中国科学院
SIAT
CHINESE ACADEMY OF SCIENCES
深圳先进技术研究院

WeChat Bot

Data Mining Lab

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01

Motivation

Motivation of the lesson.

Motivation

Grammar

Get familiar with the basic python grammar.

Module

Learn the usage of existing python modules.

Web Service

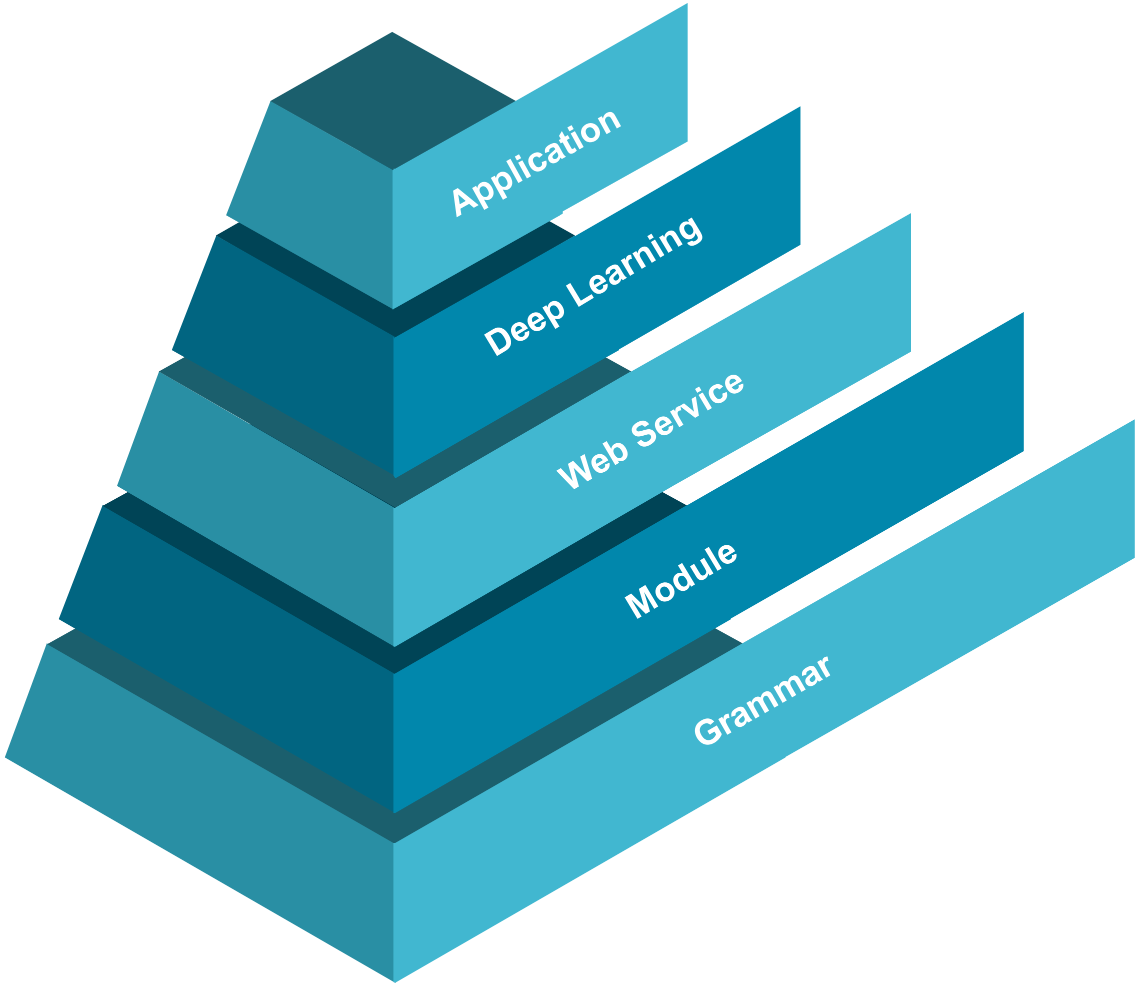
Build a simple web service.

Deep Learning

Train sequence-to-sequence dialog generation model.

Application

Wrap up all the functionalities to build an application.

