

Ingénierie IA

Kindi BALDE



Développer un Chatbot pour réserver
des vacances

Présentation du projet

Problématique métier

Fly Me est une agence qui propose des voyages clé en main pour les particuliers ou les professionnels. Elle a lancé un projet ambitieux de développement d'un chatbot pour aider les utilisateurs à choisir une offre de voyages.

Solution : une solution MVP qui aidera les employés de Fly Me à réserver facilement un billet d'avion pour leurs vacances. Le chatbot devra pouvoir identifier dans la demande de l'utilisateur les cinq éléments suivants :

- Ville de départ
- Ville de destination
- Date aller souhaitée du vol
- Date retour souhaitée du vol
- Budget maximum pour le prix total des billets

⇒ Si un des éléments est manquant, le chatbot devra pouvoir poser les questions pertinentes à l'utilisateur pour comprendre complètement sa demande. Lorsque le chatbot pense avoir compris tous les éléments de la demande de l'utilisateur, il doit pouvoir reformuler la demande de l'utilisateur et lui demander de valider sa compréhension.



Mission

→ Construire un chatbot pour que les collaborateurs internes puissent facilement réserver un billet d'avion pour leurs prochaines vacances.



Sommaire

1. Préparation des données
2. Architecture du projet
3. Application LUIS
4. Développement du Chatbot
5. Gestion de la performance
6. Déploiement du Chatbot sur Azure
7. Démonstration fonctionnelle de l'application



1. Préparation des données - Lecture et filtrages des données

```
frames[0].keys()
```

1

```
dict_keys(['user_id', 'turns', 'wizard_id', 'id', 'labels'])
```

2

```
frames[0]['turns'][0].keys()
```

```
dict_keys(['text', 'labels', 'author', 'timestamp'])
```

```
frames[0]['turns'][0]['text']
```

3

```
"I'd like to book a trip to Atlantis from Caprica on Saturday, August 13, 2016 for 8 adults. I have a tight budget  
1700."
```

```
frames[0]['turns'][0]['labels']['acts']
```

4

```
[{'args': [{'val': 'book', 'key': 'intent'}], 'name': 'inform'},  
 {'args': [{'val': 'Atlantis', 'key': 'dst_city'},  
            {'val': 'Caprica', 'key': 'or_city'},  
            {'val': 'Saturday, August 13, 2016', 'key': 'str_date'},  
            {'val': '8', 'key': 'n_adults'},  
            {'val': '1700', 'key': 'budget'}],  
  'name': 'inform'}]
```

Frame dataset

user_id wizards
id
turns
labels
rating



1. Préparation des données - Préparation des données pour LUIS

```
create_utterances_list(0)
```

Text - user input

```
{'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.",
```

```
  'intent_name': 'BookFlight',
```

Intent

Entities

```
  'entity_labels': [{'entity_name': 'dst_city',
```

```
    'start_char_index': 27,
```

```
    'end_char_index': 35},
```

