

BUS5001 – Cloud Platforms and Analytics



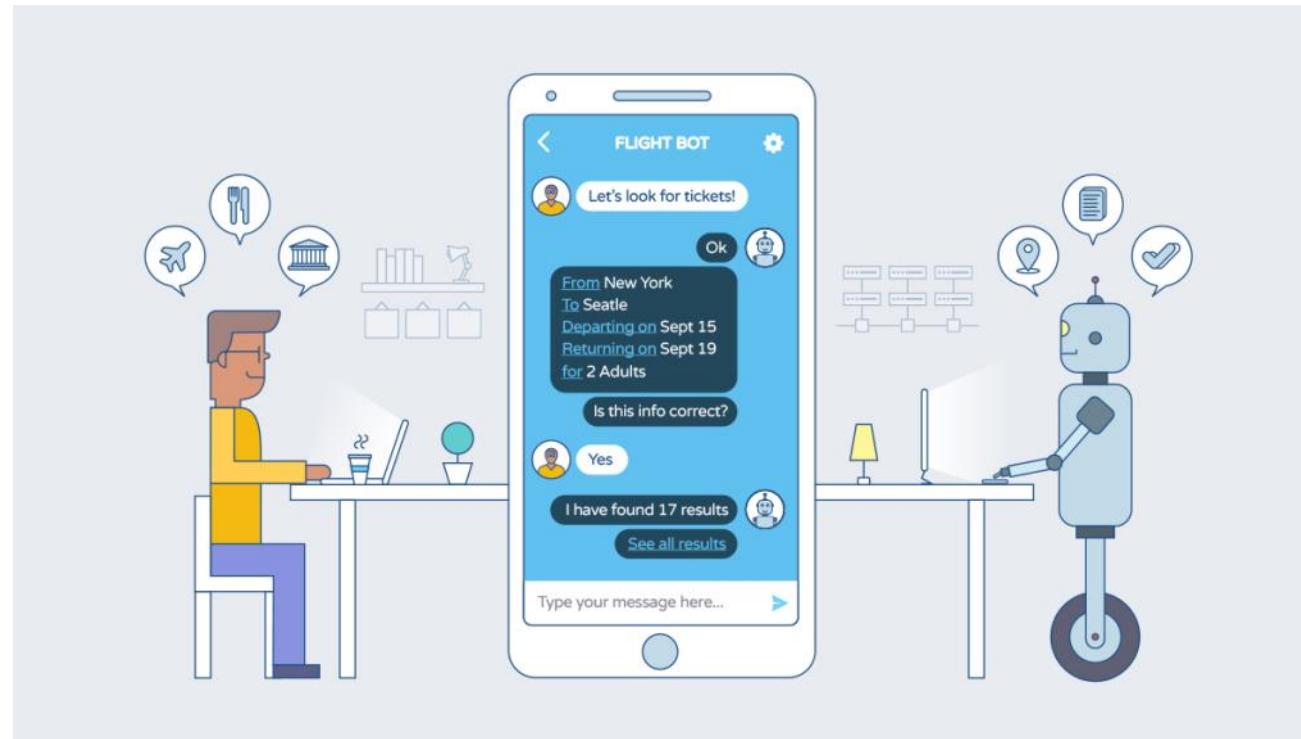
Week 10 – AI in the Cloud

Conversational Agents

La Trobe University, Australia

Conversational Systems

- Conversational systems interact with people through language in with the view of fulfilling a function or purpose



Conversational UX

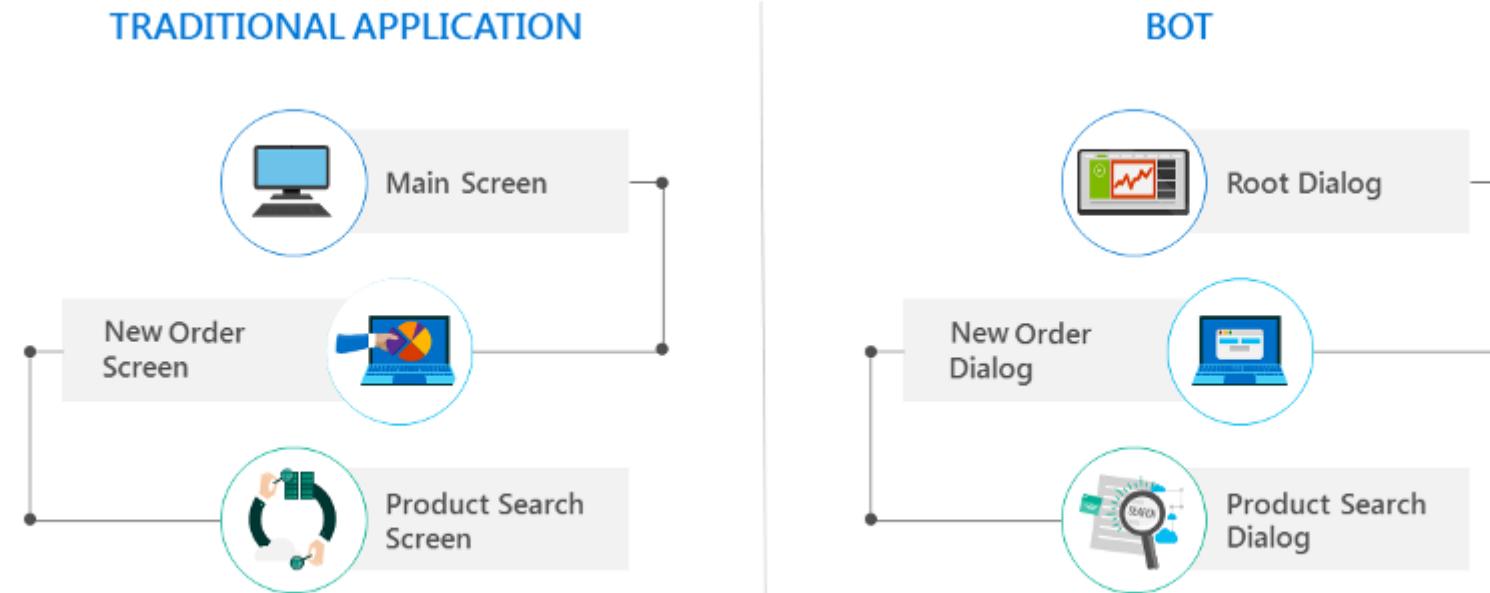


The movie “Her” is an extreme example, offers an important principle: Humans and technology can have interactions that can be deep, meaningful, and ...human.



Conversational user experience (UX) incorporates chat, voice, or other technologies to mimic natural human conversation. ~Zendesk

From Traditional UX to Conversational UX



Benefits of Conversational UX

Efficiency

Accessibility

Intuitiveness

Empathy

Trust

Personalisation



Chat to Ceba

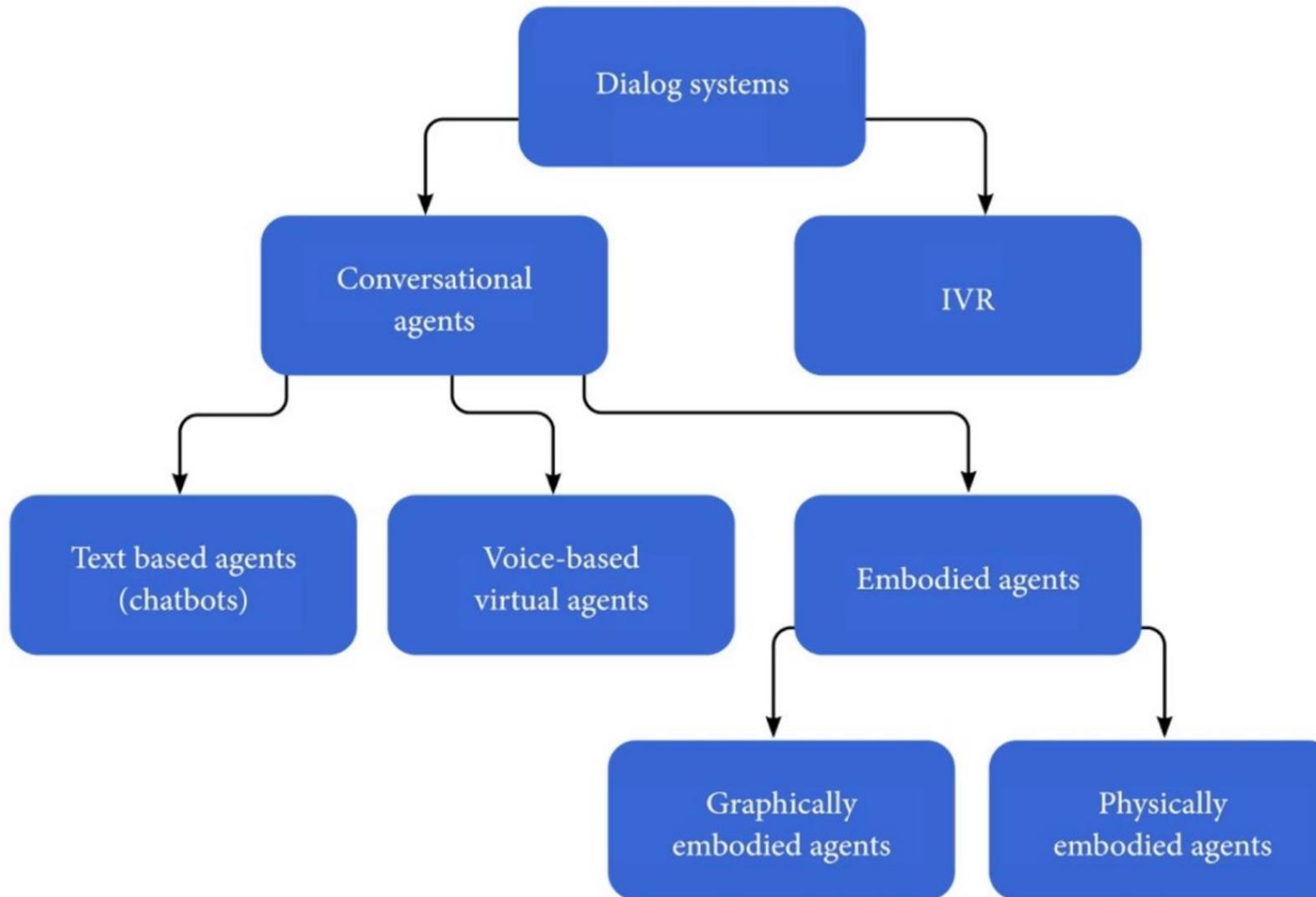
Meet Ceba. Your digital banking assistant who is here to answer day-to-day banking questions any time, day or night.



The collage includes:

- A top banner featuring a yellow diamond logo, the text "You are here 24/7", and a green circular icon with a white question mark.
- A banner for "LA TROBE UNIVERSITY Centre for Data Analytics and Cognition" showing a purple paperclip character with googly eyes.
- A smartphone displaying a messaging app interface with a red background, showing a message from "eric" about saving money on a credit card.
- A smartphone displaying a digital assistant interface with a white robot head and the name "Bunji".
- A bottom banner for "LA TROBE UNIVERSITY Centre for Data Analytics and Cognition" featuring a purple paperclip character.