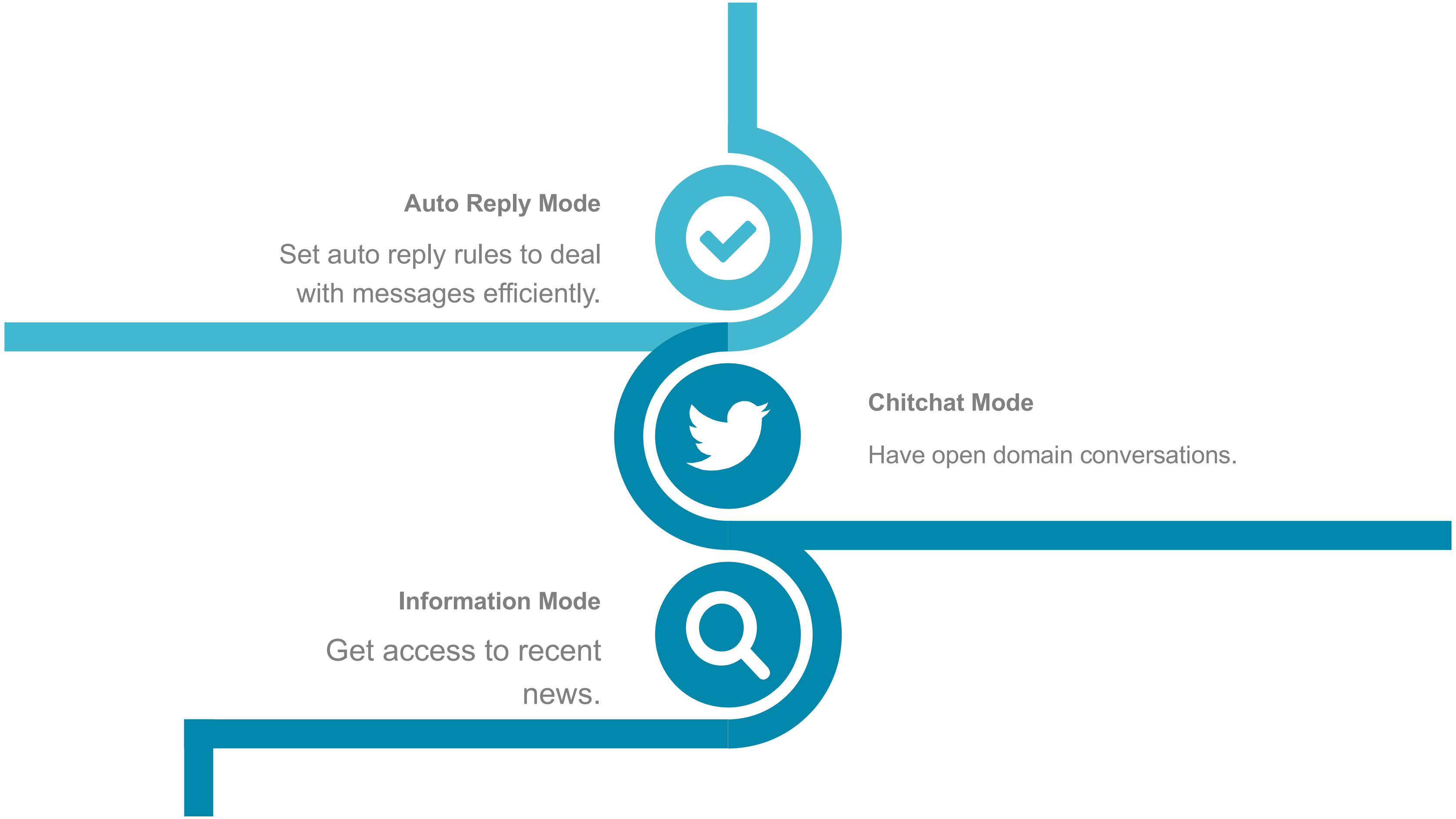


02

Major Components

Explanation of the major functionalities of WeChatBot.

Major Components



Auto Reply Mode

Set auto reply rules to deal with messages efficiently.

Chitchat Mode

Have open domain conversations.

Information Mode

Get access to recent news.

03

Build it step-by-step

Illustration of the detailed codes of WeChatBot.

Login

```
import itchat

if __name__ == '__main__':
    itchat.auto_login()
```

Use itchat module

Login by scaning QR code

```
Getting uuid of QR code.
Downloading QR code.
Please scan the QR code to log in.
Please press confirm on your phone.
Login successfully as [Wei].
```

Login

Load contact

```
import itchat

if __name__ == '__main__':
    itchat.auto_login(hotReload=True)

    friends = itchat.get_friends()
    Name = {}
    Nickname = []
    Username = []
    for i in range(len(friends)):
        Nickname.append(friends[i]["NickName"])
        Username.append(friends[i]["UserName"])
    for i in range(len(friends)):
        Name[Nickname[i]] = Username[i]
```

Use itchat module

Login by scaning QR code

Get contact list

Store the mapping of Nickname and user id in a dictionary

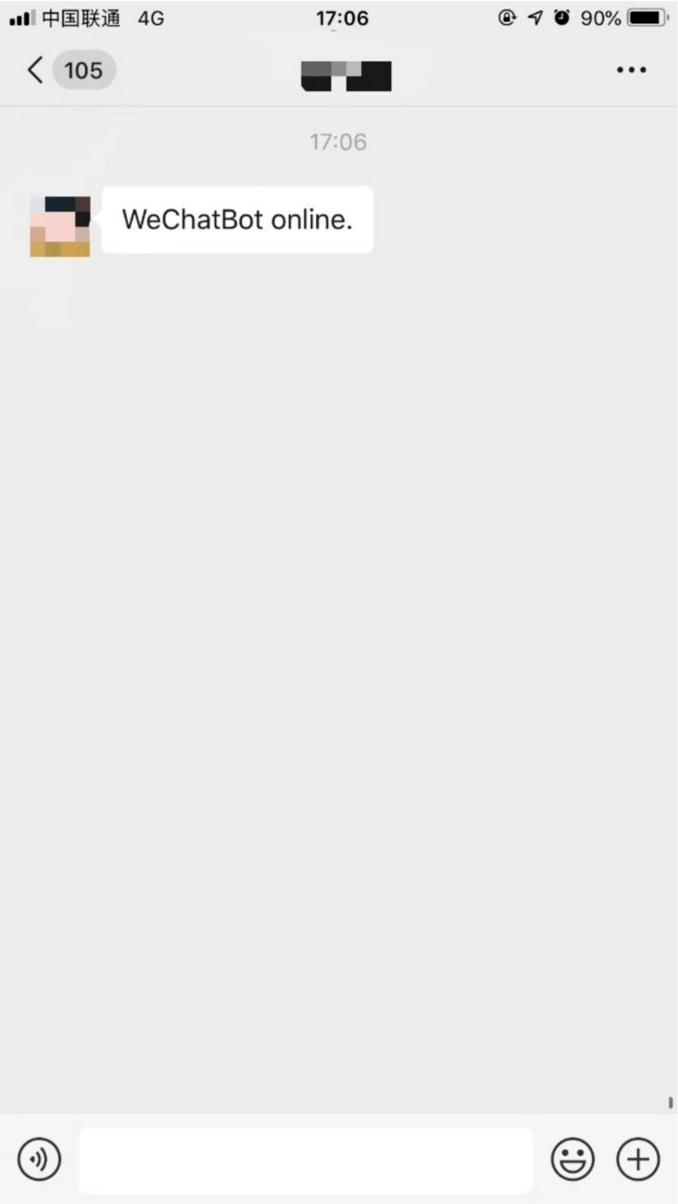
Load contact

```
Getting uuid of QR code.
Downloading QR code.
Please scan the QR code to log in.
Please press confirm on your phone.
Loading the contact, this may take a little while.
Login successfully as [Wei].
```

