



# DÉVELOPPEMENT D'UN CHATBOT POUR RÉSERVER DES VACANCES

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# AGENDA DU JOUR



CONTEXTE PROJET  
ET DONNÉES



ARCHITECTURE ET  
BRIQUES AZURE



SUIVI DE  
PERFORMANCE



DÉMO :  
BOT ET ALERTE



## CONTEXTE PROJET ET DONNÉES

# CONTEXTE PROJET



## Entreprise

Fly Me est une agence qui propose des voyages clé en main pour les particuliers ou les professionnels.



## Projet

Développement d'un chatbot (en anglais) pour aider les utilisateurs à choisir une offre de voyage.



## Stratégie

Un **MVP** (*Minimum Viable Product*) qui aidera les employés de Fly Me à réserver facilement un billet d'avion pour leurs vacances.



## Objectif

Identification des **éléments qui constituent un vol**, reformulation, demande de confirmation et notification de réservation.

# JEU DE DONNÉES



Frames Dataset

Ce jeu de données ([Frames Dataset](#)) fournit un historique des échanges entre un utilisateur et le chatbot

**1.369**  
dialogues

**109**  
villes répertoriées

**4.57**  
Note moyenne de  
satisfaction

## 5 données clés

- ☒ Ville de départ
- ☒ Ville de destination
- ☒ Date aller du vol
- ☒ Date retour du vol
- ☒ Budget



Disponibles dans le champ « Turns » dès la 1<sup>ère</sup> entrée de l'utilisateur

	user_id	turns	wizard_id	id
0	U22HTHYNB	[{"text": "I'd like to book a trip to Atlantis from Caprica on Saturday, August 13, 2016 for 8 adults. I have a tight budget of 1700.", "labels": {"acts": [{"args": [{"val": "book", "key": "intent..."	U21DKG18C	e2c0fc6c-2134-4891-8353-ef16d8412c9a
1	U21E41CQP	[{"text": "Hello, I am looking to book a vacation from Gotham City to Mos Eisley for \$2100.", "labels": {"acts": [{"args": [{"val": "book", "key": "intent"}], "name": "inform", "args": [{"val": ...	U21DMV0KA	4a3bfa39-2c22-42c8-8694-32b4e34415e9
2	U21RP4FCY	[{"text": "Hello there i am looking to go on a vacation with my family to Gotham City, can you help me?", "labels": {"acts": [{"args": [{"val": "book", "key": "intent"}], "name": "inform", "args:...	U21E0179B	6e67ed28-e94c-4fab-96b6-68569a92682f

```
I'd like to book a trip to Atlantis from Caprica on Saturday, August 13, 2016 for 8 adults. I have a tight budget of 1700.  
intent : book  
dst_city : Atlantis  
or_city : Caprica  
str_date : Saturday, August 13, 2016  
budget : 1700
```

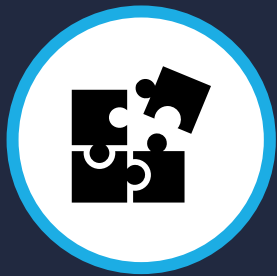


- Filtre données clés
- Correction valeurs -1
- Suppression doublons



### Mises au format requis par l'outil d'analyse sémantique : LUIS

```
{
  "text": "i'd like to book a trip to atlantis from caprica on saturday, august 13, 2016 for 8 adults.  
i have a tight budget of 1700.",
  "intentName": "BookFlight",
  "entityLabels":
    [
      {"entityName": "or_city", "startCharIndex": 41, "endCharIndex": 48},
      {"entityName": "dst_city", "startCharIndex": 27, "endCharIndex": 35},
      {"entityName": "str_date", "startCharIndex": 52, "endCharIndex": 77},
      {"entityName": "budget", "startCharIndex": 117, "endCharIndex": 121}
    ]
}
```

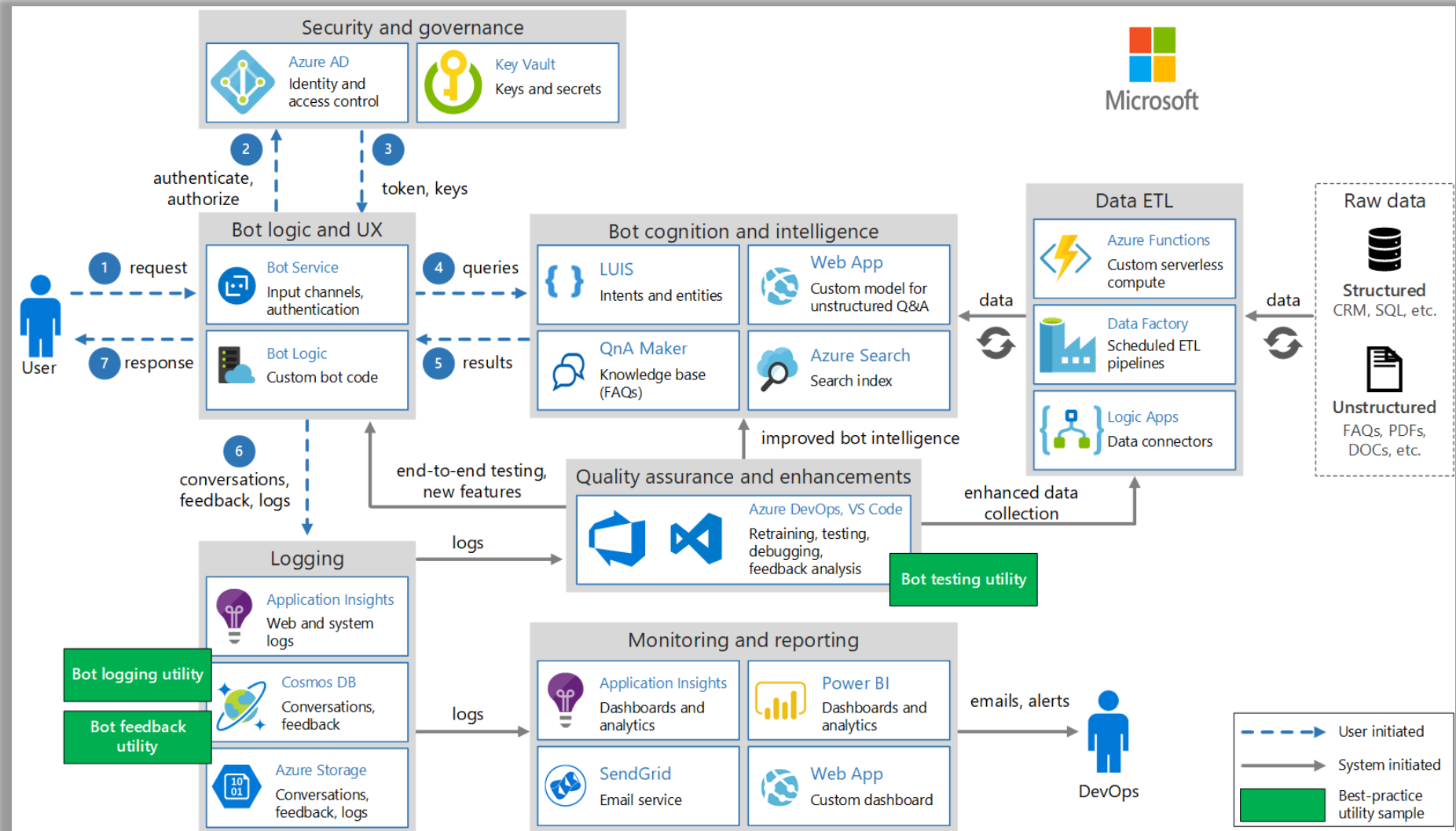


# ARCHITECTURE ET BRIQUES AZURE

# ARCHITECTURE DE RÉFÉRENCE : CLASSE ENTREPRISE

Cette architecture de référence décrit comment générer un bot de conversation (chatbot) de classe entreprise à l'aide d'**Azure Bot Framework**.