A Taxonomy of Conversational Systems

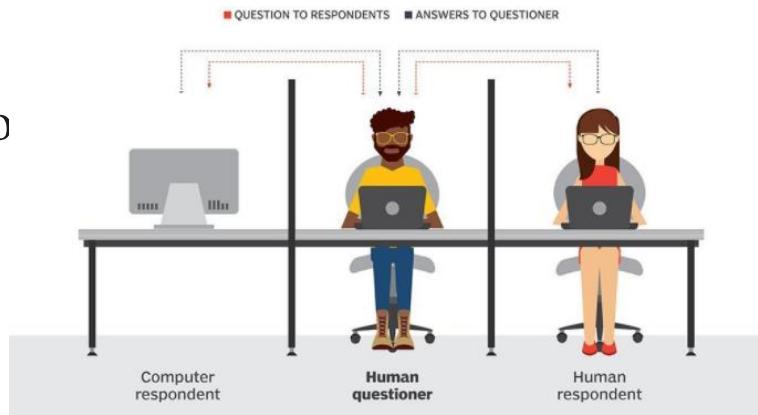


What are Chatbots?

- “At the most basic level, a chatbot is a computer program that simulates and processes human conversation (either written or spoken), allowing humans to interact with digital devices as if they were communicating with a real person.” – Oracle
- “A chatbot is a computer program that uses artificial intelligence (AI) and natural language processing (NLP) to understand customer questions and automate responses to them, simulating human conversation.” – IBM

Evaluating intelligence

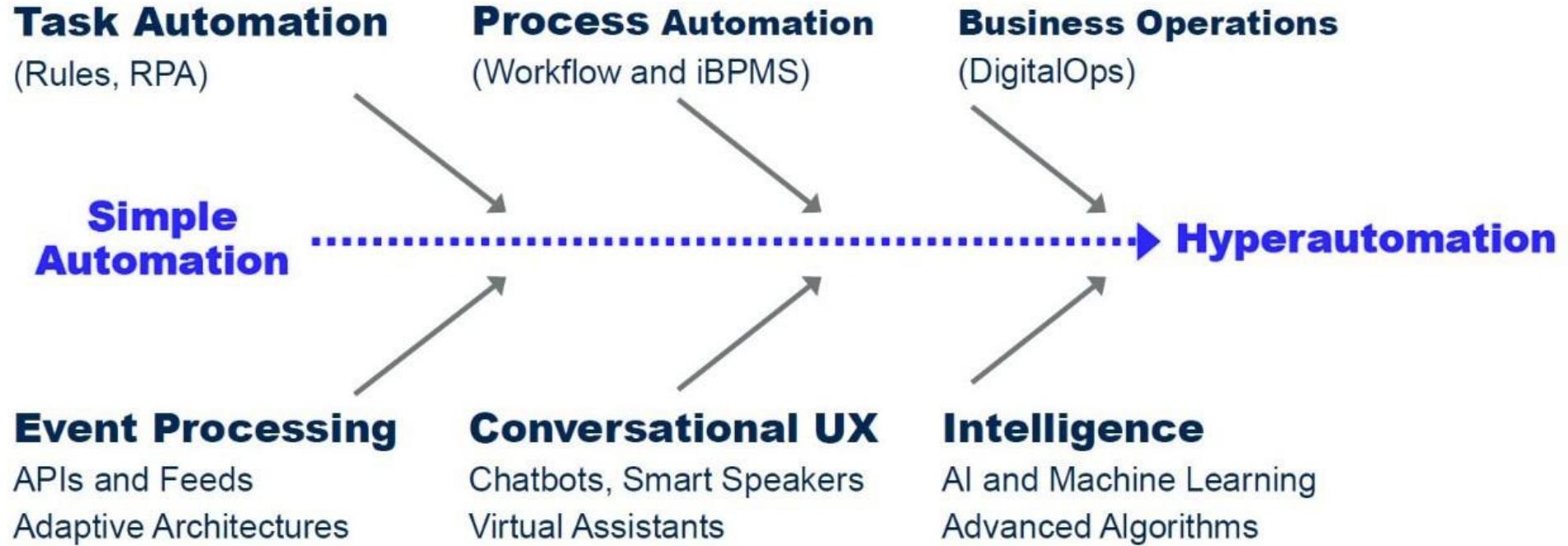
- Alan Turing - Can machines think?
 - According to Turing, the question whether machines can think is itself “too meaningless” to deserve discussion
- How well can a machine do in Turing’s Imitation game:
 - A human questioner, a human respondent and a computer respondent. The questioner tries to distinguish the human from the computer by asking questions from both. A computer that is indistinguishable from the human is deemed intelligent.
- A chatbot named Eugene Goostman passed the test in 2014 (simulates a 13-year old Ukrainian boy)
- And many other breakthroughs – Chess, Robocup, Roomba, Watson, AlphaGo, Tesla, deep fakes, duplex, GPT3... and mainstream apps



GPT-3

The screenshot shows the GPT-3 playground interface. At the top, there's a logo, a help icon, and a menu icon. Below that, a title "Playground" and a dropdown menu "Load a preset...". Underneath are buttons for "Save", "View code", "Share", "...", and a gear icon. The main area contains a prompt: "Explain the moral and social issues with using AI to do your homework." followed by a generated response: "There are a few potential moral and social issues with using AI to do homework. First, if students are using AI to do their homework for them, they may not be learning the material as well as they could be. This could lead to problems down the road when they are expected to know the material for exams or real-world applications. Additionally, using AI to do homework could lead to cheating. If students are able to get away with using AI to do their homework for them, it could create an unfair advantage over other students who are doing their homework on their own. Finally, using AI to do homework could lead to a reliance on technology that could be detrimental if the technology were to fail or become unavailable." At the bottom, there are "Submit", refresh, and undo/redo buttons, along with a character count of "15". The browser footer shows "AA" for accessibility, a lock icon for security, and the URL "beta.openai.com".

The Path to Hyperautomation



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Gartner

The History of Chatbots

Eliza
1966

Nicknamed after Eliza Doolittle. A computer program created by Joseph Weizenbaum at the MIT AI Laboratory. Its purpose was to create an illusion- the patients believe that they were talking with a psychotherapist- by using a pattern matching and substitution methodology.

Jabberwacky
1981

Developed by British programmer Rollo Carpenter. Finished in the 1980s, however, it wasn't released online until 1997. Its goal was to "simulate natural human chat in an interesting, entertaining and humorous manner."

A.L.I.C.E
1995

Stands for the "Artificial Linguistic Internet Computer Entity." Developer, Richard Wallace created this heuristic bot as a free software for artificial intelligence markup language.

The Turing Test
1950

A test developed by Alan Turing. Its purpose was to exhibit intelligent behavior that was indistinguishable from that of humans. "Can machines think?" A vital concept started from Turing that is important in the philosophy of artificial intelligence today.

Parry
1972

The chat-bot conversing as if a paranoid schizophrenic based on conceptualization and beliefs. A psychiatrist by profession, Kenneth Colby's creation proved to be more advanced than Eliza and being described as "ELIZA with attitude." (Boden 2006, p. 370.)

Dr. Sbaitsos
1991

The artificial intelligence speech synthesis development. Created by Creative Labs, this computerized psychologist uses its digitized voice to ask questions such as "Why do you feel that way?"

SmarterChild
2001

Create this timeline tool as a free software for artificial intelligence markup language.

IBM Watson
2006

Named after IBM's first CEO, Thomas J. Watson. This question-answering computer system appeared on 'Jeopardy!' winning the first prize of \$1 million. Since 2013, IBM announced that Watson would be used for utilization management decisions to be involved in the treatment of lung cancer.

Mobile Coach Chatbots!
2013

A chatbot authoring platform that allows users to configure a chatbot without needing to know how to code. Vice Han founded Mobile Coach to strive to help people change behaviors through engaging conversation while sending reminders, and tips via messaging platforms.

Bots for Messenger
2016

With Facebook's launch of their messaging platform, they became the leading program for chatbots. It gives the bot developers the ability to create bots that can converse with Facebook users.

SmarterChild
2001

Available on AOL Instant Messenger and MSN Messaging networks. It was developed by ActiveBuddy Inc. with a focus team consisting of Robert Hoffer, Timothy Kay and Peter Levitan. They strived to add natural language comprehension in the popularly growing instant messaging and SMS platforms. This laid the foundation for Siri and Alexa.

SIRI
2010

Apple's virtual operating assistant that uses voice queries and a "natural-language user interface" to help users in different ways; make recommendations, question inquiries, assign tasks, give reminders, and give advice. The software can change languages, searches, and preferences according to the users needs.

Alexa
2015

First appeared in the Amazon Echo, Alexa is a smart device capable of voice interaction, playing music, setting alarms, checking-off to-do lists, streaming audiobooks and podcasts, and serves as a weather, traffic, sports, and news provider. It responds to voice commands using language processing algorithms.

Woebot
2017

Created by Alison Darcy in hopes to help treat depression. The Woebot is a free therapy chatbot app that helps users cope with the feelings of depression and anxiety by using an approach that allows them to see how they react to challenging experiences they face.

<https://en.wikipedia.org/wiki/Jabberwacky>
Some art provided by www.vecteezy.com

Bunji



Bunji
A good friend to chat

The collage includes:

- Gratitude Journal:** Shows two entries with star ratings and a photo of flowers.
- Chat with Bunji:** Shows a conversation with the bot.
- Mood Calendar:** Displays a mood calendar for July 2021 with a color scale from green (Good) to red (Not so good).
- Mood Tracker:** Shows a 7-day mood score of 8.08/10 and a mood record chart.

A flowchart below the screenshots illustrates the NLU Engine architecture:

```
graph LR; A[Tokenizer, Word Embeddings, Lexical Syntactic Featurizer, Count Vector Featurizer] --> B[DIEt Classifier, Spacy Entity Extractor, Entity Synonym Mapper, Sentiment Extractor, Emotion Extractor]; B --> C[Response Selector, Emergency Identifier]
```

A user icon with a speech bubble saying "I am feeling down today" is positioned between the flowchart and the Mood Tracker screen.

Cooee

LEAP

ASK COOEE

whata|

- What are the top 5 buildings with energy saving opportunity last year?
- What are the buildings with more than 100000 of Total Energy Usage y
- What are the top 5 buildings with 15% of triage percentage in 45 conse
- What are the top 5 buildings with -5% of triage percentage in 45 conse
- What is the Total Energy Usage of Library? 28.743
- What is the Total Energy Usage of Library today? 28.723
- What is the Total Energy Usage of Library yesterday?
- What is the Total Estimated Cost of Whitehead building?
- What is the Total Energy Usage of Library last week?
- What is the Total Energy Usage of Library last month?

Building	
CD SFP2 Virtualised	
TCI Agora Theatre Virtualised	400.915
CD SFP Virtualised	560.31

Hi! its COOEE here.. How can I help you?

LEAP Bot • 9:38 AM

What is the building with highest total energy consumption ytd?