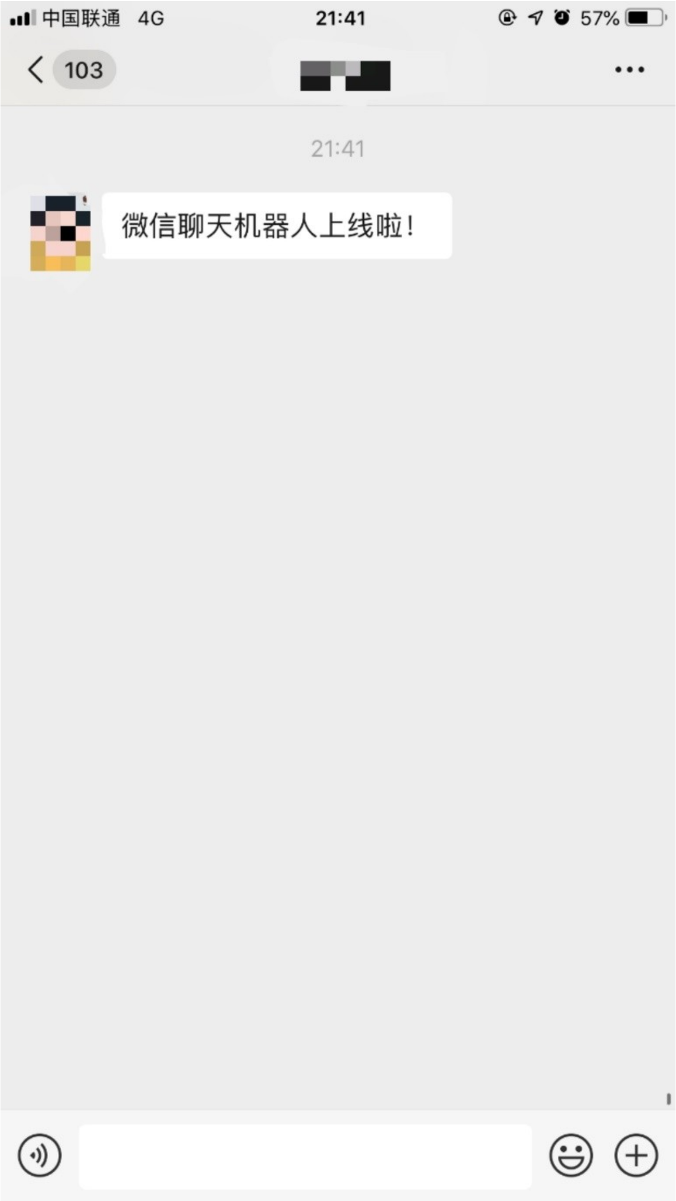
Send messages

```
#coding=utf-8
import itchat

if __name__ == '__main__':
    itchat.auto_login(hotReload=True)

    friends = itchat.get_friends()
    Name = {}
    Nickname = []
    Username = []
    for i in range(len(friends)):
        Nickname.append(friends[i]["NickName"])
        Username.append(friends[i]["UserName"])
    for i in range(len(friends)):
        Name[Nickname[i]] = Username[i]
    // send messages
    itchat.send('WeChatBot online.', toUserName=Name['MrSu'])
```

Send messages



WeChatBot online.



微信聊天机器人上线啦！

Auto reply Mode

```
if __name__ == '__main__':

    itchat.auto_login(hotReload=True)

    friends = itchat.get_friends()
    Name = {}
    Nickname = []
    Username = []
    for i in range(len(friends)):
        Nickname.append(friends[i]["NickName"])
        Username.append(friends[i]["UserName"])
    for i in range(len(friends)):
        Name[Nickname[i]] = Username[i]

    itchat.run()
```

Use itchat module

Get contact list

Run the application

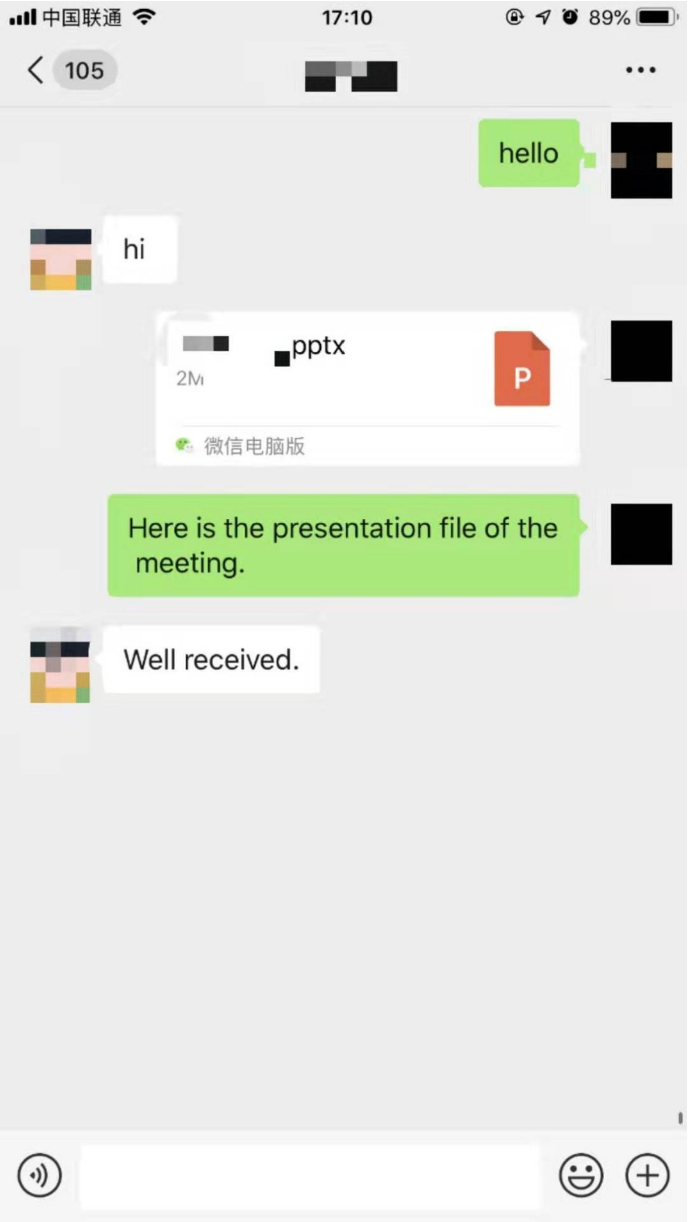
Auto reply mode

```
def auto_reply(msg):
    import re
    if 'hello' in msg:
        rep = 'hi'
    elif 'file' in msg:
        rep = 'Well received.'
    else:
        rep = 'ok'
    return rep

@itchat.msg_register(itchat.content.TEXT)
def bot(msg):
    print(msg['Text'])
    send_message = auto_reply(msg['Text'])
    itchat.send(send_message\
, toUserName=Name['MrSu'])
```

