



# Conversation Design Workshop

Google Cloud

# What

*“A carefully curated back and forth between human and  
artificially intelligent machine” -*

Daniel Padgett, Conversation Design Lead at Google

# Why conversation design?



The more an interface leverages human conversation, the less users have to be taught how to use it.



If you follow good design principles, you're much more likely to have a successful user experience.



Map out what users can do in a space, while considering both the user's needs and the technological constraints



# Introduction

Google Cloud



# Example of a conversation

**B:** Hi, Joe. Thanks for calling Verizon Wireless. This call may be recorded. For your convenience, we now have options to quickly assist you. We can send you a secure link for most options to our digital assistant with live chat. Or create an appointment for us to call you. Simply download the MyVerizon app, click on “more” and select “contact us” to reserve your appointment time. Our current hours of operation are Monday through Saturday 8AM to 7pm. And Sundays 8AM to 5PM. Using your keypad, please enter your account pin, followed by the pound sign.

**C:** customer service

**B:** Got it. Could you give me a little more detail so I can get you to the right person?

**C:** plan question

**B:** Thanks. You may have to hold a few minutes for an agent. I can go ahead and get started with your request now, okay?

**C:** okay

**B - bot**

**C - customer**

**B:** Great. Let's get started. I would be happy to help you. Your current plan is Start Unlimited for your line with Unlimited data at \$70.00 per month mixMatch. Would you like to explore other plans?

**C:** yes

**B:** To get started, let me pull up your account info. Right now you have our unlimited on your account. All Unlimited Mix and Match plans come with unlimited talk, text and data, along with specific features and entertainment perks. If you don't need an unlimited data plan, our Shared plans let you to Shared 5 GB or 10 GB of data with your family. To learn about mix and match plans, say mix and match. For shared plans, say shared.

**C:** shared

**B:** One moment please. To help you choose, I just sent a text message to your phone with a link to see these plans and their details. Take your time to click the link and review. Feel free to turn on your speaker phone and scroll through the plans. I'll be here waiting to answer your questions. You can expand the details on the plan you're interested in, to see plan features and perks. I'll be here waiting for you. When you're ready to choose a plan please say "continue", or feel free to interrupt the music and ask me a question. When you're ready to choose a plan please say "continue", or feel free to ask me a question.

# Example of a conversation

**C:** okay I'm ready

**B:** Have you selected the plan?

**C:** yes

**B:** Great. What's the name of the plan?

**C:** [no input]

**B:** I didn't catch that. Could you say it again?

**C:** 10 gigabytes

**B:** Are you interested in switching to the 10 GB plan?

**C:** yes

**B:** Since you have selected an account level plan, this plan will need to be applied to all lines on the account. Do you want to apply this plan to all lines on the account?

**C:** how much will it be

**B:** I didn't catch that, Could you try rephrasing.

**C:** Hold the Line access fee

**B:** I'm still having trouble. Could you try again?

**C:** Star Alliance

**C:** hello

**B:** I didn't catch that, Could you try rephrasing.

**C:** yes

**B:** Great, we will switch to 10 GB for your lines ending in 7 0 1 4 and 9 0 9 7. Now, this is important. To avoid prorated charges, we highly recommend the new plan you have selected for your

account to take effect on the start of your next billing cycle, which is June 1. We can also start your new plan today, but you could still be subject to prorated charges. If you want to switch your plans today, say today. Otherwise, say June 1 for it to start on your next billing cycle.

**C:** June 1

**B:** Great! This plan change for lines ending in 7 0 1 4 and 9 0 9 7 will go into effect on June 1. Do you want to continue?

**C:** yes

**B:** Sounds good, your new estimated total monthly cost is \$88.22. Taxes and Verizon Wireless surcharges also apply. Shall I submit your finalized plan change?

**C:** yes

**B:** One moment please while I submit your changes. Your plan change was placed successfully for the line(s) 7 0 1 4 and 9 0 9 7. Is there anything else I can help you with? Please say yes or no.

