



25. HROUG

godišnja konferencija

12. - 16.10.2021.

Rovinj, Croatia



TALK TO ME GENTLY

How to integrate Oracle DB with Google Assistant and add it to the APEX application



—WHO AM I?

Oracle APEX Developer at Pretius

Gaining experience in linternational projects for the pharmacy and telecom. Author of articles at <https://pretius.com/blog/>. Member of the Month in January 2020 at apex.world.

Few words about me



TODAY'S AGENDA

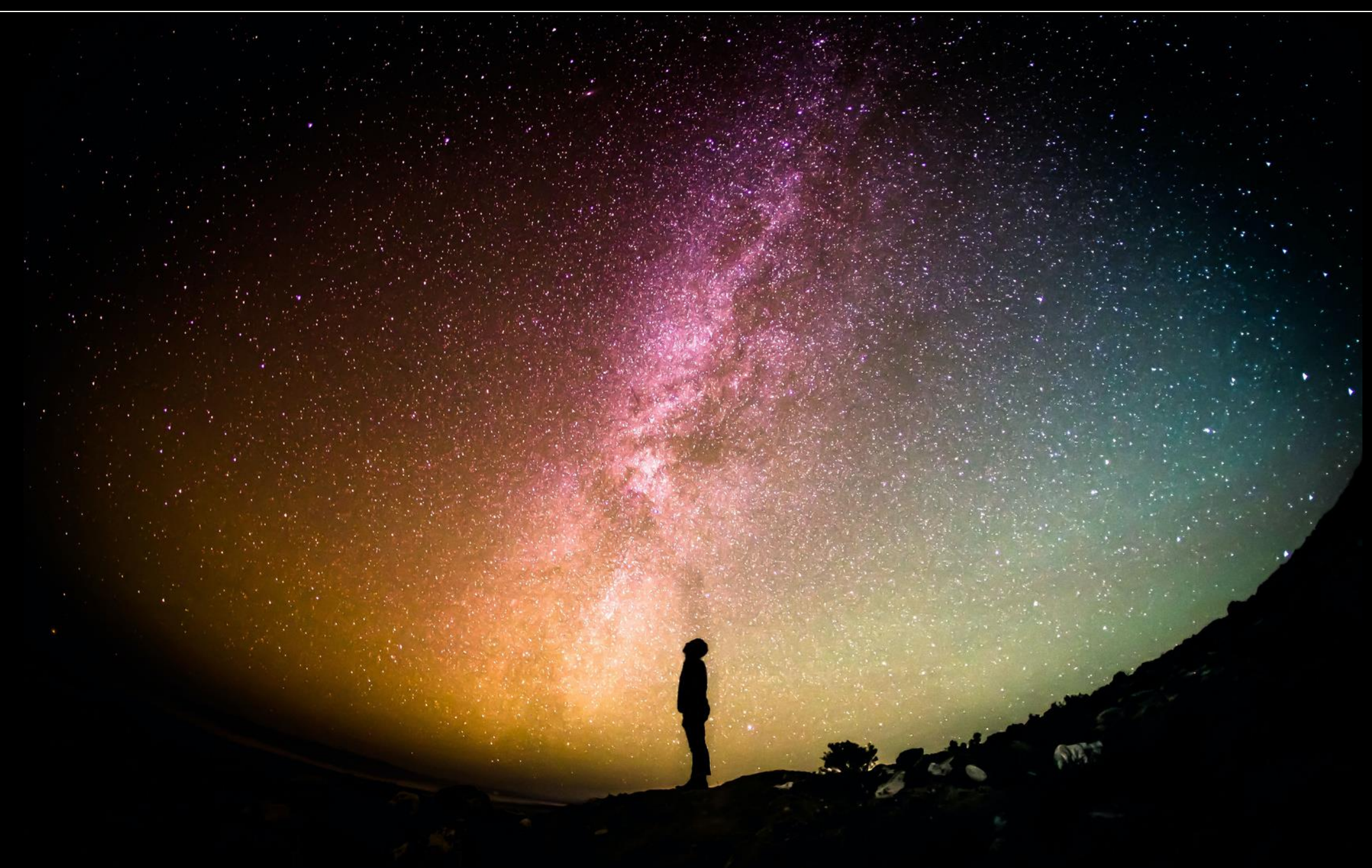
| | |
|--|----|
| Idea & use cases | 01 |
| Prepare DB and application + Demo | 02 |
| Dialogflow and Action on Google + Demo | 03 |
| How use GA (not only) in APEX! | 04 |
| Avoid my problems | 05 |
| Pros of such solution | 06 |

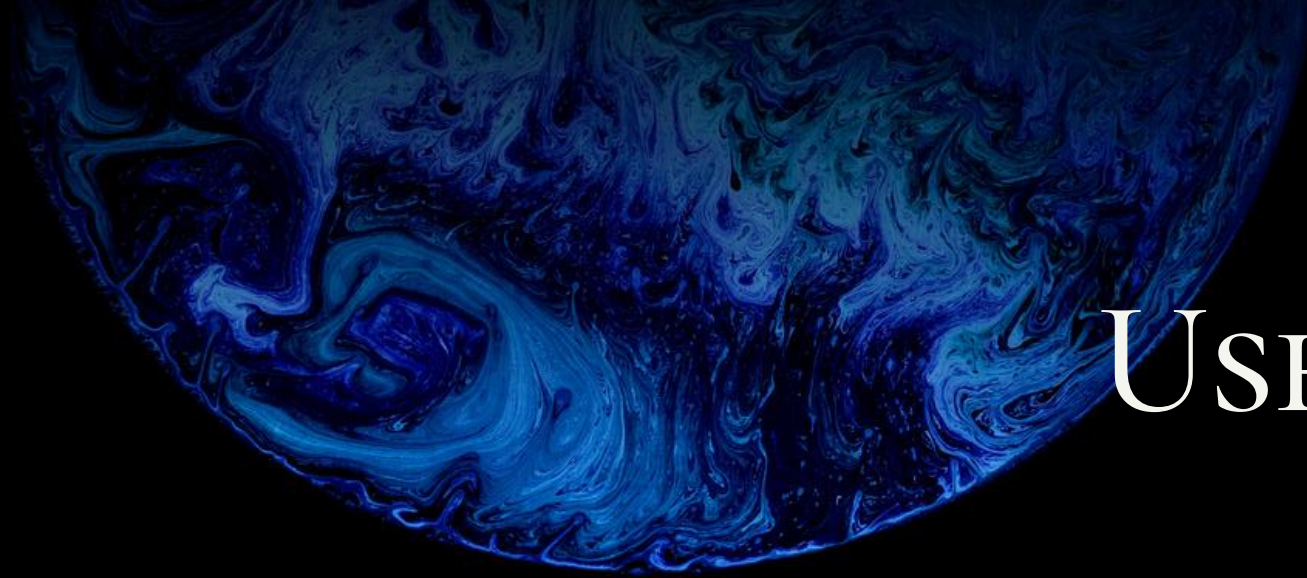


A SIMPLE BUT BRILLIANT THOUGHT

"Dominik, I need to connect the Google assistant with the Oracle database. Check if anyone has done it before and if not, you would take care of it."

Przemysław Staniszewski, March 2019





USE CASES



In the lab

You work in pharmacy and you ask the assistant:

Do we have a sufficient supply of all reagents in the laboratory?



On the way

You are connected to the base of a large shipping company and as a driver you ask:

What is my next destination to deliver this order?

