AI 大模型开发工程师
之GPT大模型 API 开发实战

讲师：李希沅

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① Completion API和Chat Completion API

01、学习OpenAI API的意义

OpenAI 定义了大模型标准

OpenAI API的功能最全

02、Completion API 和 Chat Completion API

1. Chat模型核心功能是**对话能力**，Completion模型本质上是文本**补全模型**，核心功能为根据提示（prompt）进行提示语句的补全（即继续进行后续文本创作）

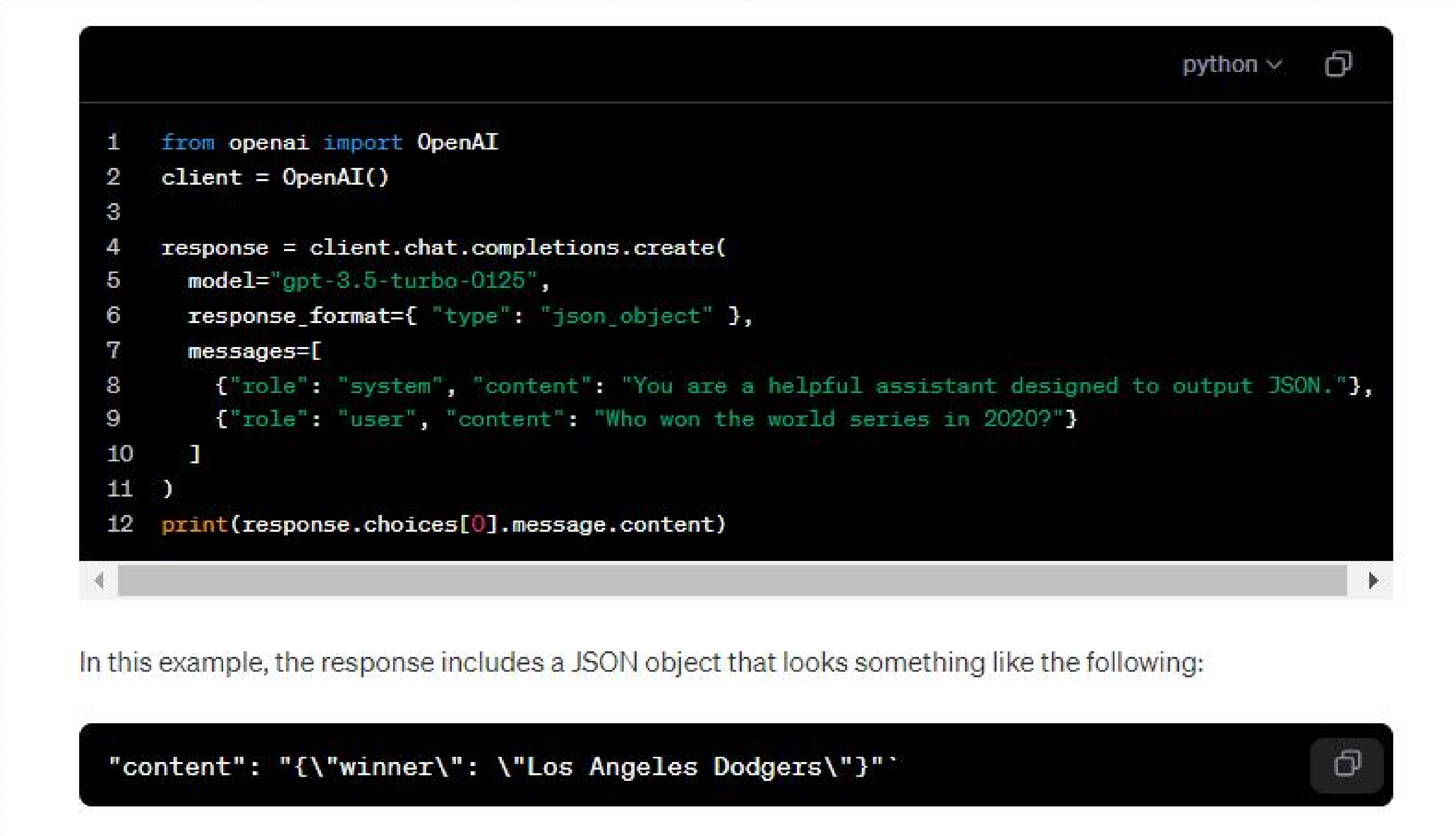
2. 从模型发展顺序上来看，**Chat模型是Completion模型的升级版模型**

3. Chat模型的核心优势：**理解人类意图的能力**。理解人类意图带来的更低的交互门槛，同样也会为开发者带来巨大的便利。据OpenAI官网数据，自gpt-3.5 API发布以来，约97%的开发者更偏向于使用Chat模型API进行开发

03、Chat Completion API代码实践

代码实践

04、Chat Completion API



```python
from openai import OpenAI
client = OpenAI()

response = client.chat.completions.create(
  model="gpt-3.5-turbo-0125",
  response_format={ "type": "json_object" },
  messages=[
    {"role": "system", "content": "You are a helpful assistant designed to output JSON."},
    {"role": "user", "content": "Who won the world series in 2020?"}
  ]
)
print(response.choices[0].message.content)
```

In this example, the response includes a JSON object that looks something like the following:

```
"content": "{\"winner\": \"Los Angeles Dodgers\"}"`
```