**C:** [no input]

**B:** I didn't catch that. Could you say it again?

**C:** yes

**B:** Okay, let me know what you need.

**C:** customer service

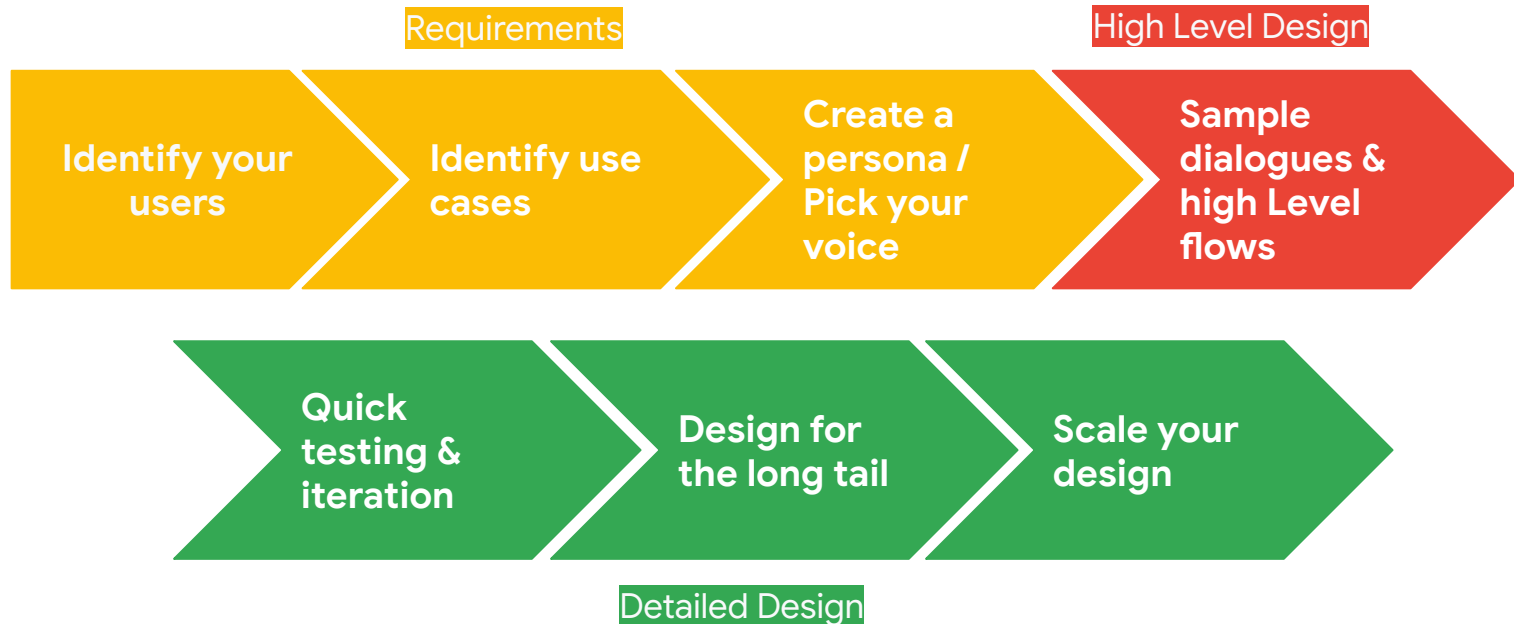


That didn't  
work ....

WHY?

# The Conversation Design Process

If Conversation is the right fit for your use case then ...







# Let's dive in!

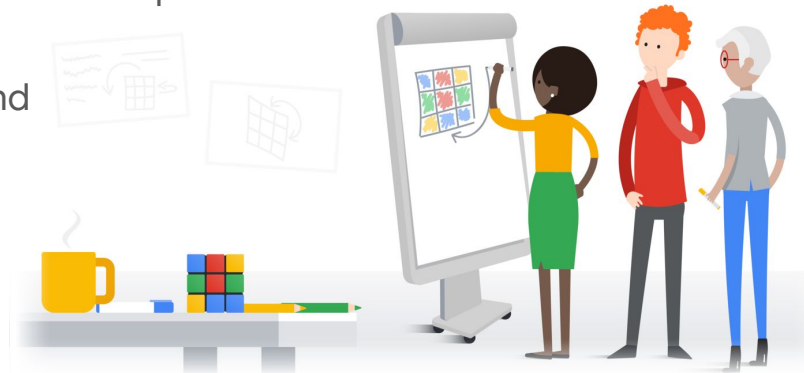
Google Cloud



**Identify your  
key use cases**

# Conversation is the the right fit if ...

- 1 Users already have human-to-human conversations about this task or topic
- 2 The interaction is brief, with minimal back-and-forth dialog
- 3 Users can do this task while multitasking or when their hands or eyes are busy
- 4 Users feel comfortable talking or typing about this topic
- 5 The feature is difficult or cumbersome to find