User • 9:38 AM

['SHS.SHS_Main_Supply']

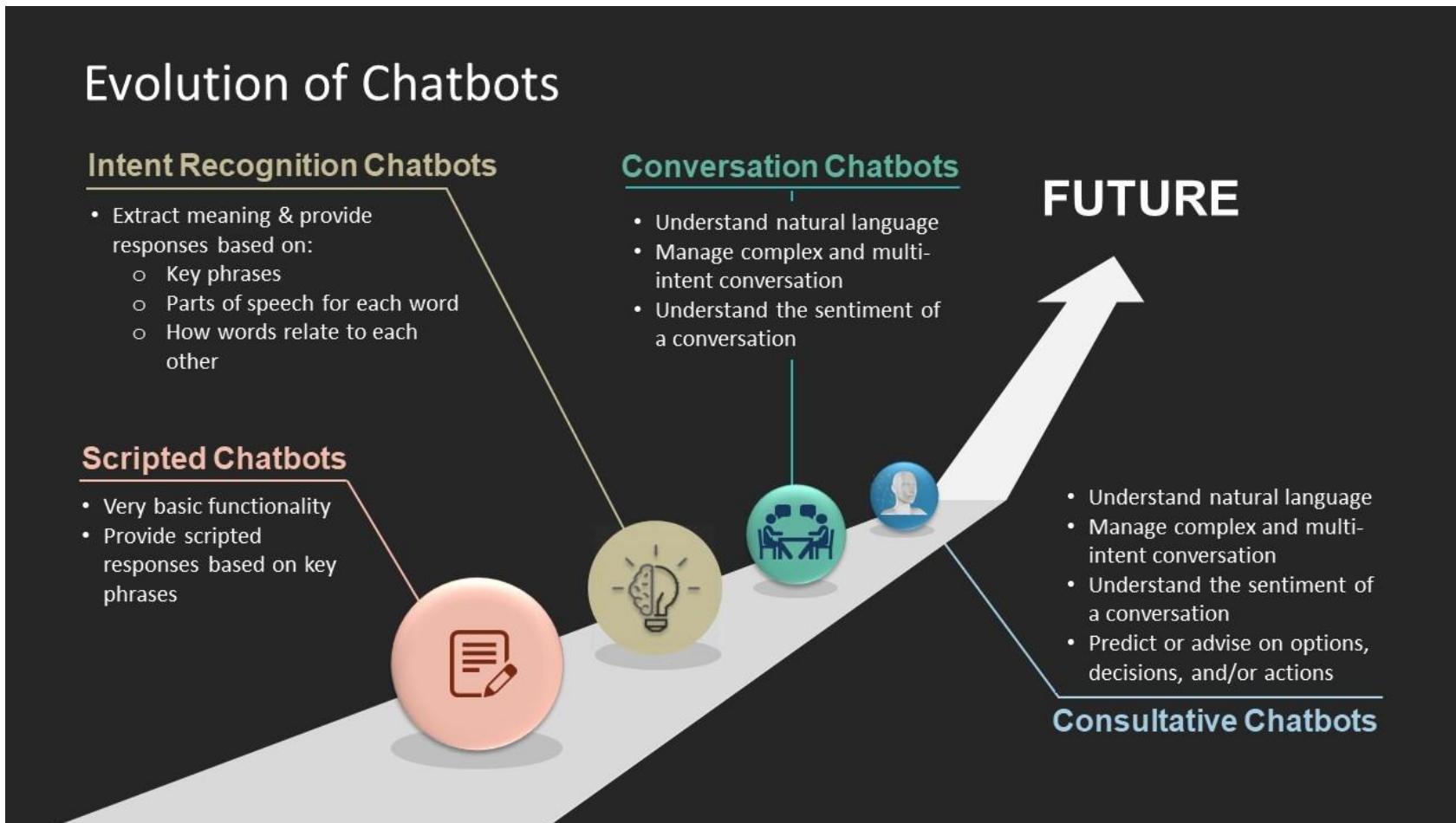
Your query is interpreted as SELECT Building WHERE Total_Energy_Consumption is (SELECT MAX(Total_Energy_Consumption))

LEAP Bot • 9:38 AM

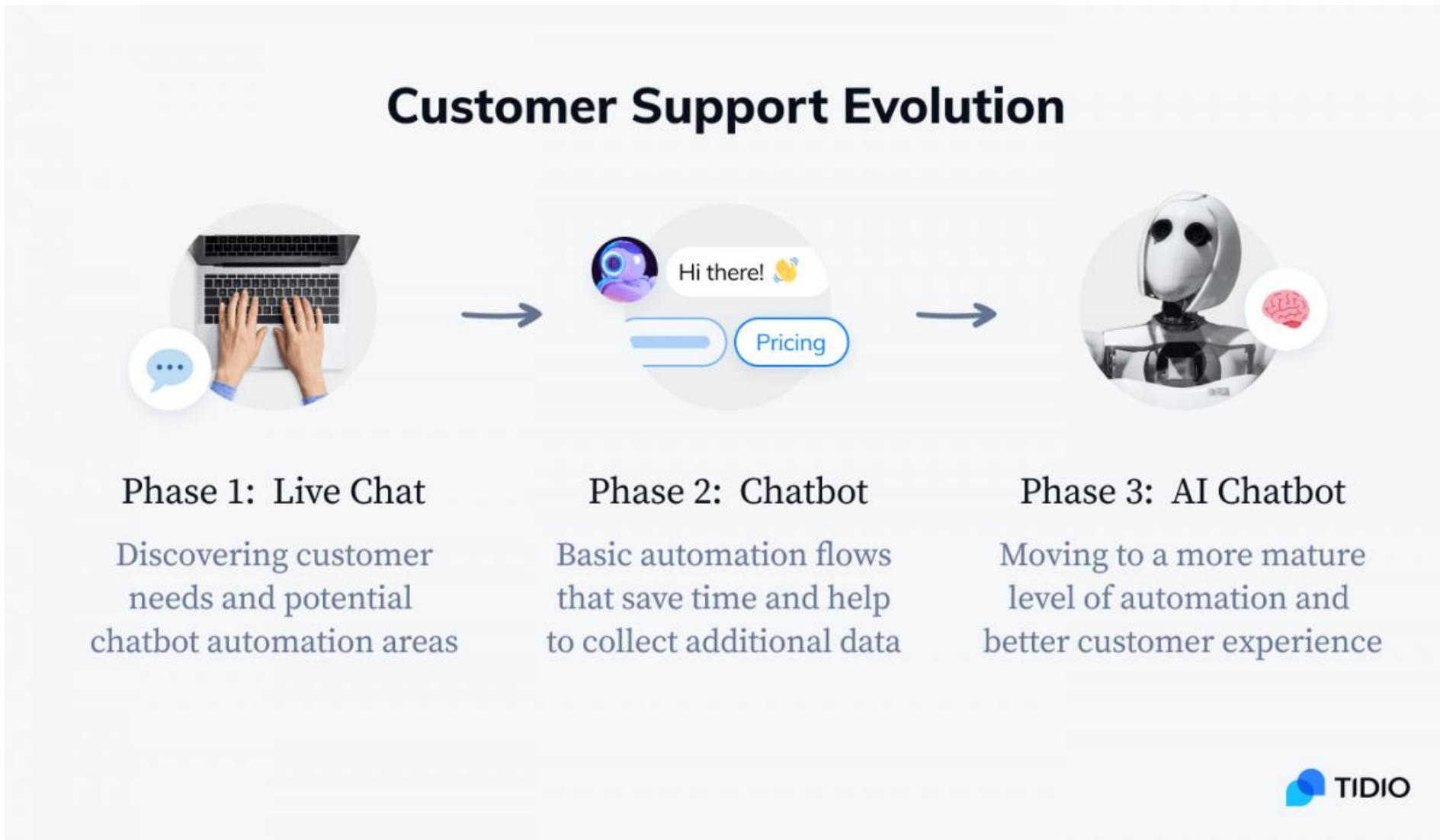
Enter your message here ➤

Did you mean SELECT TOP (5) [MeterKey],AVG(opportunity) as opportunity,AVG(adjusted,'20210101' AND [Date] <is'20211231' GROUP BY [MeterKey] Order by norm_op DESC from