Idea & use cases



... MORE USE CASES



As a blind person

Imagine that you are working with a person whose main sense of communication is not sight but hearing and conversation. With proper preparation of the assistant, you can also give access to the database to the blind!



Developer

Ask about last night schedule.



OUT OF SPACE USE CASE

Space walk

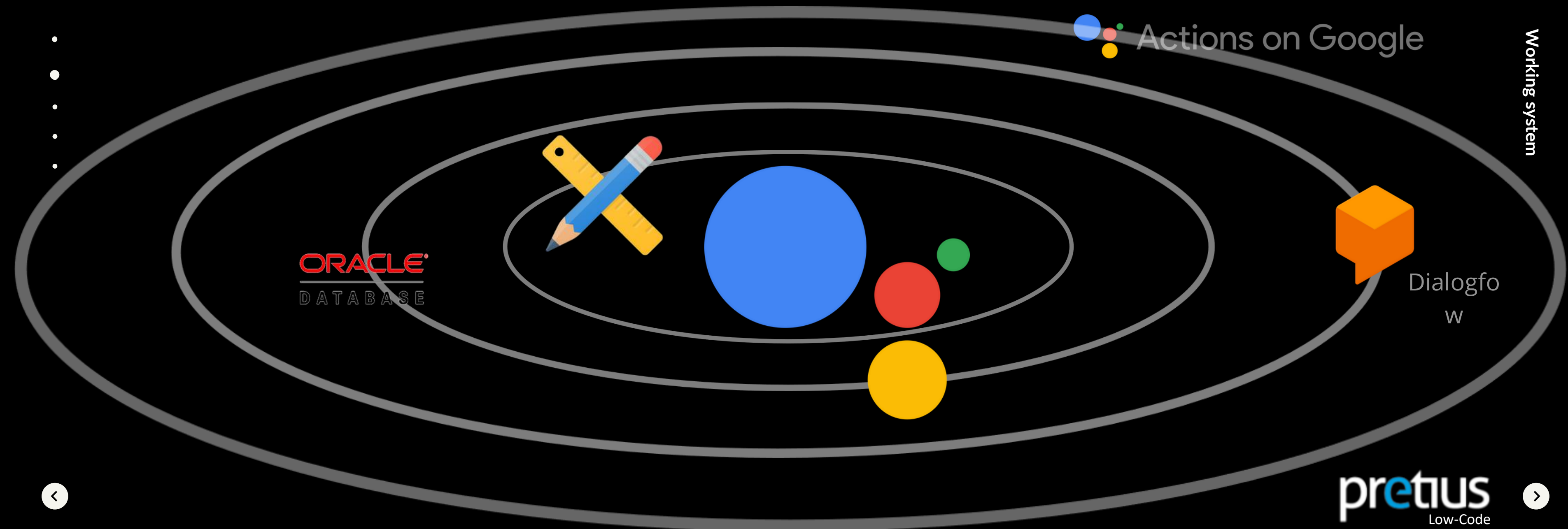
In space around a space station it can be difficult to find a keyboard, but what if you can only use your voice to communicate?

AND MANY MORE



WORKING GOOGLE ASSISTANT TOOLS SYSTEM:

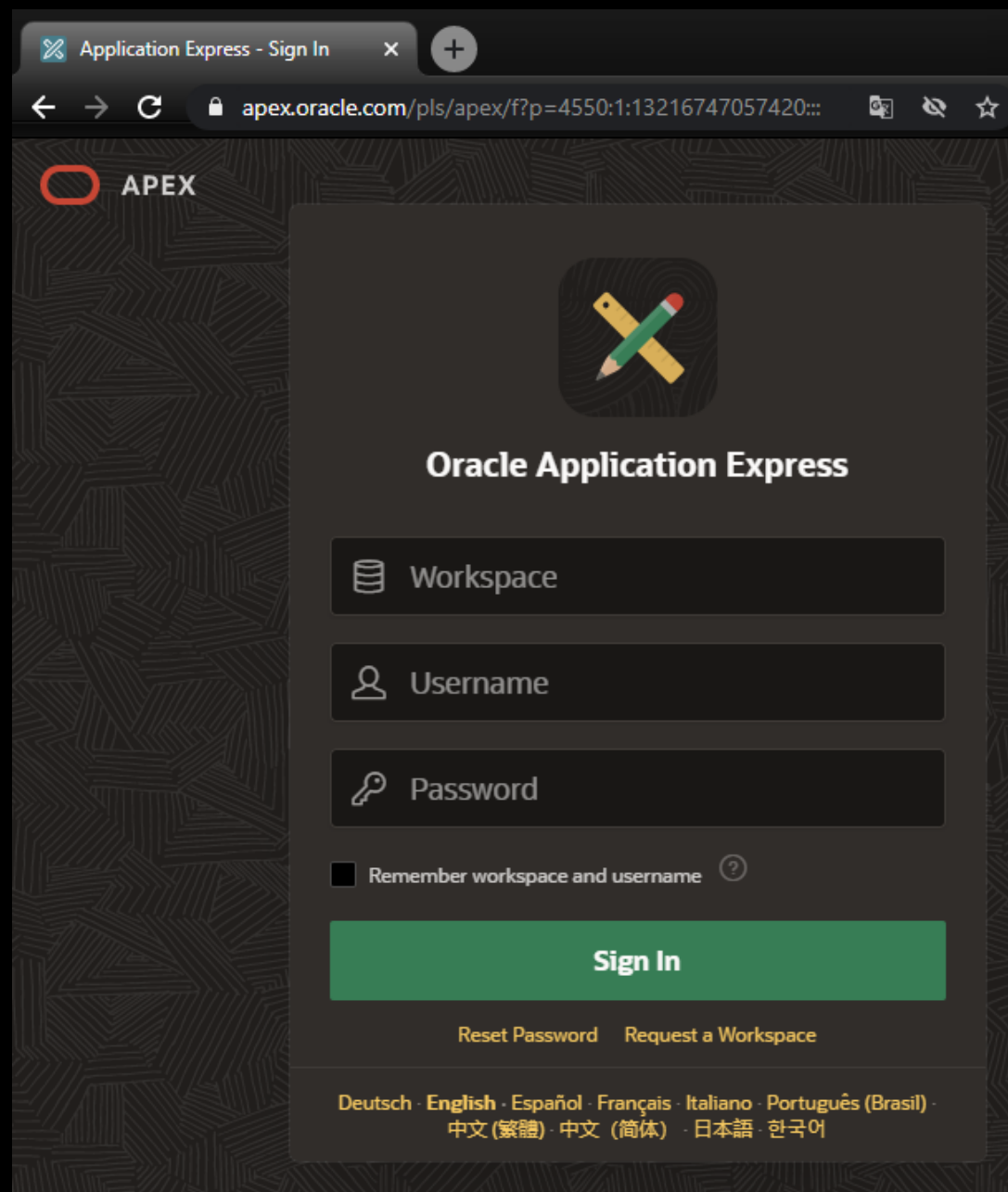
- Dialogflow
- Actions on Google
- (in my integration) Oracle Database with Oracle APEX Application