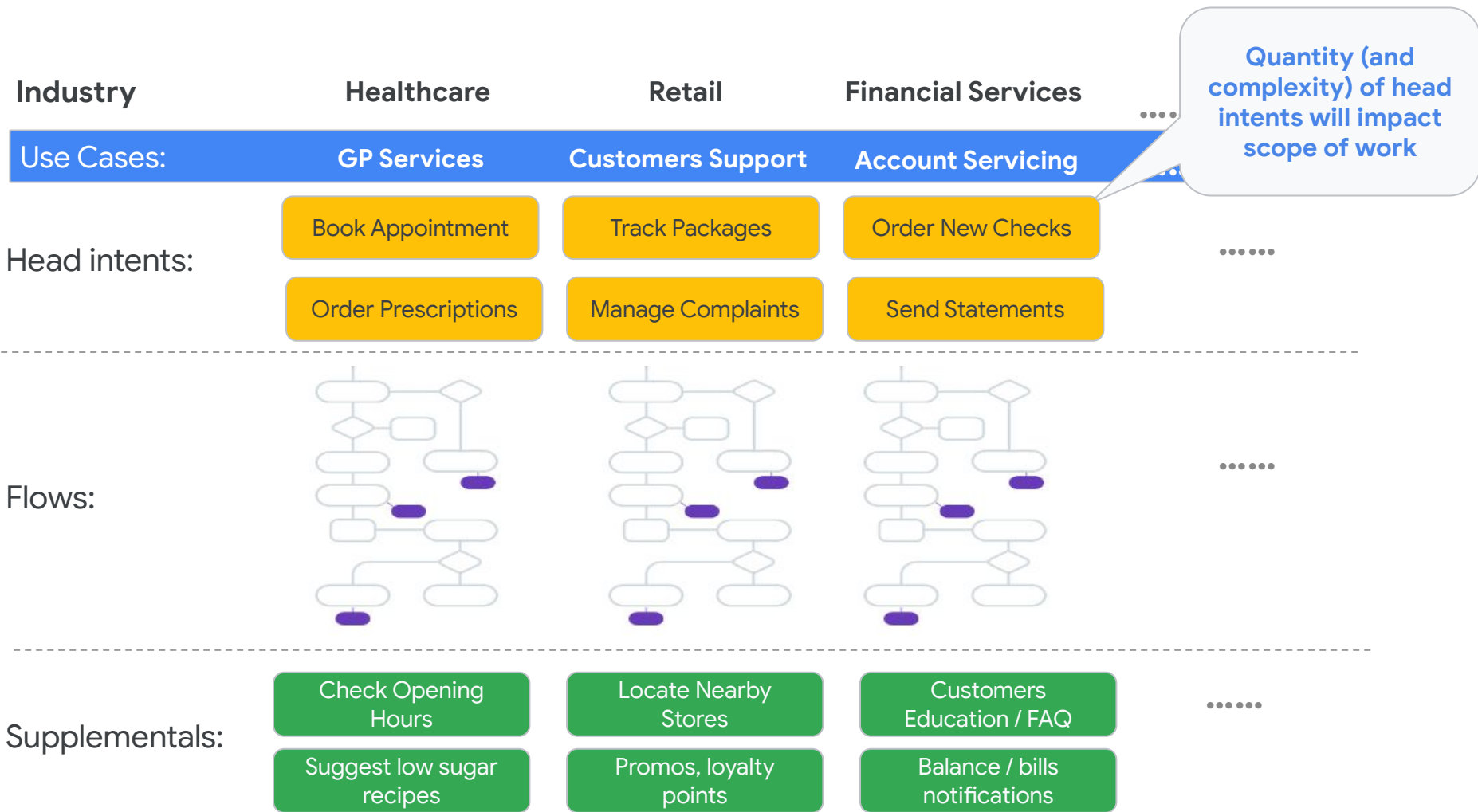


# Use case #1

*"How much are flights to Zurich?"*

# Use case #2

*"Purchase tickets for my family to visit  
Zurich"*



Quantity (and complexity) of head intents will impact scope of work

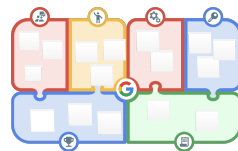
# Activity 1: Actions VS Information



## Activity

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- Activity Name: Actions VS Information
- Group:
- Jamboard Name: Head Intents VS Supplementals



## Topics

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- Overview (high level description of the use case)
- Why did you choose this use case? Aim for impact
- What are your users asking for?

# Head Intents

[Es] Sono disperata, non trovo la mia carta. Aiutami!



# Supplementals

[Es] Devo recarmi in filiale per ritirare una nuova carta?





# Identify your users

Who are your **users** (name, age, background)?

What are their **needs**?

**How** are they completing these **tasks** today?

What **words and phrases** do they use to talk about these tasks?

What **situations or circumstances** trigger these tasks?

# Create user personas and journeys

## 1. User persona | Who is the user?

A user persona is a specific but brief description of an individual user. Think about the types of people you expect to use your Actions, and create a few user personas to represent them. These user personas will help you avoid designing only for yourself and your goals.