目前暂时支持的模型：
gpt-4-turbo-preview
gpt-3.5-turbo-0125

2 Chat Completion API详细参数（上）

01、Chat Completion API详细参数

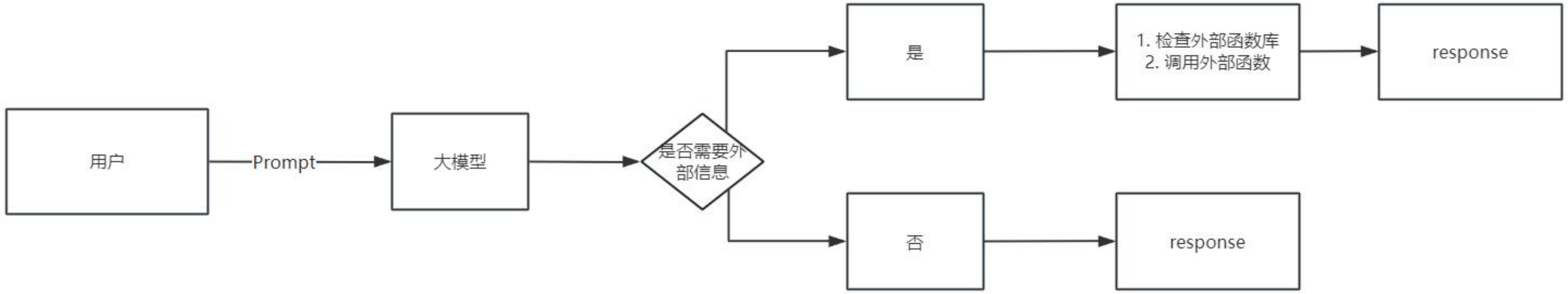
代码实践

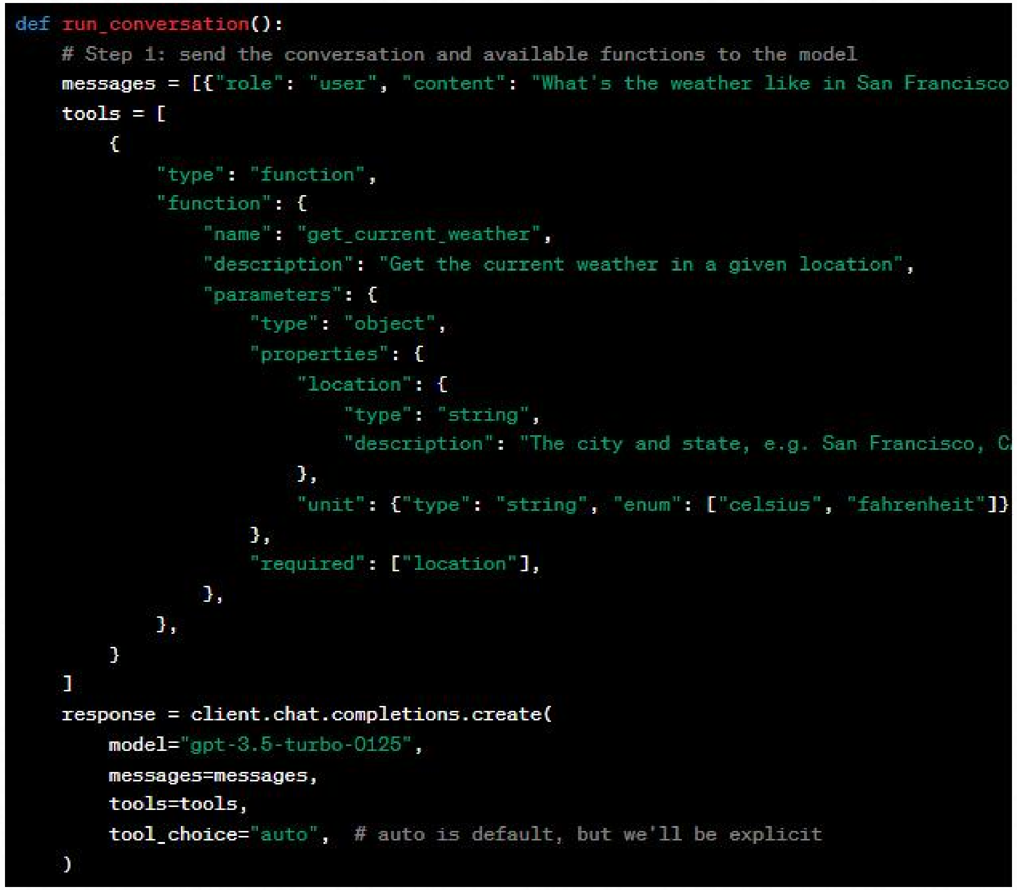
3 Chat Completion API详细参数（下）

01、Chat Completion API详细参数

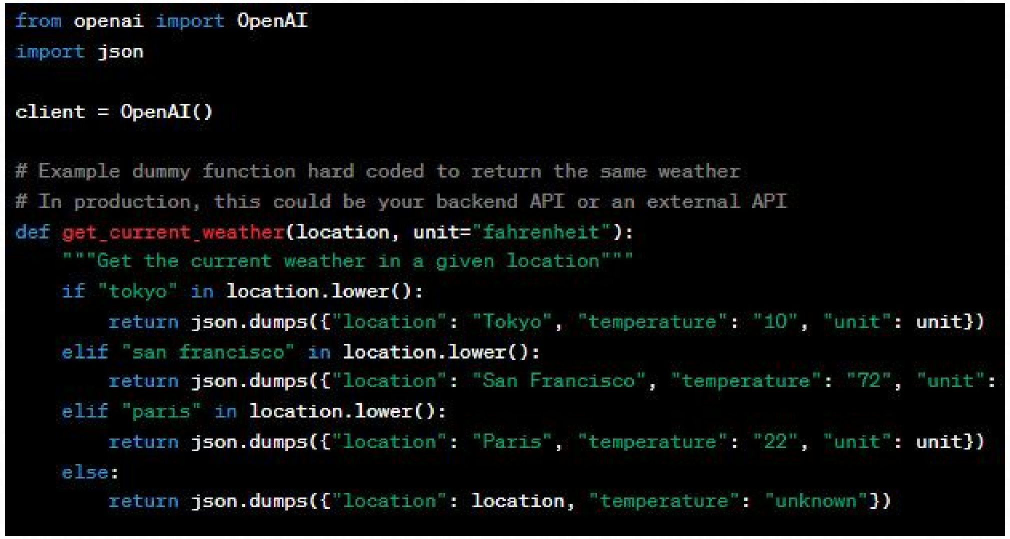
代码实践

4 Function Calling运行流程





```
def run_conversation():
    # Step 1: send the conversation and available functions to the model
    messages = [{"role": "user", "content": "What's the weather like in San Francisco
    tools = [
        {
            "type": "function",
            "function": {
                "name": "get_current_weather",
                "description": "Get the current weather in a given location",
                "parameters": {
                    "type": "object",
                    "properties": {
                        "location": {
                            "type": "string",
                            "description": "The city and state, e.g. San Francisco, C
                        },
                        "unit": {"type": "string", "enum": ["celsius", "fahrenheit"]}
                    },
                    "required": ["location"],
                },
            },
        }
    ]
    response = client.chat.completions.create(
        model="gpt-3.5-turbo-0125",
        messages=messages,
        tools=tools,
        tool_choice="auto",  # auto is default, but we'll be explicit
    )
```



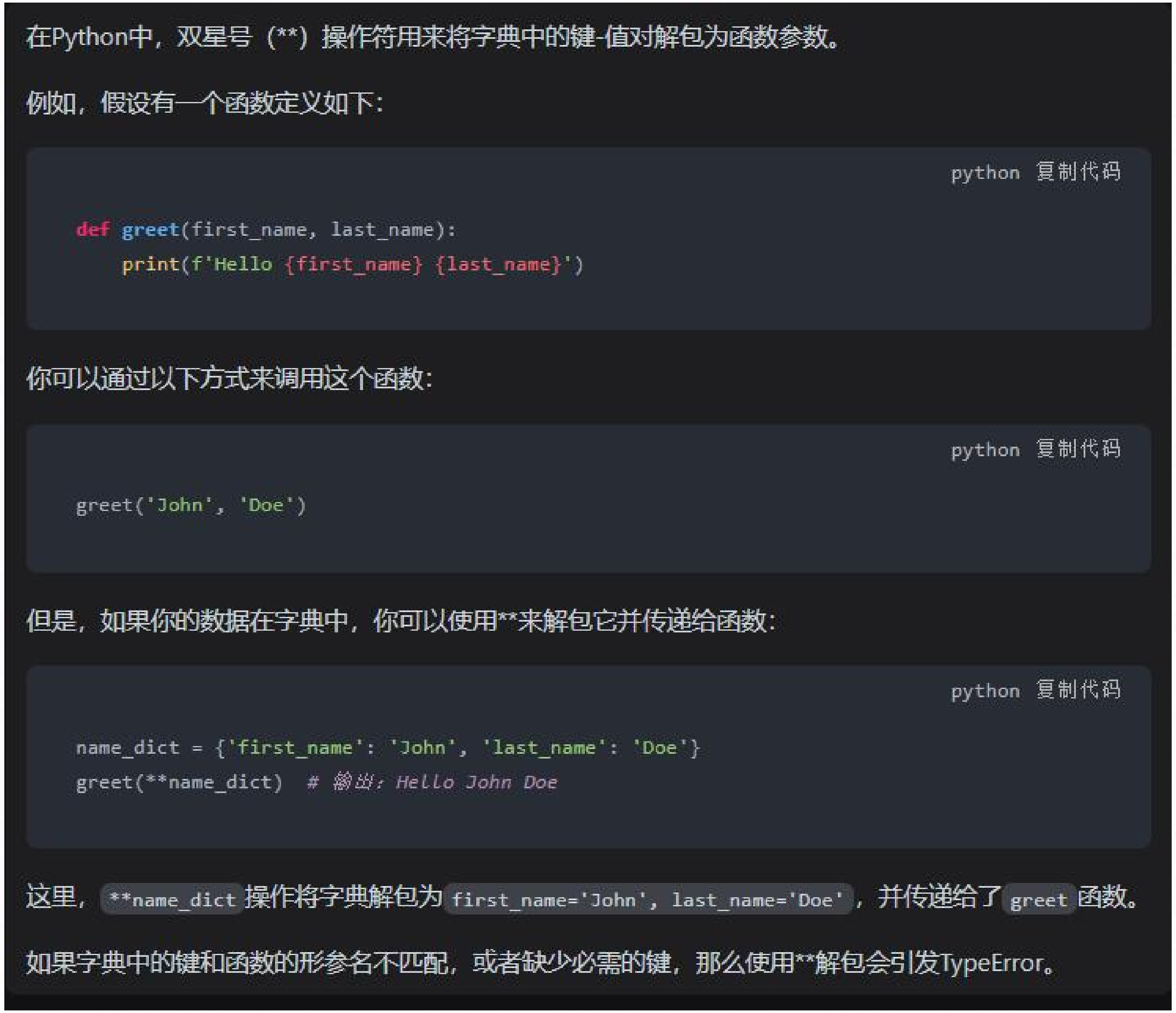
```
from openai import OpenAI
import json

client = OpenAI()

# Example dummy function hard coded to return the same weather
# In production, this could be your backend API or an external API
def get_current_weather(location, unit="fahrenheit"):
    """Get the current weather in a given location"""
    if "tokyo" in location.lower():
        return json.dumps({"location": "Tokyo", "temperature": "10", "unit": unit})
    elif "san francisco" in location.lower():
        return json.dumps({"location": "San Francisco", "temperature": "72", "unit":
    elif "paris" in location.lower():
        return json.dumps({"location": "Paris", "temperature": "22", "unit": unit})
    else:
        return json.dumps({"location": location, "temperature": "unknown"})
```

