

第二节课笔记及作业实现截图（附后）

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本课内容：

（细节实现详情见 [tutorial/helloworld/hello_world.md](https://github.com/InternLM/tutorial/blob/main/tutorial/helloworld/hello_world.md) at [main · InternLM/tutorial \(github.com\)](https://github.com/InternLM/tutorial)）

1 · 轻松玩转书生·浦语大模型趣味 Demo

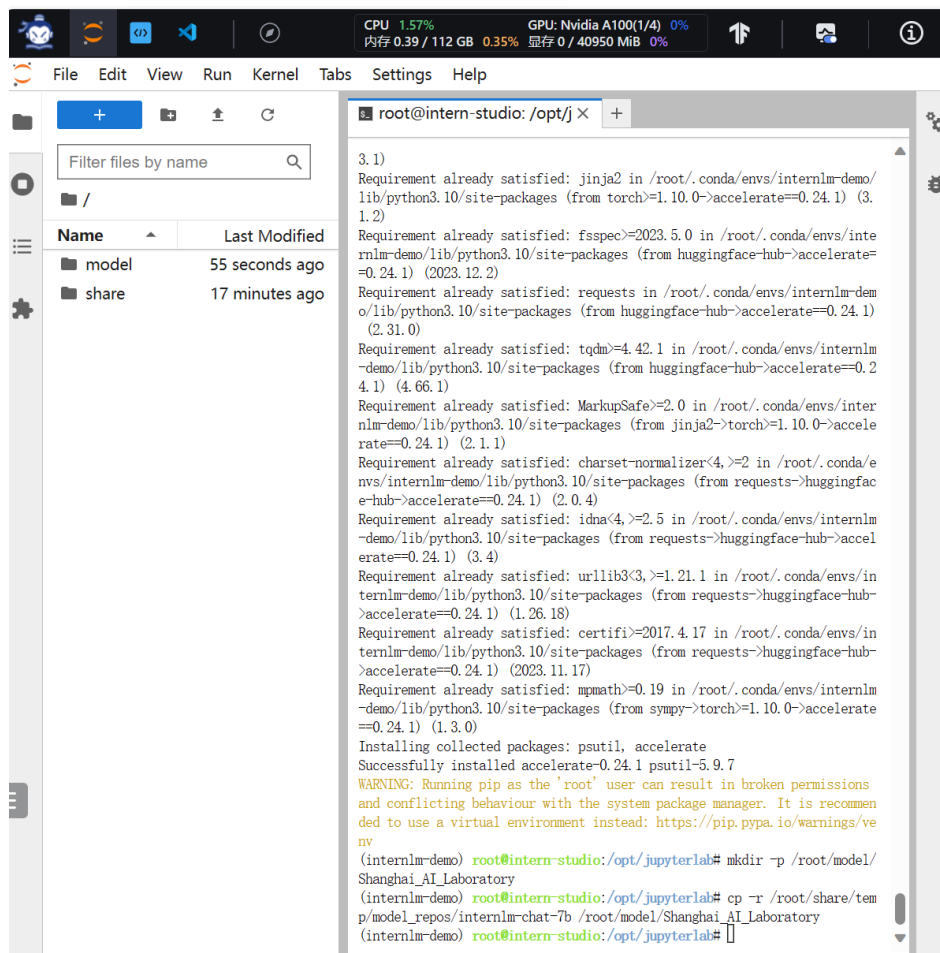
介绍了什么是大模型，以及 InternLM 模型的全链条开源，包括 InternLM-7B 和 InternLM-20B 两个预训练模型，以及 Lagent 和浦语·灵笔两个智能体框架。

2 · Lagent 智能体工具调用 Demo

- 2.1 环境准备
- 在 [InternStudio](https://internlm-studio.com/) 平台中选择 A100(1/4) 的配置，如下图所示镜像选择 Cuda11.7-conda
- 接下来打开刚刚租用服务器的进入开发机，并且打开其中的终端开始环境配置、模型下载和运行 demo。
- 进入开发机后，在页面的左上角可以切换 JupyterLab、终端和 VScode，并在终端输入 bash 命令，进入 conda 环境。

- 进入 conda 环境之后，使用以下命令从本地克隆一个已有的 pytorch 2.0.1 的环境
- `bash # 请每次使用 jupyter lab 打开终端时务必先执行 bash 命令进入 bash 中`
- `bash /root/share/install_conda_env_internlm_base.sh`
`internlm-demo # 执行该脚本文件来安装项目实验环境`
- 然后使用以下命令激活环境
- `conda activate internlm-demo`
- 并在环境中安装运行 demo 所需要的依赖。
- `# 升级 pip`
- `python -m pip install --upgrade pip`
- `pip install modelscope==1.9.5`
- `pip install transformers==4.35.2`
- `pip install streamlit==1.24.0`
- `pip install sentencepiece==0.1.99`
- `pip install accelerate==0.24.1`
- **2.2 模型下载**
- [InternStudio](#) 平台的 share 目录下已经为我们准备了全系列的 InternLM 模型，所以我们可以直接复制即可。使用如下命令复制：
- `mkdir -p /root/model/Shanghai_AI_Laboratory`
- `cp -r /root/share/temp/model_repos/internlm-chat-7b`
`/root/model/Shanghai_AI_Laboratory`

- 在 /root 路径下新建目录 model，在目录下新建 download.py 文件并在其中输入以下内容，粘贴代码后记得保存文件。并运行 python /root/model/download.py 执行下载，模型大小为 14 GB，



- import torch
- from modelscope import snapshot_download, AutoModel, AutoTokenizer
- import os
- model_dir = snapshot_download('Shanghai_AI_Laboratory/internlm-chat-7b', cache_dir='/root/model', revision='v1.0.3')

CPU 1.72% GPU: Nvidia A100(1/4) 0% 内存 0.39 / 112 GB 0.35% 显存 0 / 40950 MiB 0%

File Edit View Run Kernel Tabs Settings Help

Filter files by name

/ model /

Name	Last Modified
Shanghai_...	4 minutes ago
download....	1 minute ago

```

1 import torch
2 from modelscope import snapshot_download, AutoModel,
  AutoTokenizer
3 import os
4 model_dir =
  snapshot_download('Shanghai_AI_Laboratory/internlm-chat-7b',
    cache_dir='/root/model', revision='v1.0.3')