Define reply rules

Python decorator
WeChatBot

Auto reply mode



[redacted]

hello

hi

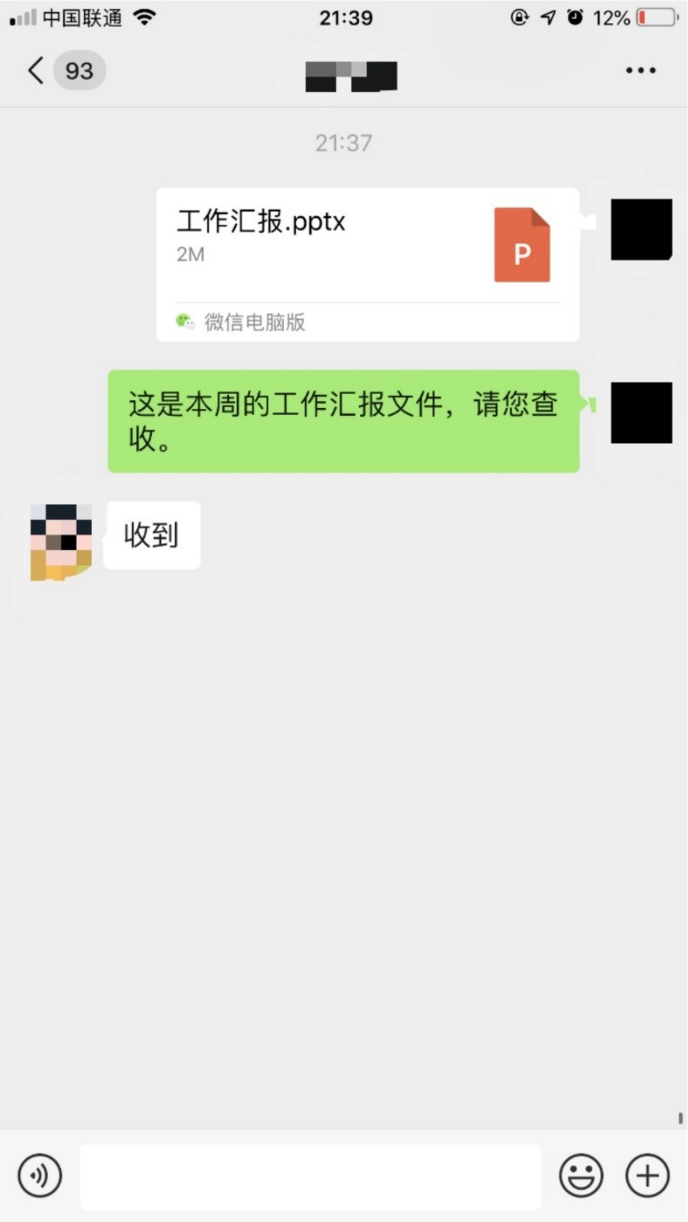
[redacted].pptx

2M

微信电脑版

Here is the presentation file of the meeting.

Well received.



[redacted]

21:37

工作汇报.pptx

2M

微信电脑版

这是本周的工作汇报文件，请您查收。

收到

Information Mode

```
if __name__ == '__main__':
    itchat.auto_login(hotReload=True)
    friends = itchat.get_friends()
    Name = {}
    Nickname = []
    Username = []
    for i in range(len(friends)):
        Nickname.append(friends[i]["NickName"])
        Username.append(friends[i]["UserName"])
    for i in range(len(friends)):
        Name[Nickname[i]] = Username[i]
    itchat.send('Latest science news\n',
toUserName=Name['MrSu'])
    titles = [str(idx)+'. '+ele for idx, ele in
enumerate(list(news.keys()))]
    titles = '\n'.join(titles)
    itchat.send(titles, toUserName=Name['MrSu'])
    itchat.run()
```

Use itchat module

Get contact list

Send news titles

Run the application

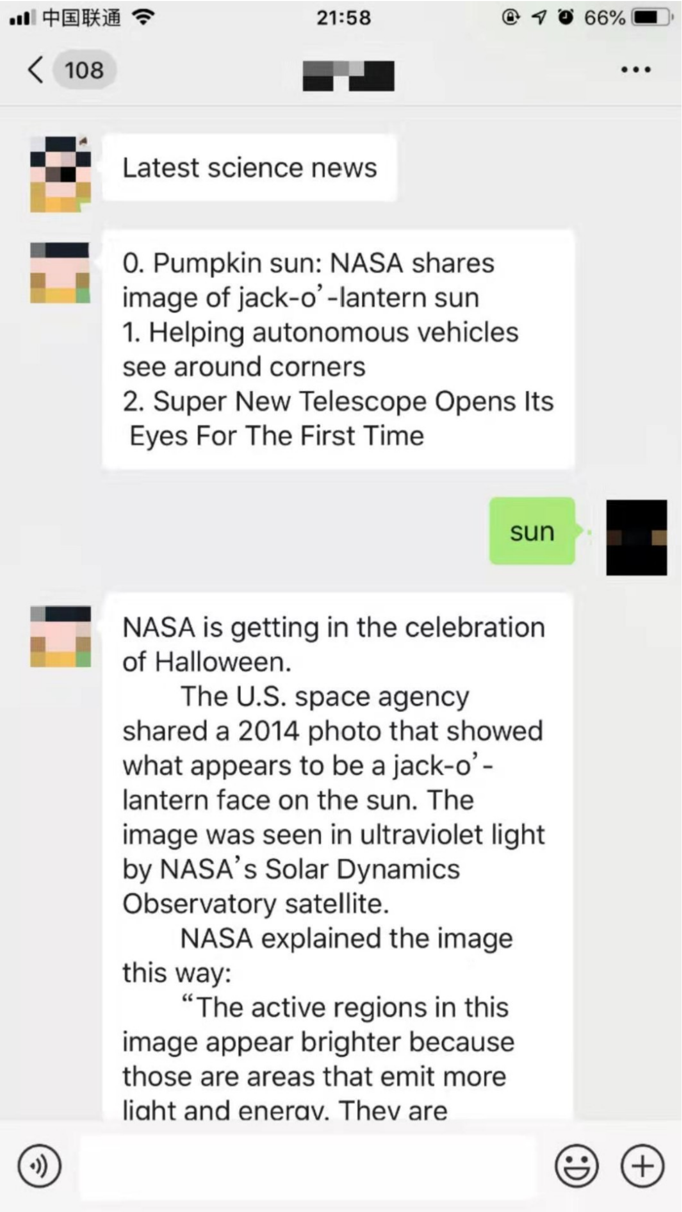
Information Mode

```
news = {'Pumpkin sun: NASA shares image of jack-o’-lantern sun':
        '''NASA is getting in the celebration of Halloween….''',
        'Helping autonomous vehicles see around corners':
        '''To improve the safety of autonomous systems, MIT engineers …''',
        'Super New Telescope Opens Its Eyes For The First Time':
        '''Like many of us of a certain age, the universe is getting bigger. …}
def get_info(msg):
    rep = ''
    for key in news.keys():
        if msg in key:
            rep = news.get(key)
    return rep
```