虽然大语言模型的知识储量巨大，且具备非常强大的涌现能力，但很多时候我们实际使用大语言模型时仍然会明显的感受到模型能力上的局限，例如模型无法获取最新的信息、模型只能给出文字的建议但无法直接帮我们解决某些问题（如查询数据库，查询商品价格等）

01、Function Calling实战演练--特殊语法



在Python中，双星号（**）操作符用来将字典中的键-值对解包为函数参数。

例如，假设有一个函数定义如下：

```python
def greet(first_name, last_name):
    print(f'Hello {first_name} {last_name}')
```

你可以通过以下方式来调用这个函数：

```python
greet('John', 'Doe')
```

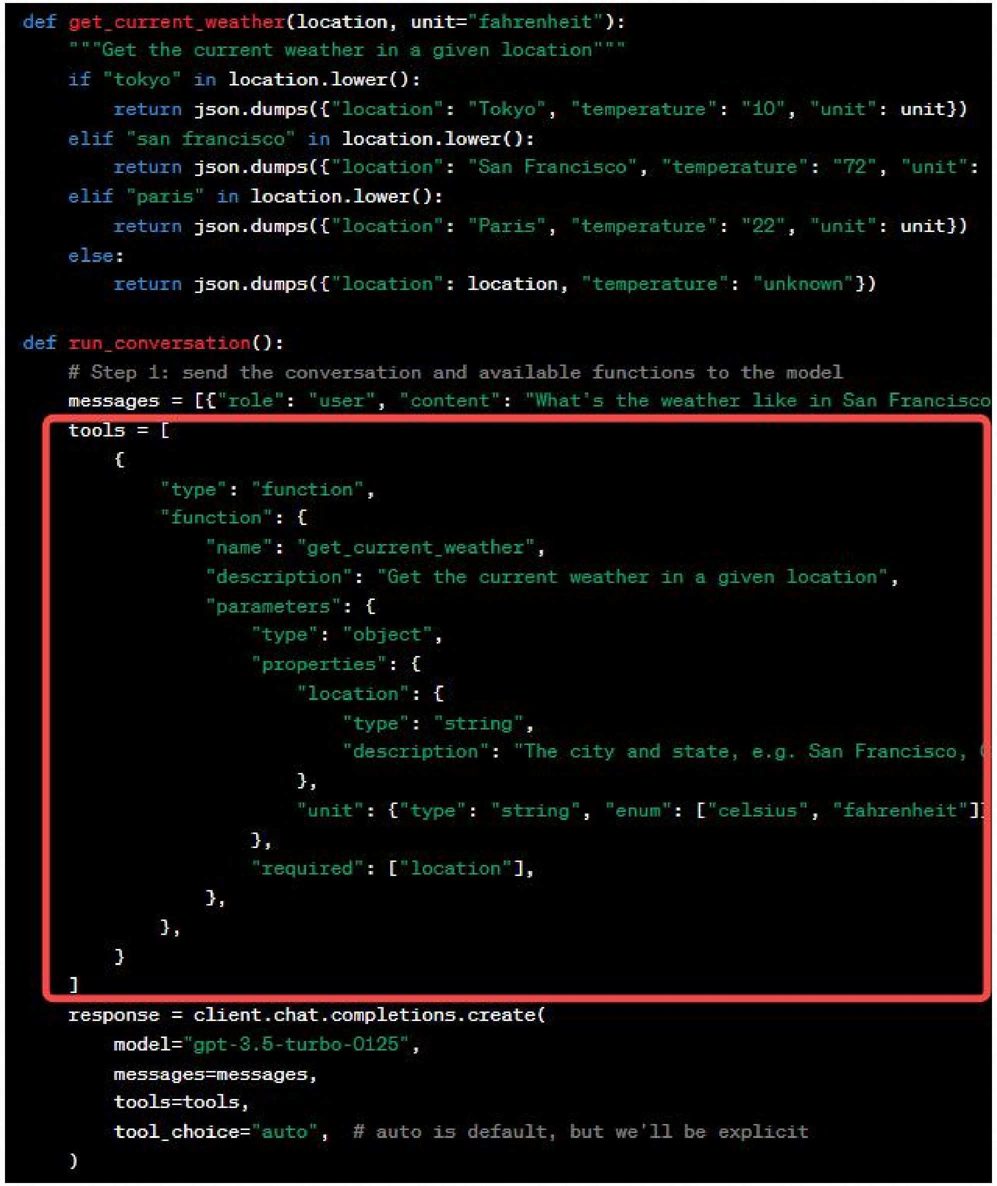
但是，如果你的数据在字典中，你可以使用**来解包它并传递给函数：

```python
name_dict = {'first_name': 'John', 'last_name': 'Doe'}
greet(**name_dict)  # 输出: Hello John Doe
```

这里，`**name_dict`操作将字典解包为`first_name='John', last_name='Doe'`，并传递给了`greet`函数。

如果字典中的键和函数的形参名不匹配，或者缺少必需的键，那么使用**解包会引发TypeError。

02、Function Calling实战演练--自动编写function定义



```
def get_current_weather(location, unit="fahrenheit"):
    """Get the current weather in a given location"""
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        return json.dumps({"location": "Tokyo", "temperature": "10", "unit": unit})
    elif "san francisco" in location.lower():
        return json.dumps({"location": "San Francisco", "temperature": "72", "unit":
    elif "paris" in location.lower():
        return json.dumps({"location": "Paris", "temperature": "22", "unit": unit})
    else:
        return json.dumps({"location": location, "temperature": "unknown"})

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                    "properties": {
                        "location": {
                            "type": "string",
                            "description": "The city and state, e.g. San Francisco,
                        },
                        "unit": {"type": "string", "enum": ["celsius", "fahrenheit"]
                    },
                    "required": ["location"],
                },
            },
        }
    ]
    response = client.chat.completions.create(
        model="gpt-3.5-turbo-0125",
        messages=messages,
        tools=tools,
        tool_choice="auto",  # auto is default, but we'll be explicit
    )
```