Evolution of the Chatbot

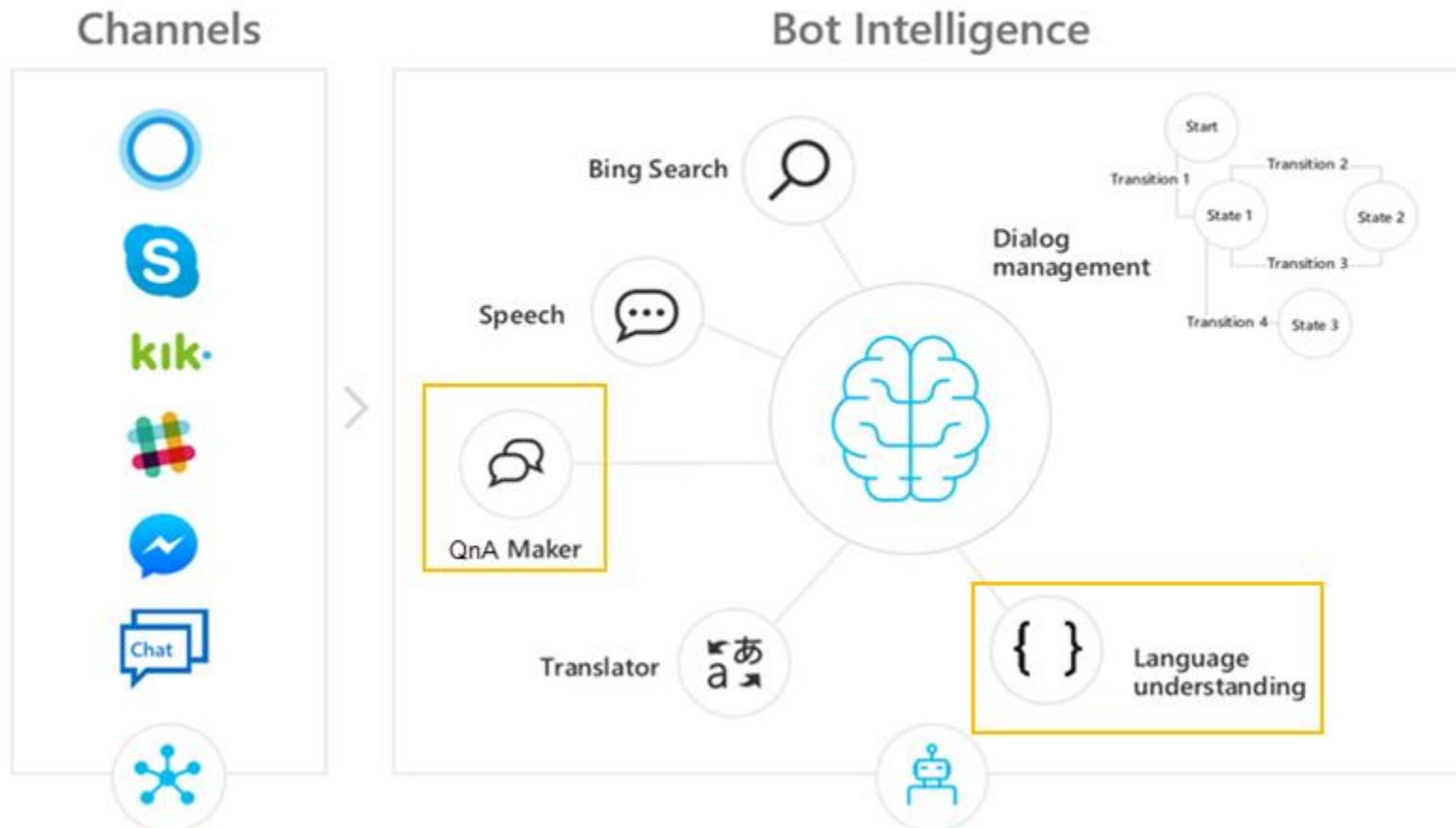


Evolution of the Chatbot

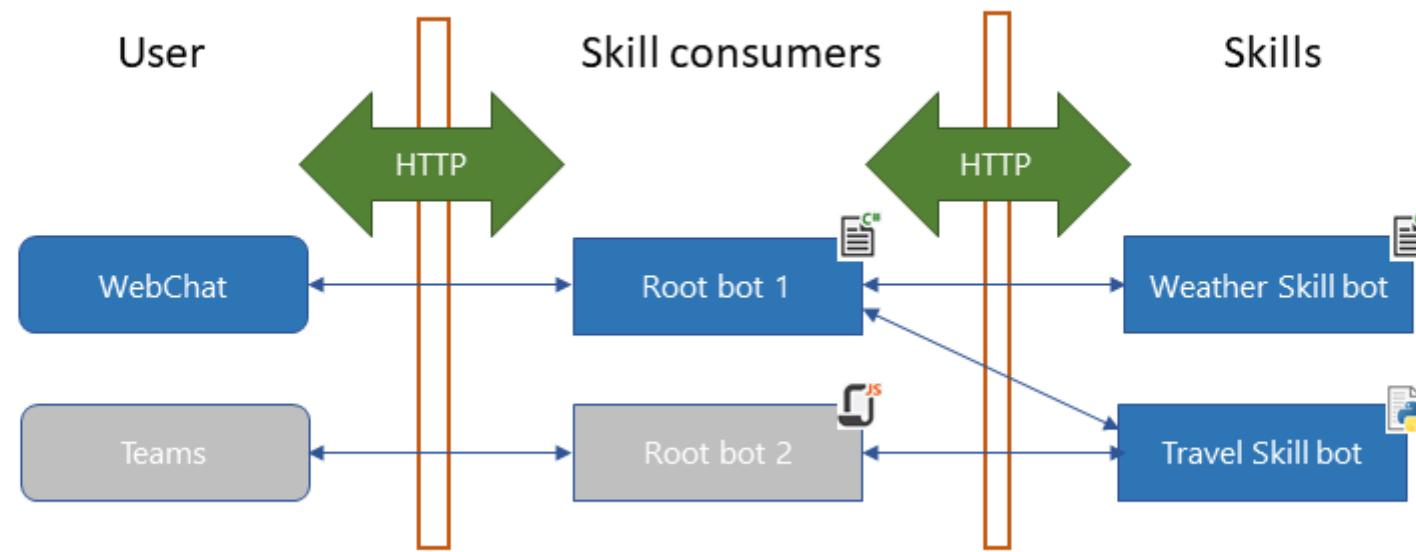


Chatbot Conceptual Model

Conversational AI: Azure Bot Service + Cognitive Services



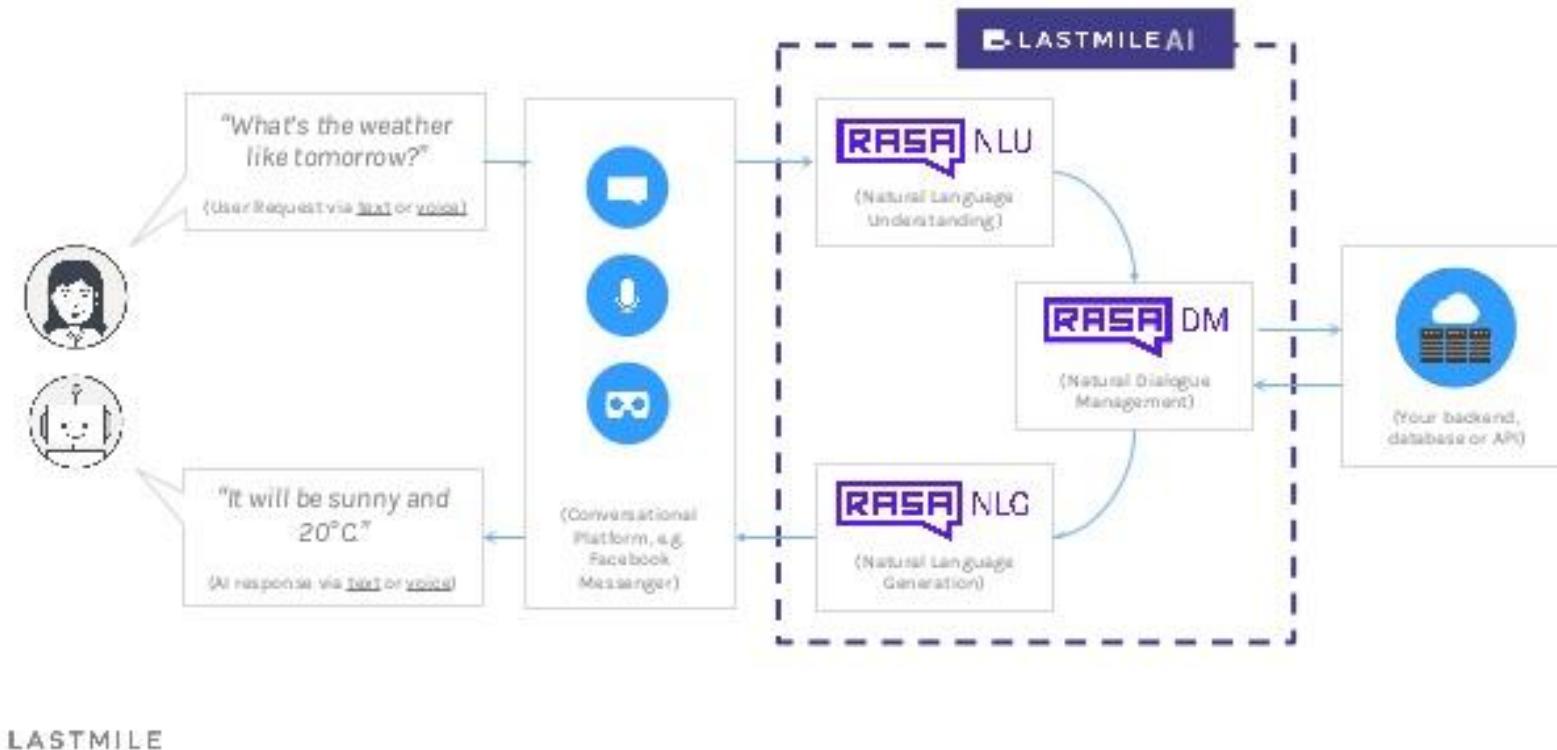
Skill sets



A Simple Chatbot Architecture with RASA

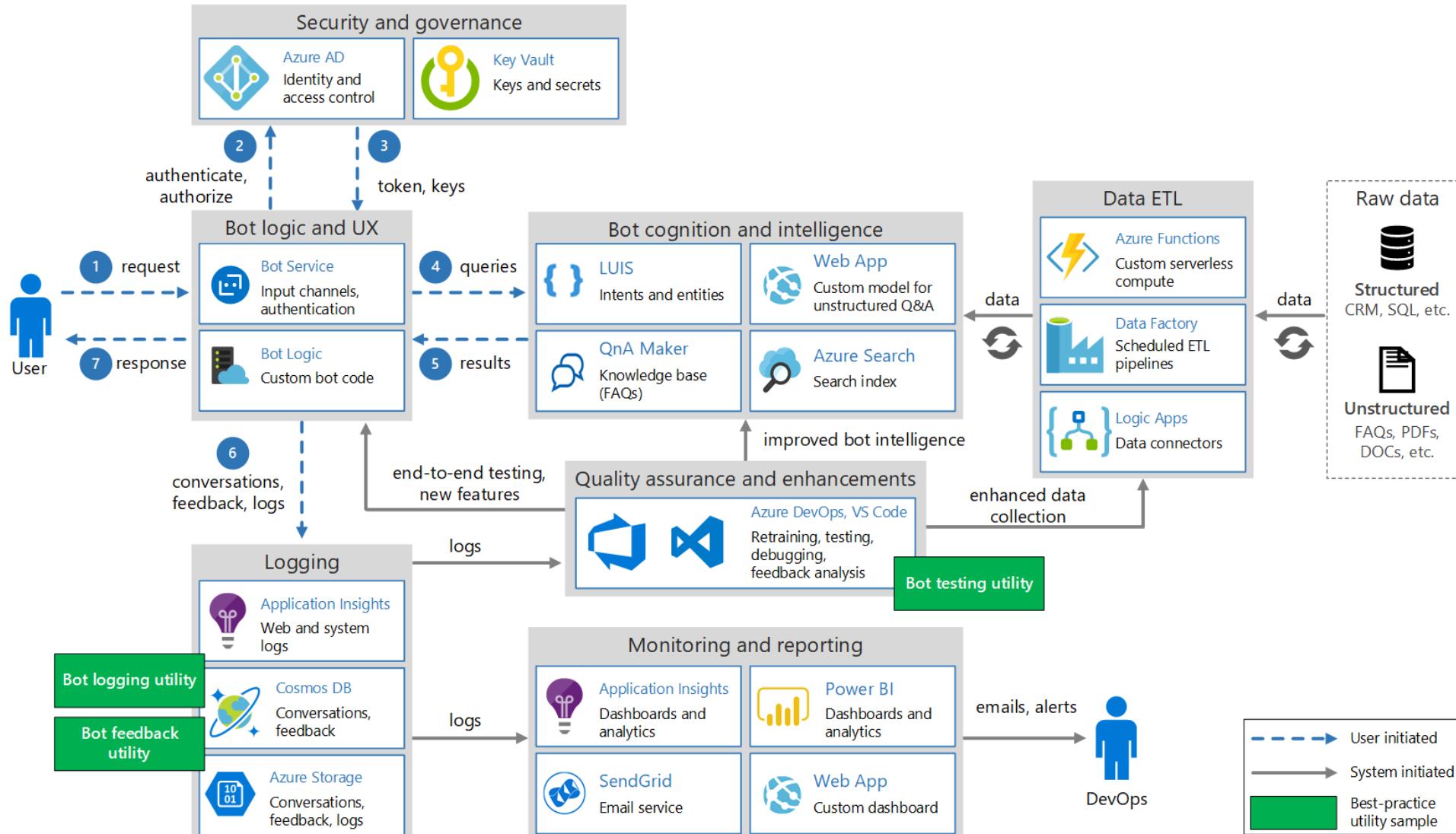
Introduction

Architectural Overview

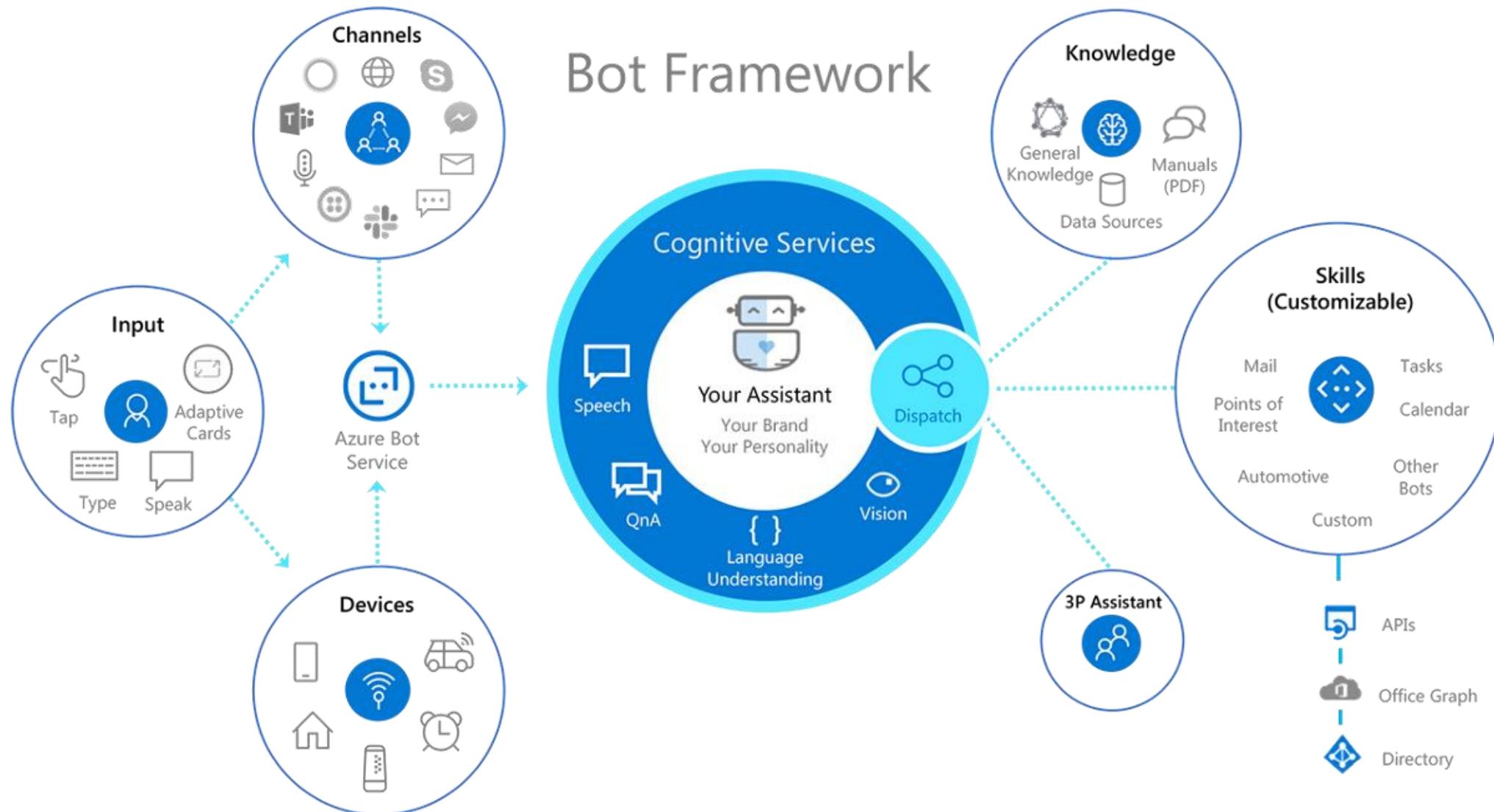


LASTMILE

Enterprise Grade Chatbot Architecture



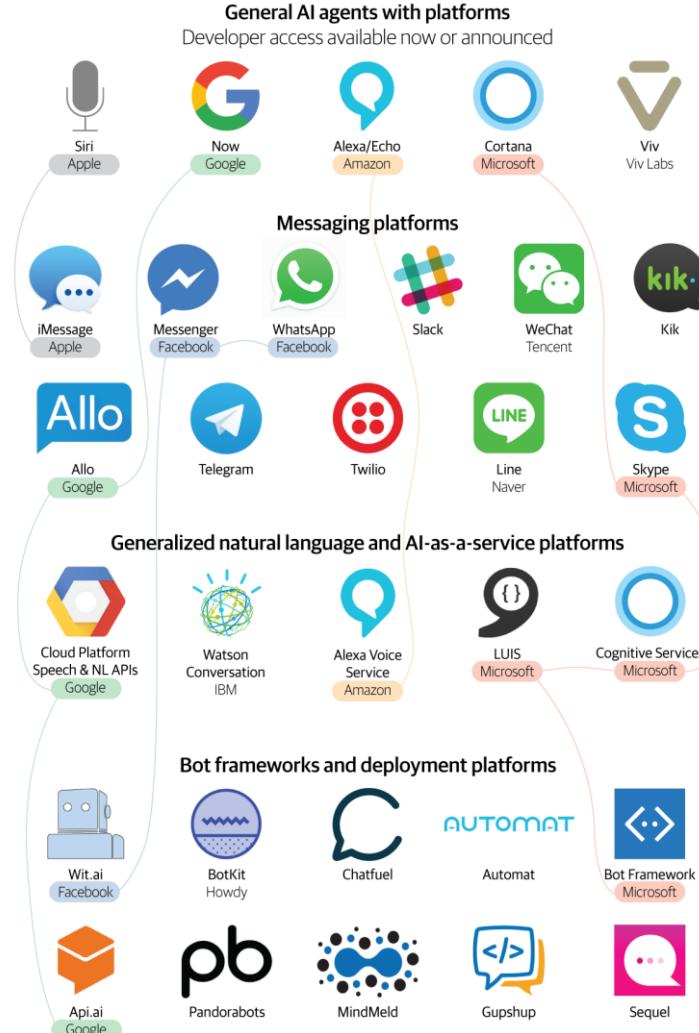
Microsoft Bot Framework / Platform



Chatbot Frameworks

The bot platform ecosystem and the emerging giants

Nearly every large software company has announced some sort of bot strategy in the last year. Here's a look at a handful of leading platforms that developers might use to send messages, interpret natural language, and deploy bots, with the emerging bot-ecosystem giants highlighted.



