

COMP7940 Milestone 4 Report

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Introduction

In this last part, we will review our project, find the relation between project architecture and the theory taught in the lecture. We also look forward to our project, find out some shortcomings and think about some places that can be better. In addition, we identify which model our project is based on.

Relation of lecture and project

Technical relation

As we learned from lecture3, in a distributed system, objects can be physically distributed into different processes or computers. In our project, we developed MongoDB in a cloud server and used MongoDB to store our data. We also used LINE API as our remote objects, which means we can receive remote invocations, to process data from LINE API.

We think our project(A chatbot based on Line) belongs to the PaaS model.

IaaS	PaaS	SaaS
Applications	Applications	Applications
Data	Data	Data
Runtime	Runtime	Runtime
Middleware	Middleware	Middleware
OS	OS	OS
Virtualization	Virtualization	Virtualization
Servers	Servers	Servers
Storage	Storage	Storage
Networking	Networking	Networking

Managed by Consumer

Managed by Vendor

Firstly, for SaaS(Software-as-a-Service), it provides customers with services that are applications that operators run on cloud computing infrastructure, and users can access them on various devices through a client interface, such as a browser. It can be said that it directly provides a mature product to consumers.

From the demonstration above. In our project, we need to deploy the application on the cloud and manage our data, so our project cannot be based on this model.

Secondly, for IaaS(Infrastructure-as-a-Service), the service it provides to consumers is the use of all computing infrastructure, including processing CPU, memory, storage, network, and other basic computing resources. Users can deploy and run arbitrary software, operating systems, and applications.

From the demonstration above. In the process of completing the project, we don't have to control the choice of operating system and storage space of the cloud. All we need to do is deploy the application on the cloud and manage our database well. That is all.

Finally, for PaaS(Platform-as-a-Service), the service it provides to consumers is to deploy applications developed by customers' development languages or tools (such as Java, Python, .Net, etc.) to the vendor's cloud computing infrastructure.

In summary, PaaS is extremely consistent with the model we are in during the development process. We only need to focus on our code logic and our data. It is very simple and efficient. In addition, Heroku is a product under the PAAS model. Therefore, we infer that our project is based on the PAAS model.

Content relation

Our project is based on the theme of food, so it is a Topic-based system. We will classify the food, and then list the most popular restaurants of this type, and show the restaurant's environment, menu, and best dishes.

Capacity of service

1. Expand Cloud Storage

We are concerned about cloud storage. For cloud storage, it is commonly able to provide fixed-increment capacity allocation in support of the pay-per-use mechanism. In order to better improve our chatbot service, it is necessary to increase the capacity of our cloud storage and database.

Talking about the storage capacity, we use OSS (object storage service), which is provided by Alibaba Cloud, we upload Large data, such as video and image, into OSS

Object Storage Service	Object Storage Service / Resource Plans				
Overview	Resource Plans				
Buckets	Purchase View Fees View Plan Usage				
Resource Plans					
Cross-Region Replication					
Tools					
Data Import					
Recommended Services					

Type	Specifications	Started At	Expired At	Actions
标准存储包(华南1)	40GB	Mar 13, 2019, 14:06	Mar 14, 2021, 00:00	Upgrade Renew

We also have rented a cloud server for this project, it is a 2 core 4G memory CentOS server. We install MongoDB in it, and the hard disk capacity of our server is 40G, so the capacity of storage is large enough for this service.

