Miletone4

- **How is your project architecture related to the theory taught in the lecture?**

Python framework

Flask is a lightweight web application framework written in Python. The lightweight page means that he is more concise. So, it is more suitable for web projects with less layering and less complicated logic.

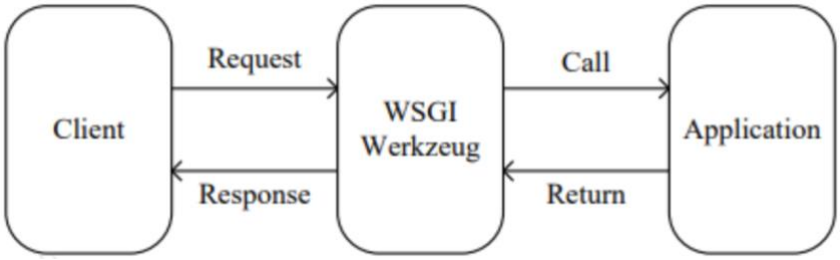
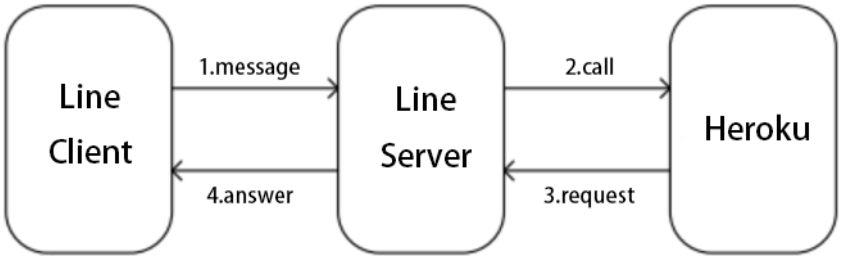


Fig.1

Line Chatbot framework

Line Chatbot is a relay station. The user sends the information to chatbot. The chatbot sends the information to the cloud according to the information sent by the user. In our robot, after running the information python program in the Heroku, the qualified answer is returned and sent Users, users can get related information, news links, statistical results and other stomach services through chatbot's answers.



- **Can you demonstrate, with some screen cap, how to increase capacity of your chat bot service?**

Capacity management is critical to an application. Capacity is the maximum amount of work done by IT resources in a given time. If the capacity allocation is insufficient, it will lead to failure to meet the needs of users, resulting in transaction losses. If the capacity configuration is too large, it will also lead to inefficiency and cannot give users a good experience.When we need to increase capacity, we have the following two methods.

Method 1: Increase capacity through Heroku.

Although the Heroku provides us with the free of 512 RAM, we can buy larger RAM if we need.

	Free $0	Hobby $7/dyno per month	Standard 1x $25/dyno per month	Standard 2x $50/dyno per month	Performance M $250/dyno per month	Performance L $500/dyno per month
			PROFESSIONAL			
What is it good for?	Ideal for experimenting with cloud applications in a limited sandbox.	Perfect for small scale personal projects and hobby apps.	Enhanced visibility, performance, and availability for powering your production applications.		Superior performance when it's most critical for your super scale, high traffic apps.	
RAM	512MB	512MB	512MB	1GB	2.5GB	14GB
Deploy from Git	●	●	●	●	●	●
Automated OS patching	●	●	●	●	●	●
Unified logs	●	●	●	●	●	●
Number of process types	2	10	Unlimited	Unlimited	Unlimited	Unlimited

Method 2: Increase capacity through Messaging API.

We can modify the limitation of frequency in Messaging API. Here is the statistic.

Date	Push messages	Reply messages
2020/04/14	0	11
2020/04/12	0	1
Subtotal	0	12

If exceeds the limitation, it will responses 429 which means exceeded the rate limit for API calls.

Error status codes and responses

The following status codes and array of Error are returned as `errors` when an error occurs.

Status code	Description
400	Problem with the request
401	The token specified in 'Authorization' header is invalid.
403	Not authorized to use the API. Confirm that your account is authorized to used the API.
429	Exceeded the rate limit for API calls
500	Error on the internal server

- **Can you identify if you bot is one of the example of PaaS, IaaS, SaaS? Explain your answer.**

Introduction

PaaS refers to a platform as a service. PaaS providers offer pre-configured ready to use IT environments to their clients. PaaS simplifies processes of IT resource implementation for users with its pre-configured IT resources offerings based on common use cases. On the other hand, clients will have less control of the IT resources than they can have it from IaaS.

IaaS refers to an infrastructure as a service. Its business model is to derive income from providing raw IT resources to clients. With the help of cloud technology, IaaS providers offer their IT resources to their clients virtually so that clients can access the service provider's hardware through internet connection to suit their use cases. Since IaaS providers offer virtualized raw IT resources, clients can freely configure IT resources based on their needs.

SaaS refers to a software as a service. Generally, it provides very specific use cases for users. For example, google drive provides specific features for file storage and management. Due to the specific use cases, users have very limited control on the service.

About our project

For the group project, it was required to deploy a line chatbot at the Heroku server. Developed chatbot can be classified as a SaaS deployed to PaaS.

Heroku is providing PaaS. It provides pre-configured IT environments for its users. So, when we deployed the chatbot to Heroku, there was no need to configure the IT environment to build a python application. Heroku platform detected that an app being deployed is python and built a suitable IT environment for python application.

Developed chatbot is providing SaaS. Developed chatbot provides a couple of services to share relevant information about COVID-19 such as statistics, symptoms and news articles. Users for chatbot cannot configure services provided and are limited to operate such services only.