If you're interested in bots, attend O'Reilly Bot Day.
Register at oreilly.com/bots.

O'REILLY®

Graphic by Jon Bruner
@JonBruner

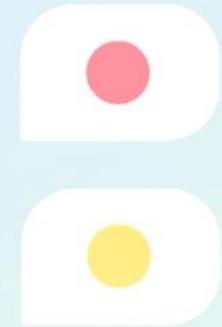
ITALY

TURKEY

RUSSIA

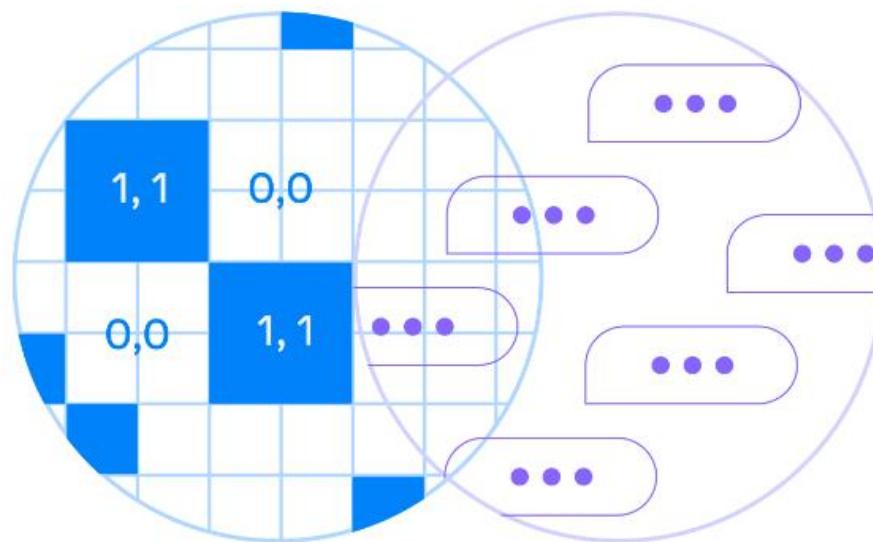
AUSTRIA

CICERO



AI in the Art of Diplomacy

- <https://ai.facebook.com/blog/cicero-ai-negotiates-persuades-and-cooperates-with-people>



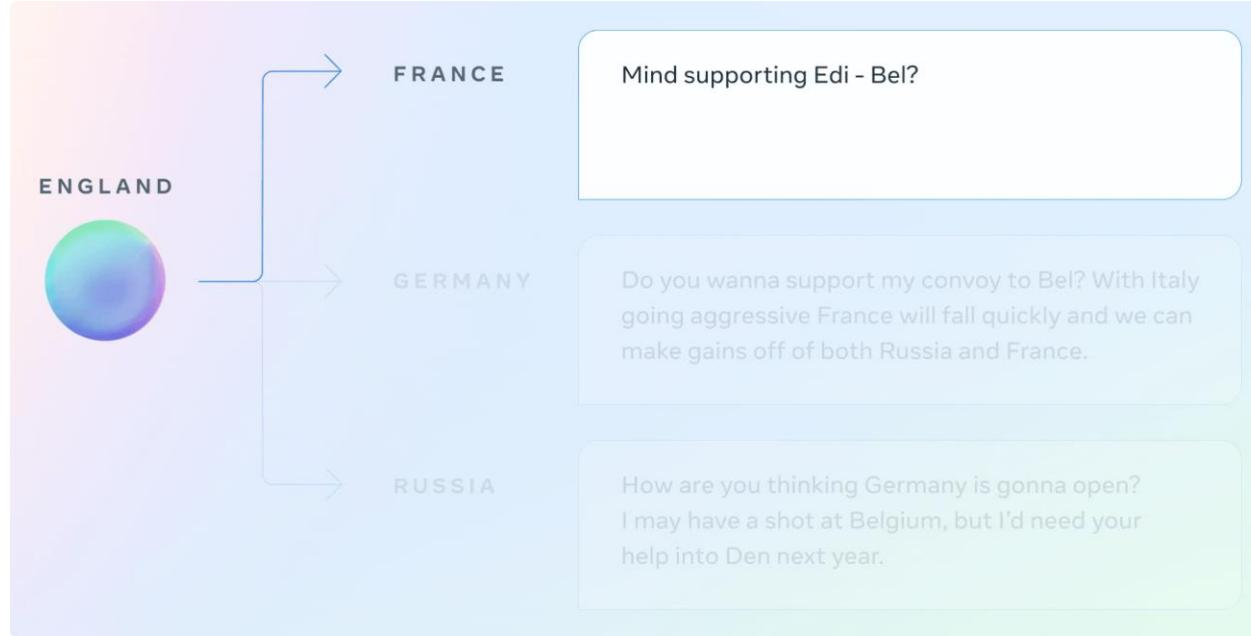
Strategic Reasoning

CICERO predicts the moves other players are likely to make, as well as what moves they expect CICERO to make, and uses that information to create a strategic plan.

Natural Language Processing

CICERO grounds its conversations in a set of carefully chosen plans, so it can negotiate, offer advice, share information, and make agreements with other players.