5 Function Calling运行详细流程

01、Function Calling运行详细流程

代码实践

6 Function Calling Tools工具封装

01、Function Calling Tools工具封装

代码实践

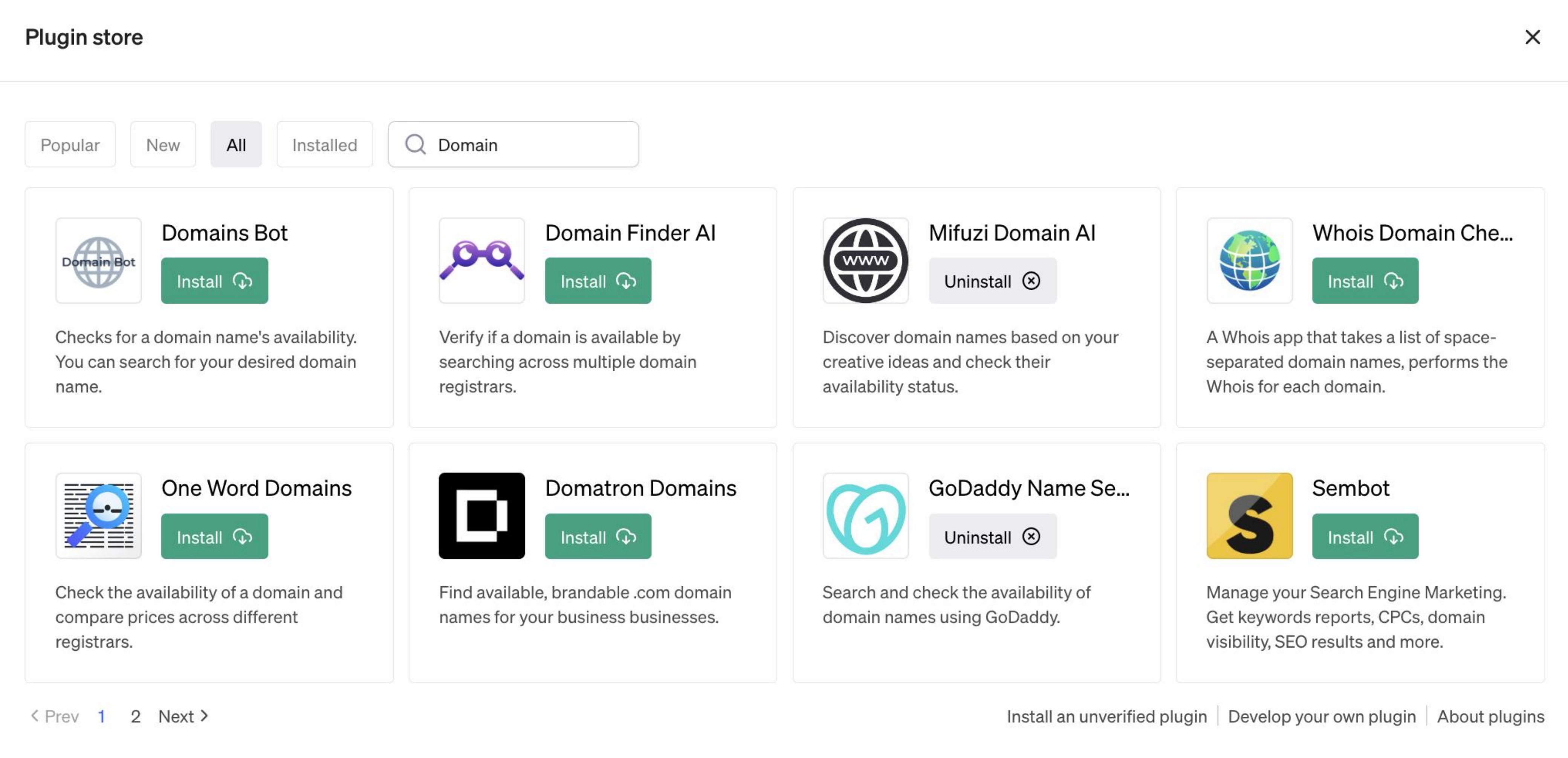
7 Function Calling 2阶段代码封装

01、Function Calling 2阶段代码封装

代码实践

8 ChatGPT Plugin实践

01、ChatGPT Plugin Store



Plugin store ✕

Popular | New | All | Installed | Domain

Domains Bot Install

Checks for a domain name's availability. You can search for your desired domain name.

Domain Finder AI Install

Verify if a domain is available by searching across multiple domain registrars.

Mifuzi Domain AI Uninstall ⊗

Discover domain names based on your creative ideas and check their availability status.

Whois Domain Che... Install

A Whois app that takes a list of space-separated domain names, performs the Whois for each domain.

One Word Domains Install

Check the availability of a domain and compare prices across different registrars.

Domatron Domains Install

Find available, brandable .com domain names for your business businesses.

GoDaddy Name Se... Uninstall ⊗

Search and check the availability of domain names using GoDaddy.

Sembot Install

Manage your Search Engine Marketing. Get keywords reports, CPCs, domain visibility, SEO results and more.

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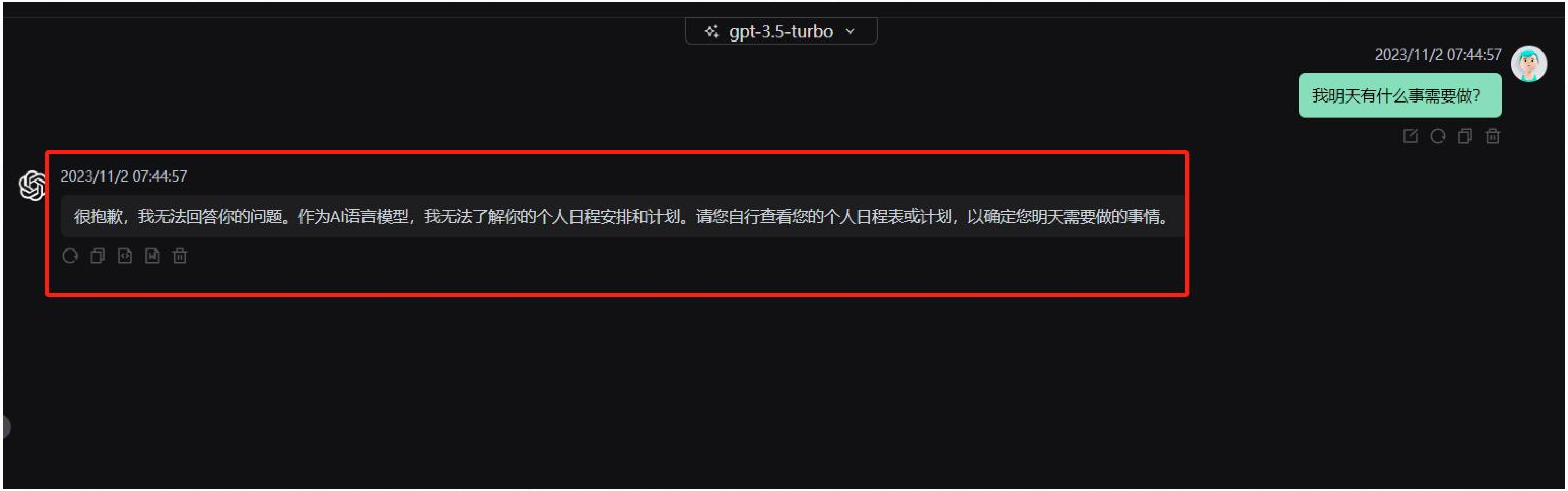
02、智能TODU(代办)管理助手需求分析



2023/11/2 07:44:57

我明天有什么事需要做?