News information

Get information

Information Mode



Latest science news

0. Pumpkin sun: NASA shares image of jack-o’-lantern sun
1. Helping autonomous vehicles see around corners
2. Super New Telescope Opens Its Eyes For The First Time

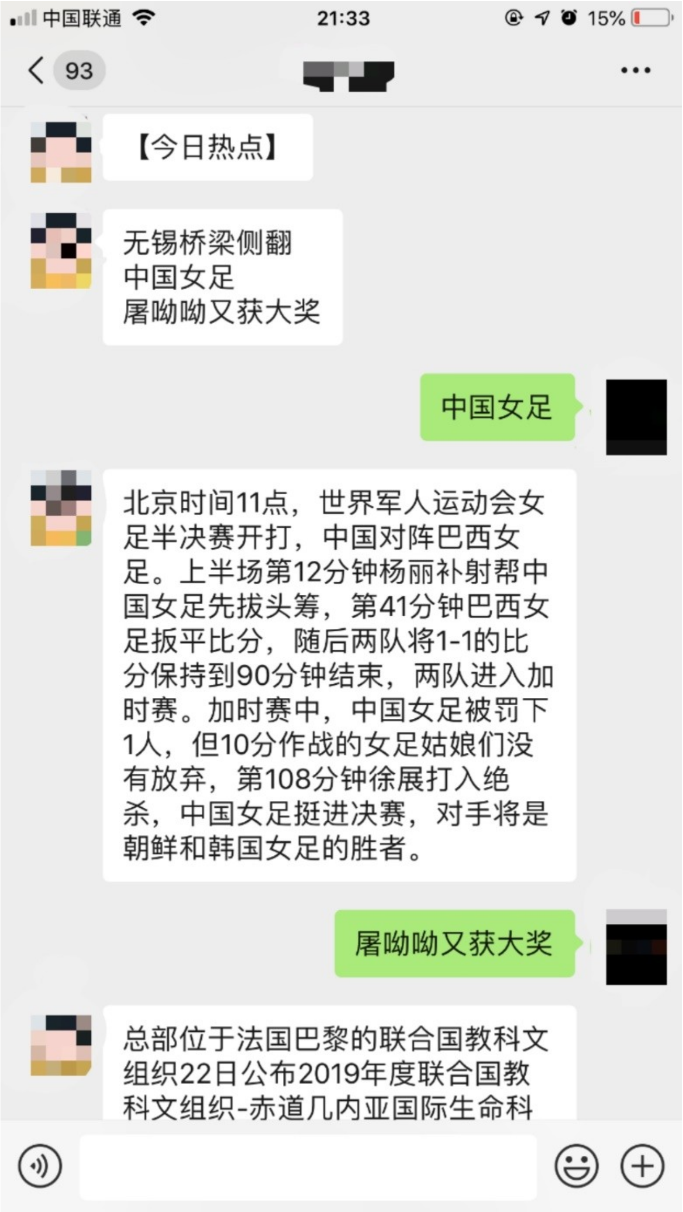
sun

NASA is getting in the celebration of Halloween.

The U.S. space agency shared a 2014 photo that showed what appears to be a jack-o’-lantern face on the sun. The image was seen in ultraviolet light by NASA’s Solar Dynamics Observatory satellite.

NASA explained the image this way:

“The active regions in this image appear brighter because those are areas that emit more light and energy. They are



【今日热点】

无锡桥梁侧翻
中国女足
屠呦呦又获大奖

中国女足

北京时间11点，世界军人运动会女足半决赛开打，中国对阵巴西女足。上半场第12分钟杨丽补射帮中国女足先拔头筹，第41分钟巴西女足扳平比分，随后两队将1-1的比分保持到90分钟结束，两队进入加时赛。加时赛中，中国女足被罚下1人，但10分作战的女足姑娘们没有放弃，第108分钟徐展打入绝杀，中国女足挺进决赛，对手将是朝鲜和韩国女足的胜者。

屠呦呦又获大奖

总部位于法国巴黎的联合国教科文组织22日公布2019年度联合国教科文组织-赤道几内亚国际生命科

Chitchat Mode

```
# -*- coding: utf-8 -*-
from chatterbot import ChatBot
from chatterbot.trainers import
ChatterBotCorpusTrainer

chatbot = ChatBot('example')

# Create a new trainer for the chatbot
trainer = ChatterBotCorpusTrainer(chatbot)

# Train the chatbot based on the English corpus
trainer.train("chatterbot.corpus.english ")
```