Setting some context



Replying to [@MetaAI](#)

This directly incentivizes researchers to build models that are skilled at deception.

7

18

219



Also...

Amazon Alexa on track to lose \$10 billion this year, described as 'colossal failure' in new report

Amazon's Devices and Books businesses have already been hit by layoffs this year

BOONE ASHWORTH

GEAR NOV 12, 2022 9:08 AM

WIRED

Alexa Might Not Get Much Smarter Than It Is Right Now

Designing a Chatbot: A High Level Process

Define your Context

- Define your User Personas
- Identify your User Stories

Service Discovery and Mapping

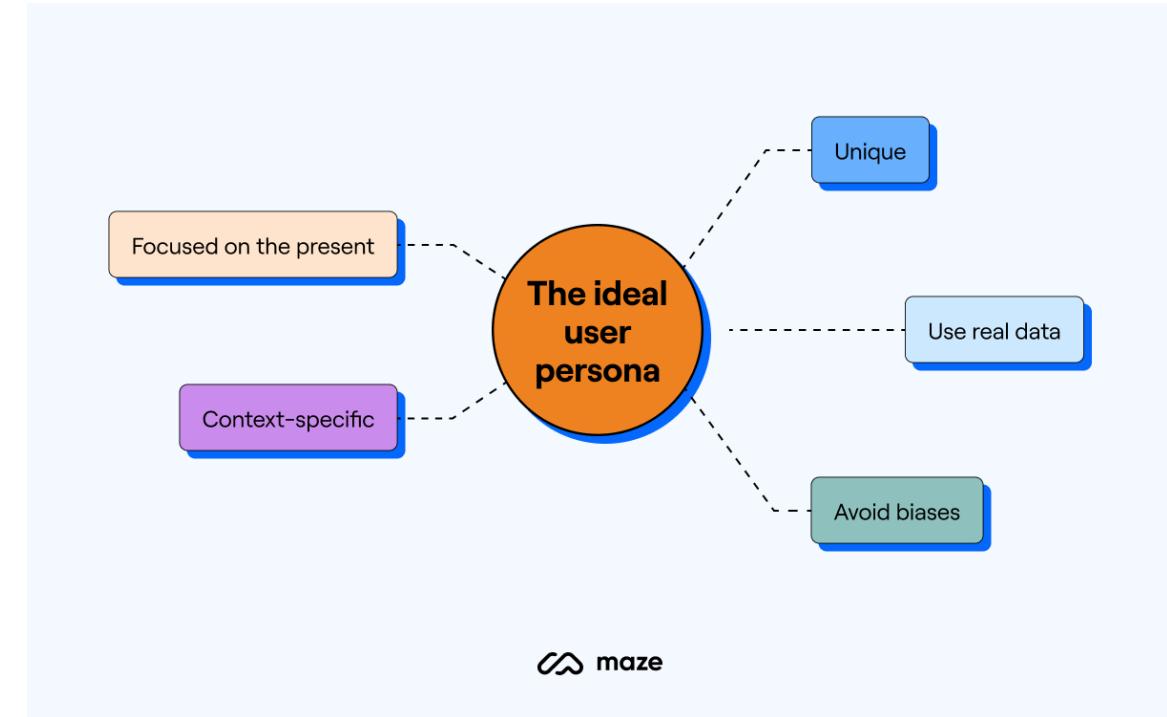
Script your Conversational UX

Build your Chatbot – A software engineering process

- Iterations
 - Design
 - Build
 - Deploy
 - Evaluate

Define your User Personas

- Identify for whom your automation process designed to cater
 - Do your research
 - Speak to all stakeholders involved
- Understand:
 - Who users are
 - How they interact with your processes
- Establish
 - Actions / Motivations / Pains
 - Values
 - Context
- They should adequately represent a user group in your audience



User Persona Examples

Jack Rowland

Age: 45
Work: Operations/Support
Family: Married
Location: Seattle, WA
Character: The Authentic

Bio
Jack has been working in customer support for the past fifteen years and loves it. He is very tech savvy and enjoys helping others. On a daily basis, he provides customer service and audits accounts focusing on KPI. When there's a problem, he always prefers to deal with clients personally. He wants the system to be easy and intuitive so he can find solutions easily.

Preferred Channels

Traditional Ads	High
Social Media	Medium
Referral	High
Guerrilla Efforts & PR	Low

Motivations

Designer Products	Medium
Eco-Friendly	High
Personalization	Medium
Low Prices	Medium
Convenience	Medium
Social	High

Personality

Introvert	Extrovert
Analytical	Creative
Loyal	Fickle
Passive	Active

Goals

- To reduce churn
- To help educate advertisers
- To transition toward email / automated customer service



"I want to optimize how the support ticketing system works to capture product feedback better."

Casey O'Donnell
"You can't..."

Anna Sheppard
"Life is better when shared"

23 yo
Lives in Victoria, USA
Job: Curator
Studied at UGA

Traits

Social & Confident	Curious & Brilliant	Hardworker	Cheerful & Generous
--------------------	---------------------	------------	---------------------

Interests

Gigs Hawaii	Events 1/Week	Like nice DESIGN & layout	Art	Yoga
Festivals in Summer	Collect	Music usage	Music	Media

Music Behaviour

Eclectic taste	Subscribed to music channels on YouTube	Friends guidance	Listen to radio
----------------	---	------------------	-----------------

Favourite Bands

Prince	James Blake	Kate Bush
Beyoncé	Alt-J	

Music Related Platform

Soundcloud	iTunes	Hypemachine
Youtube	Spotify	Facebook

Frustrations:

- Have to be committed to find new content
- Suggestions are not really good
- To much services
- Collecting medias on separate platforms

Key goals:

- Find a service/blog that fits her tastes
- No brainer recommendations
- One platform that regroup all type of medias

Some Tools

- Many templates available;
 - E.g. <https://miro.com/templates/personas/> works in the way of a workshop
 - <https://maze.co/guides/user-personas/> a good guide to creating the modern persona
- Profile images – <https://thispersondoesnotexist.com/>

Identify your User Stories

WHO

WHAT

WHY

As a **loan approver**, I can view all income and recurring financial obligations that the applicant has rounded to the nearest dollar to assess the requestors ability to repay the load

User Story Mapping



Example 1: Customer support bot for a mobile phone retailer

Available data	<ul style="list-style-type: none">Questions asked on social media channelsTraffic data from the frequently asked questions (FAQ) page on websiteCall volume to customer support
Brainstormed scenarios	Questions about mobile phone features, pricing questions, troubleshooting mobile data issues, troubleshooting automatic factory reset error, ordering replacement parts, repair services, wireless carrier compatibility, billing issues, new phone release information, shipping information, service outages, warranty information
Prioritized scenarios	<ol style="list-style-type: none">1. Troubleshooting mobile data issues2. Troubleshooting automatic factory reset error3. Repair services
Why these scenarios were prioritized	<ul style="list-style-type: none">The first and second scenarios generate the most customer support call volume.The third scenario has the highest traffic on the FAQ website.

Example 2: Personal shopping assistant for clothing brand

Available data	<ul style="list-style-type: none">Past sales dataCurrent industry trendsTraffic data from the frequently asked questions page on website
Brainstormed scenarios	Clothing recommendations, accessory suggestions, completing purchases, returns and exchanges, size and fit information, current discounts and sales, shipping information, what's new, store locations, store hours, inventory information
Prioritized scenarios	<ol style="list-style-type: none">1. Clothing recommendations2. Size and fit information3. Returns and exchanges
Why these scenarios were prioritized	<ul style="list-style-type: none">The first scenario is the main reason for creating the shopping assistant.The second and third scenarios have the highest traffic on the FAQ website.

Service Discovery and User Story Mapping

- User Stories mapped to the services that provide them
- Discover vs. Acquire vs. Build
- Prioritise
- Schedule

The screenshot shows a Story Map board titled "TIS board". At the top, there are several service categories: Fre-Flight Zero Gravity Training (TIS-33), Book Commercial Space Travel (TIS-34), Know Before You Go Call (TIS-35), Delicious Space Nutrition (TIS-36), Onboard Spacertainment (TIS-37), Onboard Communication with Earth (TIS-38), and Onboard Workouts (TIS-49). Below these, the board is divided into two sprints:

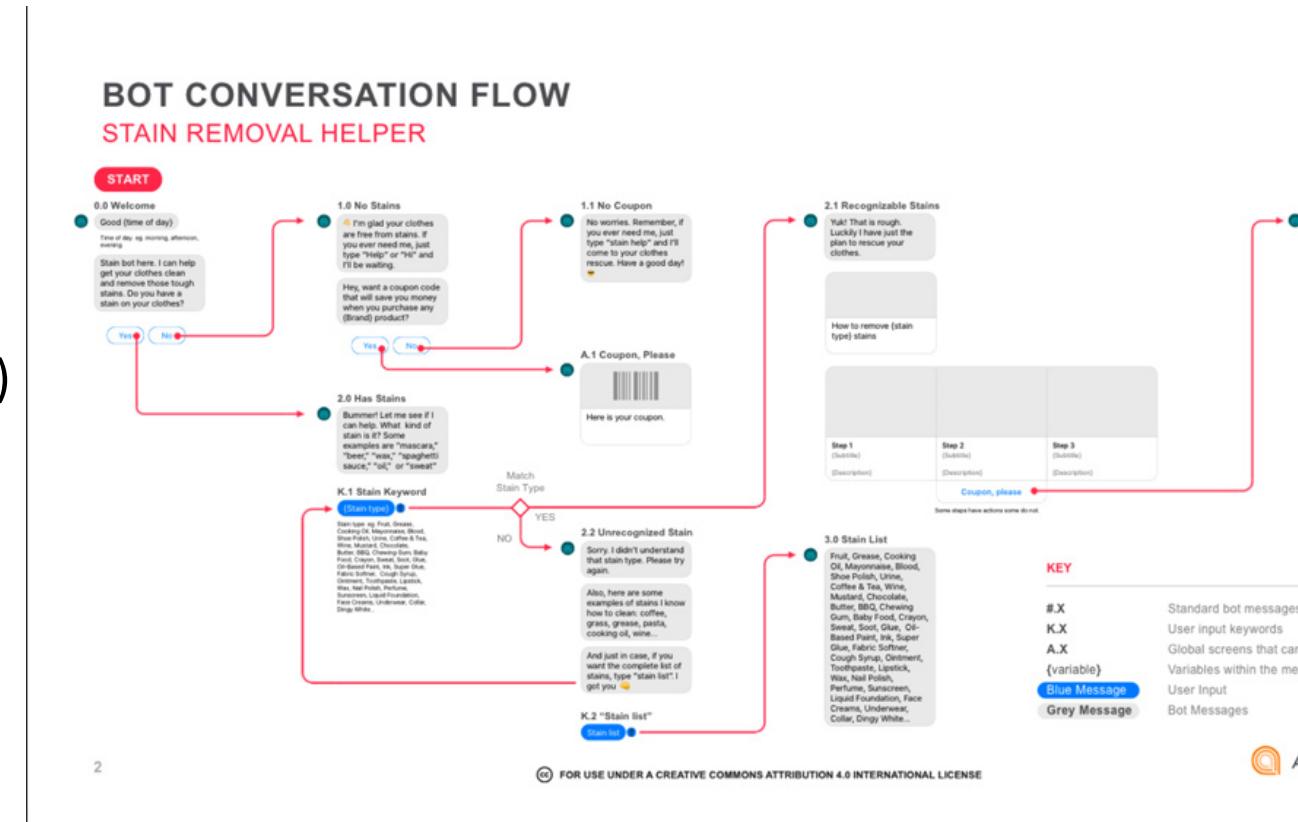
- Sprint 1:** Contains seven user stories. Each story is represented by a card with its title, a brief description, and some status indicators (green, blue, grey circles).
 - 1st Time Space Traveller / I want to understand what the effects Zero Gravity will have on my body (TIS-39)
 - 1st Time Space Traveller / I would like to see suggested travel destinations (TIS-40)
 - Space Traveller / I want an overview of the travel route to my end destination (TIS-41)
 - Space Traveller / I want to eat 5 Star Gourmet meals on my trip to Mars (TIS-43)
 - 1st Time Space Traveller / I want to watch my favourite shows during the long flight to Mars (TIS-44)
 - 1st Time Traveller / I want to know the protocol for onboard emergencies (TIS-42)
 - Space Traveller / I want to listen to my favourite audiobook during my trip to Pluto (TIS-45)
- Sprint 2:** Contains four user stories.
 - Space Traveller / I want to learn exercises to combat the effects of Zero Gravity (TIS-46)
 - 1st Time Traveller / I want to know what I should bring on my first space trip
 - Frequent Space Traveller / I would like a way to preserve food so that I can bring my favourite
 - Frequent Space Traveller / I would like to participate in group exercise classes while onboard