```

CPU 2.26% GPU: Nvidia A100(1/4) 0% 内存 0.40 / 112 GB 0.36% 显存 0 / 40950 MiB 0%

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Filter files by name

/ model /

Name	Last Modified
Shanghai_...	6 minutes ago
download....	3 minutes ago

```

and conflicting behaviour with the system package manager. It is recommen
ded to use a virtual environment instead: https://pip.pypa.io/warnings/ve
nv
(internlm-demo) root@intern-studio:/opt/jupyterlab# mkdir -p /root/model/
Shanghai_AI_Laboratory
(internlm-demo) root@intern-studio:/opt/jupyterlab# cp -r /root/share/tem
p/model_repos/internlm-chat-7b /root/model/Shanghai_AI_Laboratory
(internlm-demo) root@intern-studio:/opt/jupyterlab# mkdir /root/code
(internlm-demo) root@intern-studio:/opt/jupyterlab# cd /root/code
(internlm-demo) root@intern-studio:~/code# git clone https://gitee.com/in
ternlm/InternLM.git
Cloning into 'InternLM'...
remote: Enumerating objects: 2604, done.
remote: Counting objects: 100% (592/592), done.
remote: Compressing objects: 100% (264/264), done.
remote: Total 2604 (delta 324), reused 581 (delta 318), pack-reused 2012
Receiving objects: 100% (2604/2604), 4.87 MiB | 1.71 MiB/s, done.
Resolving deltas: 100% (1608/1608), done.
(internlm-demo) root@intern-studio:~/code# cd InternLM
(internlm-demo) root@intern-studio:~/code/InternLM# git checkout 3028f07c
b79e5b1d7342f4ad8d11efad3fd13d17
Note: switching to '3028f07cb79e5b1d7342f4ad8d11efad3fd13d17'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by switching back to a branch.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -c with the switch command. Example:

    git switch -c <new-branch-name>

Or undo this operation with:

    git switch -

Turn off this advice by setting config variable advice.detachedHead to fa
lse

HEAD is now at 3028f07 fix(readme): update README with original weight do
wnload link (#460)
(internlm-demo) root@intern-studio:~/code/InternLM#

```

Simple 1 \$ 0

root@intern-studio: ~/code/InternLM 1

2.3 代码准备

首先 clone 代码，在 /root 路径下新建 code 目录，然后切换路径, clone 代码.

```
cd /root/code
```

```
git clone https://gitee.com/internlm/InternLM.git
```

切换 commit 版本，与教程 commit 版本保持一致，可以让大家更好的复现。

```
cd InternLM
```

```
git checkout 3028f07cb79e5b1d7342f4ad8d11efad3fd13d17
```

将 /root/code/InternLM/web_demo.py 中 29 行和 33 行的模型更换为本地的 /root/model/Shanghai_AI_Laboratory/internlm-chat-7b。

CPU 1.57% GPU: Nvidia A100(1/4) 0%
内存 0.39 / 112 GB 0.35% 显存 0 / 40950 MiB 0%

File Edit View Run Kernel Tabs Settings Help

Filter files by name

/ code / InternLM /

Name	Last Modified
ci_scripts	1 minute ago
configs	1 minute ago
doc	1 minute ago
docker	1 minute ago
experiment	1 minute ago
internlm	1 minute ago
requireme...	1 minute ago
tests	1 minute ago
third_party	1 minute ago
tools	1 minute ago
CHANGE_...	1 minute ago
docker.Ma...	1 minute ago
LICENSE	1 minute ago
README-j...	1 minute ago
README-...	1 minute ago
README....	1 minute ago
sonar-proj...	1 minute ago
train.py	1 minute ago
version.txt	1 minute ago
web_dem...	1 minute ago

```
27 def load_model():
28     model = (
29         AutoModelForCausalLM.from_pretrained("/root/model/Shanghai
30         _AI_Laboratory/internlm-chat-7b", trust_remote_code=True)
31         .to(torch.bfloat16)
32         .cuda()
33     )
34     tokenizer =
35     AutoTokenizer.from_pretrained("/root/model/Shanghai_AI_Lab
36     oratory/internlm-chat-7b", trust_remote_code=True)
37     return model, tokenizer
38
39 def prepare_generation_config():
40     with st.sidebar:
41         max_length = st.slider("Max Length",
42         min_value=32, max_value=2048, value=2048)
43         top_p = st.slider("Top P", 0.0, 1.0, 0.8,
44         step=0.01)
45         temperature = st.slider("Temperature", 0.0, 1.0,
46         0.7, step=0.01)
47         st.button("Clear Chat History",
48         on_click=on_btn_click)
49
50     generation_config =
51     GenerationConfig(max_length=max_length, top_p=top_p,
52     temperature=temperature)
53
54     return generation_config
55
56 user_prompt = "<|User|>:{user}\n"
57 robot_prompt = "<|Bot|>:{robot}<eoa>\n"
58 cur_query_prompt = "<|User|>:{user}<eoh>\n<|Bot|>:"
59
60 def combine_history(prompt):
```

2.4 终端运行

我们可以在 /root/code/InternLM 目录下新建一个 cli_demo.py 文件，将以下代码填入其中：

```
import torch

from transformers import AutoTokenizer, AutoModelForCausalLM

model_name_or_path =

"/root/model/Shanghai_AI_Laboratory/internlm-chat-7b"

tokenizer = AutoTokenizer.from_pretrained(model_name_or_path,

trust_remote_code=True)

model =

AutoModelForCausalLM.from_pretrained(model_name_or_path,

trust_remote_code=True, torch_dtype=torch.bfloat16,

device_map='auto')

model = model.eval()

system_prompt = ""You are an AI assistant whose name is InternLM

(书生·浦语).

- InternLM (书生·浦语) is a conversational language model that is

developed by Shanghai AI Laboratory (上海人工智能实验室). It is

designed to be helpful, honest, and harmless.
```

