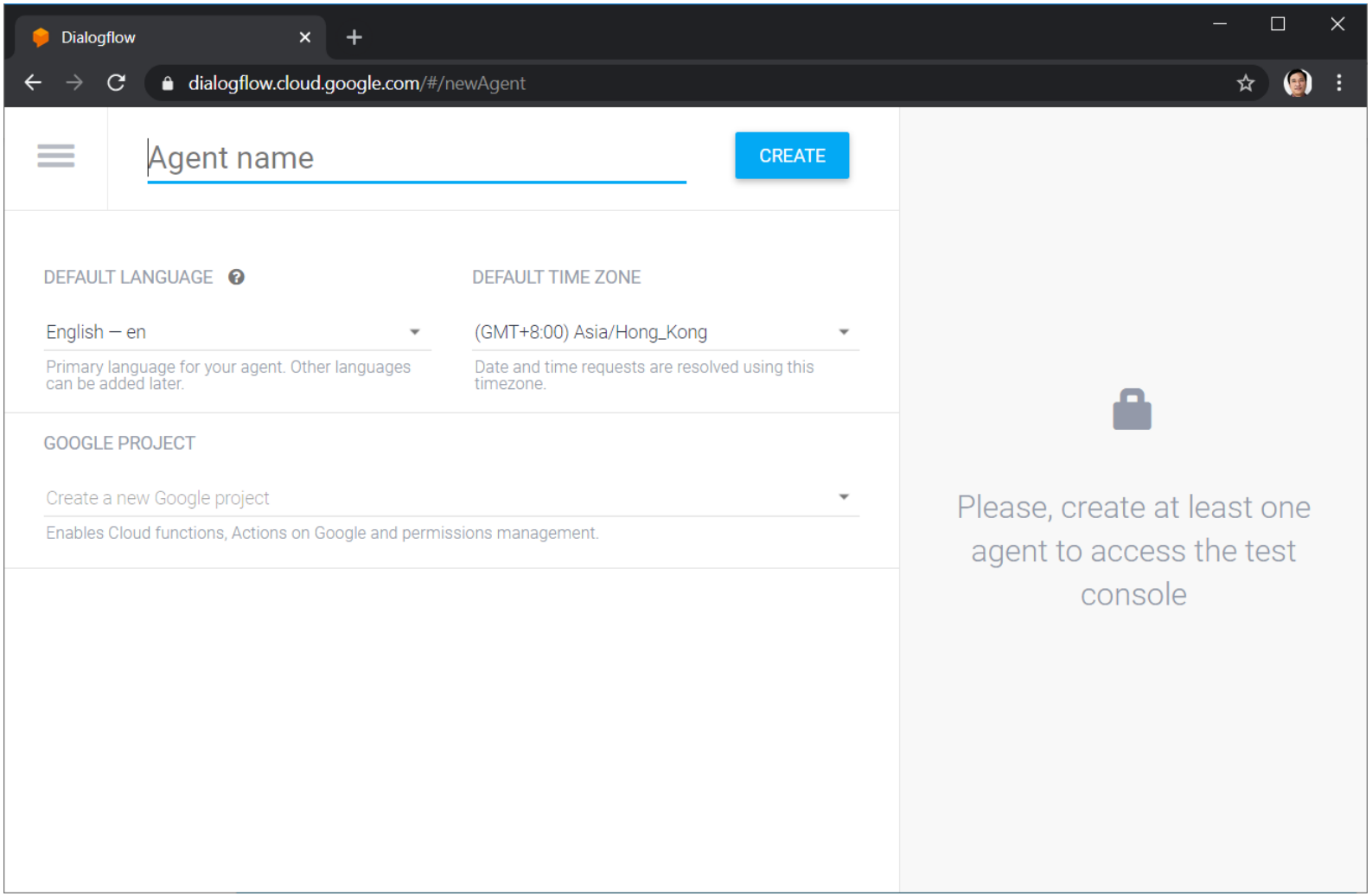
Enables bots to recognize what we say and provide accurate response