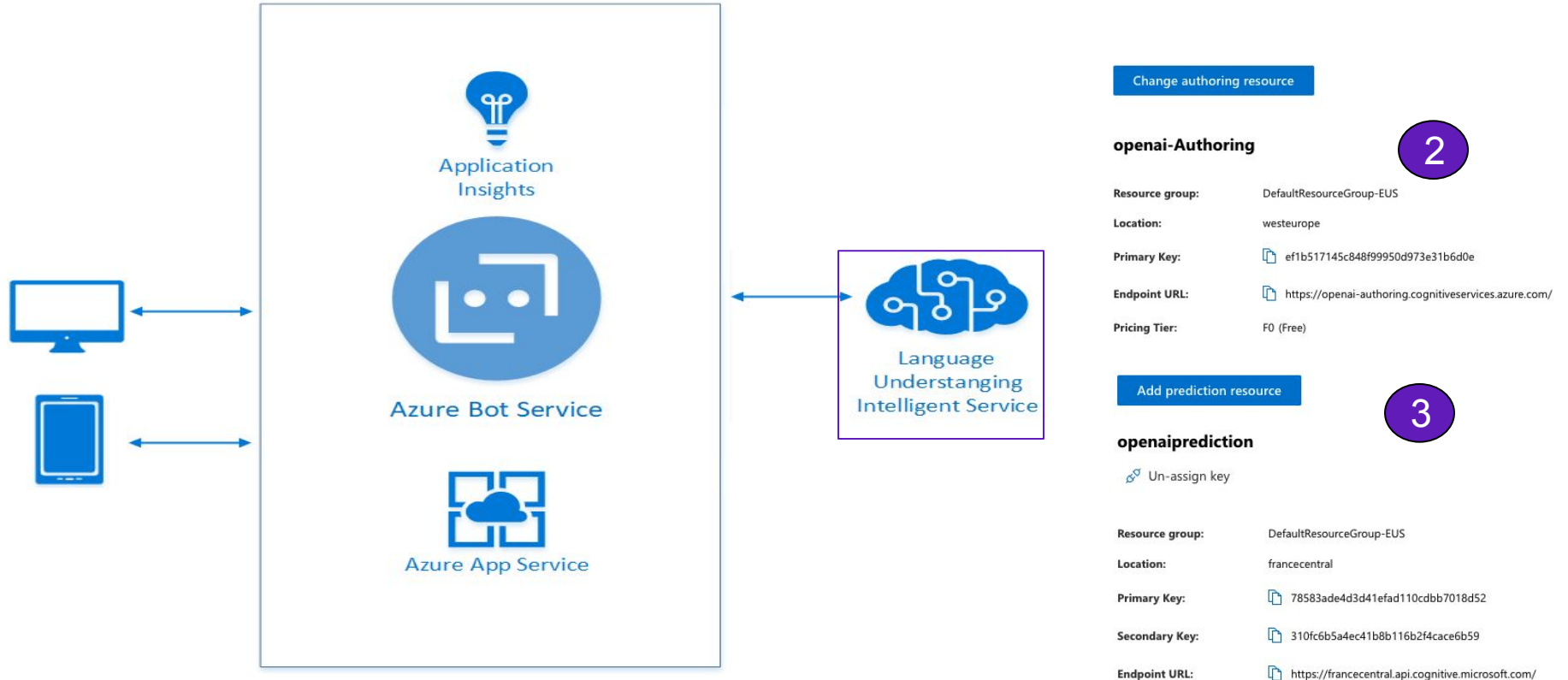
```
    {'entity_name': 'or_city', 'start_char_index': 41, 'end_char_index': 48},
```

```
    {'entity_name': 'str_date', 'start_char_index': 52, 'end_char_index': 77},
```

```
    {'entity_name': 'budget', 'start_char_index': 117, 'end_char_index': 121}]]}
```



2. Application LUIS - Création



2. Application LUIS - Entraînement

My LUIS / BookingFlight-2022-02-06 19:05:28.716395 v0.1

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

BookFlight

Machine learning features

+ Add feature

Examples

✓ Confirm all entities Move to Delete ...

Example user input

Type an example of what a user might say and hit Enter.

terribly ! i need to get home to los angeles from milan ! it ' s an emergency hurry ! ! !

i wanna lay low so i need to get out of tijuana . i think i ' d like to go to rome

i wanna leave tel aviv & go 2 vitoria with 11 adults and we will spend 2000 at most

Entities

+ Create Add prebuilt entity Add prebuilt domain entity Rename Delete

Name ↑	Type
<u>budget</u>	Machine learned
<u>datetimeV2</u>	Prebuilt
<u>dst_city</u>	Machine learned
<u>end_date</u>	Machine learned
<u>or_city</u>	Machine learned
<u>str_date</u>	Machine learned

Application Settings

App name

BookingFlight-2022-02-06 19:05:28.716395

App description (optional)