- InternLM (书生·浦语) can understand and communicate fluently in the language chosen by the user such as English and 中文.

```
"""
```

```
messages = [(system_prompt, "")]
```

```
print("=====Welcome to InternLM chatbot, type 'exit' to  
exit.=====")
```

```
while True:
```

```
    input_text = input("User  >>> ")
```

```
    input_text = input_text.replace(' ', '')
```

```
    if input_text == "exit":
```

```
        break
```

```
    response, history = model.chat(tokenizer, input_text,
```

```
history=messages)
```

```
    messages.append((input_text, response))
```

```
    print(f"robot >>> {response}")
```

然后在终端运行以下命令，即可体验 InternLM-Chat-7B 模型的对话能力。

对话效果如下所示：

CPU 1.66%
内存 0.39 / 112 GB 0.35%

GPU: Nvidia A100(1/4) 0%
显存 0 / 40950 MiB 0%

File Edit View Run Kernel Tabs Settings Help

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Filter files by name 🔍

/ code / InternLM /

Name	Last Modified
ci_scripts	3 minutes ago
configs	3 minutes ago
doc	3 minutes ago
docker	3 minutes ago
experiment	3 minutes ago
internlm	3 minutes ago
requireme...	3 minutes ago
tests	3 minutes ago
third_party	3 minutes ago
tools	3 minutes ago
CHANGE_...	3 minutes ago
cli_demo.py	2 seconds ago
docker.Ma...	3 minutes ago
LICENSE	3 minutes ago
README-j...	3 minutes ago
README-...	3 minutes ago
README....	3 minutes ago
sonar-proj...	3 minutes ago
train.py	3 minutes ago
version.txt	3 minutes ago
web_dem...	59 seconds ago

rootx webx cli_cx Laurx Laurx dowx +

```
1 import torch
2 from transformers import AutoTokenizer,
  AutoModelForCausalLM
3
4
5 model_name_or_path =
  "/root/model/Shanghai_AI_Laboratory/internlm-chat-7b"
6
7 tokenizer =
  AutoTokenizer.from_pretrained(model_name_or_path,
    trust_remote_code=True)
8 model =
  AutoModelForCausalLM.from_pretrained(model_name_or_path,
    trust_remote_code=True, torch_dtype=torch.bfloat16,
    device_map='auto')
9 model = model.eval()
10
11 system_prompt = """You are an AI assistant whose name is
  InternLM (书生·浦语).
12 - InternLM (书生·浦语) is a conversational language model
  that is developed by Shanghai AI Laboratory (上海人工智能实验
  室). It is designed to be helpful, honest, and harmless.
13 - InternLM (书生·浦语) can understand and communicate
  fluently in the language chosen by the user such as
  English and 中文.
14 """
15
16 messages = [(system_prompt, '')]
17
18 print("=====Welcome to InternLM chatbot, type
  'exit' to exit.=====")
19
20 while True:
21     input_text = input("User >>> ")
22     input_text = input_text.replace(' ', '')
23     if input_text == "exit":
24         break
25     response, history = model.chat(tokenizer, input_text,
```

Ln 27. Col 35 Spaces: 4 cli_demo.py 1

Simple 1 0 Pvthn

配置本地端口

首先我们需要配置一下本地的 SSH Key，我们这里以 Windows 为例。

步骤①：在本地机器上打开 Power Shell 终端。在终端中，运行以下命令来生成 SSH 密钥对：（如下图所示）

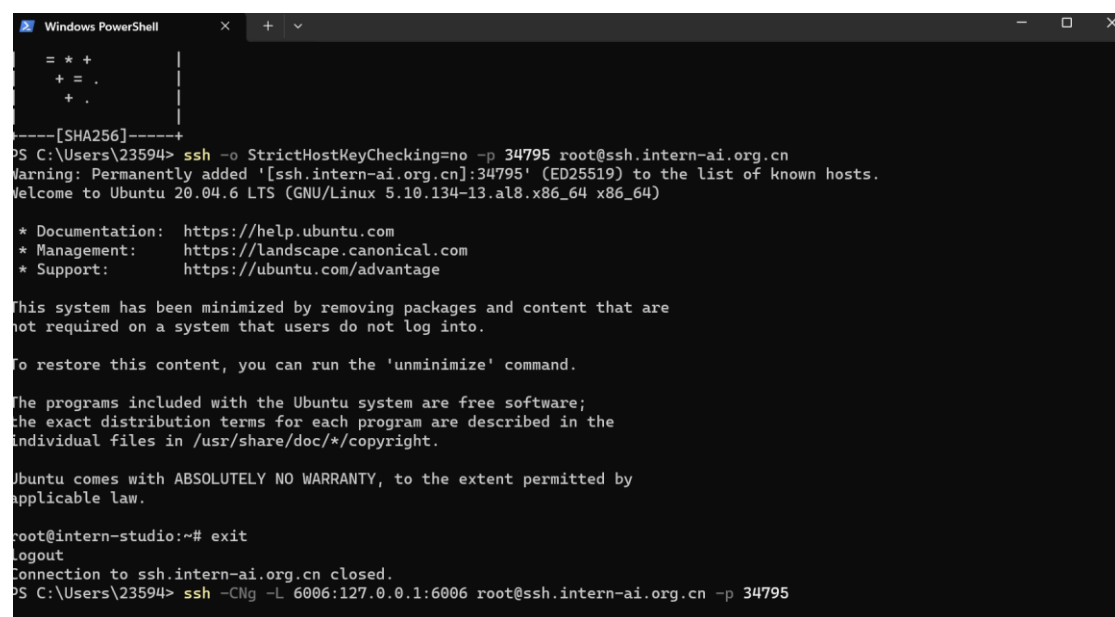
```
ssh-keygen -t rsa
```

步骤②：您将被提示选择密钥文件的保存位置，默认情况下是在 `~/.ssh/` 目录中。按 Enter 键接受默认值或输入自定义路径。

步骤③：公钥默认存储在 `~/.ssh/id_rsa.pub`，可以通过系统自带的 cat 工具查看文件内容：（如下图所示）

```
cat ~/.ssh/id_rsa.pub
```