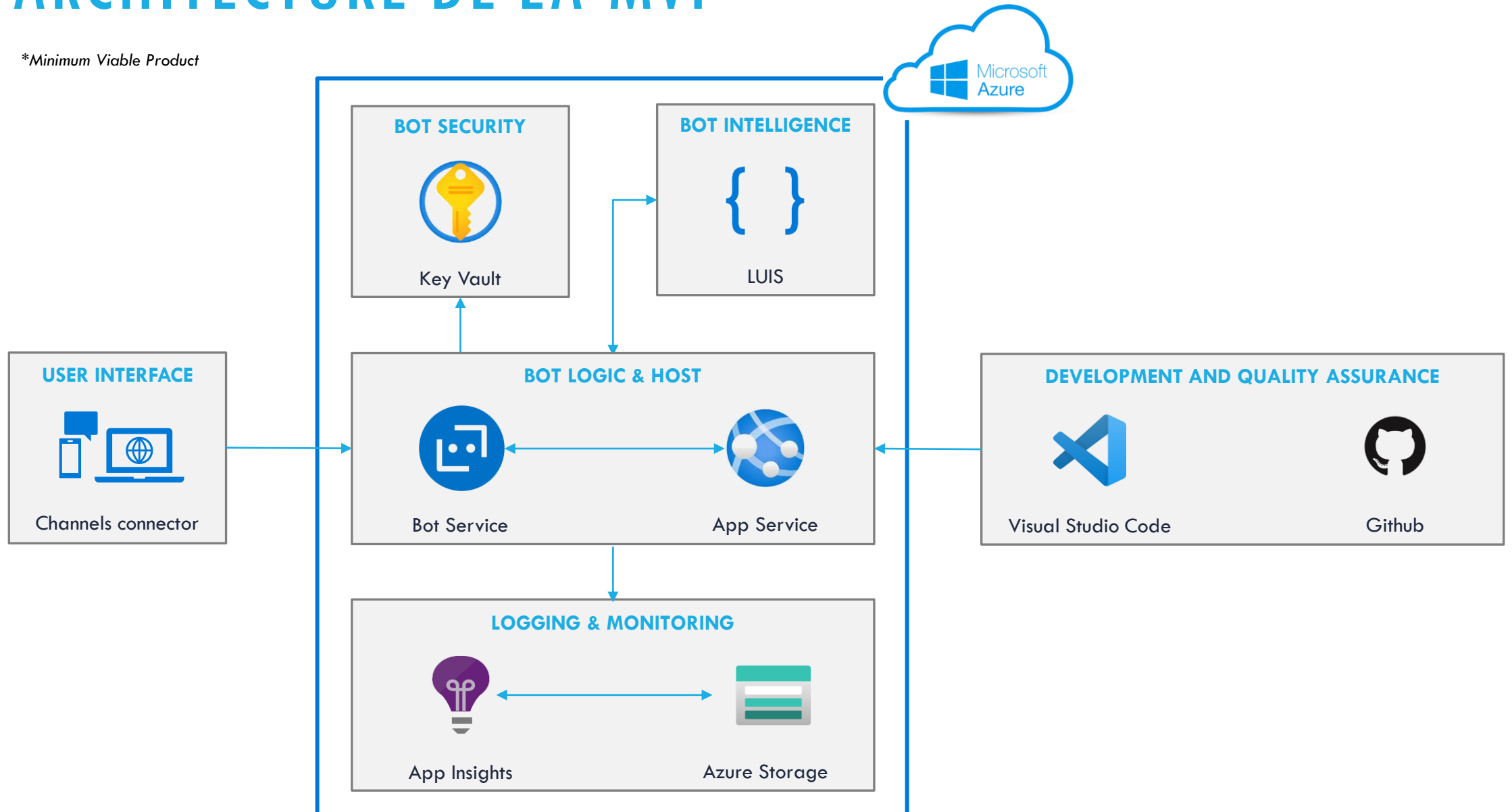
Chaque bot est différent, mais ils ont en commun des modèles, des workflows et des technologies à connaître, pour **générer un bot robuste, sécurisé et actif dans son apprentissage**.





# ARCHITECTURE DE LA MVP\*

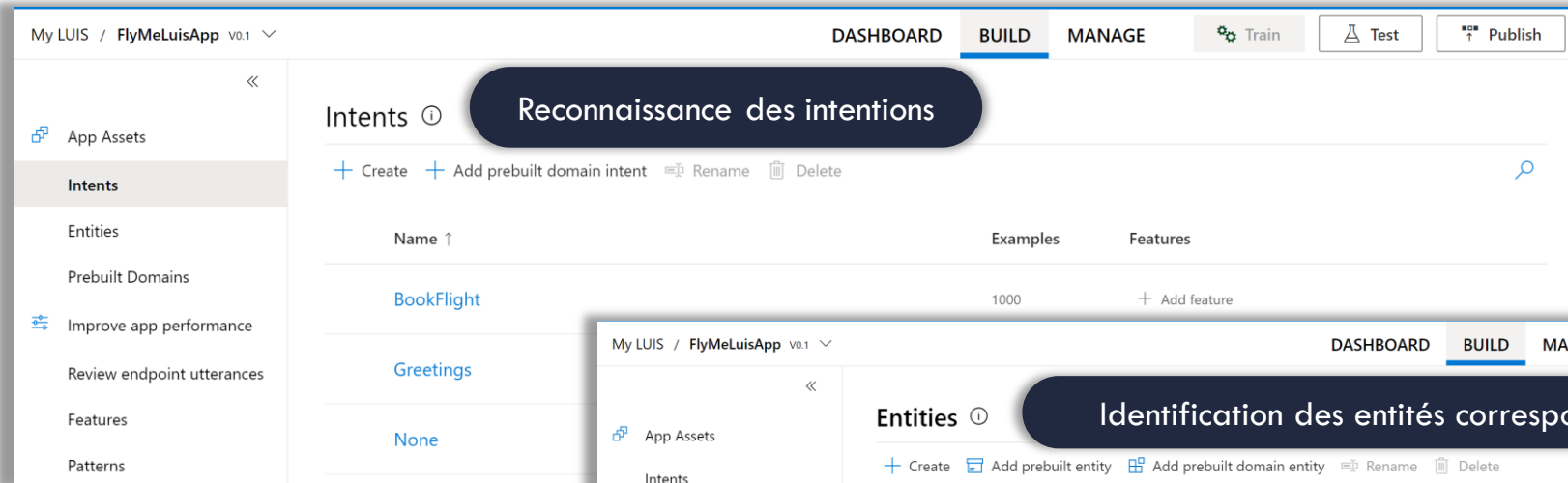
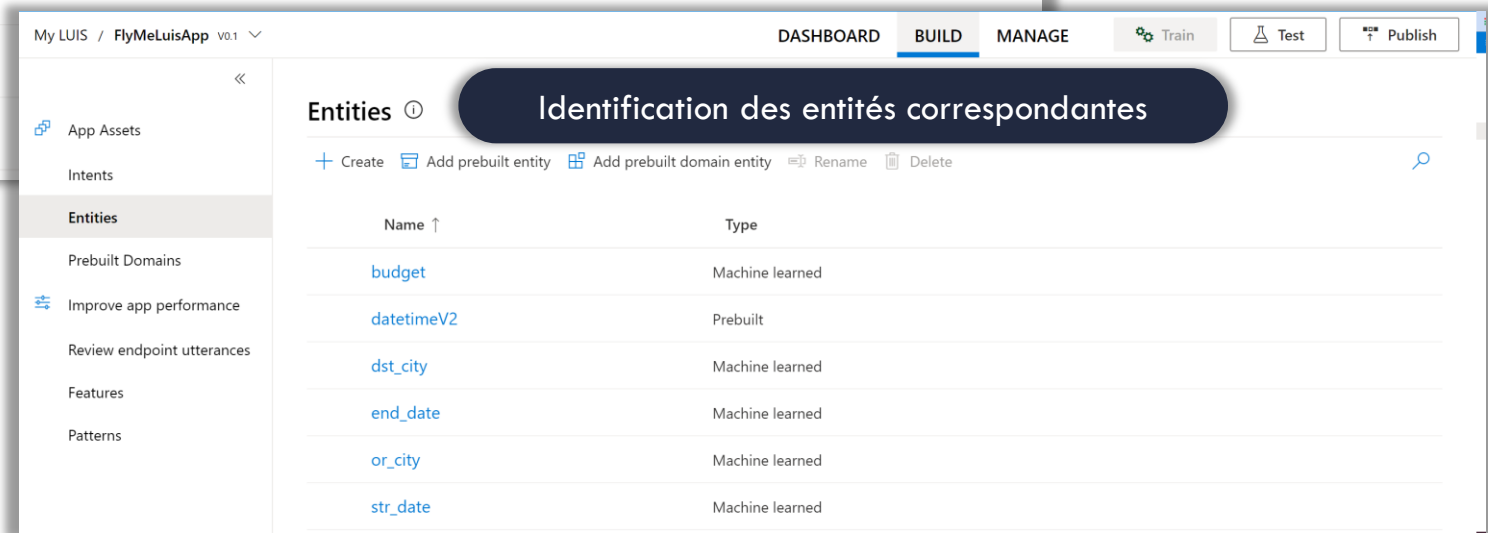
\*Minimum Viable Product