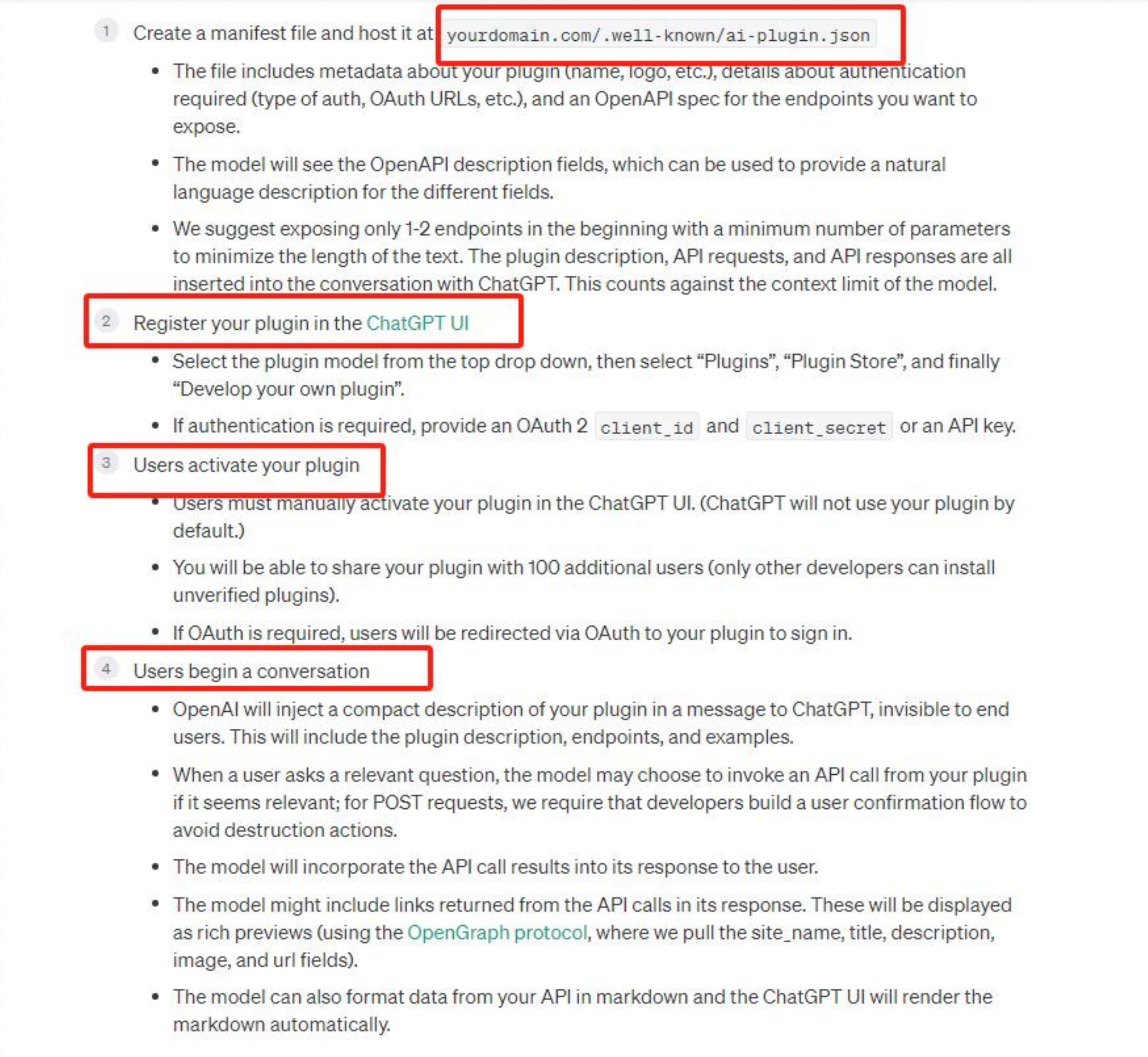
2023/11/2 07:44:57

很抱歉，我无法回答你的问题。作为AI语言模型，我无法了解你的个人日程安排和计划。请您自行查看您的个人日程表或计划，以确定您明天需要做的事情。

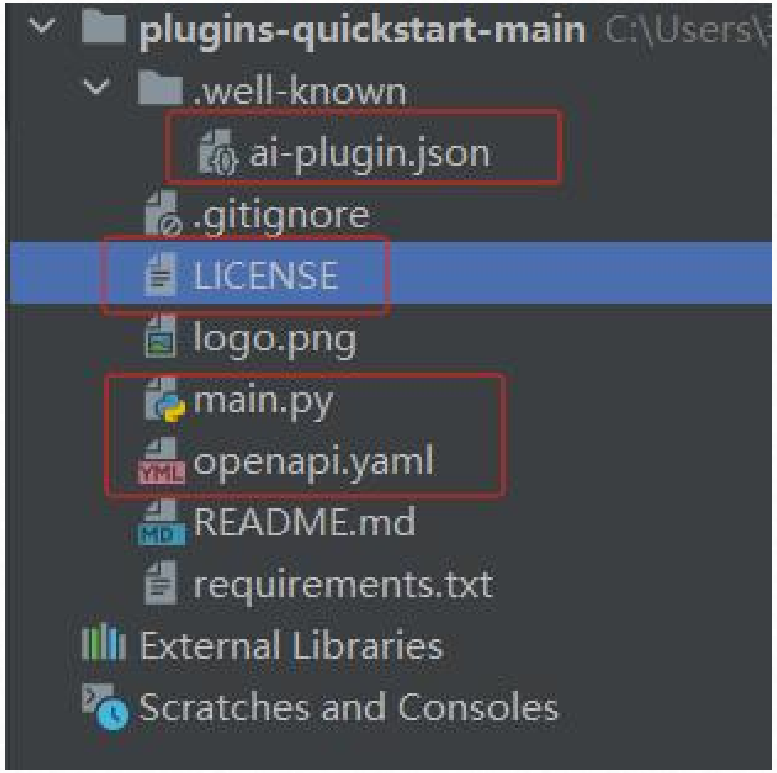
做一个集成在ChatGPT里面智能工作助手，功能如下：

1. 可以查看TODU List
2. 可以删除TODU List 事项
3. 可以增加TODU List 事项

03、上线ChatGPt Plugin的流程-开发好Plugin



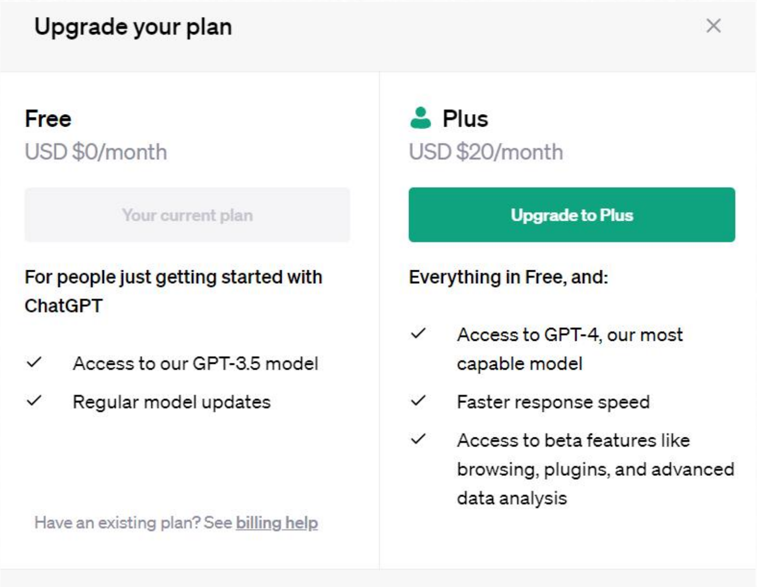
1. Create a manifest file and host it at `yourdomain.com/.well-known/ai-plugin.json`
   - The file includes metadata about your plugin (name, logo, etc.), details about authentication required (type of auth, OAuth URLs, etc.), and an OpenAPI spec for the endpoints you want to expose.
   - The model will see the OpenAPI description fields, which can be used to provide a natural language description for the different fields.
   - We suggest exposing only 1-2 endpoints in the beginning with a minimum number of parameters to minimize the length of the text. The plugin description, API requests, and API responses are all inserted into the conversation with ChatGPT. This counts against the context limit of the model.
2. Register your plugin in the ChatGPT UI
   - Select the plugin model from the top drop down, then select “Plugins”, “Plugin Store”, and finally “Develop your own plugin”.
   - If authentication is required, provide an OAuth 2 `client_id` and `client_secret` or an API key.
3. Users activate your plugin
   - Users must manually activate your plugin in the ChatGPT UI. (ChatGPT will not use your plugin by default.)
   - You will be able to share your plugin with 100 additional users (only other developers can install unverified plugins).
   - If OAuth is required, users will be redirected via OAuth to your plugin to sign in.
4. Users begin a conversation
   - OpenAI will inject a compact description of your plugin in a message to ChatGPT, invisible to end users. This will include the plugin description, endpoints, and examples.
   - When a user asks a relevant question, the model may choose to invoke an API call from your plugin if it seems relevant; for POST requests, we require that developers build a user confirmation flow to avoid destruction actions.
   - The model will incorporate the API call results into its response to the user.
   - The model might include links returned from the API calls in its response. These will be displayed as rich previews (using the OpenGraph protocol, where we pull the site_name, title, description, image, and url fields).
   - The model can also format data from your API in markdown and the ChatGPT UI will render the markdown automatically.



```
plugins-quickstart-main C:\Users\
    .well-known
        ai-plugin.json
    .gitignore
    LICENSE
    logo.png
    main.py
    openapi.yaml
    README.md
    requirements.txt
External Libraries
Scratches and Consoles
```