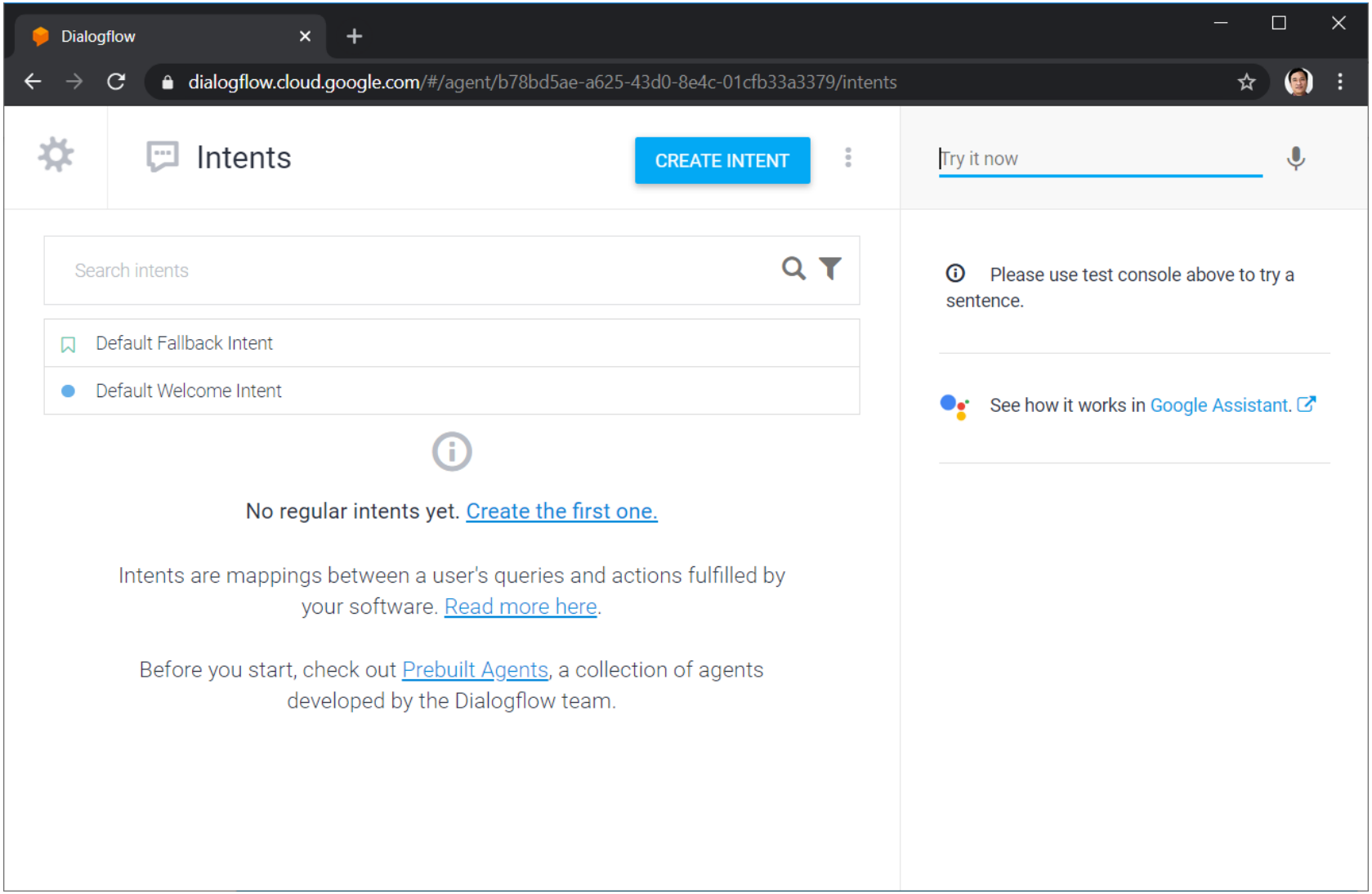
Integrates Speech Recognition

Process Language, Recognizes user Intent, meaning the text, and helps manage the response