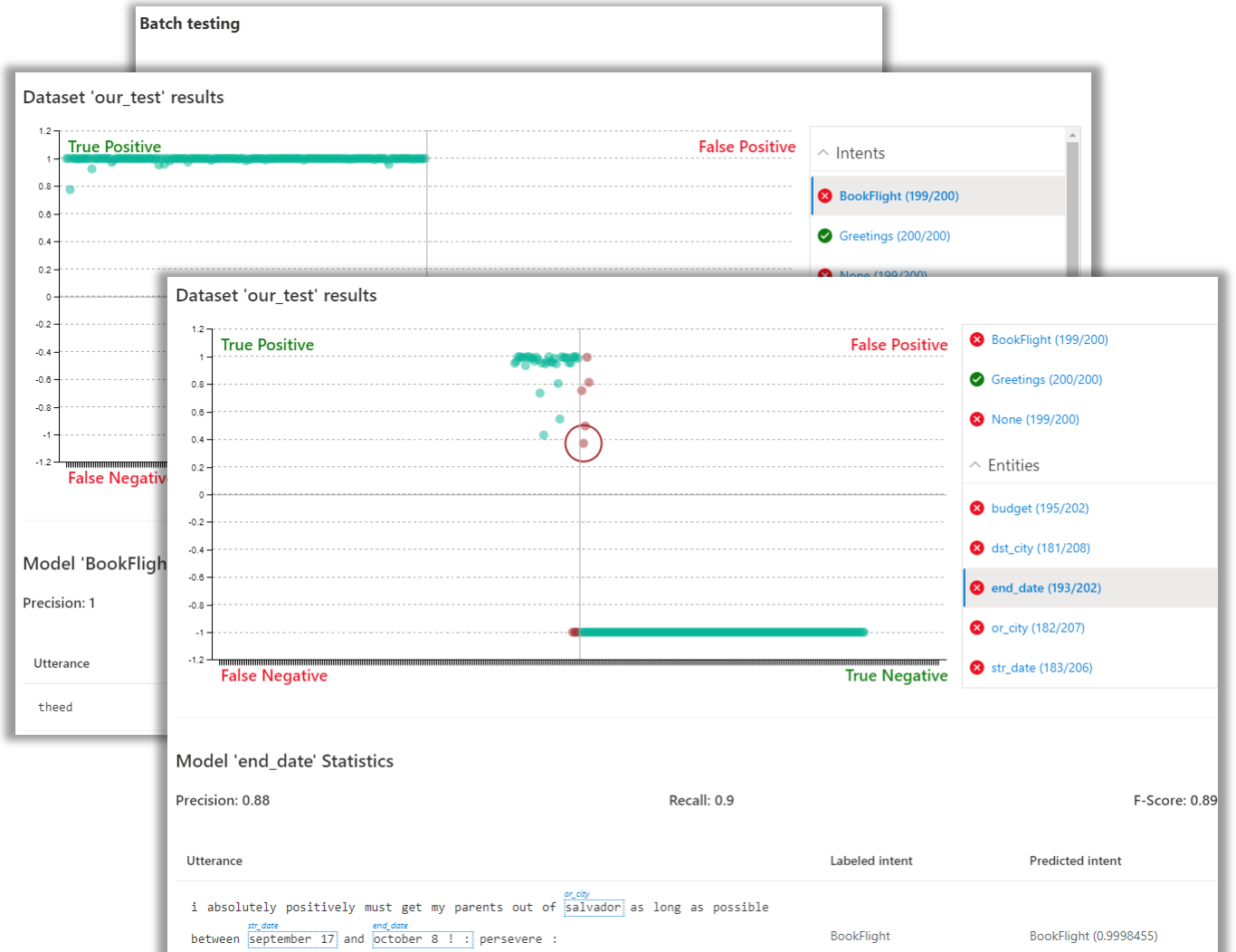
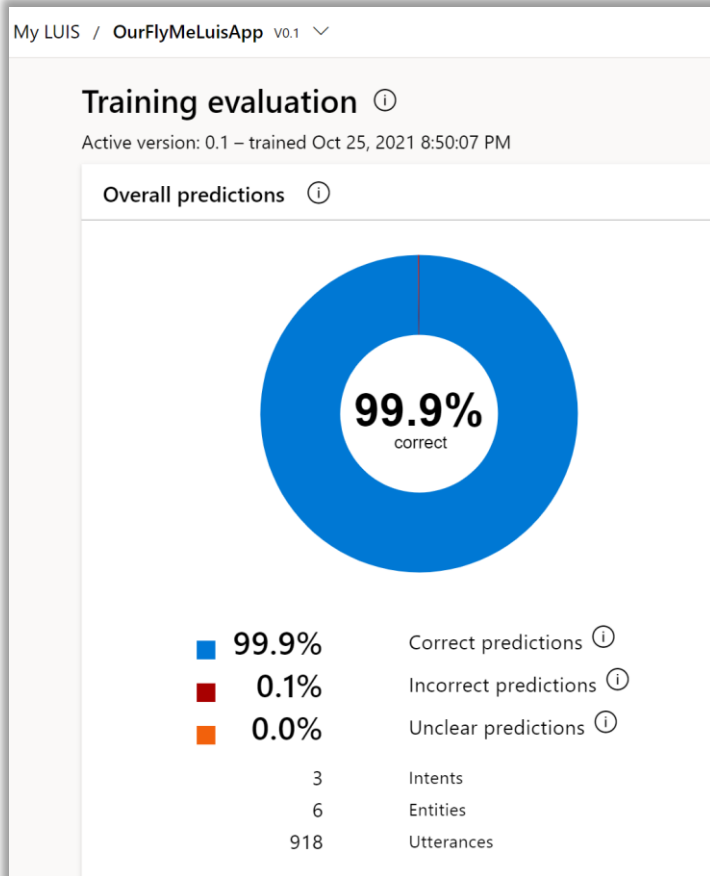
# BRIQUE LUIS (Language Understanding)



Le service cognitif LUIS nous aide à comprendre le texte donné en entrée par un utilisateur.