04、上线Plugin的流程-进入Plugin Store

打开 ChatGPT ，选择 GPT-4 模型，选择 Plugins 模式，去Plugin商店



Upgrade your plan

Free

USD $0/month

For people just getting started with ChatGPT

- ✓ Access to our GPT-3.5 model
- ✓ Regular model updates

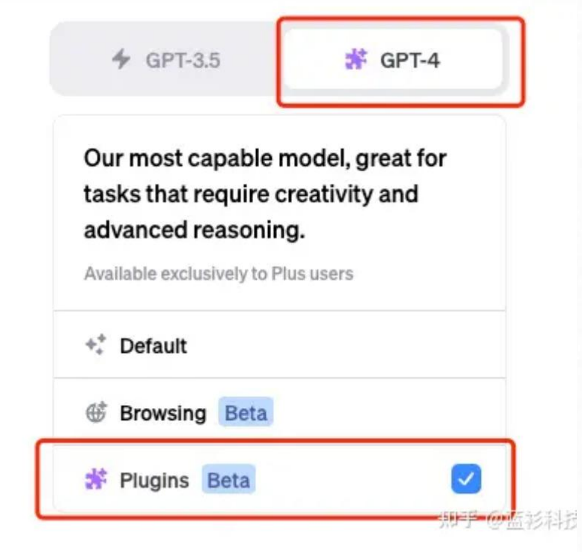
Have an existing plan? See billing help

Plus

USD $20/month

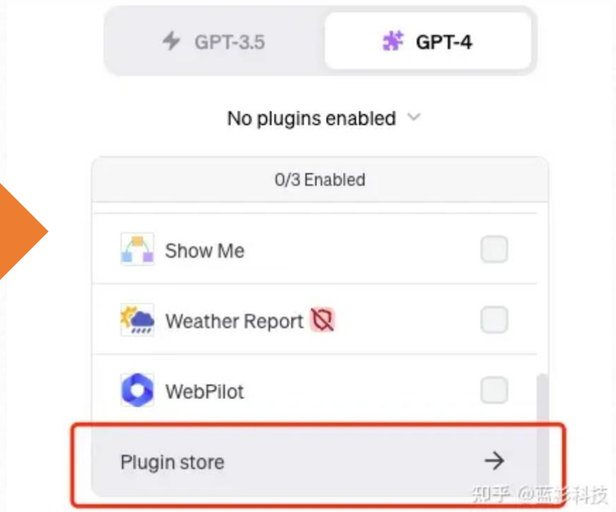
Everything in Free, and:

- ✓ Access to GPT-4, our most capable model
- ✓ Faster response speed
- ✓ Access to beta features like browsing, plugins, and advanced data analysis

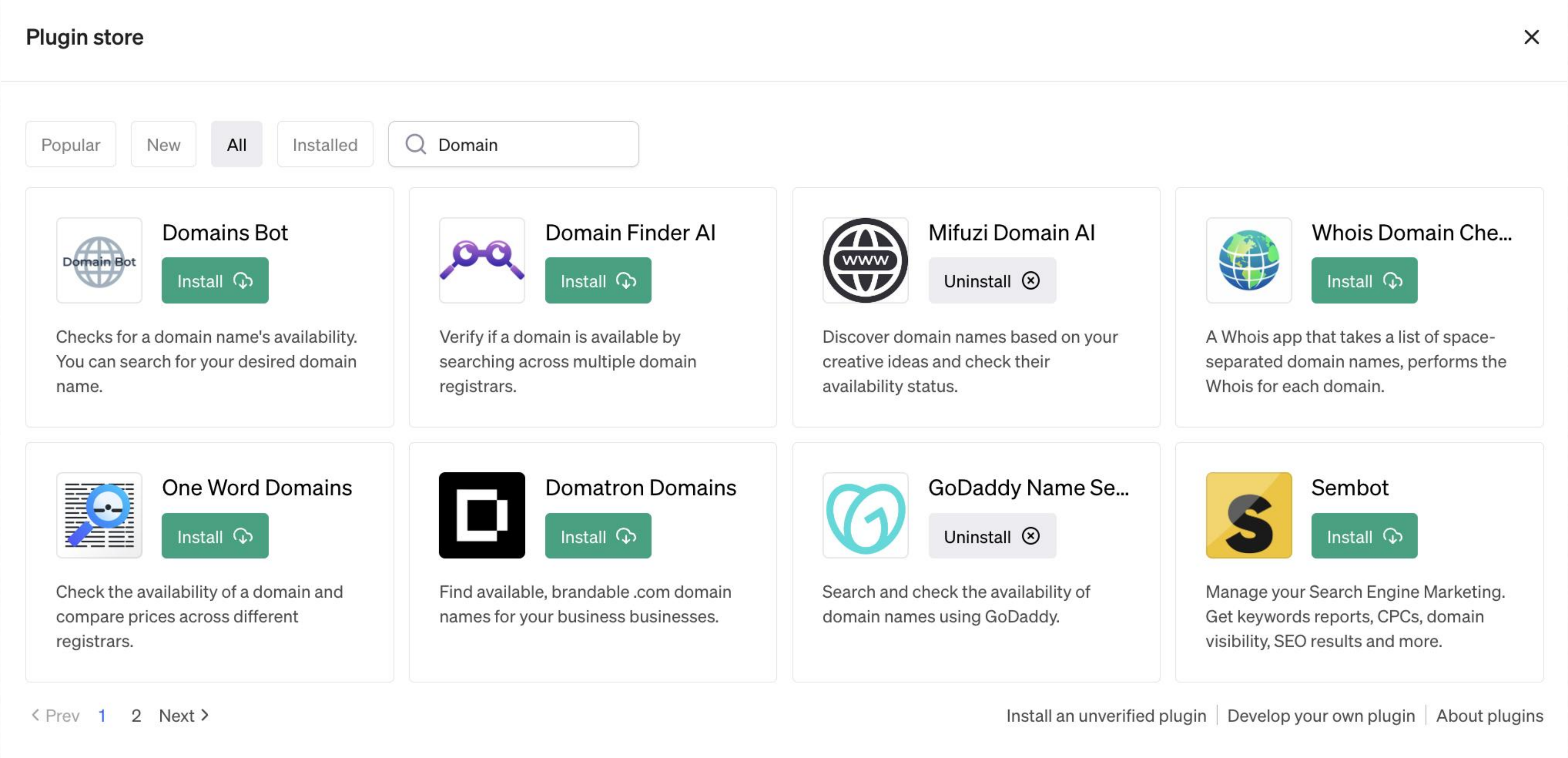


Our most capable model, great for tasks that require creativity and advanced reasoning.

Available exclusively to Plus users



05、上线Plugin的流程-选择发布自己的插件



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Sembot

Manage your Search Engine Marketing. Get keywords reports, CPCs, domain visibility, SEO results and more.

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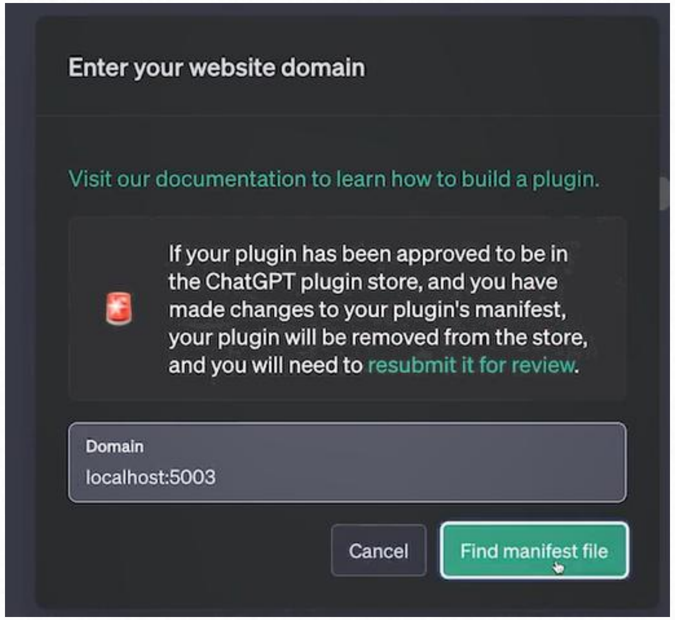
06、上线Plugin的流程-输入服务地址，安装Plugin