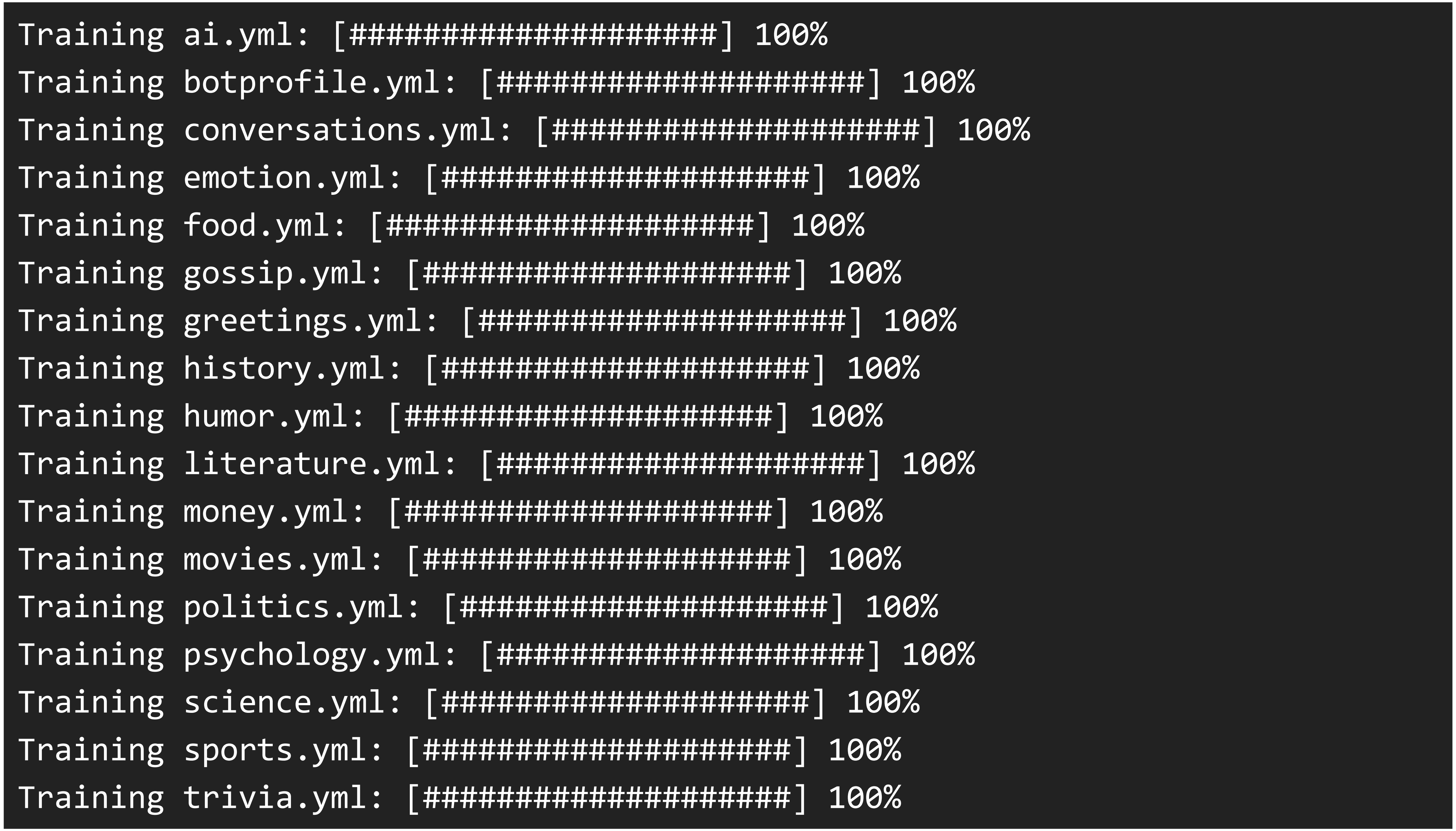
Use chatterbot module

Initialization of a bot

Create a trainer

Train the bot

Chitchat Mode



```
Training ai.yml: [####################] 100%
Training botprofile.yml: [####################] 100%
Training conversations.yml: [####################] 100%
Training emotion.yml: [####################] 100%
Training food.yml: [####################] 100%
Training gossip.yml: [####################] 100%
Training greetings.yml: [####################] 100%
Training history.yml: [####################] 100%
Training humor.yml: [####################] 100%
Training literature.yml: [####################] 100%
Training money.yml: [####################] 100%
Training movies.yml: [####################] 100%
Training politics.yml: [####################] 100%
Training psychology.yml: [####################] 100%
Training science.yml: [####################] 100%
Training sports.yml: [####################] 100%
Training trivia.yml: [####################] 100%
```

Chitchat Mode

```
question = ‘hello'
response = chatbot.get_response(question)
print(question)
print(response)
print("###########################################")
question = "nice to meet you"
print(question)
print(chatbot.get_response(question))
print("###########################################")
```

```
hello
Hi
###########################################
nice to meet you
Thank you
###########################################
```

Chitchat Mode

```
# coding: utf-8
from chatterbot import ChatBot
from chatterbot.trainers import
ChatterBotCorpusTrainer
import hug

wechatbot = ChatBot("wechatbot")
trainer = ChatterBotCorpusTrainer(wechatbot)
trainer.train("chatterbot.corpus.english ")

@hug.get()
def get_response(user_input):
    response =
wechatbot.get_response(user_input).text
    return {"response":response}
```