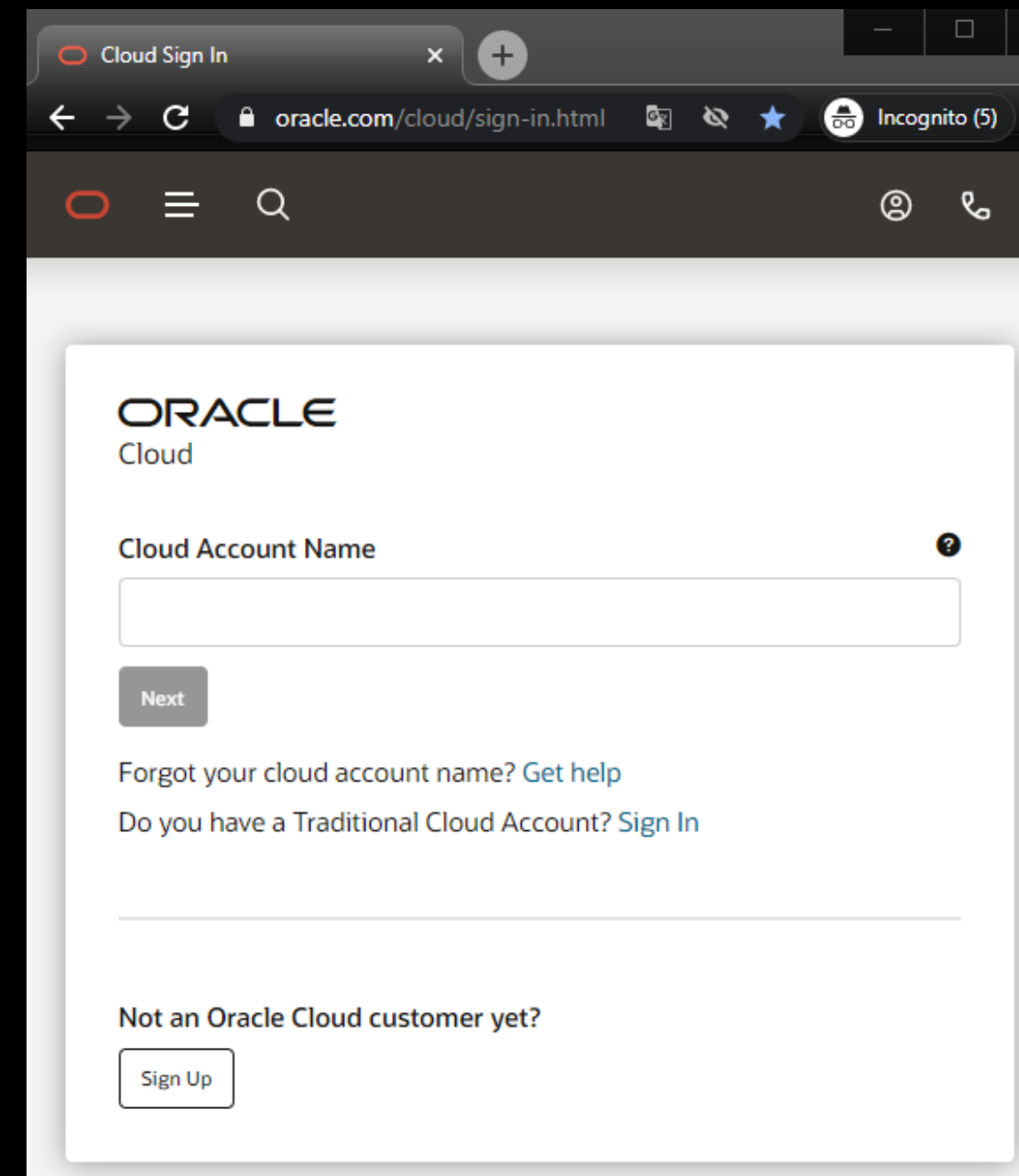
PREPARE DATABASE AND APPLICATION

Easiest and fastest solutions:

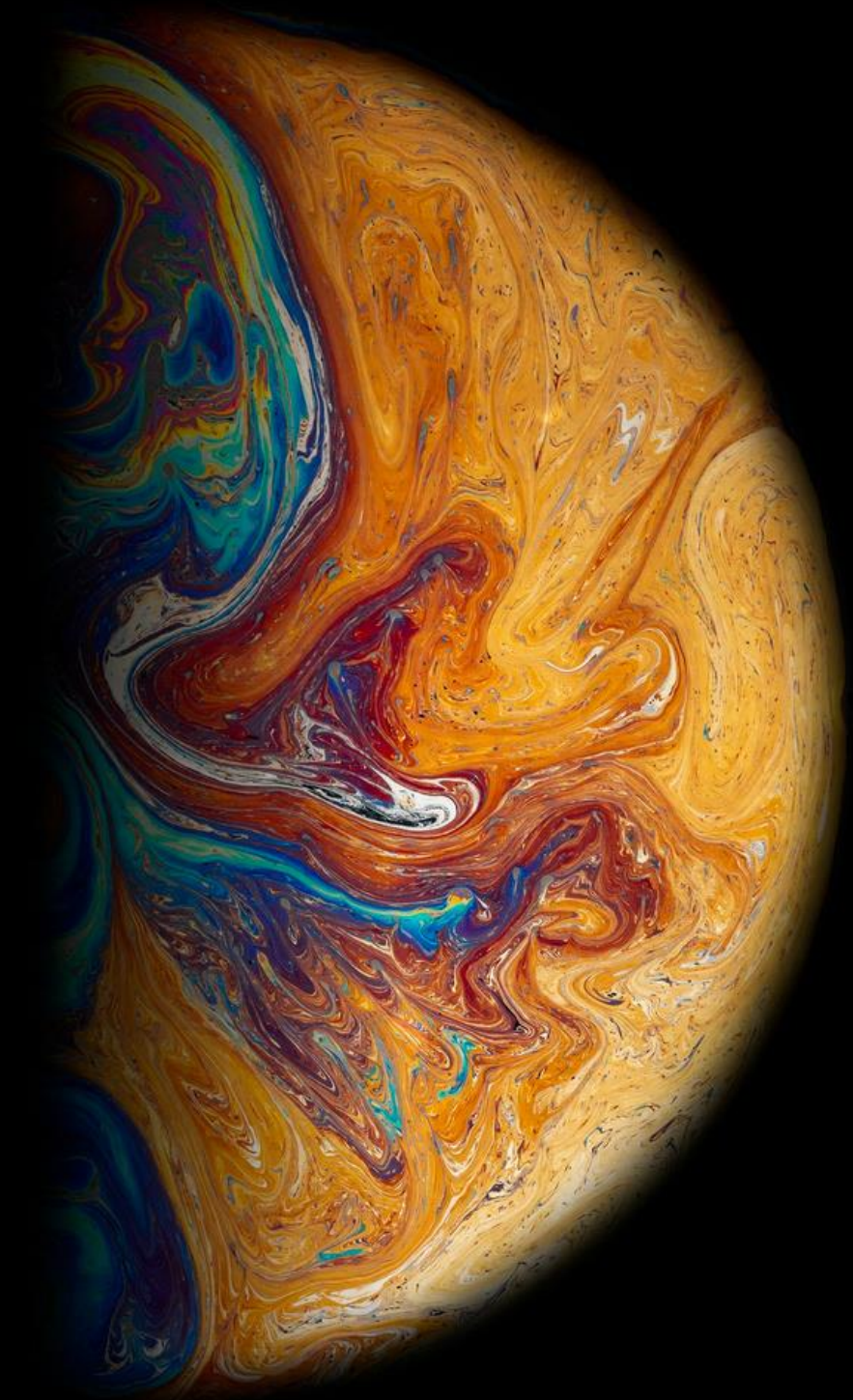
- apex.oracle.com
- oracle.com/cloud/
- any other APEX application "visible" on the internet



The screenshot shows the Oracle Application Express sign-in page. The browser address bar displays 'apex.oracle.com/pls/apex/f?p=4550:1:13216747057420:'. The page features the APEX logo and a sign-in form with fields for 'Workspace', 'Username', and 'Password'. A 'Remember workspace and username' checkbox is present. A green 'Sign In' button is at the bottom, with links for 'Reset Password' and 'Request a Workspace' below it. Language options are listed at the very bottom.