`~` 是用户主目录的简写，`.ssh` 是 SSH 配置文件的默认存储目录，`id_rsa.pub` 是 SSH 公钥文件的默认名称。所以，`cat ~/.ssh/id_rsa.pub` 的意思是查看用户主目录下的 `.ssh` 目录中的 `id_rsa.pub` 文件的内容。



```
Windows PowerShell
PS C:\Users\23594> ssh -o StrictHostKeyChecking=no -p 34795 root@ssh.intern-ai.org.cn
Warning: Permanently added 'ssh.intern-ai.org.cn:34795' (ED25519) to the list of known hosts.
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.10.134-13.al8.x86_64 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

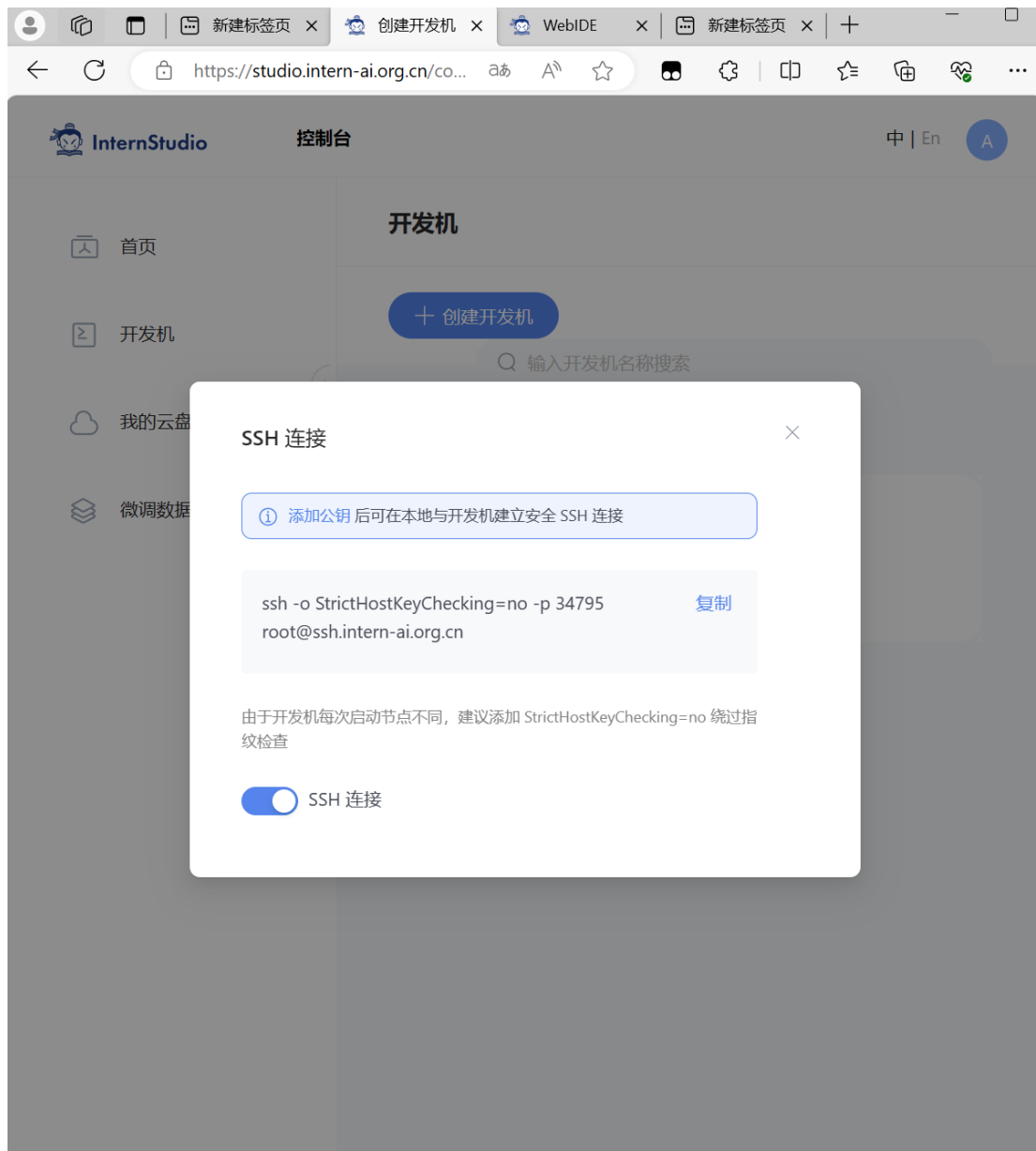
To restore this content, you can run the 'unminimize' command.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@intern-studio:~# exit
logout
Connection to ssh.intern-ai.org.cn closed.
PS C:\Users\23594> ssh -CNg -L 6006:127.0.0.1:6006 root@ssh.intern-ai.org.cn -p 34795
```

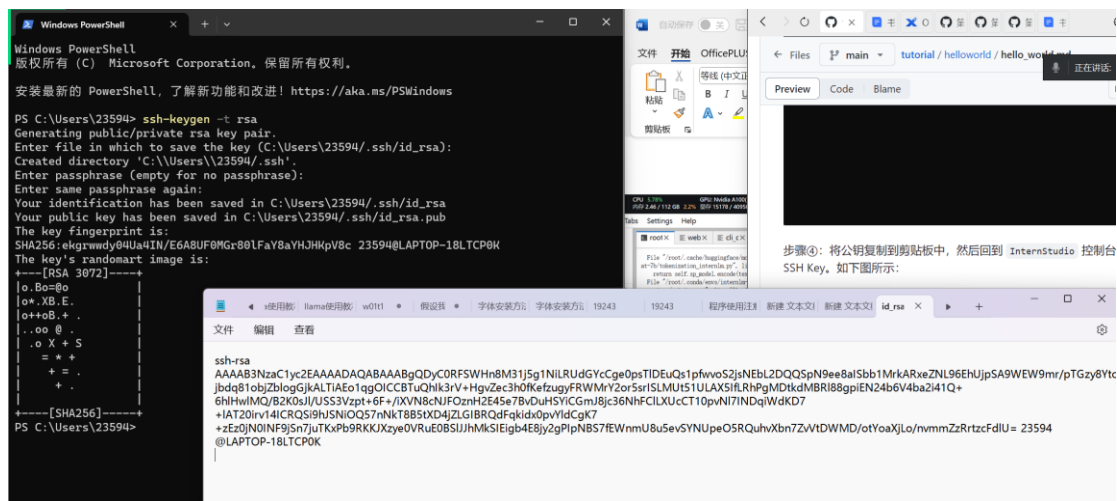
步骤④：将公钥复制到剪贴板中，然后回到 InternStudio 控制台，点击配置 SSH Key。