New App created with LUIS Python sample

App ID

14445580-ac63-4dee-8408-71d066f97912

Culture

en-us

Make endpoints public

On

Score

1.000

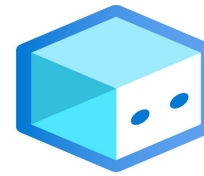
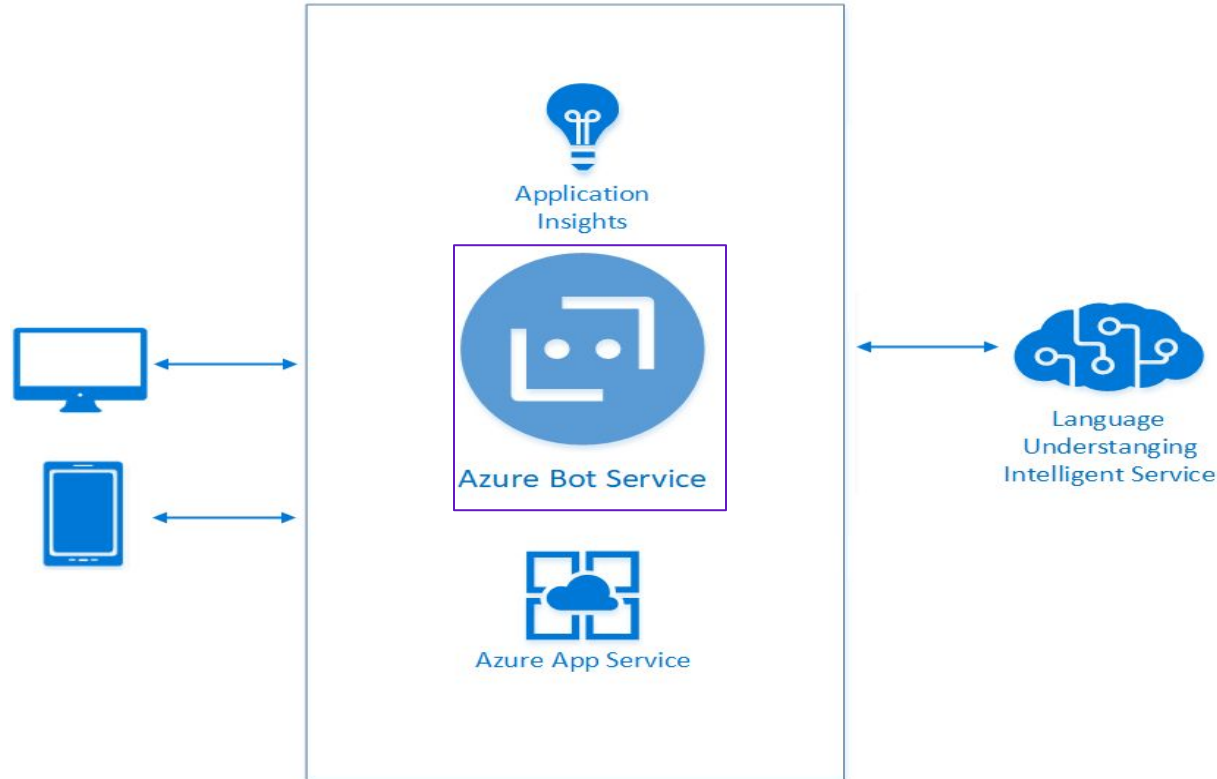
0.996