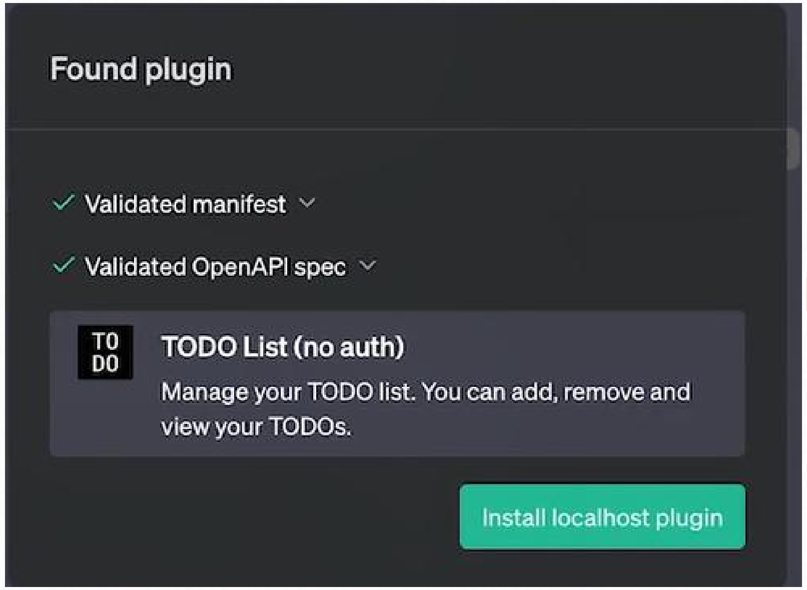


Enter your website domain

Visit our documentation to learn how to build a plugin.

If your plugin has been approved to be in the ChatGPT plugin store, and you have made changes to your plugin's manifest, your plugin will be removed from the store, and you will need to resubmit it for review.

Domain
localhost:5003



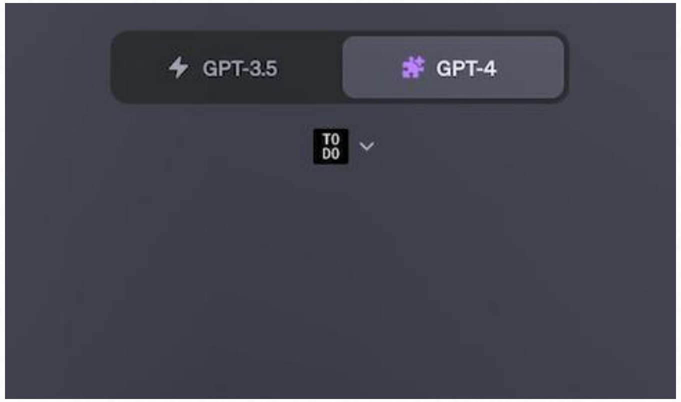
Found plugin

✓ Validated manifest

✓ Validated OpenAPI spec

TODO List (no auth)

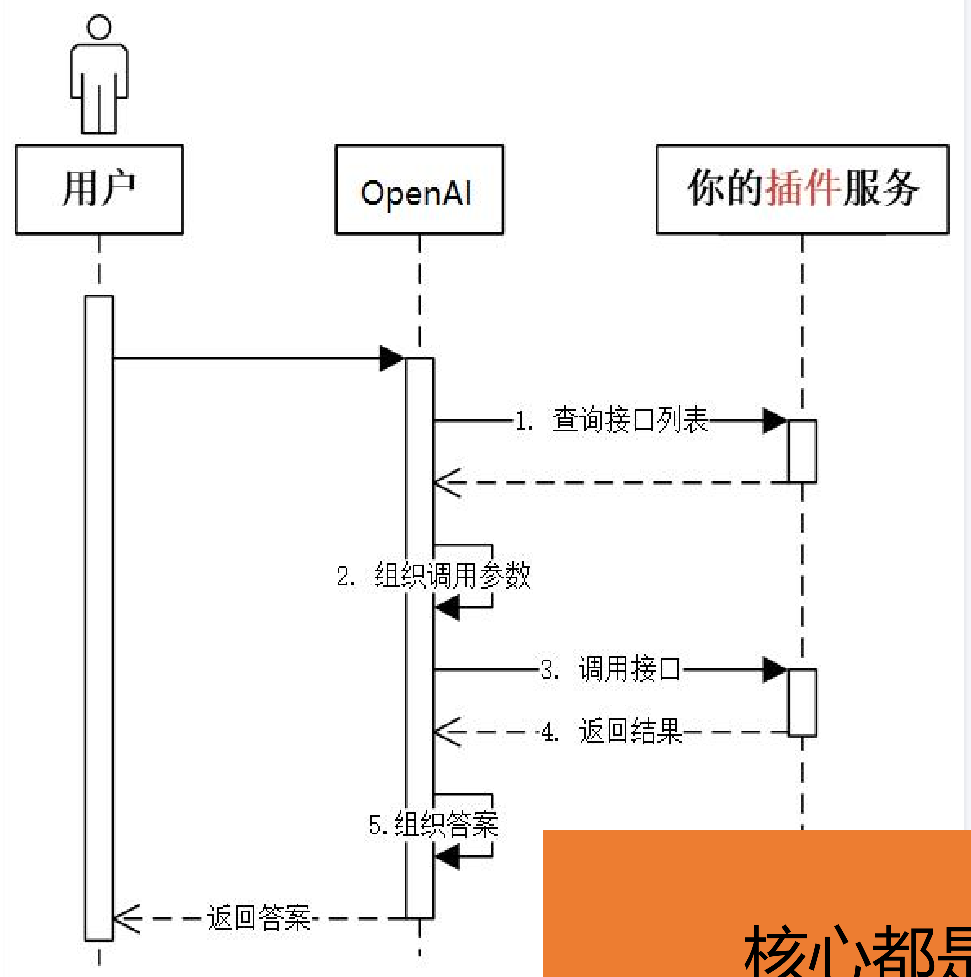
Manage your TODO list. You can add, remove and view your TODOs.