Conversational UX Design

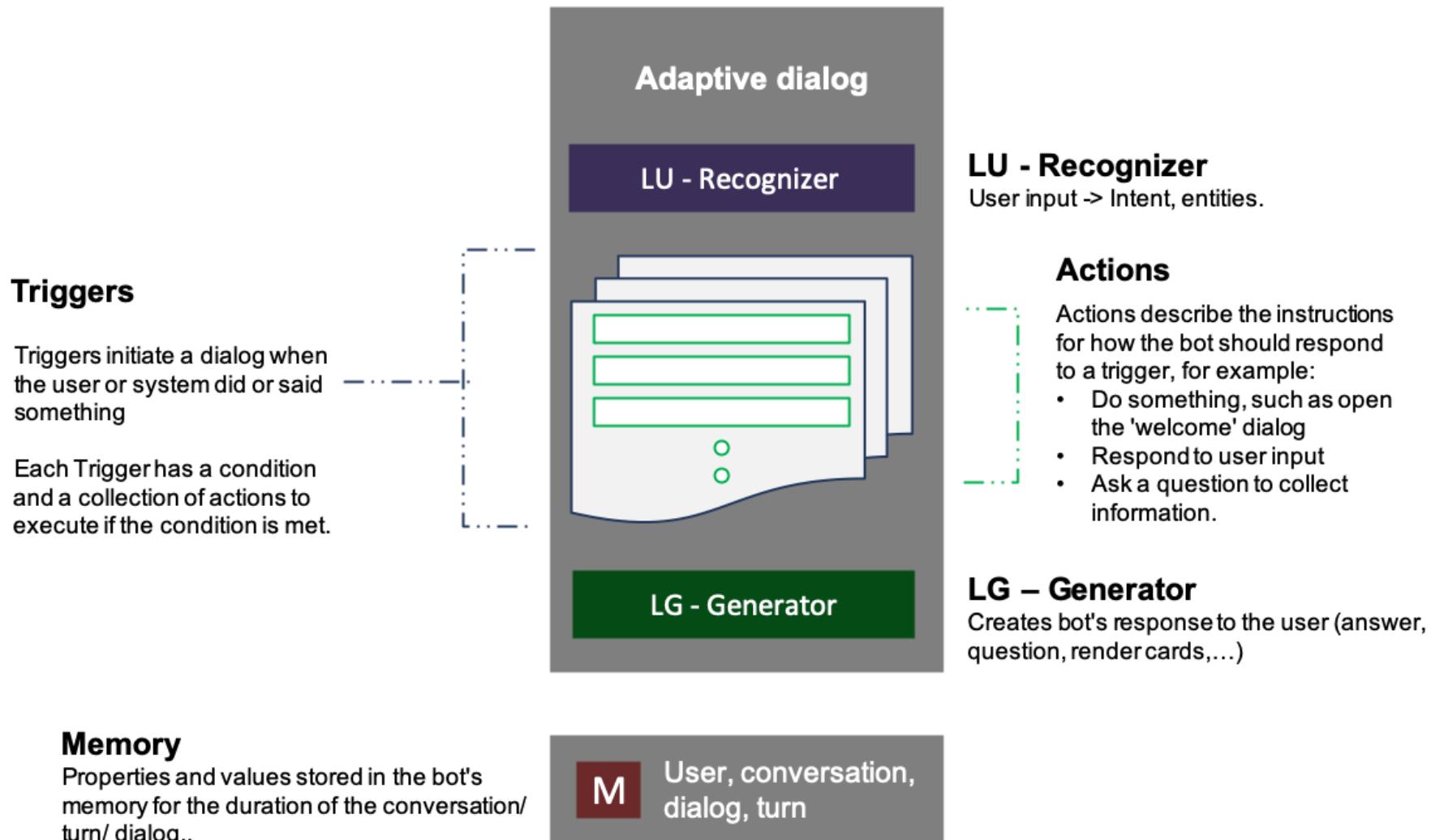
Conversational UX design is a vehicle to chart and navigate out the interactions between humans and technology through language

Script your Conversation

- Tools such as Excel, Lucid Charts
- Finding the persona needs within the user journey and the necessary outcome
- Crafting the narrative first
- Some principles
 - Remember your Personas and User Stories
 - Clarity in the context
 - Consistency in language (emojis, punctuation)
 - Concise and brief (1 or 2 lines)
 - Vary responses (collection)
 - Natural
 - Pauses



Anatomy of Dialog



Language Understanding

- Utterance
 - Utterances are inputs from users
- Intents
 - Intents are categories or classifications of user intentions.
- Entities
 - Entities are a collection of objects, each consisting of data extracted from an utterance such as places, times, and people.
- Recognisers
 - When a dialog is invoked, its **recognizer** will start to process the message and try to extract the primary **intent** and any **entity values** the message includes. After processing the message, both the **intent** and **entity values** are passed onto the dialog's triggers.

```
# Greeting
- Hi
- Hello
- How are you?
```

Identify User Intent

User query:

**“The jeans I bought last week are too big.
Can I get them one size smaller?”**

Intent: exchange an item for a different size

Example: Personal shopping assistant for clothing brand

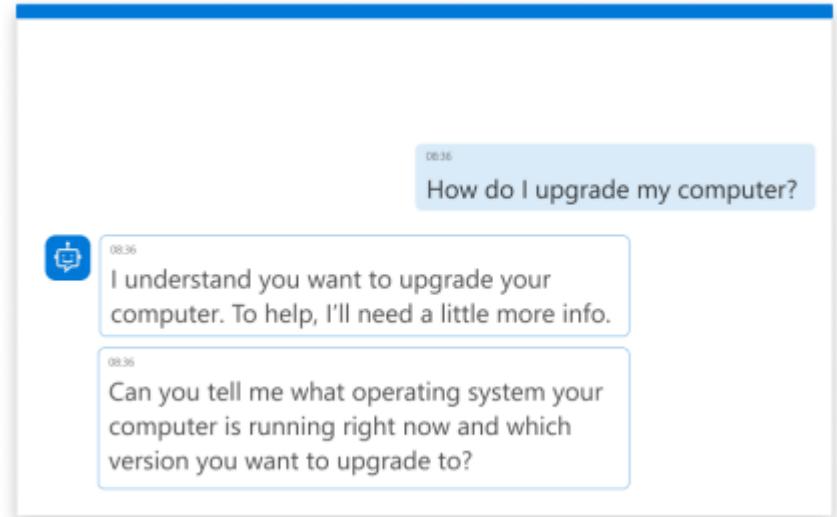
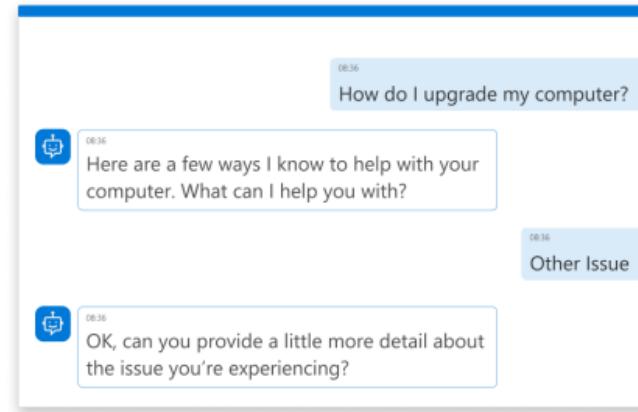
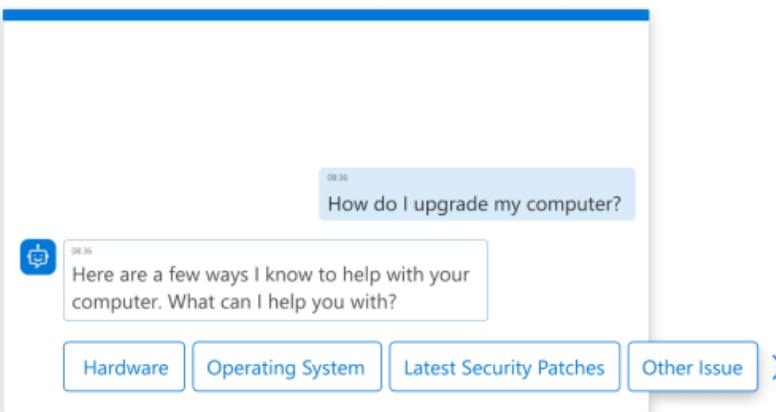
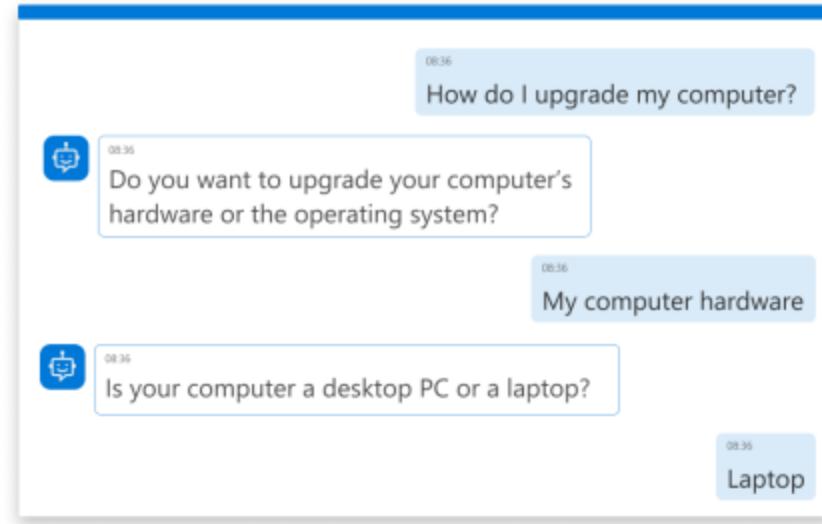
Conversational experience	Personal shopping assistant for clothing brand
Scenario	Returns and exchanges
User intents	<ul style="list-style-type: none">• Return an item• Return a defective or damaged item• Return an item after 90-day return policy• Exchange an item for a different size• Exchange an item for a different product