The screenshot shows the LUIS 'Intents' page for an application named 'FlyMeLuisApp'. The page has a sidebar with navigation options: App Assets, Intents (selected), Entities, Prebuilt Domains, Improve app performance, Review endpoint utterances, Features, and Patterns. The main content area is titled 'Intents' with a subtitle 'Reconnaissance des intentions'. It includes a table with columns 'Name', 'Examples', and 'Features'. The table lists three intents: 'BookFlight' with 1000 examples, 'Greetings', and 'None'. There are buttons for '+ Create', '+ Add prebuilt domain intent', 'Rename', and 'Delete' at the top of the table.The screenshot shows the LUIS 'Entities' page for the same application 'FlyMeLuisApp'. The sidebar is similar, but 'Entities' is selected. The main content area is titled 'Entities' with a subtitle 'Identification des entités correspondantes'. It includes a table with columns 'Name' and 'Type'. The table lists six entities: 'budget' (Machine learned), 'datetimeV2' (Prebuilt), 'dst\_city' (Machine learned), 'end\_date' (Machine learned), 'or\_city' (Machine learned), and 'str\_date' (Machine learned). There are buttons for '+ Create', '+ Add prebuilt entity', '+ Add prebuilt domain entity', 'Rename', and 'Delete' at the top of the table.

# LUIS : PERFORMANCE AVANT PUBLICATION



# BRIQUE BOT FRAMEWORK SDK

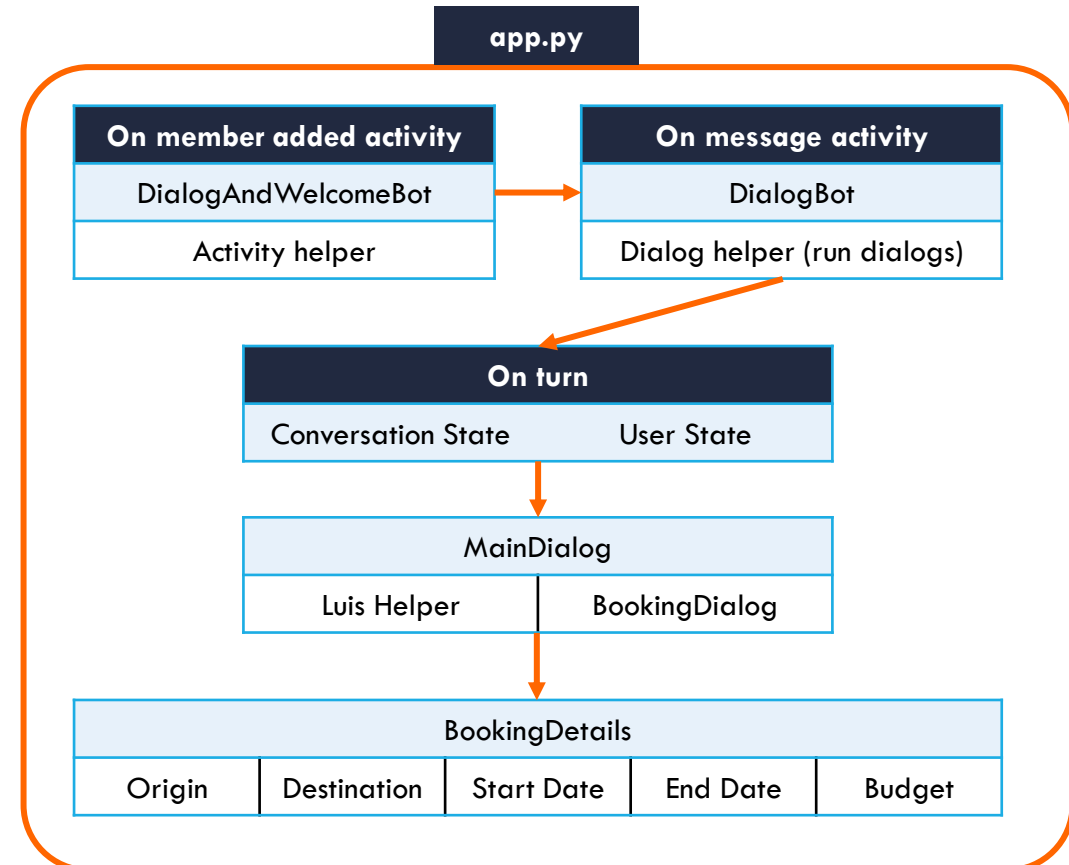
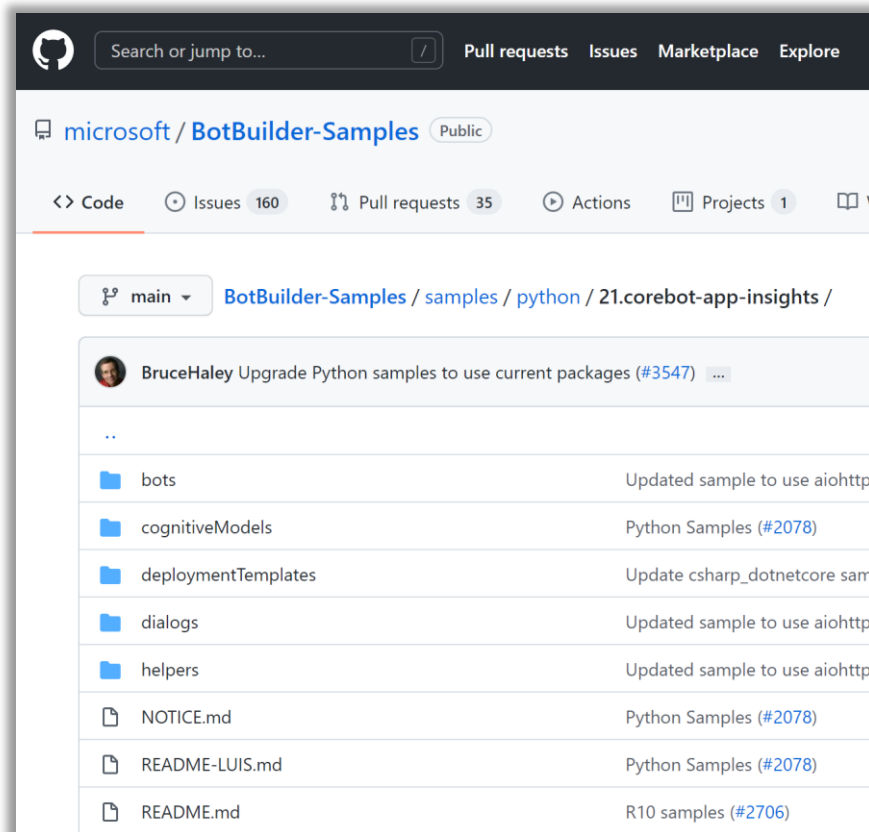


BOT SERVICE



Bot Framework SDK est l'outil complet de développement pour la conception du bot et la connexion aux utilisateurs. Les boîtes de dialogues permettent de gérer une conversation avec l'utilisateur, sur un seul ou plusieurs tours.