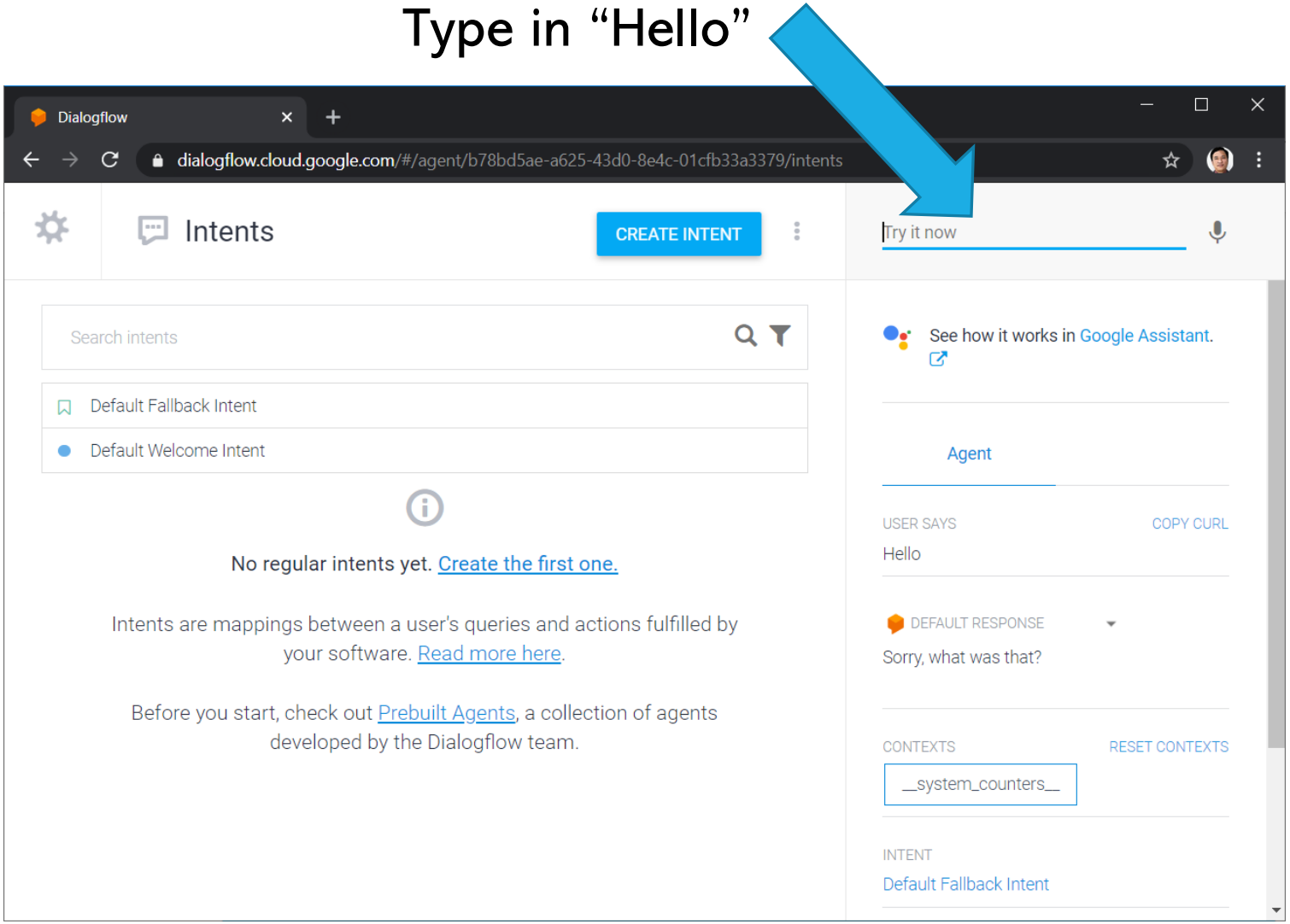
Free for certain number of queries


Dialogflow
dialogflow.cloud.google.com/#/getStarted
Welcome to Dialogflow!
Don't know where to begin? Let us help you get started.
Get started
Now it's time to create your first agent.
CREATE AGENT
Please, create at least one agent to access the test console


Dialogflow
dialogflow.cloud.google.com/#/newAgent
Agent name
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.
GOOGLE PROJECT
Create a new Google project
Enables Cloud functions, Actions on Google and permissions management.
Please, create at least one agent to access the test console


Dialogflow
dialogflow.cloud.google.com/#/agent/b78bd5ae-a625-43d0-8e4c-01cfb33a3379/intents
Intents
CREATE INTENT
Try it now
Search intents
Default Fallback Intent
Default Welcome Intent
No regular intents yet. Create the first one.
Intents are mappings between a user's queries and actions fulfilled by your software. Read more here.
Before you start, check out Prebuilt Agents, a collection of agents developed by the Dialogflow team.
Please use test console above to try a sentence.
See how it works in Google Assistant.