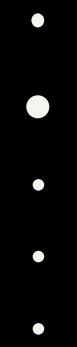
The screenshot shows the Oracle Cloud sign-in page. The browser address bar displays 'oracle.com/cloud/sign-in.html'. The page features the Oracle Cloud logo and a sign-in form with a 'Cloud Account Name' field. A 'Next' button is below the field. Links for 'Forgot your cloud account name? Get help' and 'Do you have a Traditional Cloud Account? Sign In' are provided. At the bottom, there is a 'Sign Up' button for non-customer users.

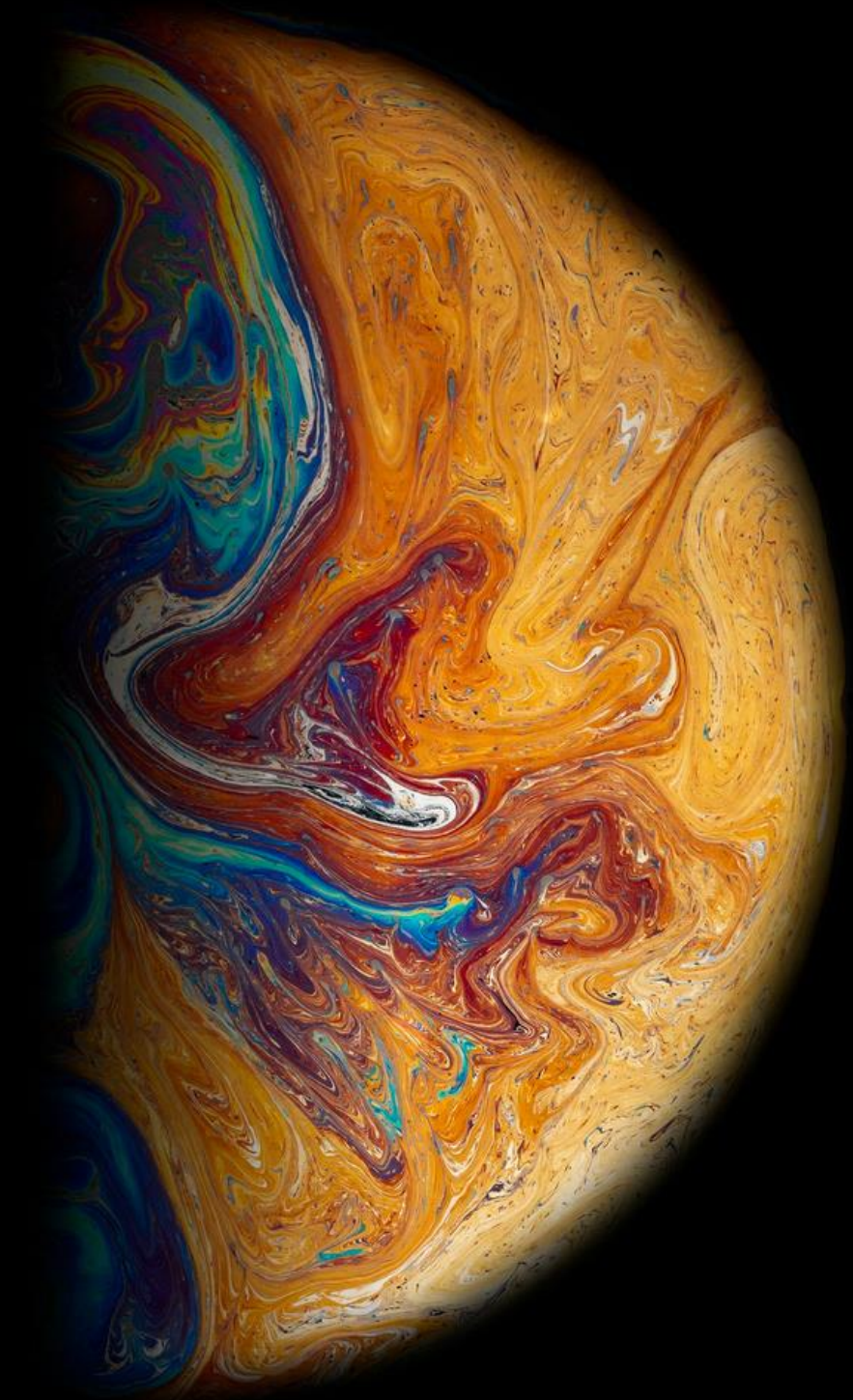


— DEMO

I will show you what I just told you about

Demo

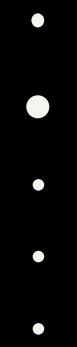




LET'S SUM UP DEMO

What have I shown so far in APEX and DB?

Demo summary





DIALOGFLOW

... is a natural language understanding platform used to design and integrate a conversational user interface into mobile apps, web applications, devices, bots, interactive voice response systems and related uses.

source: Wikipedia

The screenshot displays the Dialogflow console interface. On the left is a navigation sidebar with the Dialogflow logo and menu items: test, en, Intents (selected), Entities, Knowledge [beta], Fulfillment, Integrations, Training, History, Analytics, and Prebuilt Agents. The main content area is titled 'Default Welcome Intent' and includes a 'SAVE' button. It features sections for 'Contexts', 'Events' (with 'Welcome' and 'Google Assistant Welcome' tags), and 'Training phrases' (with a search bar and a list of phrases: 'Add user expression', 'just going to say hi', 'heya', and 'hello hi').



DIALOGFLOW ES

Intents and Entities

The screenshot displays the Dialogflow Essentials interface for configuring an entity. The main view is for the 'description' intent, showing training phrases and action parameters. A secondary view for the 'addr_description' entity is overlaid, showing configuration options and a table of entity values.

Entity Configuration: addr_description

- Define synonyms
- Regexp entity
- Allow automated expansion
- Fuzzy matching

| map_description | description, desc |
|--------------------------|-------------------|
| Click here to edit entry | |