[Microsoft GitHub - Bot Builder - Python Sample 21 \(Core Bot + App Insights\)](#)



# BRIQUE APP INSIGHTS



App. Insights nous permet de collecter des données servant à évaluer les performances de notre bot.

Azure Bot Framework nous permet de générer directement dans notre code (Python) les données de télémétrie que nous voulons piloter concernant notre chatbot.

Les données sont sauvegardées pour être analysées, annotées et utilisées plus tard pour le réentraînement de notre modèle LUIS.

```
# ==== Final ==== #
async def final_step(self, step_context: WaterfallStepContext) -> DialogTurnResult:
    """Complete the interaction, track data, and end the dialog."""

    # Create data to track in App Insights
    booking_details = step_context.options

    properties = {}
    properties["origin"] = booking_details.origin
    properties["destination"] = booking_details.destination
    properties["departure_date"] = booking_details.start_date
    properties["return_date"] = booking_details.end_date
    properties["budget"] = booking_details.budget

    # If the BOT is successful
    if step_context.result:
        # Track YES data
        self.telemetry_client.track_trace("YES answer", properties, "INFO")
        return await step_context.end_dialog(booking_details)

    # If the BOT is NOT successful
    else:
        # Send a "sorry" message to the user
        sorry_msg = "I'm sorry I couldn't help you"
        prompt_sorry_msg = MessageFactory.text(sorry_msg, sorry_msg, InputHints.ignoring_input)
        await step_context.context.send_activity(prompt_sorry_msg)

        # Track NO data
        self.telemetry_client.track_trace("NO answer", properties, "ERROR")

    return await step_context.end_dialog()
```

# BRIQUE APP SERVICE



APP SERVICE



Microsoft

App. Service nous permet d'héberger notre bot sur Azure, et de bénéficier du déploiement continu depuis Github via Github Actions. On peut ainsi automatiser le workflow, y compris les tests unitaires

Home > OurFlyMeWebApp

OurFlyMeWebApp | Deployment Center

App Service

Search (Ctrl+/)

Save Discard Browse Manage publish profile

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Security

Events (preview)

Deployment

Quickstart

Deployment slots

Deployment Center

Settings

Configuration

Authentication

Application Insights

Identity

Backups

Custom domains

TLS/SSL settings

TLS/SSL settings (preview)

Settings

Logs

FTPS credentials

Deploy and build code from your preferred source and build provider.

Source

GitHub

Disconnect

GitHub

Signed in as

zatafa

Organization

zatafa

Repository

10\_OC\_AI\_Azure\_Bot\_Framework

Branch

main

Build

Build provider

GitHub Actions

zatafa / 10\_OC\_AI\_Azure\_Bot\_Framework Private

Code Issues Pull requests Actions Projects Security Insights Settings

main 1 branch 0 tags

Go to file Add file Code

zatafa Update main\_ourflymewebapp.yml

.github/workflows Update main\_ourflymewebapp.yml

.vscode Create settings.json

bots Bot Activity Handler

cards Bot Adaptive Cards

Summary

Jobs

build

deploy

```
# Optional: Add step to run tests here (PyTest, Django test suites, etc.)
- name: Run tests with pytest
  run: pytest
```

luis\_app Saved data

static Static data / image

tests Unitary Tests

.gitignore Initial commit

README.md Initial commit

adapter\_with\_error\_handler.py Create adapter\_with\_error\_handler.py

build

succeeded 13 minutes ago in 58s

Search logs

- Set up job 3s
- Run actions/checkout@v2 2s
- Set up Python version 0s
- Create and start virtual environment 3s
- Install dependencies 35s
- Run tests with pytest 7s

```
1 ▶ Run pytest
6 ===== test session starts =====
7 platform linux -- Python 3.8.12, pytest-6.2.5, py-1.11.0, pluggy-1.0.0
8 rootdir:
9 /home/runner/work/10_OC_AI_Azure_Bot_Framework/10_OC_AI_Azure_Bot_Framework
10 collected 3 items
11 tests/test_luis.py ... [100%]
12
13 ===== 3 passed in 7.02s =====
```

12 days ago



## SUIVI DE PERFORMANCE

# DÉTECTION DE LA BAISSSE DE PERFORMANCE



App. Insights remonte une alerte sur la plateforme et par email, et les données de dialogues sont consultables.

Nom de l'alerte	AlertUserNoAnswer
Signal	Comptage de la sévérité 1 = Erreur
Conditions	A partir de 3 échecs sur une période de 5 minutes
Action	Envoi d'un mail d'alerte à l'administrateur

Severity	Total alerts	New	Acknowledged	Closed
0 - Critical	0	0	0	0
1 - Error	1	1	0	0
2 - Warning	0	0	0	0
3 - Informational	0	0	0	0
4 - Verbose	0	0	0	0



**Fired:Sev1 Azure Monitor Alert**  
**AlertUserNoAnswer on ourflymeappinsights (microsoft.insights/components) at 11/7/2021 12:05:07 AM**

[View the alert in Azure Monitor >](#)

## Summary

Alert name	AlertUserNoAnswer
Severity	Sev1
Monitor condition	Fired
Affected resource	<a href="#">ourflymeappinsights</a>
Resource type	microsoft.insights/components

Home > OurFlyMeAppInsights >

## End-to-end transaction details

OurFlyMeAppInsights

Search results

Filtered on  
 timestamp > 06/11/2021, 01:00:00  
 timestamp < 07/11/2021, 01:00:00

07/11, 01:01:48 - TRACE  
 NO answer  
 Severity level: Error

07/11, 01:01:31 - TRACE  
 NO answer  
 Severity level: Error

07/11, 01:00:52 - TRACE  
 NO answer  
 Severity level: Error

07/11, 01:00:52 - TRACE  
 NO answer  
 Severity level: Error

07/11, 01:00:31 - TRACE  
 NO answer  
 Severity level: Error

07/11, 01:00:31 - TRACE  
 NO answer  
 Severity level: Error

End-to-end transaction

1 All 1 Traces 0 Errors View timeline

Filter to a specific component and call  
 All [Component | Call]

**ERROR 01:01:48.515 |**  
 NO answer

TRACE  
 Error

Trace Properties

Event time 07/11/2021, 01:01:48.515 (Local time)