## 2. User journeys | What are the user's goals? | What's the user's context?

A user journey is the pathway for the user to complete a goal in a given context.

### **Describe each of the relevant moments in the journey**

Critical user journeys are those that either 1) happen very often or 2) are of key importance to the user. Aim to help users to complete one of these journeys from start to finish. Focusing on these will help you build Actions that reach a large and/or dedicated audience.

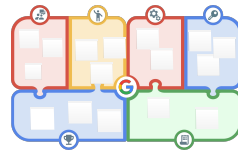
## Activity 2: Create your personas and journeys



### Activity

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- Activity Name: Create your personas and journeys
- Group:
- Jamboards: Identify your users



### Topics

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- Who are your users and what are their needs?
- How are they completing these tasks today?
- What words and phrases do they use to talk about these tasks?
- What situations or circumstances trigger these tasks?
- Accommodate all your users.

A simple format ->

Nickname and drawing	Profile: . . . .
Behaviors: . . . .	Needs: . . . .

# Identify your users (User 1)



## Profile:

25 anni, maschio,  
single, Bologna,  
neolaureato,  
condivide  
appartamento in  
affitto

introverso,  
solitario,  
diretto

## Behaviors:

Viaggiatore, usa i  
pagamenti digitali,  
sempre connesso,  
ama i social

## Needs:

- Carte di credito  
internazionali -  
Soluzioni immediate  
ed efficaci -  
necessità di mutuo /  
finanziamento



**Pick your persona**

# Design your brand persona



The goal of creating a persona is not to trick the user into thinking they're talking to a human being, but simply to leverage the communication system users learned first and know best: conversation.

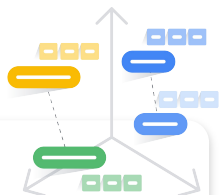


Persona does a similar job to a brand identity :

1. Sets **people's expectations**
2. Ties **features and values** together
3. Forms an **emotional connection** with users

Inject **generative content** into your chat and voice bots to help **gain user trust** and **make experiences a bit more human**

# Generators



Allows you to make a call to an LLM natively from Dialogflow CX to do anything you would normally ask an LLM to do

*“We’d like to have the ability to call an LLM with a custom prompt to answer simple questions, perform information retrieval, summarise the conversation, escalate to a human agent, etc within the dialogue”*

# Generators

Generator is triggered during fulfillment (in Routes, Event-handlers, Parameters and more)

1

Generator prompt placeholders are replaced by the session parameter

2

Text prompt is sent to the generative model during fulfillment at runtime

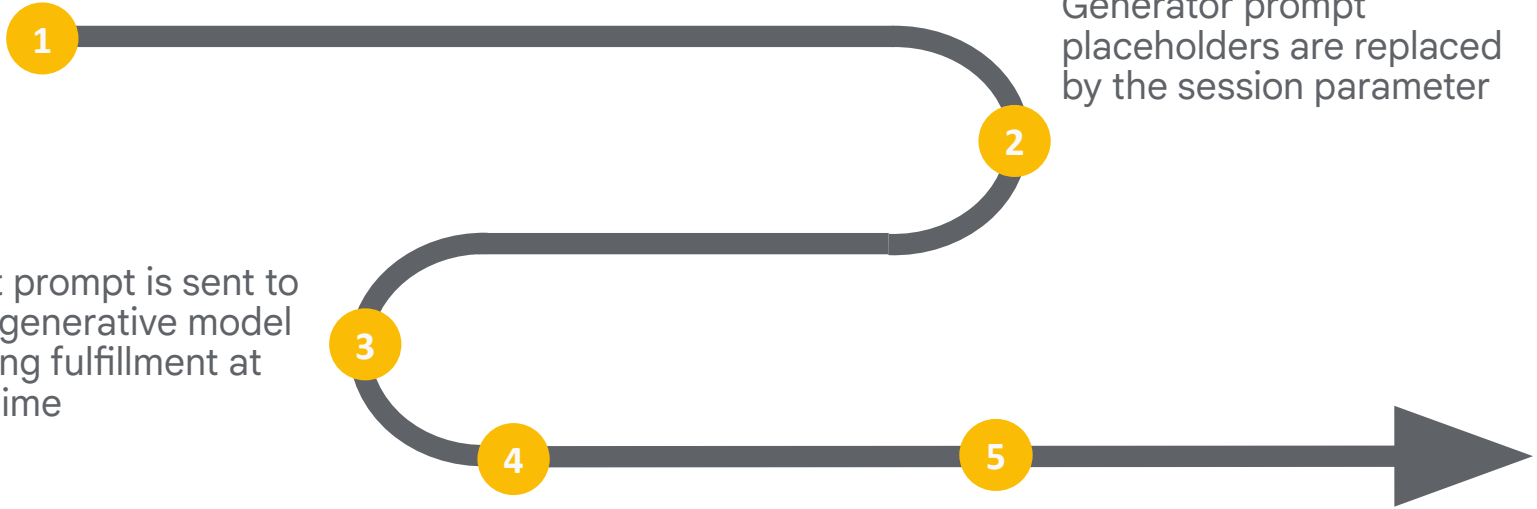
3

4

LLM generates a response

5

The result of the generator is binded to the agent's response



← Route Save

Generator

Generator  
Welcome Generator [Edit](#)