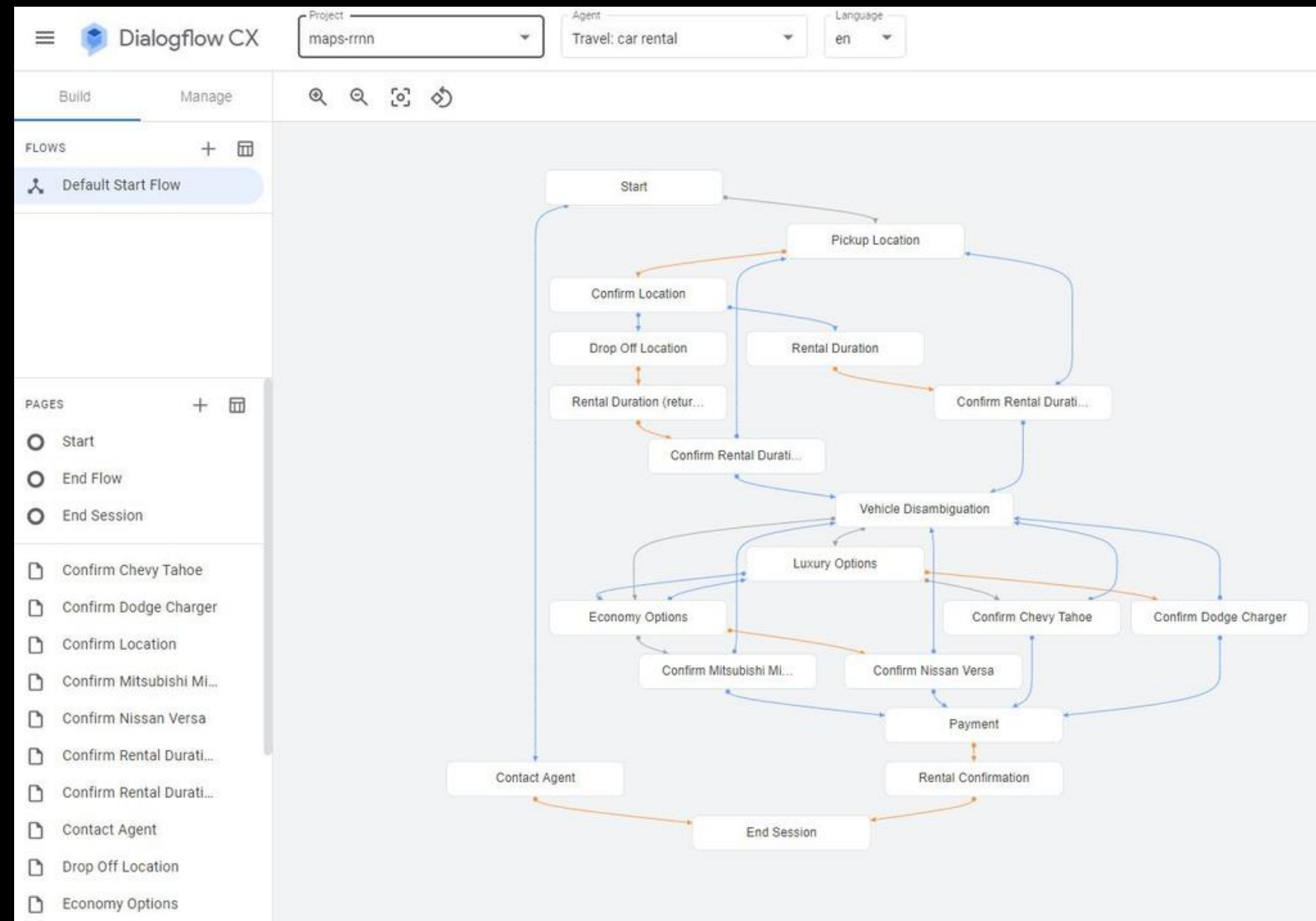
Action and parameters table:

| REQUIRED | PARAMETER NAME | ENTITY | VALUE | IS LIST |
|--------------------------|------------------|-------------------|--------------------|--------------------------|
| <input type="checkbox"/> | addr_description | @addr_description | \$addr_description | <input type="checkbox"/> |
| <input type="checkbox"/> | Enter name | Enter entity | Enter value | <input type="checkbox"/> |



DIALOGFLOW CX

... has new version = new fresh look

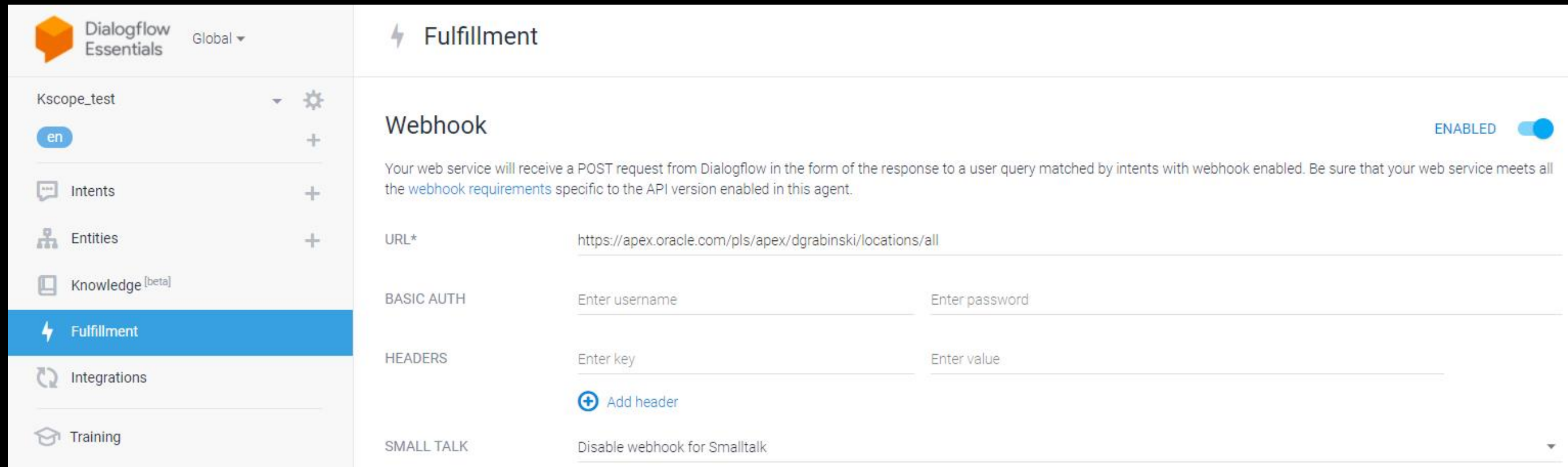


Dialogflow CX



DIALOGFLOW

A few words about security



The screenshot shows the Dialogflow Fulfillment configuration page. On the left is a navigation sidebar with 'Fulfillment' selected. The main content area is titled 'Fulfillment' and contains a 'Webhook' section. The 'Webhook' section is currently 'ENABLED' as indicated by a blue toggle switch. Below the toggle, there is explanatory text: 'Your web service will receive a POST request from Dialogflow in the form of the response to a user query matched by intents with webhook enabled. Be sure that your web service meets all the [webhook requirements](#) specific to the API version enabled in this agent.' The configuration fields include: 'URL*' with the value 'https://apex.oracle.com/pls/apex/dgrabinski/locations/all'; 'BASIC AUTH' with fields for 'Enter username' and 'Enter password'; 'HEADERS' with fields for 'Enter key' and 'Enter value', and an 'Add header' button; and 'SMALL TALK' with a 'Disable webhook for Smalltalk' option.

Dialogflow security





— DEMO

I will show you what I just told you about

Demo





LET'S SUM UP DEMO

What have I shown so far in Dialogflow?