Device type Bot

Message NO answer

Severity level Error

Custom Properties

origin Toronto

activityId e72cbce0-3f5d-11ec-a4ea-cd0192036aa0

activityType message

budget \$ 3500

channelId emulator

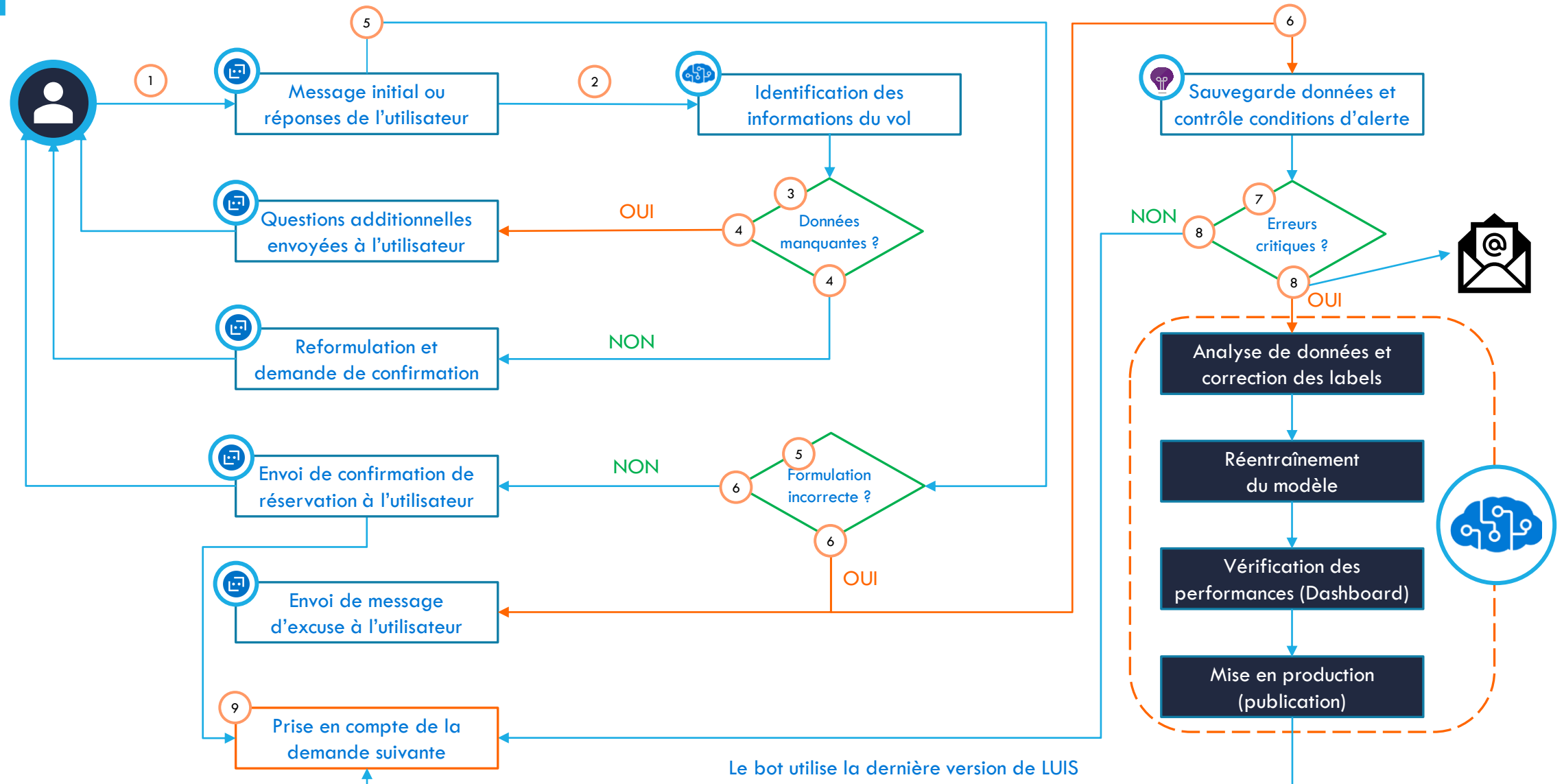
departure\_date 2021-09-22T00:00:00.0000000Z

destination Shanghai

return\_date 2021-10-15T00:00:00.0000000Z



# SCHÉMA DE SUIVI DE PERFORMANCE EN PRODUCTION



# LUIS.AI : RÉENTRAÎNEMENT DU MODÈLE



My LUIS / OurFlyMeLuisApp v0.1

DASHBOARD BUILD MANAGE Train Test Publish

Review Endpoint Utterances ⓘ

Filter: BookFlight

Validation Enregistrement Suppression

Correction des annotations si nécessaire

Choix de l'intention

App Assets

- Intents
- Entities
- Prebuilt Domains
- Improve app performance
- Review endpoint utterances**
- Features
- Patterns

Utterance 1: i would like to go to **beijing** from **madrid** from 15 to **27 november 2021** for a budget of **\$ 1400**

Utterance 2: i would like to book a flight from **paris** to **tokyo** from 09 / 22 / 2021 to 10 / 15 / 2021 for a budget of **\$ 5000**

Utterance 3: i would like to go to **berlin** from **nairobi** between **25 november 2021** to **13 december 2021** for a budget of **\$ 2500**

Intention dropdown menu:

- BookFlight (0.99982643)
- BookFlight (0.99982643)
- None (0.002107722)
- Greetings (0.0000019452914)

# CONTRÔLE DES DÉPENDANCES SUR GITHUB



Attention aux évolutions des modules utilisés dans notre code (ceci concerne tous les projets de l'entreprise).

Overview

Security policy

Security advisories

Dependabot alerts

## Dependabot alerts

1 Open 0 Closed

Manifest Sort

low severity

**aiohttp**

10 hours ago by GitHub requirements.txt

Create Dependabot security update Dismiss

**aiohttp**

Open GitHub opened this alert 10 hours ago

1 aiohttp vulnerability found in requirements.txt 10 hours ago

### Remediation

Upgrade aiohttp to version 3.7.4 or later. For example:

```
aiohttp>=3.7.4
```

Always verify the validity and compatibility of suggestions with your codebase.

## Impact

What kind of vulnerability is it? Who is impacted?

Open redirect vulnerability — a maliciously crafted link to an aiohttp-based web-server could redirect the browser to a different website.

It is caused by a bug in the aiohttp.web\_middlewares.normalize\_path\_middleware middleware.

## Pat

**We found potential security vulnerabilities in your dependencies.**  
Only the owner of this repository can see this message.

13 lines (13 sloc) 393 Bytes

```
1 botbuilder-core==4.13.0
2 botframework-connector==4.13.0
3 botbuilder-schema==4.13.0
4 botbuilder-dialogs==4.13.0
5 botbuilder-ai==4.13.0 #install luis 0.2.0 instead of 0.7.0
6 botbuilder-applicationinsights==4.13.0
7 botbuilder-integration-applicationinsights-aiohttp==4.13.0
8 azure-cognitiveservices-language-luis==0.2.0
9 msrest==0.6.10
10 datatypes-date-time>=1.0.0.a1
11 aiohttp==3.6.2
12 requests==2.23.0
13 pytest
```

