

Topic 8

Introduction to Bots

ST0249 (AIML) AI & MACHINE LEARNING

Learning Outcomes

Introduction to Bots

- Bots Architecture
- Bots Applications
- Developing Bots

Bots Architecture

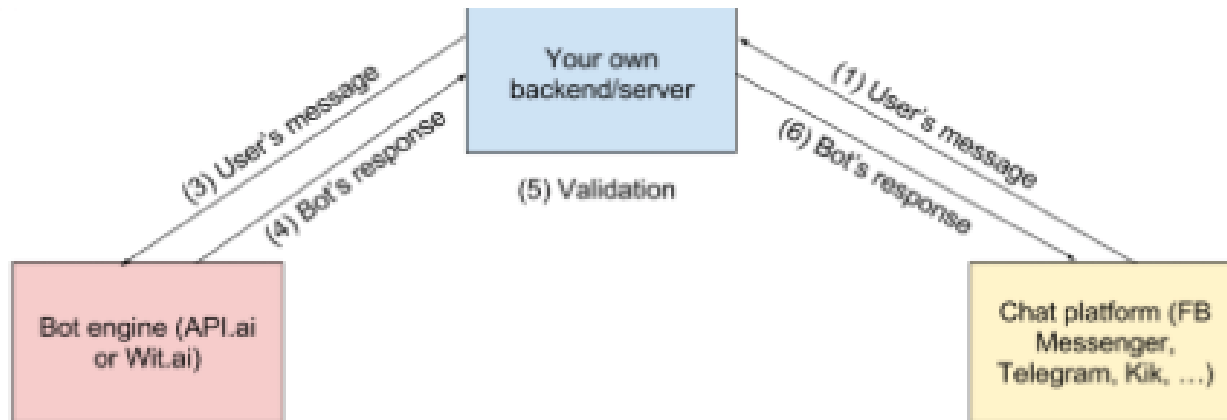
What is a Bot

Bot is a software that automates things we do

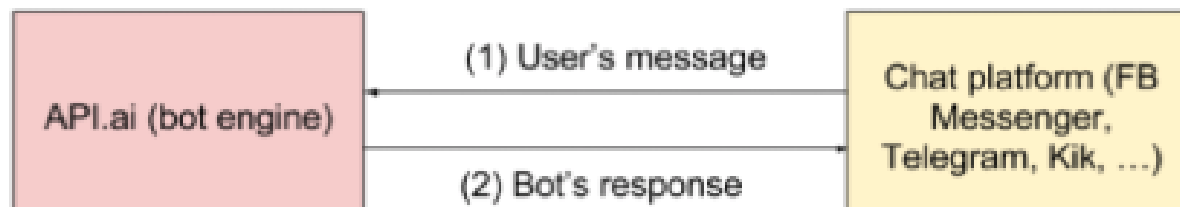
One example is Chatbot

New Channel for businesses to reach new audiences

BOT Architecture



Simple chatbot architecture with API.ai



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 name

CREATE



ADD SAMPLE DATA

Select sample data to be loaded into new agent or leave unselected for empty agent



DEFAULT LANGUAGE

English – en



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

DEFAULT TIME ZONE

(GMT-7:00) America/Denver



Date and time requests are resolved using this timezone.