Text prompt

You are Mel, the helpful virtual agent for the residents of "City of Mel". Greet the user and inform that you can assist with what matters across the city. For example people call you to report an issue, pay a parking fine, book a hard waste request or just hear what's on in Mel. Ask the user how you can help today.

Output parameter

`$request.generative.welcome-message`

Hey there

Hi there, I'm Mel, the helpful virtual agent for the residents of "City of Mel".

I can assist with a variety of matters across the city, including reporting an issue, paying a parking fine, booking a hard waste request, or just finding out what's on in Mel.

How can I help you today?

← Route Save

Text prompt

Check the users eligibility against the following criteria: the minimum age is 18 and the maximum age is 75. The weight should be at least 50 kg. The user should not have heart conditions or be low in iron. Pregnant women or women who have recently given birth are ineligible to donate. They can donate as soon as 9 months after giving birth. The user is \$age years old and weighs \$weight Kg. Extract information about heart condition, level of iron and pregnancy from \$conversation. Be polite and craft an email to explain to the user if they're eligible to donate and if not

Input parameters

Placeholder	Parameter
age	<code>\$session.params.age</code>
weight	<code>\$session.params.weight</code>

Output parameter

`$request.generative.eligibility-outcome`

Proprietary + Confidential

Environment: Draft  
Flow: Default Start Flow  
Page: Start Page

Dear User,

Thank you for your interest in donating blood. Unfortunately, you are not eligible to donate at this time as you are pregnant. Pregnant women or women who have recently given birth are ineligible to donate. They can donate as soon as 9 months after giving birth.

We appreciate your willingness to help others, and we hope that you will consider donating in the future.

Sincerely,

Talk to agent

# Write sample dialogues



Sample dialogs are essential for:

1. **Exploration** and **understanding**
2. Focusing on the conversation
3. Describing an **end to end journey**
4. **Not** for capturing the **design exhaustively**

## Have the conversation

1. Introduce your **brand persona**
2. Provide the user a **clear path forward**
3. Be **natural** and **brief** but add your persona
4. Ask **easy questions** - avoid information overload



# Example of a sample dialog draft

**User persona:** Anna, 27, is a UX designer and sketch artist with a passion for creating engaging user experiences that help users get things done in their lives.

**User context:** Anna's currently at I/O

**User goals:** She wants information about the sessions remaining in the day.

**Key use cases:** browsing sessions, wayfinding, and linking to the mobile app

**System persona:** The Keeper of I/O-Specific Knowledge is a Google Developer Expert who believes strongly in the power of technology. A skilled networker, they spend their time answering questions on StackOverflow, building apps for big brands, and helping Google run madewithcode.com.

**I/O:** Welcome to your launchpad for all things Google I/O. The festival's underway right now. Are you one of the lucky attendees?

**User:** Yeah

**I/O:** Congrats! As the Keeper of I/O-Specific Knowledge, consider me your guide. I can manage your schedule, help you find things to do, or give you directions. So, which do you need?

**User:** Find things to do

**I/O:** Sure. Do you want to learn from the experts? Try some demos? Or kick back and relax?

**User:** Learn from the experts

**I/O:** Great. I can tell you about the keynote. Help you browse sessions. Or recommend specific office hours and app reviews. Which would you like?

**User:** Browse sessions

**I/O:** Here are some of the topics left to cover today: machine learning and artificial intelligence, identity, Nest, Android and Play, open source, and Assistant. Do any of those sound good?

**I/O:** Yeah, AI

**User:** At 1 PM, there's AI Adventures: art, science, and tools of machine learning. Then at 2:30, there's AutoML: build a custom model, no model code required. Do you want to hear more about either of those?

**I/O:** Yeah, AI

**User:** At 1 PM, there's AI Adventures: art, science, and tools of machine learning. Then at 2:30, there's AutoML: build a custom model, no model code required. Do you want to hear more about either of those?

**User:** Nah

**I/O:** Alright. Later at 4, there's Distributed TensorFlow training. Do you want to hear more about it?

**User:** No

**I/O:** Okay then. Since that's all for machine learning and artificial intelligence today, do you want to pick another topic?