云服务器配置

CPU:2核
内存:4GMemory

镜像系统

 Centos7.4-64 bit

云服务器信息

镜像系统

Centos7.4-64bit [\[修改\]](#)

系统盘容量

40G [\[扩容\]](#)

数据盘容量

0G [\[挂载 / 卸载\]](#)

关联弹性伸缩

登录密码

[\[重置实例密码\]](#)

云服务器状态

开机

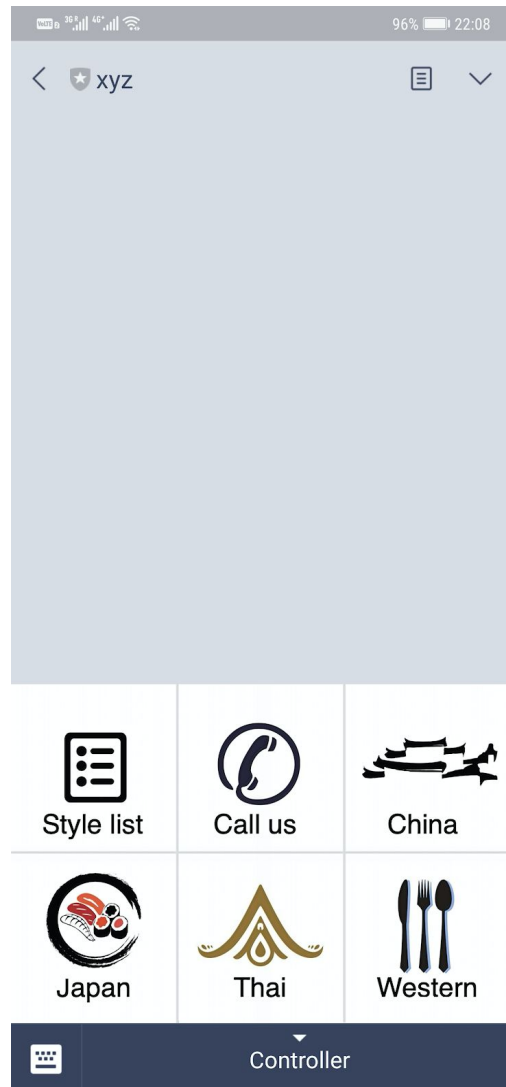
2. Improve the processing ability of Flask

If many users send requests at the same time, the system may have the problem of high concurrency. The blocking may happen when we meet this problem. In order to improve the processing ability in this high workload situation, we are able to change the mode of the Flask in Heroku, leading to turn off debug mode and turn on the multiple thread mode.

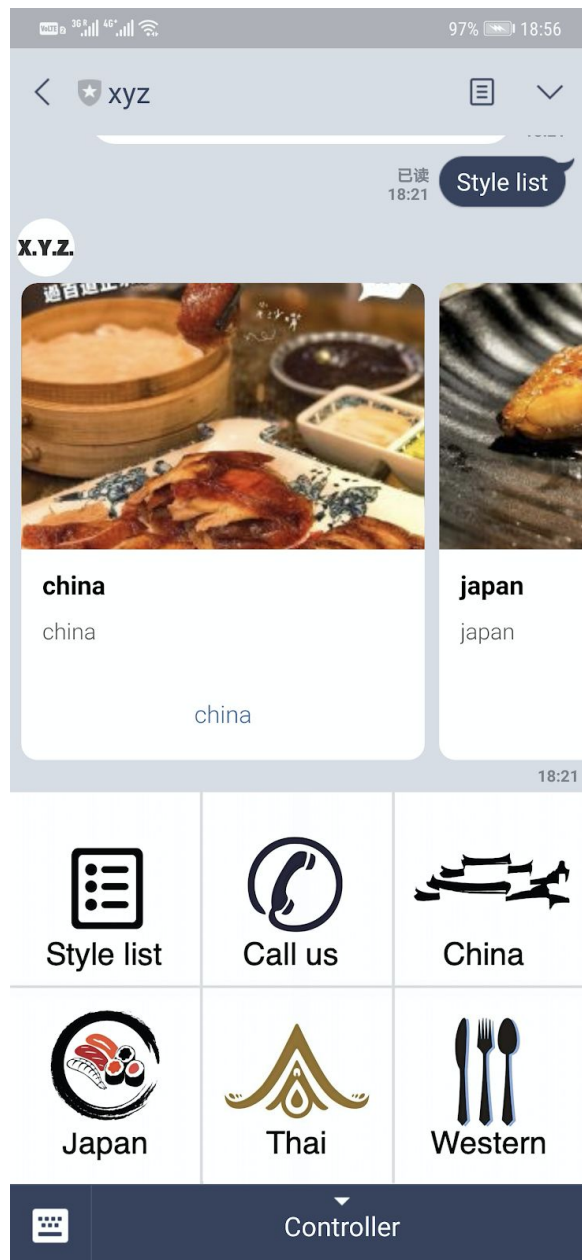
```
if __name__ == "__main__":
    arg_parser = ArgumentParser(
        usage='Usage: python ' + __file__ + ' [--port <port>] [--help]'
    )
    arg_parser.add_argument('-d', '--debug', default=False, help='debug')
    options = arg_parser.parse_args()

    app.run(host='0.0.0.0', debug=False, port=heroku_port, threaded=True)
```