0.999

Search



3. Application ChatBot - Concept



1

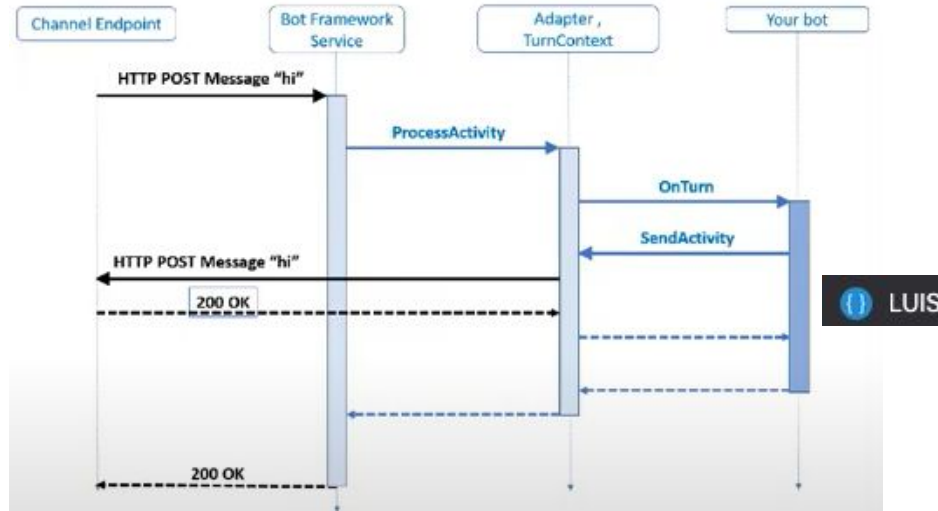


2

1. Le bot composer permet de graphiquement développer un bot from scratch.

2. Bot Frameworks SDK permet d'utiliser un langage de programmation (C#, Java, NodeJS, python) pour développer son application à partir de sample bot (ou from scratch accessoirement)

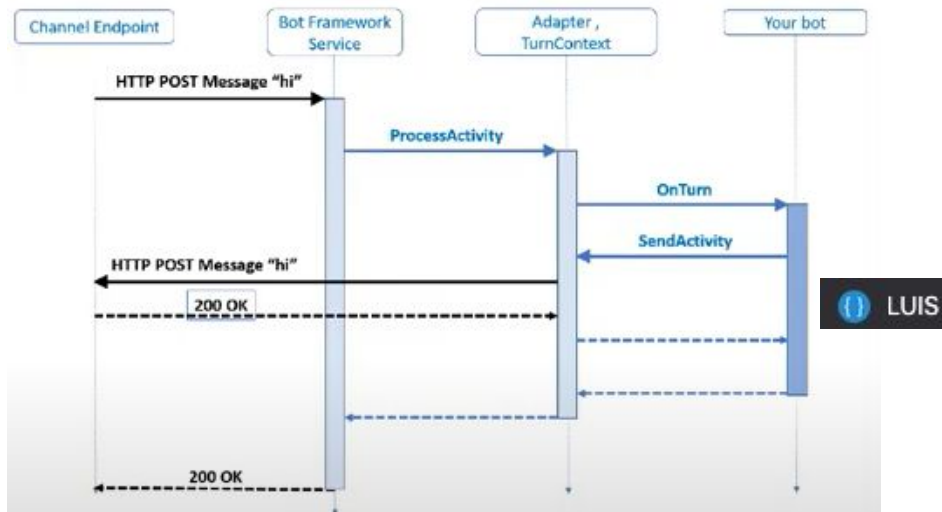
3. Application ChatBot - Développement



main BotBuilder-Samples / samples / python / 21.corebot-app-insights /

BruceHaley Upgrade Python samples to use current packages (#3547) ...	
..	
bots	Updated sample to use aiohttp
cognitiveModels	Python Samples (#2078)
deploymentTemplates	Update csharp_dotnetcore sam
dialogs	Updated sample to use aiohttp
helpers	Updated sample to use aiohttp
NOTICE.md	Python Samples (#2078)
README-LUIS.md	Python Samples (#2078)
README.md	R10 samples (#2706)
adapter_with_error_handler.py	Updated sample to use aiohttp
app.py	Python: Modified appinsights s
booking_details.py	Updated sample to use aiohttp
config.py	Update config.py (#2726)
flight_booking_recognizer.py	Updated sample to use aiohttp
requirements.txt	Upgrade Python samples to use

3. Application ChatBot - Déploiement



KBALDE / FlyMeBotApplication Public

<> Code Issues Pull requests Actions Projects Wiki Security Insights

main 1 branch 0 tags

KBALDE Add or update the Azure App Service build and deployment workflow

.github/workflows	Add or update the Azure App Servi
bots	Add files via upload
cards	Add files via upload
dialogs	Add files via upload
helpers	Add files via upload
static	Add files via upload
tests	Add files via upload
README.md	Initial commit
__init__.py	Add files via upload
adapter_with_error_handler.py	Add files via upload
app.py	Add files via upload
booking_details.py	Add files via upload
bot_config.py	Update bot_config.py
dialog_and_welcome_bot.py	Add files via upload
dialog_bot.py	Add files via upload
flight_booking_recognizer.py	Add files via upload
requirements.txt	Update requirements.txt