Use chatterbot module

Use hug module

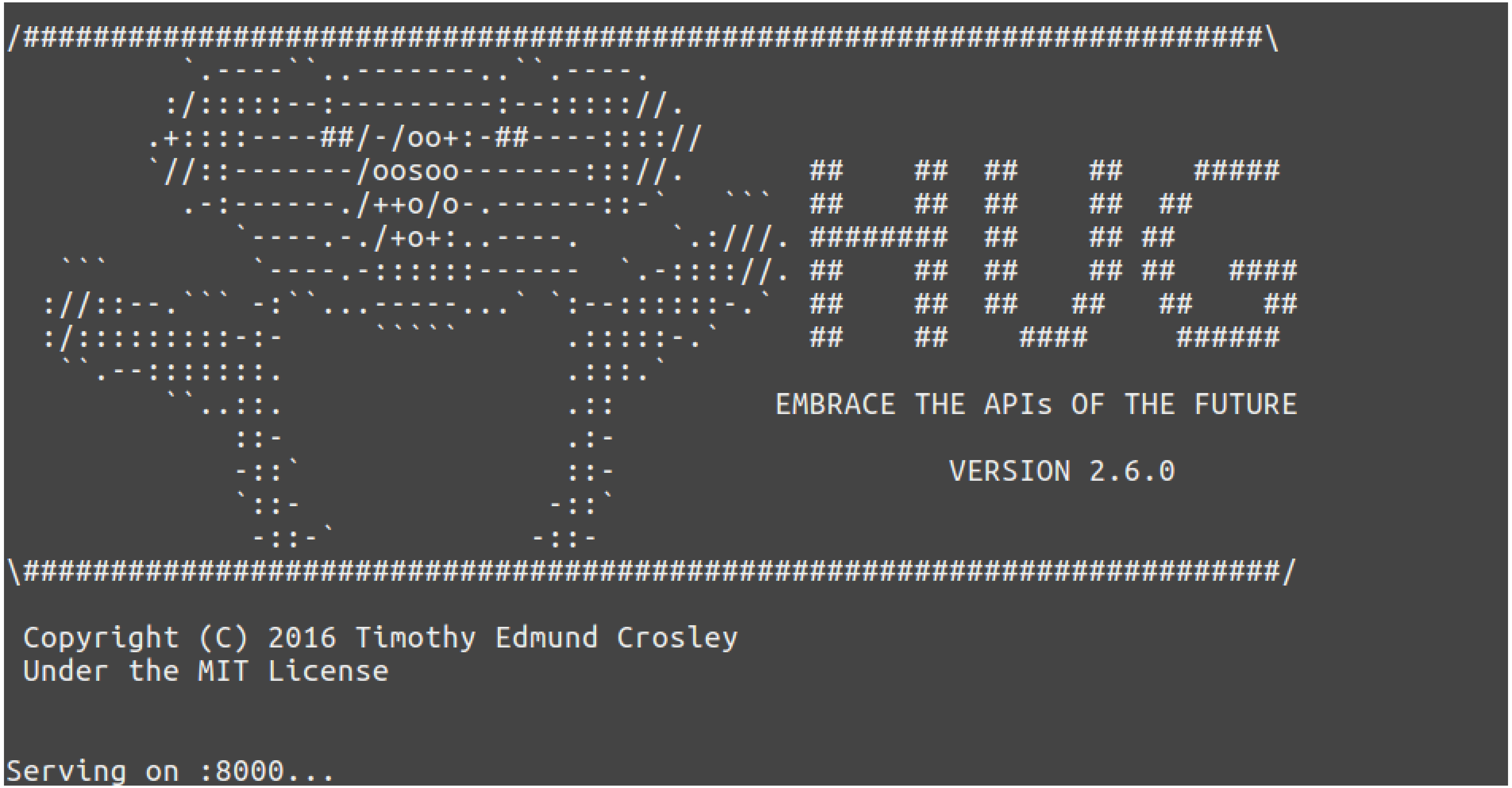
Initialization of a bot

Create a trainer

Build a web service

Chitchat Mode

```
$ hug –f api.py
```



~~~
/#######################################################################\
          `.----``..-------..``.----.
         :/:::::--:---------:--::::://.
        .+::::----##/-/oo+:-##----:::://
        `//::-------/oosoo-------::://.       ##    ##  ##    ##    #####
          .-:------./++o/o-.------::-`   ```  ##    ##  ##    ##  ##
             `----.-./+o+:..----.     `.:///. ########  ##    ## ##
   ```        `----.-::::::------  `.-:::://. ##    ##  ##    ## ##   ####
  ://::--.``` -:``...-----...` `:--::::::-.`  ##    ##  ##   ##   ##    ##
  :/:::::::::-:-     `````      .:::::-.`     ##    ##    ####     ######
   ``.--:::::::.                .:::.`
         ``..::.                .::         EMBRACE THE APIs OF THE FUTURE
             ::-                .:-
             -::`               ::-                   VERSION 2.6.0
             `::-              -::`
              -::-`           -::-
\########################################################################/

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Serving on :8000...
~~~

Chitchat Mode

```
if __name__ == '__main__':

    itchat.auto_login(hotReload=True)

    friends = itchat.get_friends()
    Name = {}
    Nickname = []
    Username = []
    for i in range(len(friends)):
        Nickname.append(friends[i]["NickName"])
        Username.append(friends[i]["UserName"])
    for i in range(len(friends)):
        Name[Nickname[i]] = Username[i]

    itchat.send(‘Let\’s chat !', 
toUserName=Name['MrSu'])
    itchat.run()
```

Use itchat module

Get contact list

Send a greeting

Run the application

Chitchat Mode

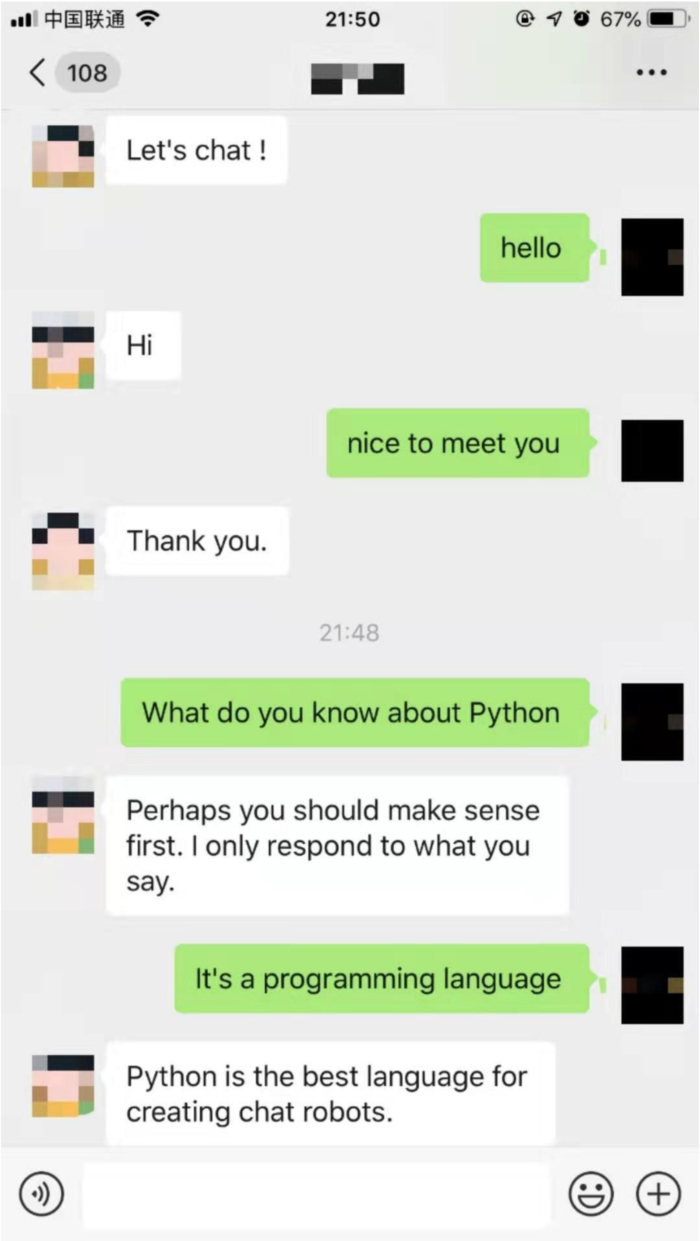
```
def chitchat(msg):
    apiUrl = 'http://127.0.0.1:8000/get_response'
    data = {
        'user_input'    : msg
    }
    r = requests.get(apiUrl, data=data).json()
    return r.get('response', '')