ACTIONS ON GOOGLE

... is a development platform for the Google Assistant. It allows the third-party development of "actions"—applets for the Google Assistant that provide extended functionality

The screenshot shows the 'Manage releases' interface in the Google Actions on Google console. The left sidebar contains navigation options: Directory information, Location targeting, Surface capabilities, Company details, Brand verification, Release (selected), and Assistant links. The main content area is titled 'Manage releases' and has tabs for 'CURRENT RELEASES' and 'PAST RELEASES'. A dropdown menu is set to 'All channels'. A table lists releases with columns for Release name, Channel, Review status, Modified by, and Last modified. A red alert banner states: 'Your submission of version 7 was denied for the following reason: [More info](#)'. Below this, a status message says: 'Status: Want more clarification or think we made a mistake? Please [contact support](#). Otherwise, please submit a new version of your Actions once the problem has been fixed.' A progress bar shows four stages: Submission received, Under review, Review complete, and Rollout (with a '4' in a circle). Buttons for 'Manage deployments' and 'See more' are present. The table below the progress bar shows the following data:

| Release name | Channel | Review status | Modified by | Last modified |
|------------------|---------|---------------|---------------------|---------------------------|
| Version 7 | N/A | Denied | apexandga@gmail.com | Mar 27, 2019, 4:44:23 AM |
| Version 6 | N/A | Approved | apexandga@gmail.com | Mar 26, 2019, 3:21:43 PM |
| v-[5]-2019-03-22 | N/A | Denied | apexandga@gmail.com | Mar 22, 2019, 11:34:23 AM |
| v-[4]-2019-03-22 | N/A | Approved | apexandga@gmail.com | Mar 25, 2019, 8:37:00 PM |
| v-[3]-2019-03-21 | N/A | Approved | apexandga@gmail.com | Mar 22, 2019, 9:15:47 AM |
| v-[2]-2019-03-21 | N/A | Denied | apexandga@gmail.com | Mar 21, 2019, 12:38:10 PM |

ACTIONS ON GOOGLE

... will finally say yes! You can now talk to "hi APEX"

Actions Console Overview Develop Test **Deploy** Analytics APEX View only

Directory information Location targeting Surface capabilities Company details Brand verification **Release** Assistant links

Manage releases

Create a new release

Officially launch your Action to Google Assistant users. All new beta and production releases go through a review process.

Start new release

Manage Releases

CURRENT RELEASES PAST RELEASES All channels

| Release name | Channel | Review status | Modified by | Last modified |
|--------------|------------|---------------|---------------------|--------------------------|
| Version 8 | Production | Approved | apexandga@gmail.com | Mar 27, 2019, 9:12:50 AM |

Status: This version is approved and is currently being served to users.

Submission received Under review Review complete Rollout

Manage deployments See more



MY CHAT BOT

... and "talk to hi APEX" ->

Actions Console Overview Develop Test **Deploy** Analytics

Manage releases

Create a new release

Officially launch your Action to Google Assistant users. All new beta and production releases go through a review process.

Start new release

Manage Releases

CURRENT RELEASES PAST RELEASES

| Release name | Channel | Review status | Modified by | Last modified |
|--------------|------------|---------------|---------------------|---------------|
| Version 8 | Production | Approved | apexandga@gmail.com | Mar 2 |

Status: This version is approved and is currently being served to users.

Submission received Under review Review complete

20:15

hi APEX

Hello to you too! What do you need to know? Employee salary (please, give name and surname) or a sth about department (please, give me name of the department)

give me steven king salary

Steven King salary: 24000. Is there anything else you would like to know (about employee or department)?

What is average in marketing

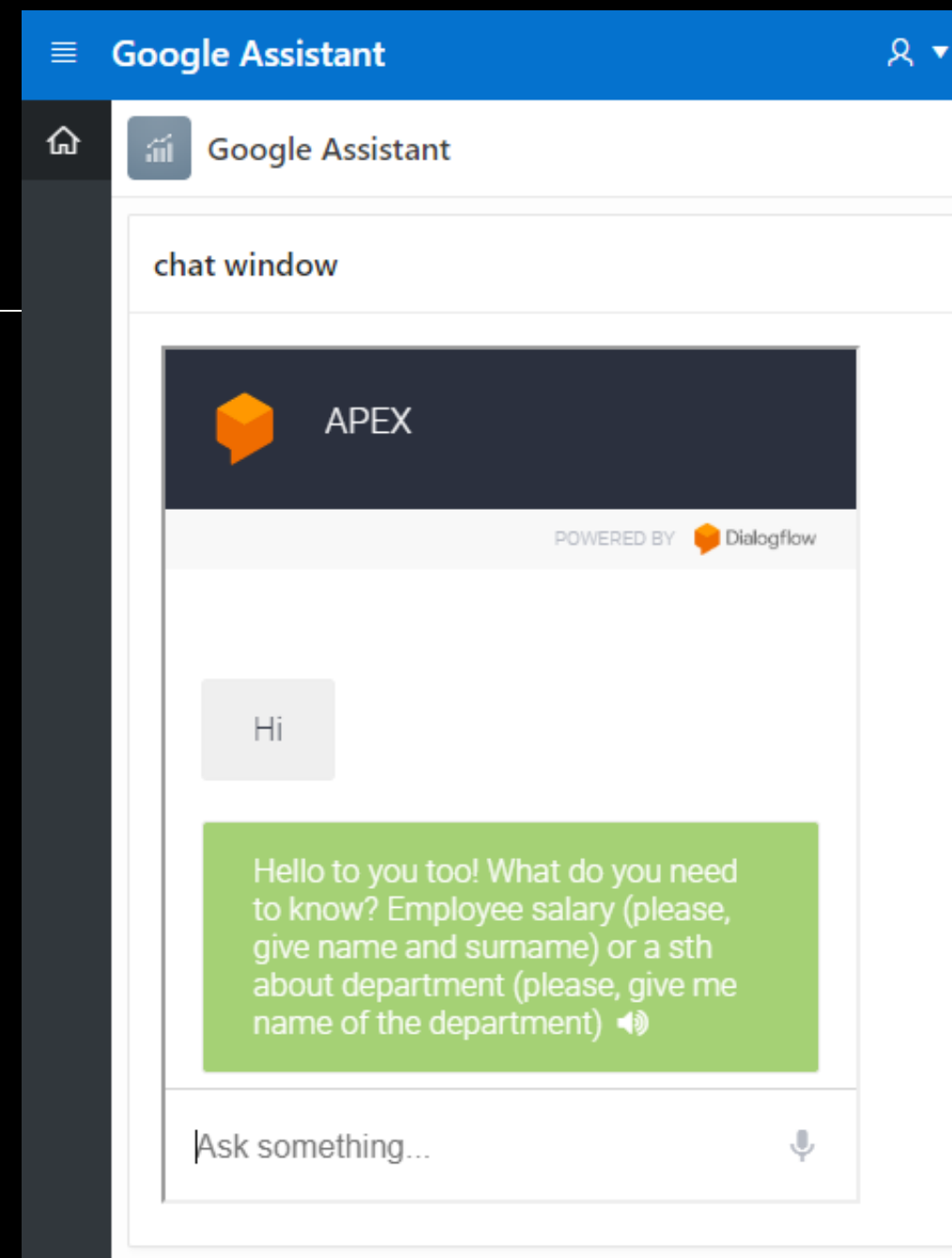
Department name: Marketing, math operation: avg, result: 9500. Is there anything else you would like to know (about employee or department)?

Talk to "hi APEX"

HOW USE GA (NOT ONLY) IN APEX



Chat in APEX ... ?