Functions illustration



We can choose different functions via the initial menu, made by rich-menu in Line.



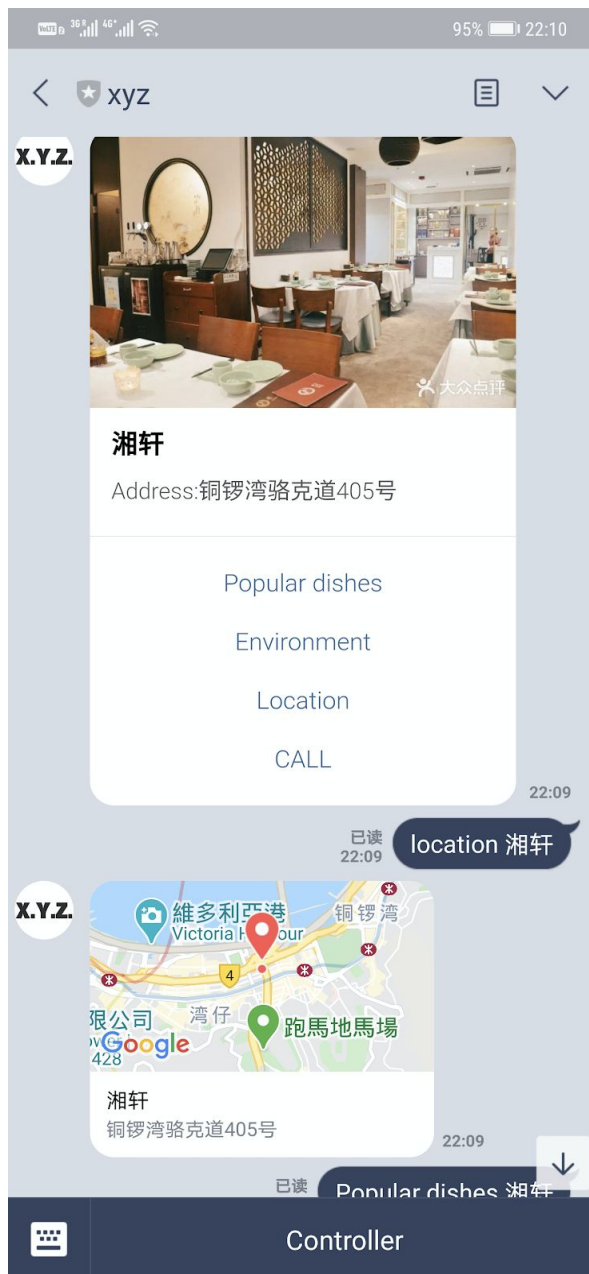
If we tap “Style list”, we can see the style list including different styles, which is made by CarouselTemplate in Line.



When we tap any type of the menu and list, we can see the restaurant list, made by ButtonsTemplate in Line.