Type in “Hello”



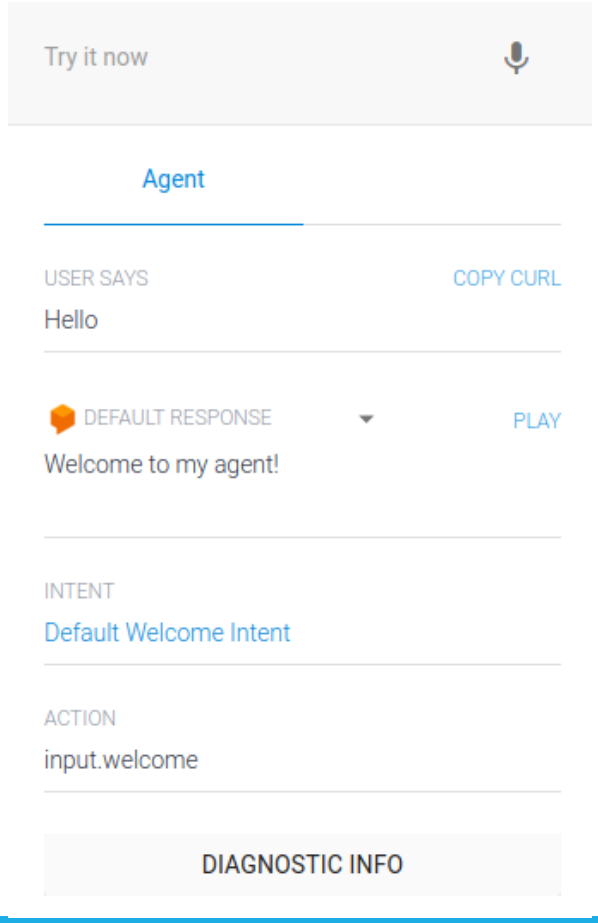
Dialogflow Simulator

Simulator is found at the right side of the console

Top section is where you enter your query

Agent section shows specific information on the query

Diagnostic Info button shows the request and response information related to the query



Dialogflow Simulator

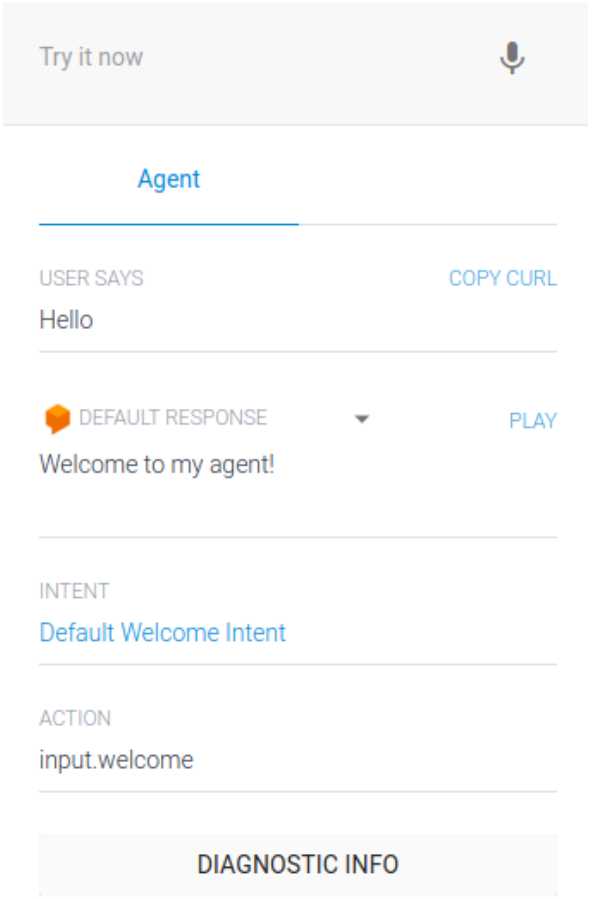
User Says – The query the simulator received

Default Response – Shows how your agent responded to the query.