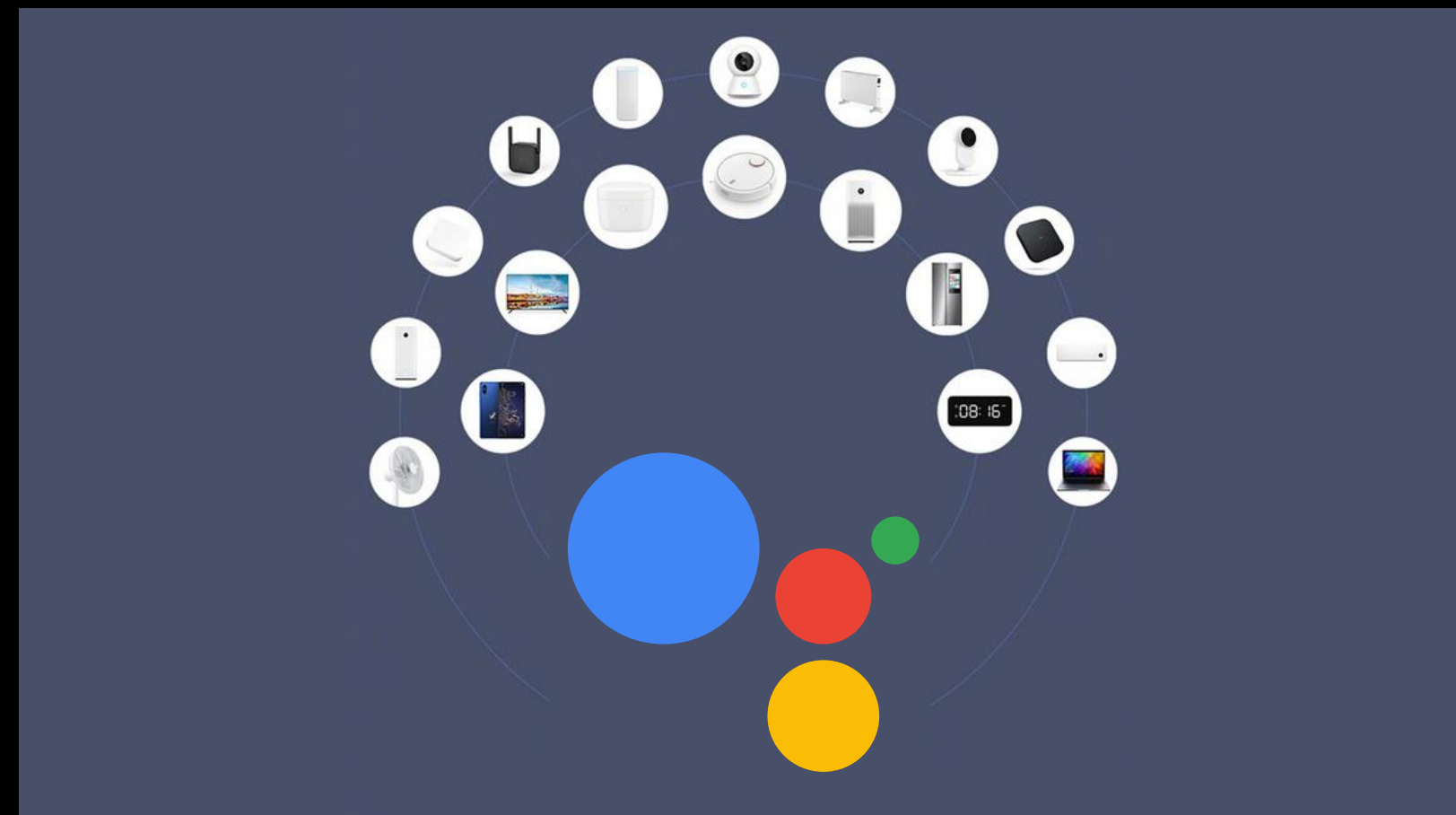
Where to use the assistant?



HOW USE GA (NOT ONLY) IN APEX



... or other devices?



Where to use the assistant?



— DEMO

I will show you what I just told you about

Demo





LET'S SUM UP DEMO

What have I shown so far in Actions on Google?

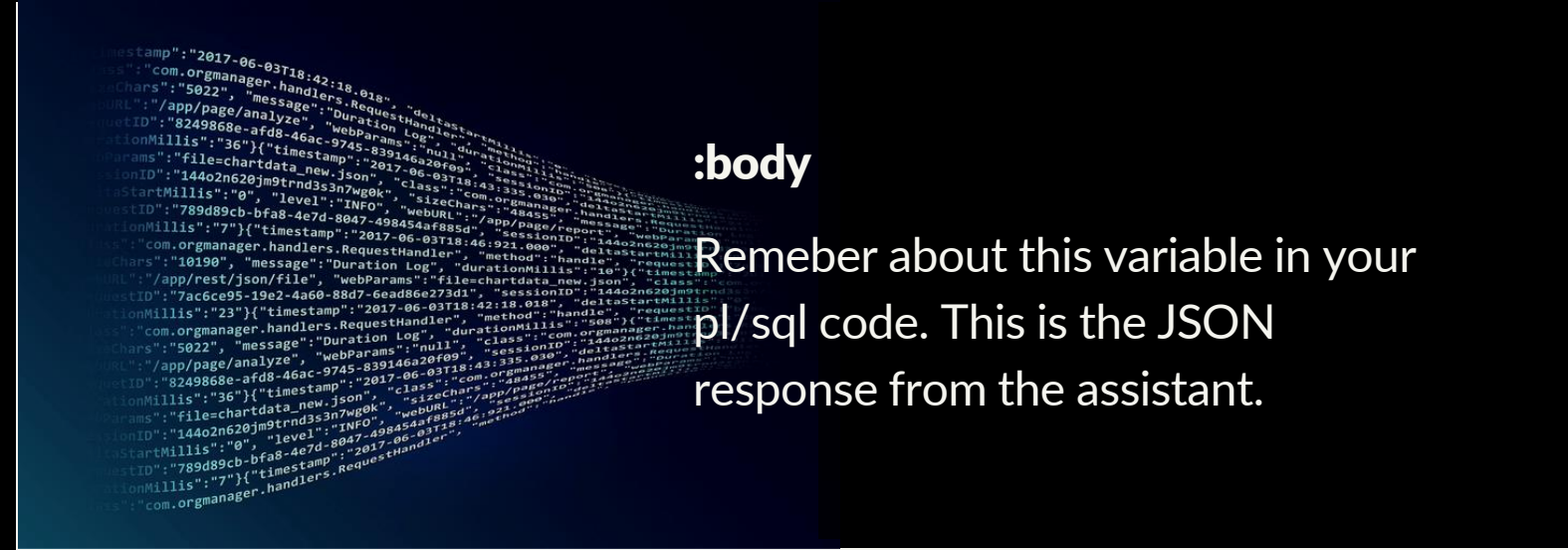


Demo summary



— AVOID MY PROBLEMS

Each integration has its own challenges. Here are some useful tips:



:body

Remember about this variable in your pl/sql code. This is the JSON response from the assistant.