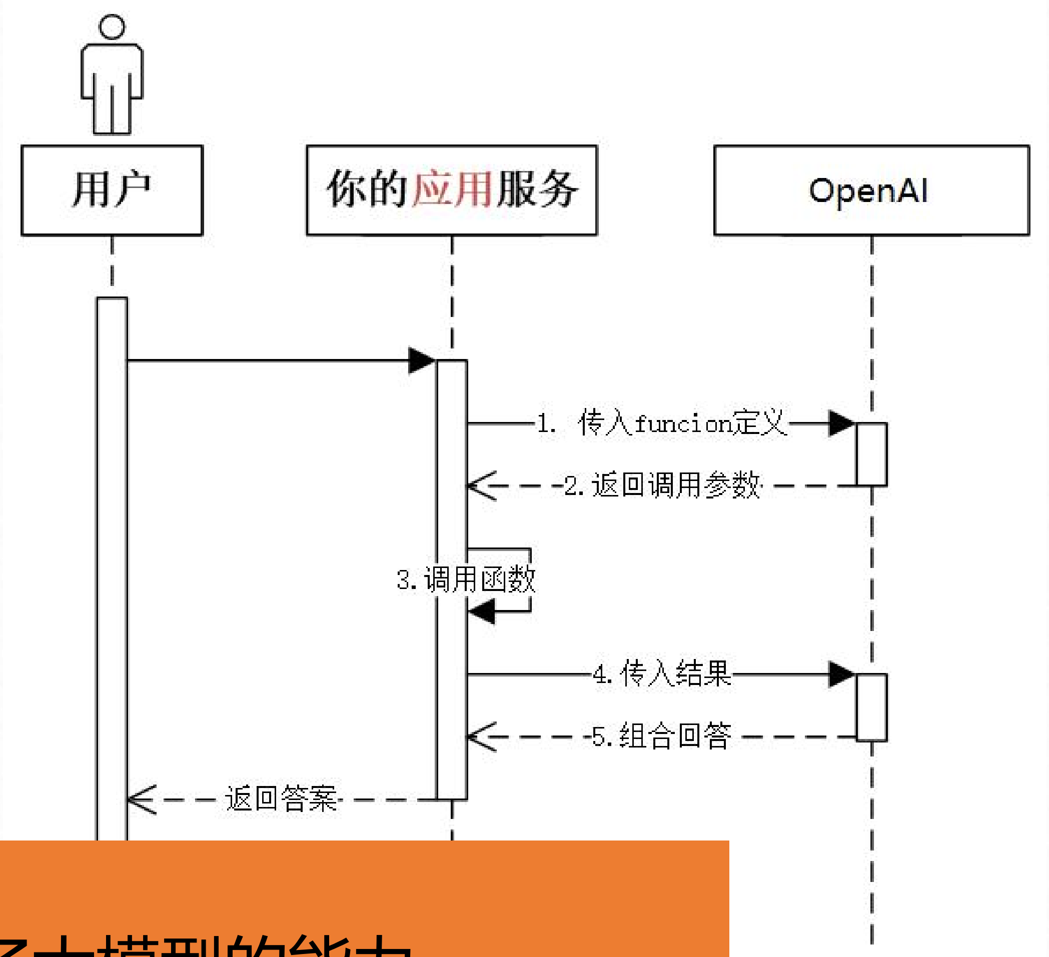
9 ChatGPT Plugin VS Funcation Calling

01、Function Calling VS ChatGPT plugin

Plugins 的机制

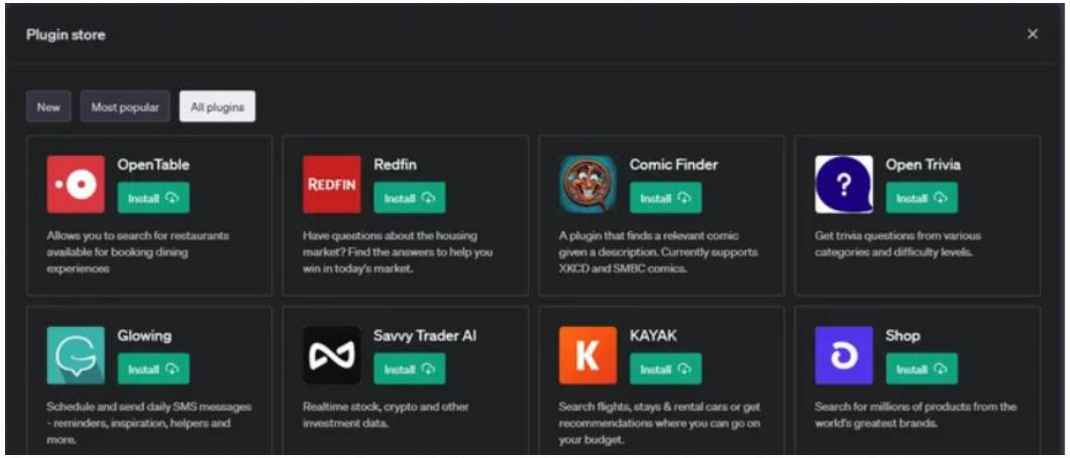


Function Calling 的机制



核心都是增加了大模型的能力

02、Function Calling VS ChatGPT Plugin



Plugin store

OpenTable
Allows you to search for restaurants available for booking dining experiences

Redfin
Have questions about the housing market? Find the answers to help you win in today's market.

Comic Finder
A plugin that finds a relevant comic given a description. Currently supports XKCD and SMBC comics.

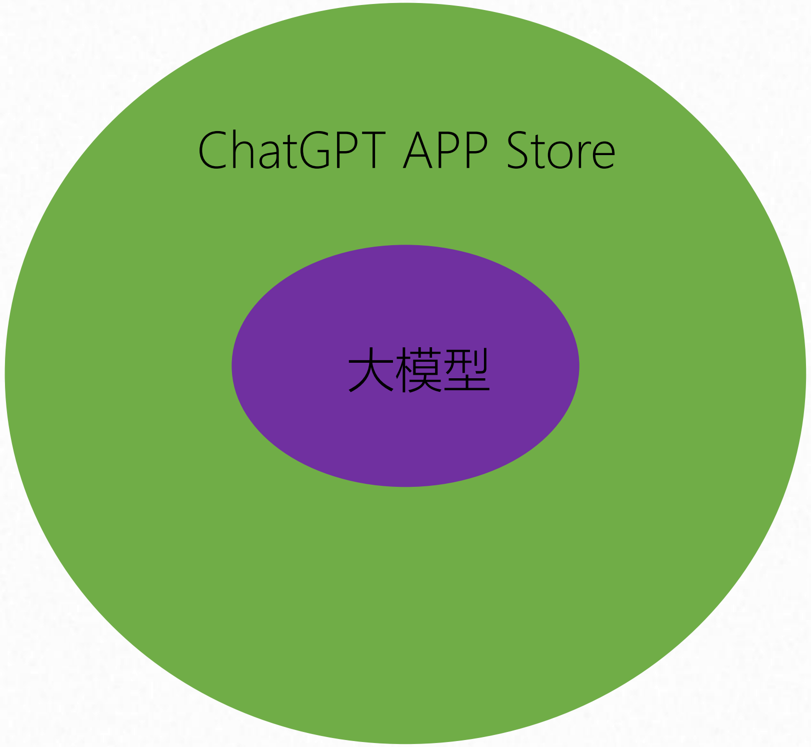
Open Trivia
Get trivia questions from various categories and difficulty levels.

Glowing
Schedule and send daily SMS messages - reminders, inspiration, helpers and more.

Savvy Trader AI
Realtime stock, crypto and other investment data.

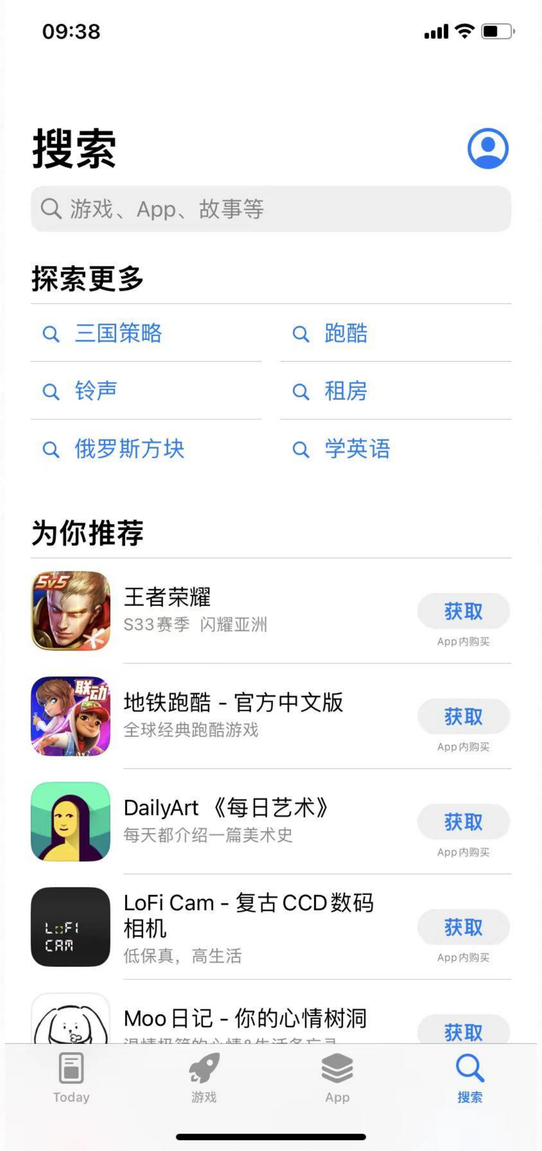
KAYAK
Search flights, stays & rental cars or get recommendations where you can go on your budget.

Shop
Search for millions of products from the world's greatest brands.



ChatGPT APP Store

大模型



09:38

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DailyArt 《每日艺术》 每天都介绍一篇美术史	获取 App内购买
LoFi Cam - 复古CCD数码相机 低保真，高生活	获取 App内购买
Moo日记 - 你的心情树洞	获取

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