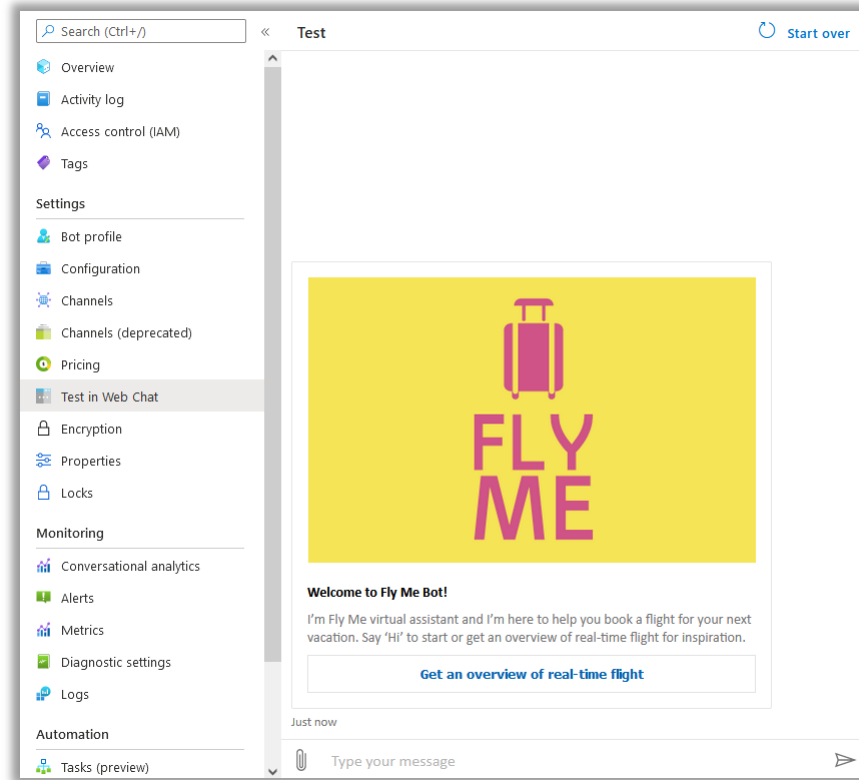


## DÉMONSTRATIONS : BOT ET ALERTE

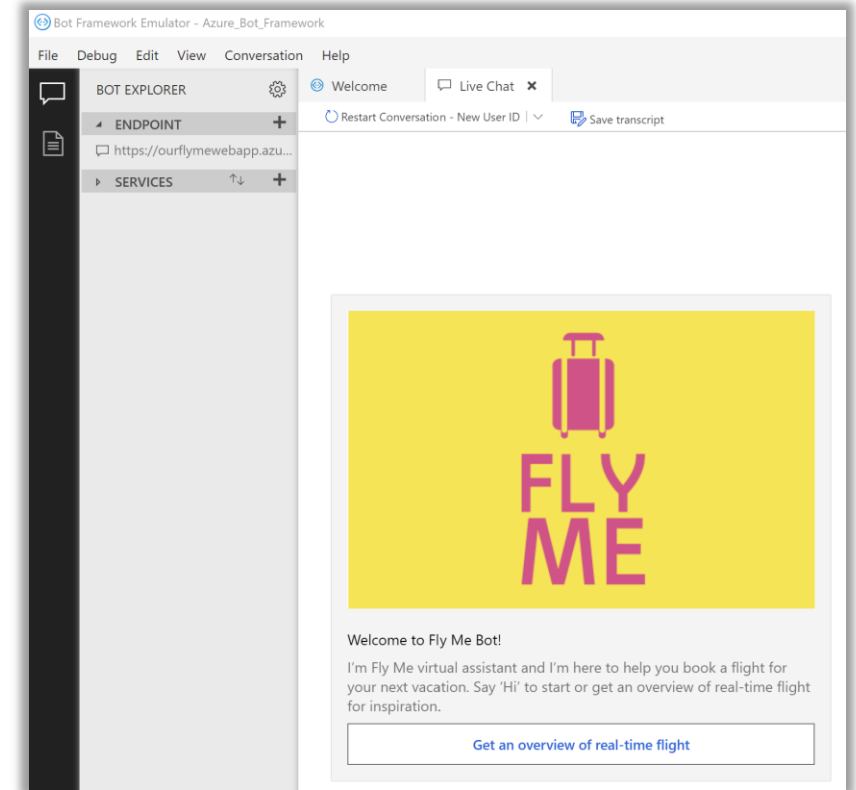
# DÉMONSTRATION DU BOT



## WEBCHAT



## BOT FRAMEWORK EMULATOR



# DÉMONSTRATION DE L'ALERTE

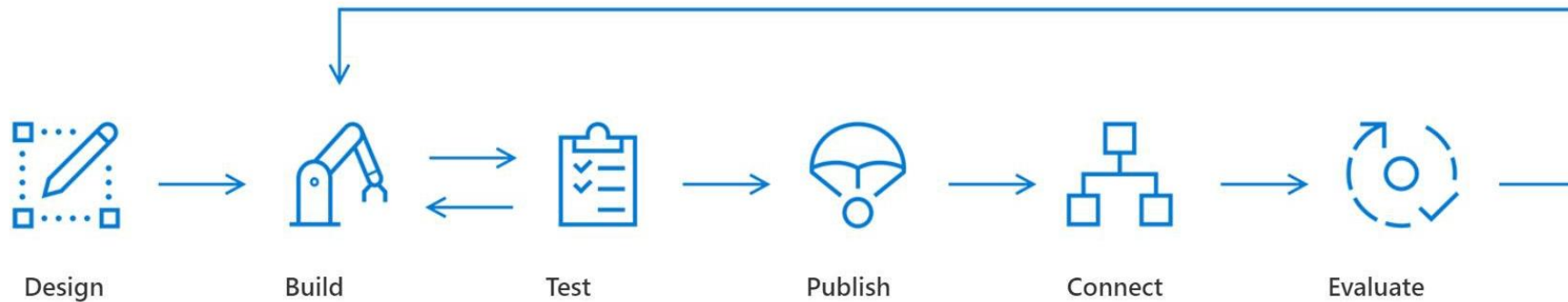




# SYNTHÈSE

# SYNTHÈSE ET AXES D'AMÉLIORATION

Nous avons mis en place les bases de notre chatbot sur tout son cycle de vie : de sa conception jusqu'à son pilotage après mise en production.



Quatre (4) évolutions ont déjà été identifiées, notamment :

- L'intégration dans le modèle LUIS des entités géographiques prédéfinies pour les villes de départ et d'arrivée ;
- Le contrôle des dates pour éviter les incohérences (dates passées, date de départ après celle du retour, etc.) ;
- Une gestion améliorée des demandes d'aide ou d'annulation de la part de l'utilisateur dans les dialogues ;
- La mise en place d'un outil simple d'analyse des interactions ayant provoquées une alerte.



The background of the slide is a complex network diagram. It consists of numerous small grey dots representing nodes, connected by thin grey lines representing edges. Some nodes are highlighted with larger circles: a large white circle with a dark blue center at the top, a large blue circle at the bottom left, and a large dark blue circle at the bottom right. There are also several smaller blue and dark blue dots scattered throughout the network.

# QUESTIONS / RÉPONSES





# ANNEXES

# RÉFÉRENCES

- ❑ Jeux de données : [Frames Dataset](#)
- ❑ LUIS : [LUIS - Guide de création et entraînement via SDK](#)
- ❑ BOT :
  - ❖ [Azure Bot Service : Fonctionnement des bots](#)
  - ❖ [Bot Framework SDK - Code d'exemple \(Base du projet\)](#)
- ❑ APP SERVICE :
  - ❖ [Vue d'ensemble d'App Service, Déploiement continu vers App Service à partir de dépôt Github](#)
- ❑ APP INSIGHTS :
  - ❖ [Présentation d'Application Insights, Vue d'ensemble des journaux d'activités, Créer une alerte](#)
- ❑ Architecture :
  - ❖ [Références d'architecture](#)
- ❑ Pilotage de performance en production :
  - ❖ [Machine Learning models in production - Medium](#)

# INDICATEURS CLÉS DE PERFORMANCE

Pour s'assurer que le projet dans sa globalité est viable, il faut également analyser la [contribution du chatbot aux objectifs globaux de l'entreprise](#) et s'assurer que les actions menées concernant le chatbot répond auxdits objectifs.

Nous pouvons citer les objectifs suivants :

- L'amélioration globale des ventes grâce à ce nouveau canal ;
- La captation d'une nouvelle clientèle qui n'aurait pas pu être approcher autrement ;
- La réduction des coûts d'exploitation et de fonctionnement des Call Center ;
- Le désengorgement des canaux traditionnels (Call Center, Guichets, etc...) ;
- La contribution de ce nouveau canal au NPS (Net Promoter Score).

Nous recommandons à minima les [KPIs \(Key Performance Indicators\)](#) suivants :

- **Le nombre de demandes reçues** : comptage des demandes gérées par le bot (généralement par mois).
- **Le taux d'échec (ou de non-réponse)** : mesure de l'augmentation du pourcentage d'échec ou de non-réponse du chatbot sur l'intégralité des messages reçus, car notre modèle LUIS n'a pas « compris » la demande de l'utilisateur.
- **Le taux de rétention (ou fidélisation)** : mesure du pourcentage d'utilisateurs uniques qui utilisent plusieurs fois le chatbot sur une période donnée.