3. Application ChatBot - Production

The screenshot shows the FlyMeBot application interface on the left and its raw response data on the right. The interface includes a header with 'Welcome', 'Live Chat', 'Ngrok Status', and 'Emulator Settings'. Below the header is a 'Restart Conversation - New User ID' button and a 'Save transcript' button. The main content area features a yellow background with a pink suitcase icon and the text 'FLY ME'. Below this is a welcome message and a button labeled 'Get an overview of real-time flight'. The raw response data on the right shows the recognizer result for the text 'i would like to find a vacation between september 20th 2022 and october 4th 2022 from sao paulo to leon with a budget of 2300 dollars', including the top-scoring intent 'BookFlight' and the extracted entities.

1

2

3

Train Publish

App ID: 14445580-ac63-4dee-8408-71d06697912 Version: Slot: Production

Recognizer Result Raw Response

```
{
  "recognizerResult": {
    "text": "i would like to find
a vacation between september 20th
2022 and october 4th 2022 from sao
\\ paulo to leon with a budget of
2300 dollars",
    "alteredText": null,
    "intents": {
      "BookFlight": {
        "score": 0.9997483
      }
    },
    "entities": {
      "$instance": {
        "budget": [

```

Top-Scoring Intent
BookFlight (0.9997483)

Entities

budget -> 2300
dst_city -> leon
end_date -> october 4th 2022
or_city -> sao paulo
str_date -> september 20th 2022
datetime ->
({"type": "daterange", "timex": "[2022-09-20,2022-10-04,P14D]"})