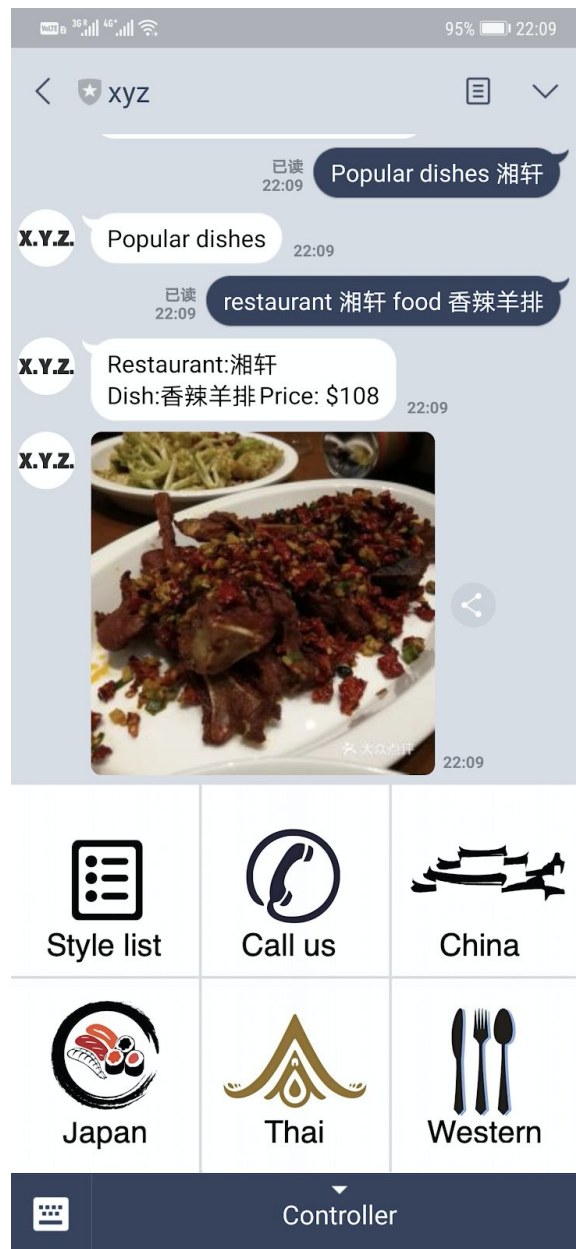
After tapping a restaurant in the list we can see the information list including popular dishes, environment, location and call to restaurant.



click the location button, we can see the location of the restaurant.



After tapping the popular dishes button, we can select any dish we want to see its detailed information and picture. The dish buttons are made by QuickReplyButton.



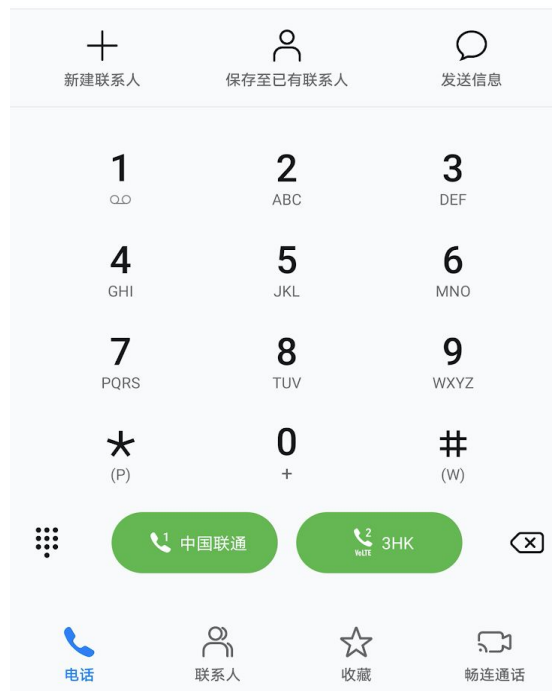
if we choose any dish button, we can see its detailed information and pictures.



We can click the environment button to see the restaurant photo as well. If the system has the video of the restaurant we also can see, otherwise, there is no video that will be shown.

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Click the call button to call the corresponding restaurant on our phone.