# RESSOURCES DU PROJET SUR AZURE PORTAL

Home > OurFlyMeBot Resource group

Search (Ctrl+ /)

Overview

- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Events

Settings

- Resource costs
- Deployments
- Security
- Policies
- Properties
- Locks

Monitoring

- Insights (preview)
- Alerts
- Metrics

Essentials

Subscription (change): [Lab 2 Extension joanaleonardia@gmail.com](#) Deployments: 1 Failed, 4 Succeeded

Subscription ID: 0cac04f8-1859-44d8-b47e-f3507eba4d31 Location: France Central

Tags (change): [Click here to add tags](#)

Resources Recommendations

Filter for any field... Type == all Location == all Add filter

Showing 1 to 7 of 7 records. ☐ Show hidden types

Name ↑↓	Type ↑↓	Location ↑↓
<input type="checkbox"/> ASP-OurFlyMeBot-9c93	App Service plan	France Central
<input type="checkbox"/> bot-secrets-nnrwbz	Key vault	France Central
<input type="checkbox"/> OurFlyMeAppInsights	Application Insights	France Central
<input type="checkbox"/> OurFlyMeBotService	Azure Bot	Global
<input type="checkbox"/> OurFlyMeLuis	Language understanding	West Europe
<input type="checkbox"/> OurFlyMeLuis-Authoring	Language understanding	West Europe
<input type="checkbox"/> OurFlyMeWebApp	App Service	France Central

# UN COUP D'ŒIL SUR LA TARIFICATION




## LUIS AUTHORIZING

F0 Free	
5	Calls per second
1M	Calls per month
	Language Understa...
	Speech To Languag...
0.00	
USD PER CALL (ESTIMATED)	

## LUIS PREDICTION

F0 Free	
5	Calls per second
10K	Calls per month
	Language Understa...
	Speech To Languag...
0.00	
USD PER CALL (ESTIMATED)	

## BOT SERVICE

S1 Standard	
1K	Premium Msgs/Unit
	Bot Creation Tools
	Free Standard Chan...
	99.9% Premium Messages SLA
0.42	
EUR/1 000 MESSAGES (ESTIMATED)	

## APP SERVICE

B1	100 total ACU 1.75 GB memory A-Series compute equivalent 11.08 EUR/Month (Estimated)
----	---

## APP INSIGHTS

### Pay-as-you-go

Per GB

The Per GB 2018 pricing tier is a pay-as-you-go tier offering flexible consumption pricing in which you are charged per GB of data ingested. There are additional charges if you increase the data retention above the 31 day included retention (or 90 day included retention if using [Sentinel](#) on this workspace). Learn more about [Log Analytics pricing](#).

### Estimated costs

Item type	Price	Monthly usage (last 31 days)	Estimated monthly cost
Log data ingestion	2,33 €	0.00 GB	0,00 €
Log data retention (beyond 31 days)	0,10 €	0.00 GB	0,00 €
<b>Total</b>			<b>0,00 €</b>

# EXEMPLE IDÉAL DE DEMANDE UTILISATEUR

## Entrée de l'utilisateur

I would like to book a flight from Bern to Taipei between 22 September 2021 to 15 October 2021 for a budget of \$2400

Just now



Please confirm that you would like to book a flight from Bern to Taipei, starting on 2021-09-22 and ending on 2021-10-15, for a budget of \$ 2400.

Just now

Yes

Just now

Your flight is booked : details below

Departure		
2021-09-22		
Bern		Taipei
Return		
2021-10-15		
Taipei		Bern
Total		\$ 2400

## Luis Recognizer dans le Bot

App ID: afa9c5ea-2e07-4a91-b2a4-889813921718

[Recognizer Result](#) [Raw Response](#)

```
{
  "recognizerResult": {
    "text": "I would like to book a flight from Bern to Taipei between 22 September 2021 to 15 October 2021 for a budget of $2400",
    "alteredText": null,
    "intents": {
      "BookFlight": {
        "score": 0.9996374
      }
    },
    "budget": [
      {
        "startIndex": 111,
        "endIndex": 116,
        "text": "$ 2400",
        "type": "budget",
        "score": 0.9997897
      }
    ],
    "dst_city": [
      {
        "startIndex": 43,
        "endIndex": 49,
        "text": "taipei",
        "type": "dst_city",
        "score": 0.9999622
      }
    ],
    "or_city": [
      {
        "startIndex": 35,
        "endIndex": 39,
        "text": "bern",
        "type": "or_city",
        "score": 0.9999789
      }
    ],
    "str_date": [
      {
        "startIndex": 58,
        "endIndex": 75,
        "text": "22 september 2021",
        "type": "str_date",
        "score": 0.8201026
      }
    ],
    "end_date": [
      {
        "startIndex": 79,
        "endIndex": 94,
        "text": "15 october 2021",
        "type": "end_date",
        "score": 0.88962686
      }
    ],
    "datetime": [
      {
        "startIndex": 50,
        "endIndex": 94,
        "text": "between 22 september 2021 to 15 october 2021",
        "type": "builtin.datetimeV2.daterange"
      }
    ]
  }
}
```

Top-Scoring Intent  
BookFlight (0.9996374)

### Entities

budget --> \$ 2400  
dst\_city --> taipei  
end\_date --> 15 october 2021  
or\_city --> bern  
str\_date --> 22 september 2021  
datetime --> {"type": "daterange", "timex": ["(2021-09-22,2021-10-15,P23D)"]}

# EXEMPLE DE DIALOGUE EN CASCADE (WATERFALL)

Hi there! I'm so excited to hear about your next vacation's project. What travel do you have in mind?

2 minutes ago

I dream to go to Bali

2 minutes ago

From which city would you be leaving from?

2 minutes ago

Las Vegas

2 minutes ago

Could you give me a date of departure?

2 minutes ago

Thursday next week ?

A minute ago

And when would you like to return?

A minute ago

10 december 2021

A minute ago

Great! Do you have a budget in mind?

2 minutes ago

\$4000

2 minutes ago



Please confirm that you would like to book a flight from Las Vegas to Bali, starting on 2021-11-11 and ending on 2021-12-10, for a budget of \$4000.

2 minutes ago

Yes

2 minutes ago

Your flight is booked : details below

Departure		
2021-11-11		
Las Vegas		Bali
Return		
2021-12-10		
Bali		Las Vegas
Total		\$4000



# EXEMPLES AVEC FORMATS DE DATE DIFFÉRENTS



## Format de date pris en charge


I would like to go from Casablanca to Vancouver monday next week until 30 November 2021 for a budget of \$3600  
A minute ago

Please confirm that you would like to book a flight from Casablanca to Vancouver, starting on 2021-11-08 and ending on 2021-11-30, for a budget of \$ 3600.  
A minute ago

Yes  
A minute ago

Your flight is booked : details below

Departure		
2021-11-08		
Casablanca		Vancouver
Return		
2021-11-30		
Vancouver		Casablanca
Total		\$ 3600



## Type de format non pris en charge

I want to go to Madrid from San Francisco for 15 days from Wednesday next week and my budget is \$4000  
2 minutes ago

And when would you like to return?  
2 minutes ago


24 November 2021  
A minute ago

Please confirm that you would like to book a flight from San francisco to Madrid, starting on 2021-11-25 and ending on 2021-11-24, for a budget of \$ 4000.  
A minute ago

No  
Just now

I'm sorry I couldn't help you

What else can I do for you?  
Just now





Ce document a été produit dans le cadre de la soutenance du projet n°10 du parcours Ingénieur IA d'OpenClassrooms :  
« Développez un chatbot pour réserver des vacances »

Mentor : Thierno DIOP  
Evalueur : Fatou SALL