"AB - CD"

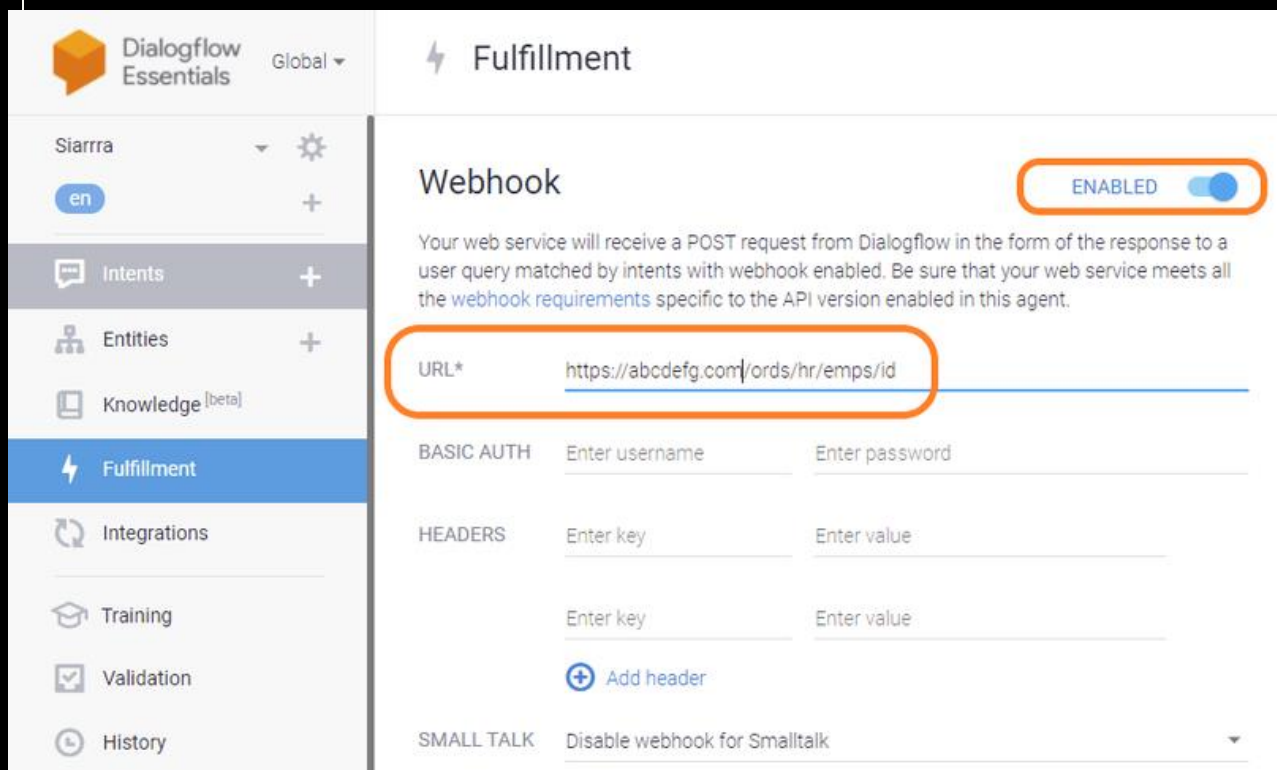
dash problem

Along with dash remember about quotation marks e.g. apex_json.get_varchar2('queryresult.parameters."last - name"');

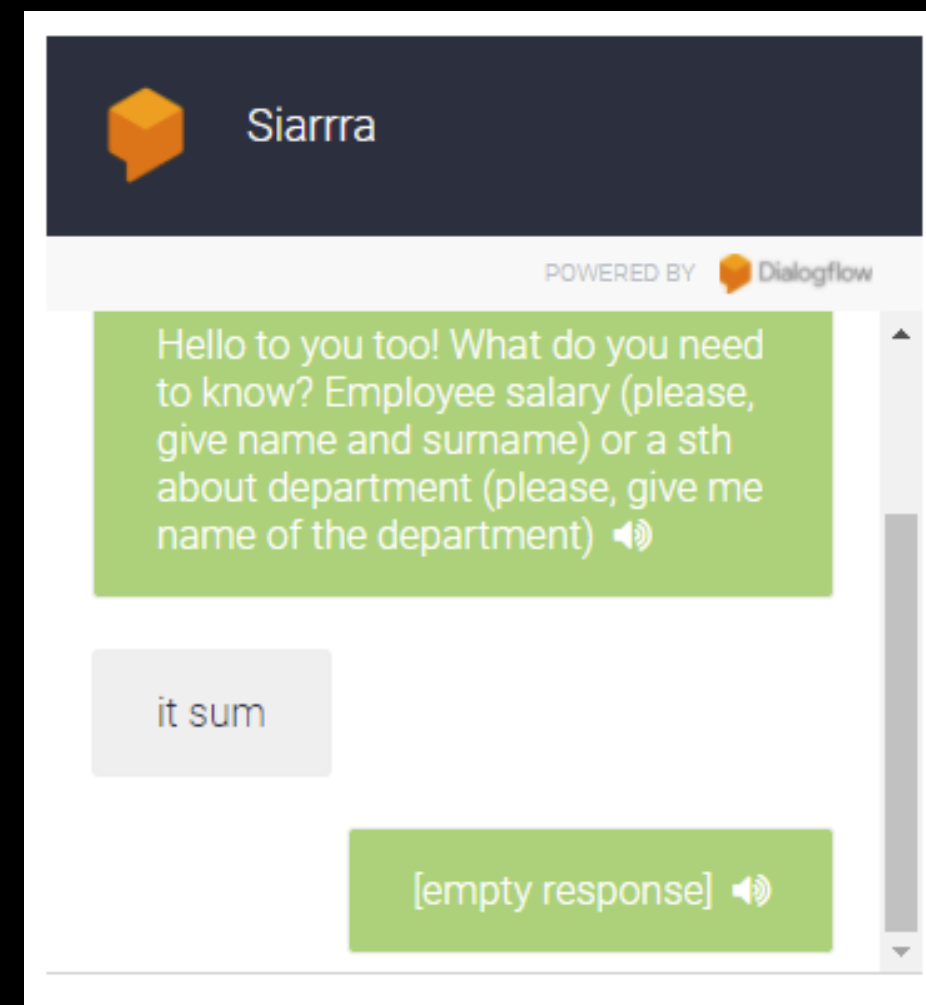
— AVOID MY PROBLEMS

EMPTY RESPONSE

Worst integration nightmare



The screenshot shows the Dialogflow Fulfillment configuration page for an agent named 'Siarra'. The 'Webhook' section is highlighted with an orange box, and the 'ENABLED' toggle switch is also highlighted with an orange box. The URL field is set to 'https://abcdefg.com/ords/hr/emps/id' and is also highlighted with an orange box. The page includes sections for BASIC AUTH, HEADERS, and SMALL TALK.



The screenshot shows a chat interface for 'Siarra' powered by Dialogflow. The user has sent the message 'it sum'. The system response is an empty green box with the text '[empty response]' and a speaker icon. The user's message is also highlighted with a green box.



Empty response - NO !!!!



PROS OF SUCH SOLUTION

-
-
-
-
-
-

Deploy ->

Put it on production - enjoy your assistant everywhere e.g. out of space :), You can use it from every device supporting Google Assistant.

<- or not deploy

Prepare an assistant only within your schema - you can only use your bot from the Database / APEX level e.g. in an airtight customer environment.



Deploy or not deploy - that is the question





SUMMARY

Great things can be created with powerful tools !

A P E X

Almost the end

WHAT NEXT?

Usefull links:

apex.oracle.com
oracle.com/pl/cloud/
dialogflow.com
console.actions.google.com

Git:

github.com/dominikgrabinski/
HrOUG21

OK GOOGLE

Articles

<https://pretius.com/integration-of-google-assistant-with-oracle-apex-part-1/>

<https://pretius.com/integration-of-google-assistant-with-oracle-apex-and-oracle-db-part-2/>

TALK TO

Contact me

dgrabinski@pretius.com
grabinski.dominik@gmail.com
Twitter:
@d_grabinski

HI APEX :)



— THANK YOU

Thank you for your attention.

The End





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