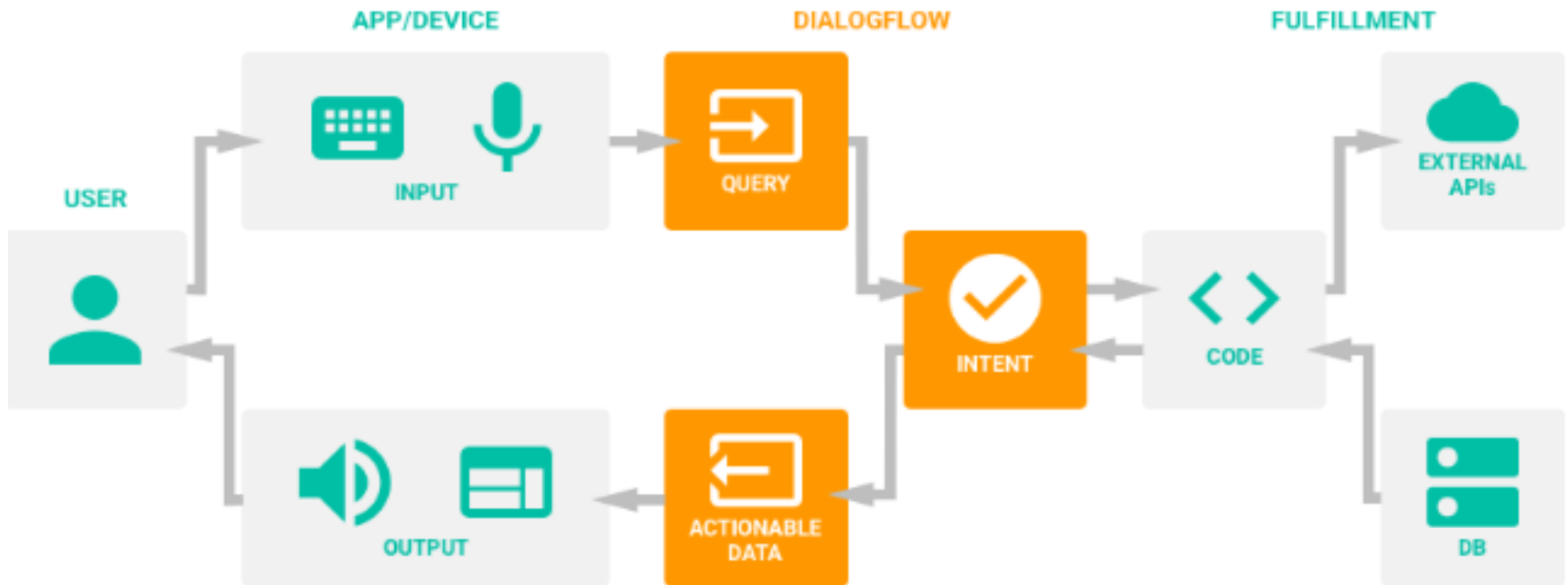
GOOGLE PROJECT

Create a new Google project



Enables Cloud functions, Actions on Google and permissions management.

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

API.ai

WIY.ai

Motion.ai

Chatfuel

OnSequel

Botsify

Microsoft Bot Framework

Bot engines

Do the heavy lifting for you

Requirements

DialogFlow Account

Facebook Developers Account

Need to create a Facebook Application to connect DialogFlow Bot page

Create A Facebook page

Create a Page

Give your brand, business or cause a voice on Facebook and connect with the people who matter to you.

It's free to set up. Just choose a Page type to get started.



Local Business or Place



Company, Organization or Institution



Brand or Product



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 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

Try it now




Agent

USER SAYS

Copy icon

COPY CURL

Hello

 DEFAULT RESPONSE

Dropdown arrow

Play icon

PLAY

Welcome to my agent!

INTENT

Default Welcome Intent

ACTION

input.welcome

DIAGNOSTIC INFO

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


Try it now

Agent

USER SAYS

Copy CURL

Hello

 DEFAULT RESPONSE

PLAY

Welcome to my agent!

INTENT

Default Welcome Intent

ACTION

input.welcome

DIAGNOSTIC INFO

Diagnostic Info

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

RAW API RESPONSE

FULFILLMENT REQUEST

FULFILLMENT RESPONSE

```
1 {
2   "responseId": "ea9914fe-dc1b-42bc-94fb-7d8c3e045f1",
3   "queryResult": {
4     "queryText": "Hello",
5     "action": "input.welcome",
6     "parameters": {},
7     "allRequiredParamsPresent": true,
8     "fulfillmentText": "Welcome to my agent!",
9     "fulfillmentMessages": [
10      {
11        "text": {
12          "text": [
13            "Welcome to my agent!"
14          ]
15        }
16      }
17    ],
18    "intent": {
19      "name": "projects/stackdriver-e41ff/agent/intent",
20      "displayName": "Default Welcome Intent"
21    },
22    "intentDetectionConfidence": 1,
23    "diagnosticInfo": {
24      "webhook_latency_ms": 3424
25    },
26    "languageCode": "en"
27  },
28  "webhookStatus": {
29    "message": "Webhook execution successful"
30  }
31 }
```

Agent Design Checklist

<https://dialogflow.com/docs/best-practices/AgentDesignChecklist.pdf>

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