**User:** No thanks

**I/O:** No problem. Now, do you want to get directions, or hear about other sessions?

**User:** How do I get there?

**I/O:** The session Creating a persona: what does your product sound like? is located <describe with landmarks>. It starts at 2 PM. Anything else I can help you with right now?

**User:** No

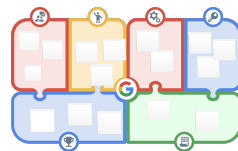
**I/O:** OK. Enjoy I/O!

# Activity 3: Create a sample dialog



## Activity

- Activity Name: Create a sample dialog
- Group: All in two separate groups
- Jamboards: A sample dialog



## Topics

- Why write sample dialogs
- High level design strategies
  - a set of sample dialogs
  - a diagram of the conversation flow.
- Example dialog

## A sample dialog (Sanpaolo)



Ellis: Ciao, sono Ellis, l'assistente virtuale di Intesa Sanpaolo. Come posso aiutarti?

User: Dannazione, ho perso la mia carta e devo partire!!

Ellis: Mi stai chiedendo quindi di bloccare la tua carta?

User: Certo, ovvio

Ellis: Bene, per poter proseguire dovrò farti alcune domande. Cominciamo subito. Mi puoi dire il tuo nome e cognome?

User: Sheldon Cooper

Ellis: Ok. Data e luogo di nascita?

User: Mountain View, 01 gennaio 1996

Ellis: Bene, Sheldon. Indicami le ultime 4 cifre della carta che vuoi bloccare.

User: E chi se le ricorda!

# Test and Iterate

# Use a Wizard of Oz experiment

## Why is it called that?

Gets their name from the movie The Wizard of Oz; they refer to the idea that there is a man behind the curtain pulling the levers.

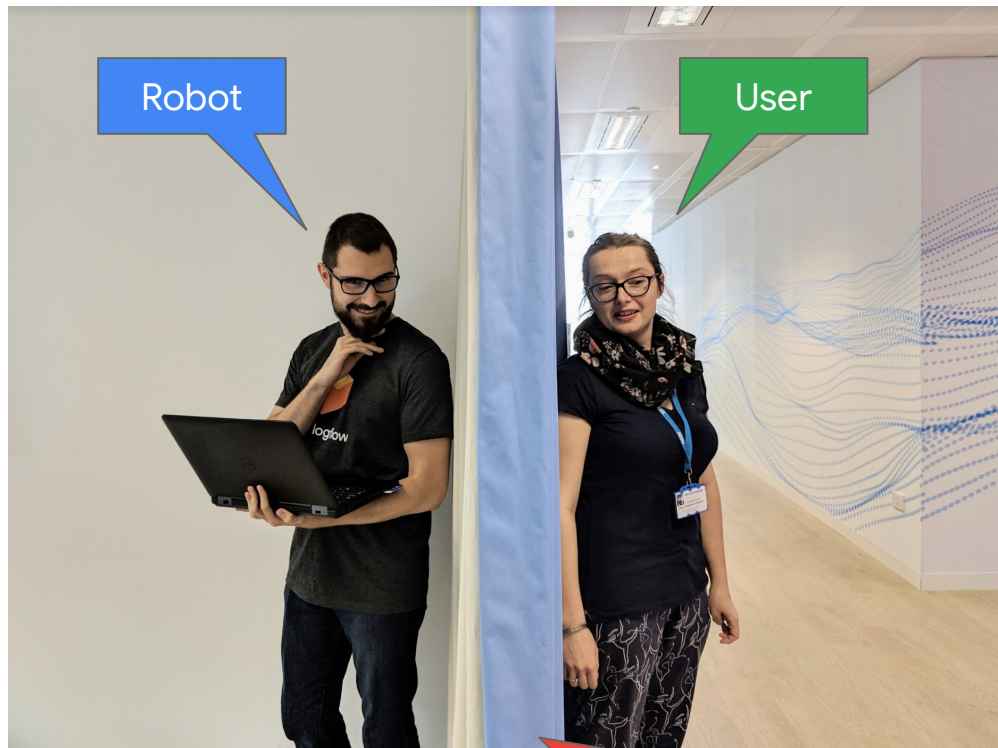
## What's Wizard of Oz prototyping?

Simply put, it's a way to test a prototype without actually developing the software. WOZ experiments are meant to look and feel like the real experience, but instead of software, there's a person (the "wizard") simulating how the persona would behave in production.

## Why you should do it?

One of the biggest advantages of WOZ prototyping is that you can test your design without having to build it. WOZ experiments are the minimum viable product (MVP) of prototypes for voice testing. They're relatively easy to run and require little to no extra effort.