步骤⑤：将刚刚复制的公钥添加进入即可。

步骤⑥：在本地终端输入以下指令 .6006 是在服务器中打开的端口，而 33090 是根据开发机的端口进行更改。如下图所示：

```
ssh -CNg -L 6006:127.0.0.1:6006 root@ssh.intern-ai.org.cn -p 33090
```



2.5 web demo 运行

我们切换到 VScode 中，运行 /root/code/InternLM 目录下

的 web_demo.py 文件，输入以下命令后，将端口映射到本地。在本地浏览器输入 `http://127.0.0.1:6006` 即可。

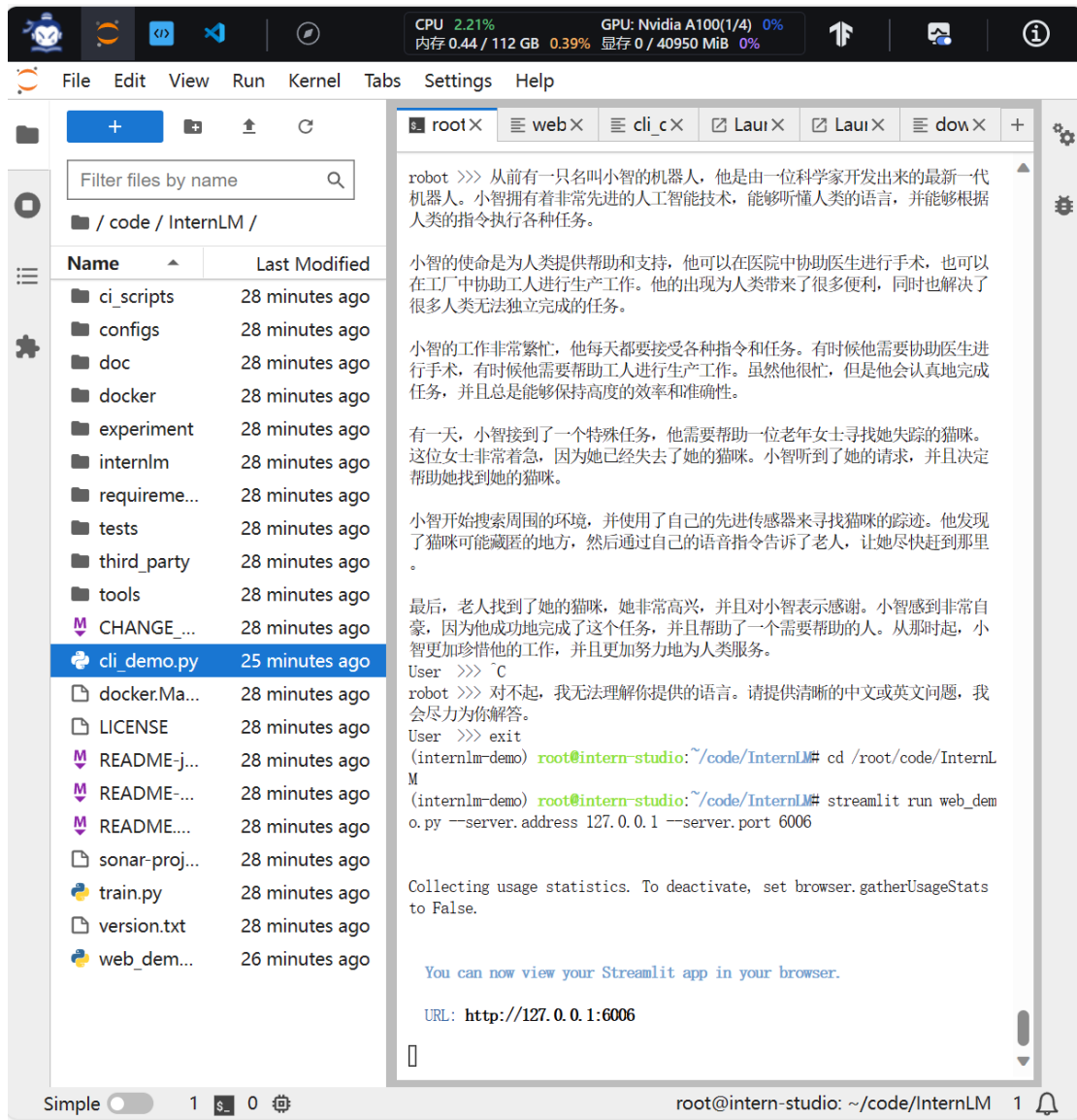
```
bash
```

```
conda activate internlm-demo # 首次进入 vscode 会默认是 base 环境，所以首先切换环境
```

```
cd /root/code/InternLM
```

```
streamlit run web_demo.py --server.address 127.0.0.1 --server.port 6006
```

注意：要在浏览器打开 `http://127.0.0.1:6006` 页面



在加载完模型之后，就可以与 InternLM-Chat-7B 进行对话了。

https://studio.intern-ai.org.cn/col... CPU 1.76% GPU: Nvidia A100(1/4) 0% 内存 0.40 / 112 GB 0.36% 显存 0 / 40950 MiB 0%