@itchat.msg_register(itchat.content.TEXT)
def print_content(msg):
    print(msg['Text'])
    send_message = chitchat(msg['Text'])
    itchat.send(send_message,
toUserName=Name['MrSu'])
```

Send requests to the port

Get response by the deep learning model

Chitchat Mode



Let's chat !

hello

Hi

nice to meet you

Thank you.

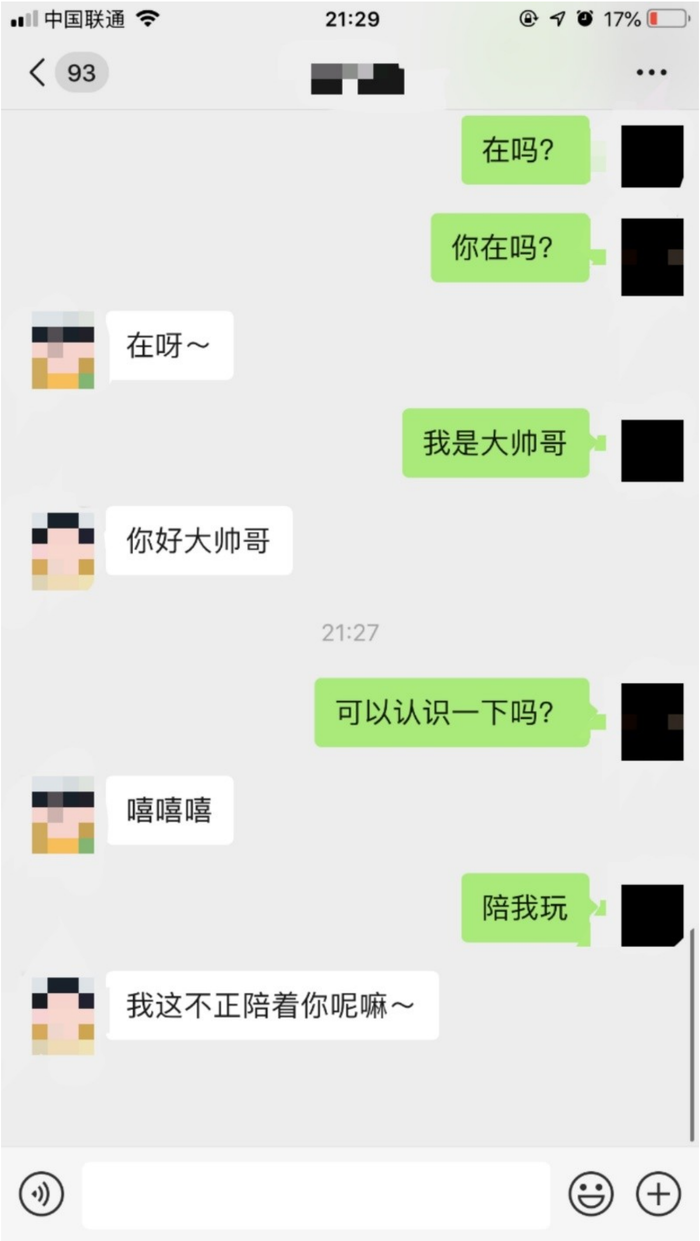
21:48

What do you know about Python

Perhaps you should make sense first. I only respond to what you say.

It's a programming language

Python is the best language for creating chat robots.



在吗?

你在吗?

在呀～

我是大帅哥

你好大帅哥

21:27

可以认识一下吗?

嘻嘻嘻

陪我玩

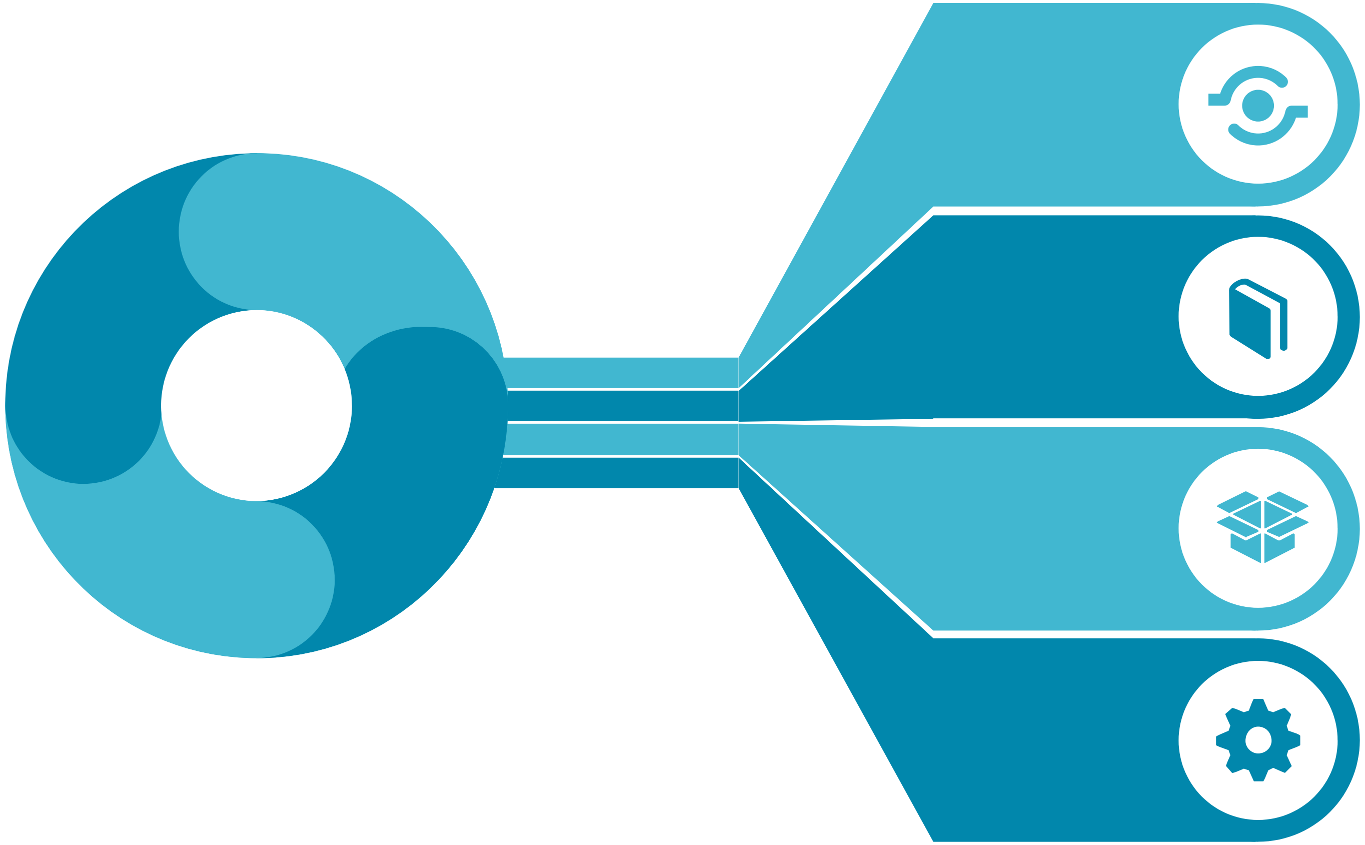
我这不正陪着你呢嘛～

04

Conclusion

Conclusion of the lesson.

Conclusion



- Review the useful techniques in Python.
- Usage of deep learning techniques
- Design automatic chatting algorithm
- Application with good functionalities

Now

Practice

by yourself!