## Wizard of Oz testing



Curtain: They cannot see each other!



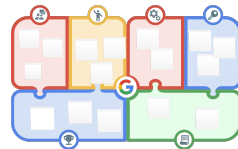
# Activity 4: Test the dialog



## Activity

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- Activity Name: Wizard of Oz
- What? Read out loud each other's dialogue
- Jamboards: Sample dialog



## Topics

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- Get feedback to see if your dialog is working
- Use a Wizard of Oz experiment

# Design for Context Sensitive Repair



“Error” events ≠ users doing something  
wrong

**Users are being cooperative.**

It's our job to figure out the user's intent, not  
just point out something went wrong

## Example Repair flow



Hey Google - send a message



Sure - who do you want to message?



*Hey hon - can you turn down the TV please?*



**Who** do you want to message?



er.. David.



**Which** David?



*...silence...*



Is it David Singh, David J, or David Brown?



David Brown



Hey Google - send a message



Sure - who do you want to message?

**No match** - 'Rapid re-prompt'



*Hey hon - can you turn down the TV please?*



**Who** do you want to message?

**Disambiguation**



er.. David.



**Which** David?

**No-input** - escalating detail



*...silence...*



Is it David Singh, David J, or David Brown?



David Brown

# How long do we keep asking?

Users are being cooperative.

We're failing to understand their needs.

## Max Errors Example



Ok Google book a ticket to the ISS



Sure - Which carrier are you orbiting with?



*<aside ... Honey what carrier were we looking at?>*



**Which** carrier?



**<Honey!>**



To make a booking I'll need the name of the carrier you are orbiting with, for example Nasa or SpaceX. Or you can try again later.



**<WHAT?>**



Since I'm having trouble understanding, go ahead and tap a spaceliner on the screen.



Ok Google book a ticket to the ISS



Sure - Which carrier are you orbiting with?

### NoMatch 1

'Rapid re-prompt'



<aside ... Honey what carrier were we looking at?>



**Which** carrier?

### NoMatch 2

Escalate detail for clarification  
+escape option



<...Honey!>



To make a booking I'll need the name of the carrier you are orbiting with, for example Nasa or SpaceX. Or you can try again later.

### MaxError

Facilitate manual repair




<...HONEY? >



Since I'm having trouble understanding, go ahead and tap a spaceliner on the screen.