File Edit View Run Kernel Tabs Settings Help

Filter files by name

/ ... / lagent / examples /

Name	Last Modified
autogpt_e...	2 minutes ago
chat.py	2 minutes ago
hf_react_e...	2 minutes ago
react_exa...	2 minutes ago
react_web...	1 minute ago
react_web...	43 seconds ago
rewoo_exa...	2 minutes ago
turbomind...	2 minutes ago

```
oot/.conda/envs/internlm-demo/lib/python3.10/site-packages (from jsonschema->lagent==0.1.2) (2023.12.1)
Requirement already satisfied: referencing>=0.28.4 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from jsonschema->lagent==0.1.2) (0.32.1)
Requirement already satisfied: rpds-py>=0.7.1 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from jsonschema->lagent==0.1.2) (0.16.2)
Requirement already satisfied: charset-normalizer<4,>=2 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from requests->lagent==0.1.2) (2.0.4)
Requirement already satisfied: idna<4,>=2.5 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from requests->lagent==0.1.2) (3.4)
Requirement already satisfied: urllib3<3,>=1.21.1 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from requests->lagent==0.1.2) (1.26.18)
Requirement already satisfied: certifi>=2017.4.17 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from requests->lagent==0.1.2) (2023.11.17)
Requirement already satisfied: regex>=2022.1.18 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from tiktoken->lagent==0.1.2) (2023.12.25)
Building wheels for collected packages: func_timeout
  Building wheel for func_timeout (setup.py) ... done
  Created wheel for func_timeout: filename=func_timeout-4.3.5-py3-none-any.whl size=15080 sha256=718f90ccfa96af71810eb84ec16f982b9e25564e9c5d58fb96dc21691c442018
  Stored in directory: /root/.cache/pip/wheels/b6/7d/e1/481b414548217ccfe53434596f173efbb32fe82fe28ae2f2d
Successfully built func_timeout
Installing collected packages: func_timeout, distro, tiktoken, lagent
  Running setup.py develop for lagent
Successfully installed distro-1.9.0 func_timeout-4.3.5 lagent-0.1.2 tiktoken-0.5.2
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
(internlm-demo) root@intern-studio: ~/code/lagent# streamlit run /root/code/lagent/examples/react_web_demo.py --server.address 127.0.0.1 --server.port 6006
```

The screenshot shows a JupyterLab interface with a file explorer on the left and a terminal/output window on the right.

File Explorer:

Name	Last Modified
autogpt_e...	2 minutes ago
chat.py	2 minutes ago
hf_react_e...	2 minutes ago
react_exa...	2 minutes ago
react_web...	1 minute ago
react_web...	53 seconds ago
rewoo_exa...	2 minutes ago
turbomind...	2 minutes ago

Terminal Output:

```
nvs/internlm-demo/lib/python3.10/site-packages (from requests->lagent==0.1.2) (2.0.4)
Requirement already satisfied: idna<4,>=2.5 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from requests->lagent==0.1.2) (3.4)
Requirement already satisfied: urllib3<3,>=1.21.1 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from requests->lagent==0.1.2) (1.26.18)
Requirement already satisfied: certifi>=2017.4.17 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from requests->lagent==0.1.2) (2023.11.17)
Requirement already satisfied: regex>=2022.1.18 in /root/.conda/envs/internlm-demo/lib/python3.10/site-packages (from tiktoken->lagent==0.1.2) (2023.12.25)
Building wheels for collected packages: func_timeout
  Building wheel for func_timeout (setup.py) ... done
  Created wheel for func_timeout: filename=func_timeout-4.3.5-py3-none-any.whl size=15080 sha256=718f90ccfa96af71810eb84ec16f982b9e25564e9c5d58fb96dc21691c442018
  Stored in directory: /root/.cache/pip/wheels/b6/7d/e1/481b414548217ccfe53434596f173efbb32fe82fe28ae2f2d
Successfully built func_timeout
Installing collected packages: func_timeout, distro, tiktoken, lagent
  Running setup.py develop for lagent
Successfully installed distro-1.9.0 func_timeout-4.3.5 lagent-0.1.2 tiktoken-0.5.2
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
(nvs/internlm-demo) root@intern-studio: ~/code/lagent# streamlit run /root/conda/envs/lagent/examples/react_web_demo.py --server.address 127.0.0.1 --server.port 6006
Collecting usage statistics. To deactivate, set browser.gatherUsageStats to False.

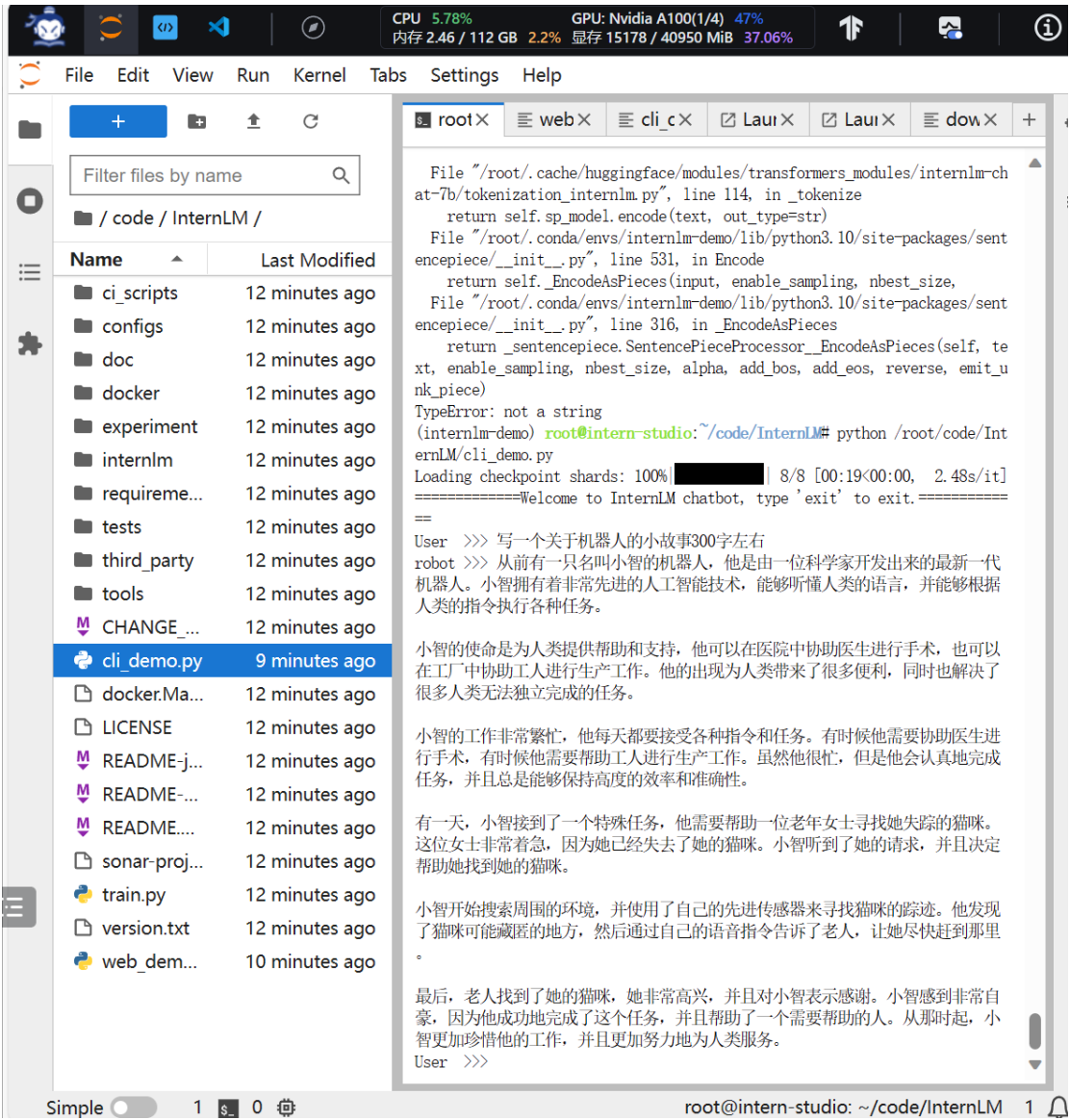
You can now view your Streamlit app in your browser.

URL: http://127.0.0.1:6006
```