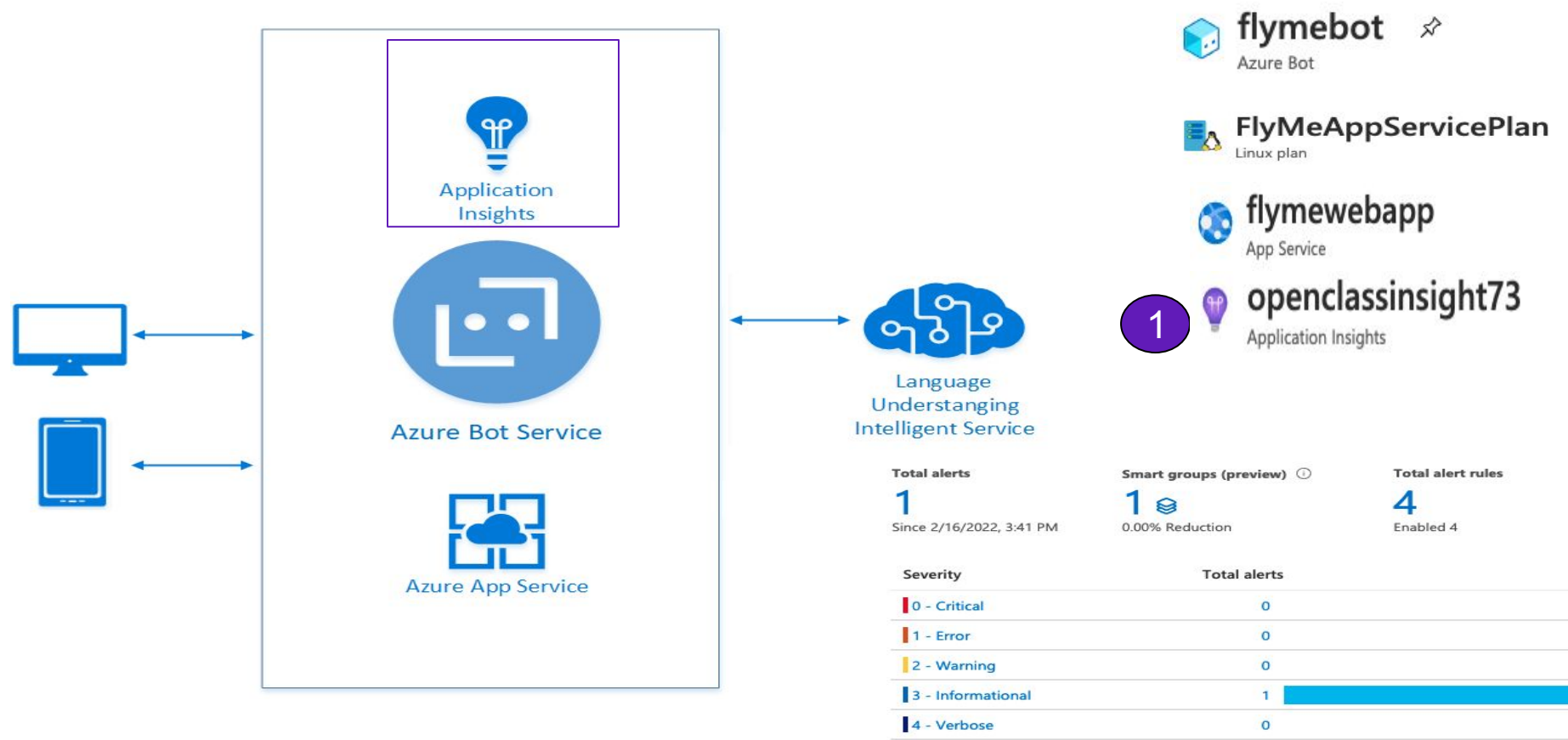
[15:57:02] Connecting to bot on
https://flymewebapp.azurewebsites.net/api/messages
[15:57:02] Emulator listening on http://[::]:149375
[15:57:02] ngrok listening on https://607d-176-185-209-169.ngrok.io
[15:57:02] ngrok traffic inspector: <http://127.0.0.1:4040>
[15:57:02] Will bypass ngrok for local addresses
[15:57:02] -> conversationUpdate
[15:57:02] <- message application/vnd.microsoft.card.adaptive
[15:57:02] POST 200 directline/conversations/<conversationId>/activities
[15:57:05] -> message hello
[15:57:05] -> message Hi there! I'm so excited to hear about your next v...
[15:57:05] <- message
[15:57:05] POST 200 directline/conversations/<conversationId>/activities
[15:57:11] -> message i would like to find a vacation between september



<https://flymewebapp.azurewebsites.net>



4. Gestion de la performance - intégration et services d'alerting



4. Gestion de la performance - intégration et services d'alerting



Azure App Insights

Logs
openclassinsight73

NoAnswers

openclassinsight73 Select scope

Run

Time range : Last 24 hours

Save

Share

New alert rule

Export

Pin to

Format query

Feedback

Queries

Query explorer

Tables Queries

Search

Filter Group by: Solution

Collapse all

Favorites

You can add favorites by clicking on the ☆ icon

Application Insights

- availabilityResults
- browserTimings
- customEvents
- customMetrics
- dependencies
- exceptions
- pageViews

```
2 availabilityResults,  
3 requests,  
4 exceptions,  
5 pageViews,  
6 traces,  
7 customEvents,  
8 dependencies  
9 | where message == 'NO answer'  
10 | order by timestamp desc  
11 | take 10
```

Results

Chart

Columns

Display time (UTC+00:00)

Group columns

Completed. Showing results from the last 24 hours.

00:01.1 10

timestamp [UTC]

name

message

itemType

customDimensions

operation_Id

operation_ParentId

operation_SyntheticSource

timestamp [UTC]

2022-02-14T12:55:49.278Z

message

NO answer

itemType

trace

customDimensions

{"activityId":"6ef24f20-8d95-11ec-8510-93cdd1abd012","activityType":"message","budget":"3200","channelId":"emulator","departure_date":"2022-09-04T00:00:00.000000Z","destination":

5. Démonstration fonctionnelle de l'application