# Generative fallback

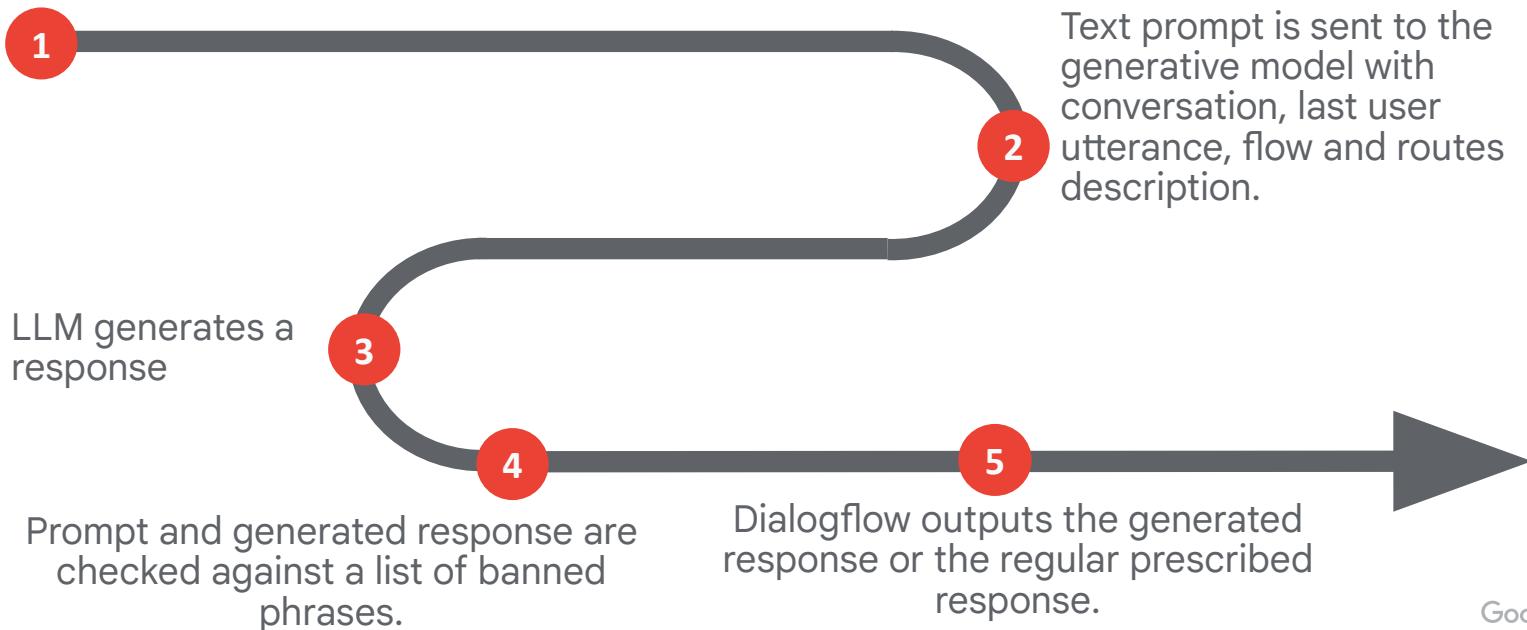


Uses LLMs to generate virtual agent responses to handle unexpected intents and invalid parameter values

*“Sometimes customers provide unexpected answers or change their mind. Generic prompts like “Sorry I’m not sure how to help” or similar minimally viable solutions are not up to a good customer experience”*

# Execution Flow

Dialogflow invokes a no match (when input does not match any intents in scope or it does not satisfy the form parameter)



Configure Generative AI settings for each supported language in your agent.

### Generative fallback

Configure the text prompt that is sent to the generative model to generate an agent response.

Template

Divebooker Template ▾

Edit

Delete

Text prompt

You are a friendly agent that likes helping traveling divers.  
You are under development and you can only help  
\$flow-description

At the moment you can't help customers with land-based diving and courses.

### Banned phrases

List of phrases that are banned for generative AI. If a banned phrase appears in the prompt or the generated response, the gen

### Agent responses

You can define different types of response messages, to provide the end-user with more than just text responses. [Learn more](#)

Enable generative response

Dialogflow CX uses generative AI to generate what the virtual agent says. If it fails, the virtual agent will respond with the user-defined response messages.

Agent says



I didn't get that. Can you say it again?

I missed what you said. What was that?

Sorry, co



A liveboard is a boat that is used for diving and snorkeling trips. It is a great way to see the underwater world and explore new places.



That's great but I am not a certified diver. Can you also arrange a course for me?



I'm sorry, I can only help with liveboard reservations. I can't help with land-based diving and courses.



What is a liveaboard?

A liveaboard is a boat that is used for diving and snorkeling trips. It is a great way to see the underwater world and explore new places.

Nice, can you help me book one?

Sure! Where would you like to go?

The Maldives

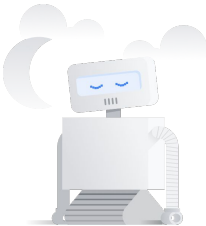
Sorry, we can only help with liveaboards in Costa Rica, Galapagos Islands and several location around Mexico.

Galapagos sounds fab! The kids will love them!

When would you like to go?

Can we also take a scuba course?

Sorry, unfortunately we don't offer scuba courses



No problem we will just go snorkeling. We would like to go in January

Great! Now please tell me the number of guests

Me, myself and two kids. 4

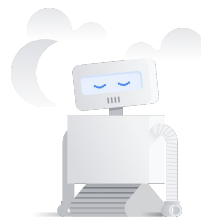
Lovely. Can I please have your email address?

hang on, my wife is talking to me

Sure, take your time. I'll be here when you're ready.

I am back. donald.duck@gmail.com

Thank you so much for providing the details of your travel. We will look for the best offers that match your needs and we will get back to you shortly!



**Scale your  
design**



Conversation is inherently  
multimodal.

Say, essentially, the same thing

Display prompts should be condensed versions of their spoken counterparts

Always include the question in the prompts



## Avoid redundancy

Give the **short answer** in the **prompts**, and the **details** in the **visuals**

Encourage users to **select** from **lists** or carousels, but allow them to **continue** with their **voice**

# Call Companion

Call Companion



Thank you for calling to report graffiti and keep our community safe. I'll need to ask you for a few details so we can get started on cleaning it up.



First, please help me identify the location. You can enter a full address or the name of the place (if it's a business or a public place)

Fitzroy gardens



Thanks, I have collected the final address: Fitzroy Gardens, Wellington Parade, East Melbourne VIC 3002, Australia. Is that correct? Please say yes or no

# How Did We Do?

Provide feedback through this [3 mins survey](#)

## Try Dialogflow CX!

New customers receive a \$600 credit for a no charge trial of Dialogflow CX that can be cancelled at any time. This is a Dialogflow-specific extension of the [Google Cloud no charge trial](#).

Google Cloud