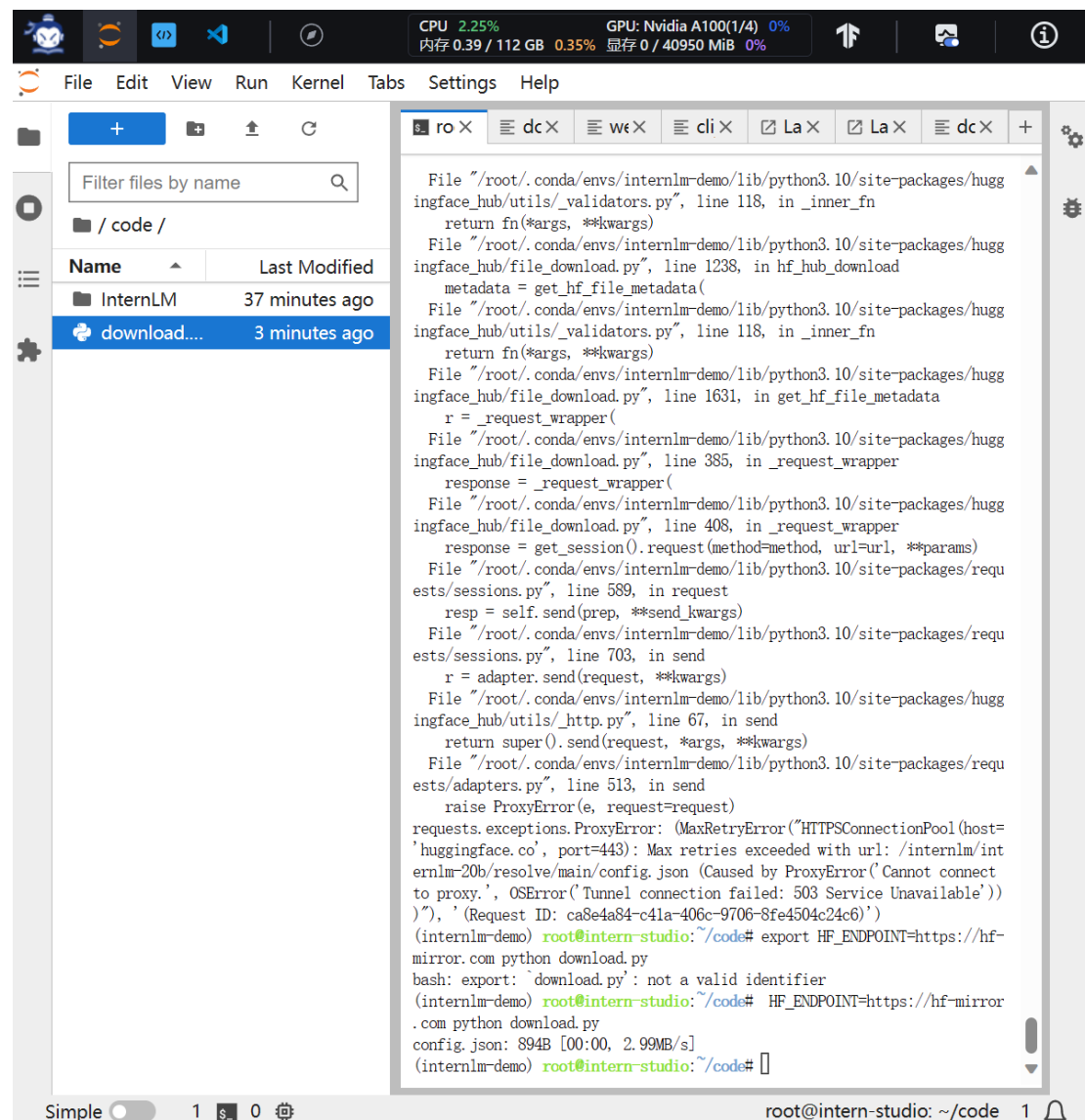

课后作业：

基础作业：

使用 InternLM-Chat-7B 模型生成 300 字的小故事：



熟悉 hugging face 下载功能，使用 huggingface_hub python 包，下载 InternLM-20B 的 config.json 文件到本地：



```
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/huggingface_hub/utils/_validators.py", line 118, in _inner_fn
    return fn(*args, **kwargs)
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/huggingface_hub/file_download.py", line 1238, in hf_hub_download
    metadata = get_hf_file_metadata(
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/huggingface_hub/utils/_validators.py", line 118, in _inner_fn
    return fn(*args, **kwargs)
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/huggingface_hub/file_download.py", line 1631, in get_hf_file_metadata
    r = _request_wrapper(
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/huggingface_hub/file_download.py", line 385, in _request_wrapper
    response = _request_wrapper(
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/huggingface_hub/file_download.py", line 408, in _request_wrapper
    response = get_session().request(method=method, url=url, **params)
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/requests/sessions.py", line 589, in request
    resp = self.send(prepare, **send_kwargs)
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/requests/sessions.py", line 703, in send
    r = adapter.send(request, **kwargs)
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/huggingface_hub/utils/_http.py", line 67, in send
    return super().send(request, *args, **kwargs)
File "/root/.conda/envs/internlm-demo/lib/python3.10/site-packages/requests/adapters.py", line 513, in send
    raise ProxyError(e, request=request)
requests.exceptions.ProxyError: (MaxRetryError("HTTPSConnectionPool(host='huggingface.co', port=443): Max retries exceeded with url: /internlm/internlm-20b/resolve/main/config.json (Caused by ProxyError('Cannot connect to proxy.', OSError('Tunnel connection failed: 503 Service Unavailable'))")), ' (Request ID: ca8e4a84-c41a-406c-9706-8fe4504c24c6)')
(internlm-demo) root@intern-studio:~/code# export HF_ENDPOINT=https://hf-mirror.com python download.py
bash: export: `download.py': not a valid identifier
(internlm-demo) root@intern-studio:~/code# HF_ENDPOINT=https://hf-mirror.com python download.py
config.json: 894B [00:00, 2.99MB/s]
(internlm-demo) root@intern-studio:~/code#
```