Contexts – Shows the contexts that were set in the intent

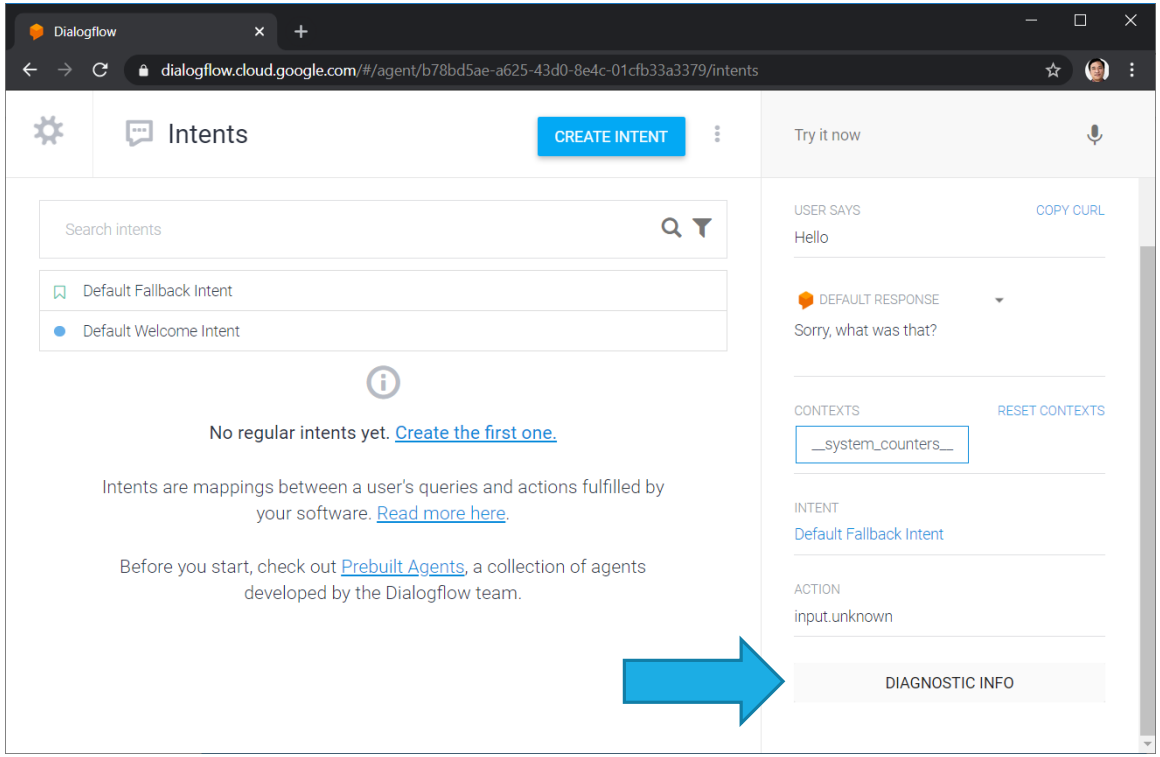
Intent – Intent matched with the query

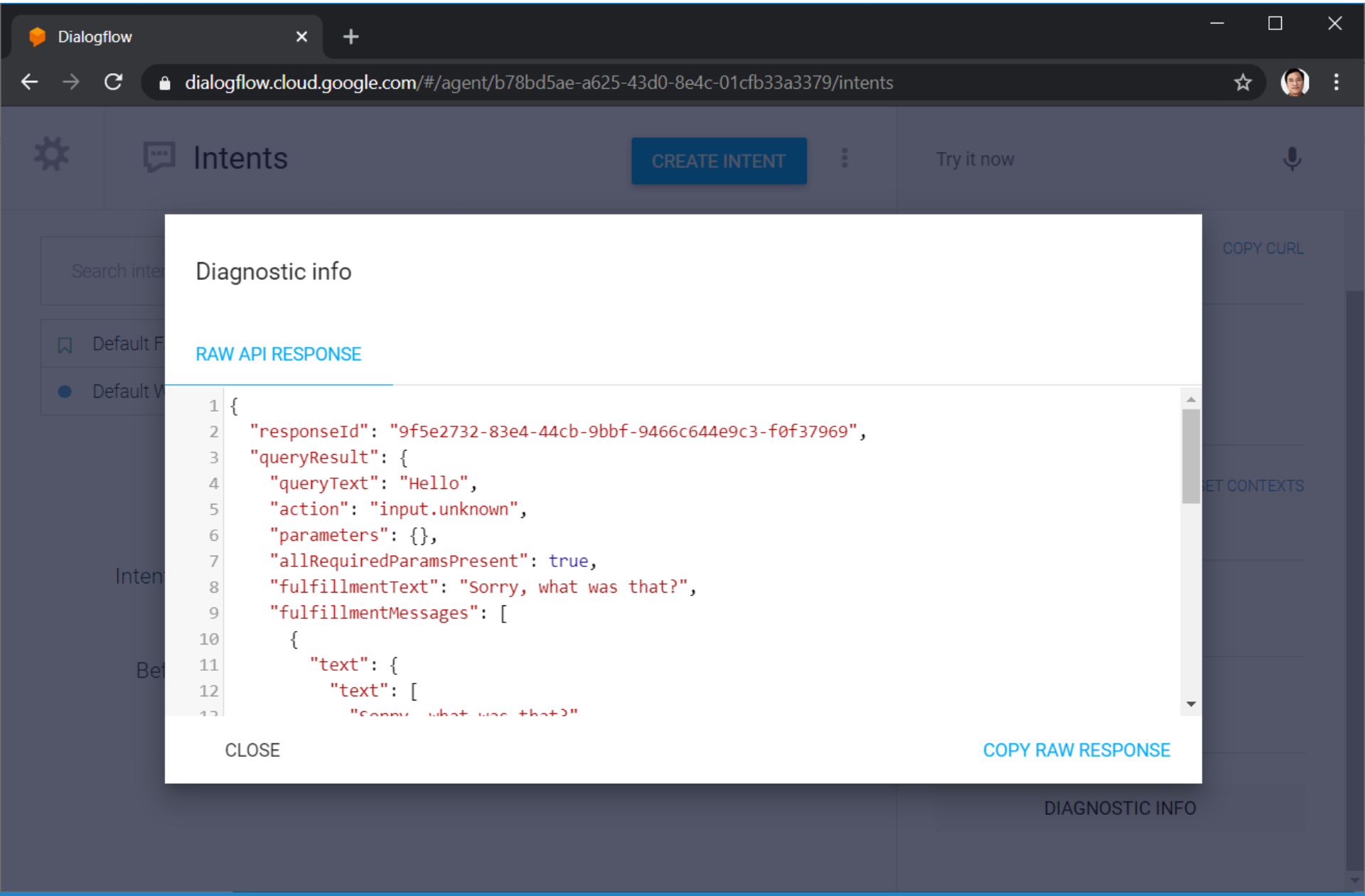
Action – Action that was triggered through the intent



Diagnostic Info

In some cases you may want to see the JSON versions of the interactions




Dialogflow
dialogflow.cloud.google.com/#/agent/b78bd5ae-a625-43d0-8e4c-01cfb33a3379/intents
Intents
CREATE INTENT
Try it now
COPY CURL
Diagnostic info
RAW API RESPONSE
{
"responseId": "9f5e2732-83e4-44cb-9bbf-9466c644e9c3-f0f37969",
"queryResult": {
"queryText": "Hello",
"action": "input.unknown",
"parameters": {},
"allRequiredParamsPresent": true,
"fulfillmentText": "Sorry, what was that?",
"fulfillmentMessages": [
{
"text": {
"text": [
CLOSE
COPY RAW RESPONSE
DIAGNOSTIC INFO

Agent Design Guide

https://cloud.google.com/dialogflow/docs/agents-design

Objectives

When thinking about your agent's objective, consider the following points:

- What is your business trying to achieve?
- What will your users expect from your agent?
- How often will users interact with your agent?
- Balancing your business goals and user expectations will make for an overall better experience.

Summary

What we have learnt

- Bots Architecture
- Applications of Bots
- How to develop Bots