Example Intent Extraction

- "Turn on the kitchen light"
- "Is the kitchen light on?"
- "Turn off the kitchen light"
- Semantically similar but different intentions
 - **TurnOnDevice**, **GetDeviceStatus**, and **TurnOffDevice**

Disambiguation of User Intent

- The process of narrowing down a user intent
- Approaches
 - Ask more questions
 - Narrow down through options
 - Targeted questions



Disambiguation of User Intent

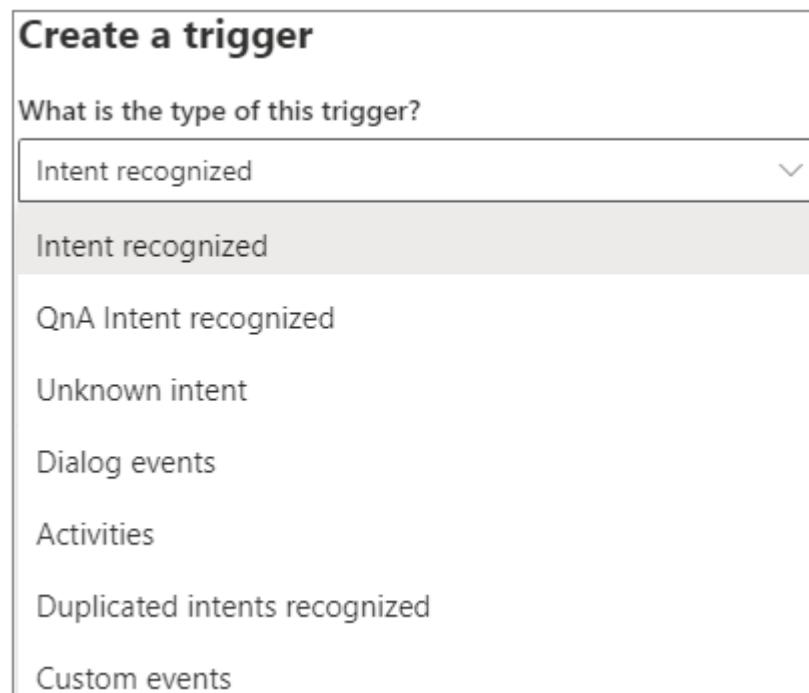
- Prepare for out of scope questions

Recognisers

Intent	Utterances	Entities
BookFlight	"Book me a flight to London"	"London"
	"Fly me to London on the 31st"	"London", "31st"
	"I need a plane ticket next Sunday to London"	"next Sunday", "London"

Triggers

- Anatomy of a trigger
 - The basic idea behind a trigger (event handler) is "When (*event*) happens, do (*actions*)". The trigger is a conditional test on an incoming event



Triggers

- Intent Triggers
 - Intent recognized
 - QnA Intent recognized
 - Unknown intent
 - Duplicated intents recognized
- Dialog Event Triggers
 - Dialog started (Begin dialog event)
 - Dialog cancelled (Cancel dialog event)
 - Error occurred (Error event)
 - Re-prompt for input (Reprompt dialog event)

Triggers

- Intent Triggers
 - Intent recognized
 - QnA Intent recognized
 - Unknown intent
 - Duplicated intents recognized
- Dialog Event Triggers
 - Dialog started (Begin dialog event)
 - Dialog cancelled (Cancel dialog event)
 - Error occurred (Error event)
 - Re-prompt for input (Reprompt dialog event)

Common pitfalls in Conversational Interface Design

- Pitfalls in terms of five personalities
 - the "stubborn bot"
 - the "clueless bot"
 - the "mysterious bot"
 - the "captain obvious bot"
 - the "bot that can't forget."

Stubborn bot

The stubborn bot insists upon maintaining the current course of conversation, even when the user attempts to steer things in a different direction



Do: Design your bot to consider that a user might attempt to change the course of the conversation at any time.

Don't: Design your bot to ignore user input and keep repeating the same question in an endless loop.

One way to prevent a bot from asking the same question endlessly is to specify a maximum number of retry attempts for each question.

What city are you travelling to?

Bot

cancel

User

I'm sorry, I didn't understand that. What city are you travelling to?

Bot

help

User

I'm sorry, I didn't understand that. What city are you travelling to?

Bot

STOP

User

I'm sorry, I didn't understand that. What city are you travelling to?

Bot

Please stop, cancel, help, abort, do anything!

Clueless bot

The clueless bot responds in a nonsensical manner when it doesn't understand a user's attempt to access certain functionality.



Please enter the code for the request:

Help?



Thank you, using code 'Help?'. Have a good day.

Huh?



Tip

Do: Implement **middleware** that will examine user input for the keywords that you specify (ex: "help", "cancel", "start over", etc.) and respond appropriately.

Don't: Design every dialog to examine user input for a list of keywords.

Mysterious bot

In some cases, this situation might be an indication that the bot's having an outage. However, it could just be that the bot's busy processing the user's input and hasn't yet finished compiling its response.



Tip

Do: Design your bot to immediately acknowledge user input, even in cases where the bot may take some time to compile its response.

Don't: Design your bot to postpone acknowledgement of user input until the bot finishes compiling its response.

Consider sending a "typing" message to indicate your bot's working, and then following up with a proactive message



How can I help you today?

Which movies are showing this week?

Hello?

Which movies are showing this week?

Hey bot, are you there?

Captain obvious bot

The captain obvious bot provides unsolicited information that's completely obvious and therefore useless to the user.



Tip

Do: Design your bot to provide information that will be useful to the user.

Don't: Design your bot to provide unsolicited information that's unlikely to be useful to the user.



You just spent \$10 on your credit card!

Yup, I know...



It looks like you are driving to work!

Really...



It looks like you arrived at work! Have a nice day!

Jeez, get a life, bot...

Bot that cannot forget

The bot that can't forget inappropriately integrates information from past conversations into the current conversation.



Tip

Do: Design your bot to maintain the current topic of conversation, unless/until the user expresses a desire to revisit a prior topic.

Don't: Design your bot to interject information from past conversations when it's not relevant to the current conversation.



I want to travel to Italy



Please confirm: Are you ok with me charging \$200 for your trip to Las Vegas?

Which Trip to Las Vegas???

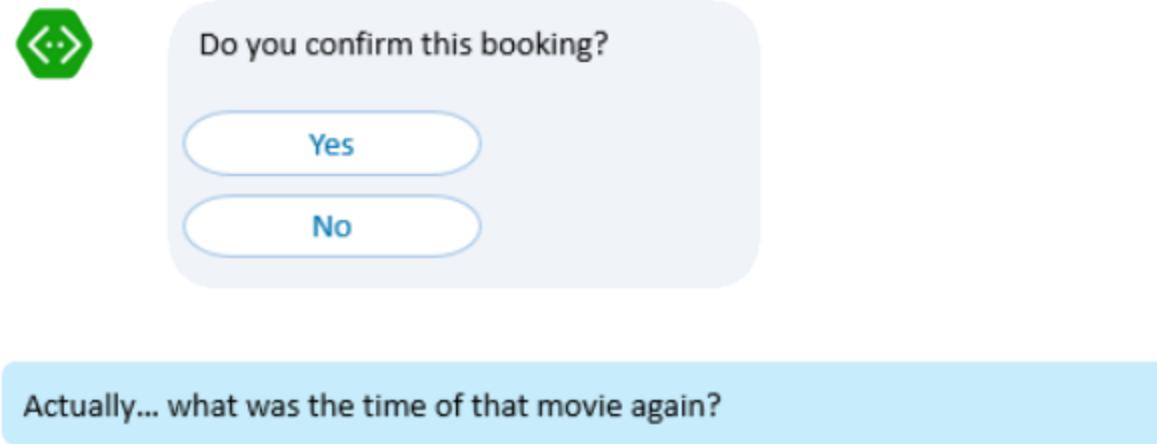


Your trip to Las Vegas you wanted me to book for June the 5th

OMG that was 3 months ago, bot...

Handle Interruptions

- Conversational flows have linear flows designed
- However users don't follow this flow



- Some strategies
 - Keep the flow: insist that the user answer the question first.
 - Reset the flow: Disregard everything that the user had done previously, reset the whole dialog stack, and start from the beginning by attempting to answer the user's question.
 - Store the flow: Attempt to answer the user's question and then return

Graceful Fallbacks and hand-off

- When your agent is not enough
- Set clear expectations up front
 - Provide clarity in the fallback
 - Fallbacks like, “Sorry, I didn't get that. I can help you or . Do you want to try one of those things?”
 - Redirect the user toward the things your bot can do.
- Fallbacks
 - Seek understanding
 - *I didn't get that. Can you say it another way?*
 - *I don't quite understand. Can you try rephrasing?*
 - *I'm a little unsure how to help. Try asking again using just a few key words.*
 - *Did you mean [suggestion]?*
 - *Sounds like you want to [suggestion]. Is that right?*
 - *I found [suggestion 1] or [suggestion 2]. Is it one of those?*

Graceful Fallbacks and Hand-off

- Establish domain expertise;
 - *Sorry, I can't help with that. Did you want to try [suggestion 1] or [suggestion 2]?*
 - *Sorry, I don't think I can help you with that. Say "main menu" to learn what I can do.*
 - *I don't have any info about that, but I found this topic that might help: [topic].*
- Have variations otherwise it will get repetitive.
- Hand – Off
 - No more than two fallback questions
 - Make sure the user knows what is happening, whether they'll be connected to a human or another resource, and what they'll need to do next
 - Carry over context

Ending Conversations

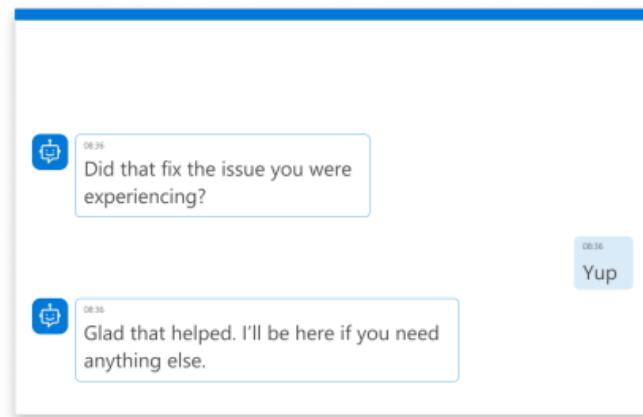
- Ask follow up questions;

- *"Did this answer your question?"*
- *"Did that fix the issue you were experiencing?"*
- *"Can I help with anything else?"*
- *"Do you need help with anything else?"*

- Not just good bye

- Opportunity to add value / feedback?

- Thumbs up/thumbs down
- Smile/frown
- Numeric rating (five-point scales are typical)
- Positive/negative (either a binary scale or a broader five-point scale)



Thank you



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