进阶作业：

完成浦语·灵笔的图文理解及创作部署：

模型选择:
internlm

插件选择
PythonInterpreter x

清空对话

上传文件
Drag and drop file here
Limit 200MB per file • PNG, JPG, JPEG, MP4, MP3, WAV, MPEG4
Browse files

2x+5=95, 求x

PythonInterpreter

插 件: PythonInterpreter

思考步骤: 这是一道数学计算题, 我们可以用一元一次方程进行解决. 根据题意得: $2x+5=95$,

执行内容:

```
def solution():  
    from sympy import symbols, Eq, solve  
    x = symbols("x", real=True)  
    result = solve(Eq(2*x + 5, 95), x, dict=True)  
    return result
```

执行结果:
[[x: 45]]

FinishAction

插 件: FinishAction

思考步骤: Base on the result of the code, the answer is:

++ -- --

模型选择:
internlm

插件选择
PythonInterpreter x

清空对话

上传文件
Drag and drop file here
Limit 200MB per file • PNG, JPG, JPEG, MP4, MP3, WAV, MPEG4
Browse files

执行内容:

```
def solution():  
    from sympy import symbols, Eq, solve  
    x = symbols("x", real=True)  
    result = solve(Eq(2*x + 5, 95), x, dict=True)  
    return result
```

执行结果:
[[x: 45]]

FinishAction

插 件: FinishAction

思考步骤: Base on the result of the code, the answer is:

执行内容:
x=45

执行结果:
x=45

x=45

完成 Lagent 工具调用 Demo 创作部署：

The screenshot displays the Lagent Studio web interface. The top navigation bar includes icons for various tools and a status bar showing system resources: CPU 2.31%, GPU: Nvidia A100(1/4) 0%, Memory 2.68 / 112 GB, and VRAM 15164 / 40950 MiB. The main interface is divided into three sections: a file explorer on the left, a file list in the center, and a terminal on the right.

File Explorer: Shows the directory structure, including a search bar and a list of files.

File List: A table listing files and their last modified times.

Name	Last Modified
autogpt_e...	39 minutes ago
chat.py	39 minutes ago
hf_react_e...	39 minutes ago
react_exa...	39 minutes ago
react_web...	38 minutes ago
react_web...	38 minutes ago
rewoo_exa...	39 minutes ago
turbomind...	39 minutes ago

Terminal: Displays the output of a pip install command for the 'lit' package. The output shows the installation progress, including downloading the package, installing build dependencies, and successfully installing the package.

```
eff70482530396830a4alc32e7b2cebbbd9b95742331704e8d/lit-17.0.6.tar.gz (153 kB)
153.0/153.0 kB 24.6 MB/s et
a 0:00:00
Installing build dependencies ... done
Getting requirements to build wheel ... done
Installing backend dependencies ... done
Preparing metadata (pyproject.toml) ... done
Requirement already satisfied: typing-extensions in /root/.local/lib/python3.10/site-packages (from torch->triton) (4.9.0)
Requirement already satisfied: sympy in /share/conda_envs/interlm-base/lib/python3.10/site-packages (from torch->triton) (1.11.1)
Requirement already satisfied: networkx in /share/conda_envs/interlm-base/lib/python3.10/site-packages (from torch->triton) (3.1)
Requirement already satisfied: Jinja2 in /share/conda_envs/interlm-base/lib/python3.10/site-packages (from torch->triton) (3.1.2)
Requirement already satisfied: MarkupSafe>=2.0 in /share/conda_envs/interlm-base/lib/python3.10/site-packages (from Jinja2->torch->triton) (2.1.1)
Requirement already satisfied: mpmath>=0.19 in /share/conda_envs/interlm-base/lib/python3.10/site-packages (from sympy->torch->triton) (1.3.0)
Building wheels for collected packages: lit
Building wheel for lit (pyproject.toml) ... done
Created wheel for lit: filename=lit-17.0.6-py3-none-any.whl size=93255 sha256=ca69d0a785eb2f62ddb6030051655f6dac6ea2e2d0cf73429479ecb2ae1185fd
Stored in directory: /root/.cache/pip/wheels/69/85/9a/62d1c10d45951bad04bc190dde97a712bdlb4c76200a642dfa
Successfully built lit
Installing collected packages: lit, cmake
Successfully installed cmake-3.28.1 lit-17.0.6
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
(xcomposer-demo) root@intern-studio: ~/code/lagent/examples# mkdir -p /root/model/Shanghai_AI_Laboratory
(xcomposer-demo) root@intern-studio: ~/code/lagent/examples# cp -r /root/share/temp/model_repos/interlm-xcomposer-7b /root/model/Shanghai_AI_Laboratory
(xcomposer-demo) root@intern-studio: ~/code/lagent/examples#
(xcomposer-demo) root@intern-studio: ~/code/lagent/examples#
```

Write Interleaved-text-image Article (创作图文并茂文章)Multimodal Chat (多模态对话)

Write an illustrated article based on the given title:
又见敦煌

Submit

Select the number of the inserted image after article generation.
3

Insert a fixed number of images

Advanced Settings

Examples

又见敦煌

星链新闻稿


如何养好一只宠物

Shanghai Travel Guide in English

Travel guidance of London in English

Advertising for Genshin Impact in English

敦煌，位于甘肃省西北部，地处河西走廊西端，是古代丝绸之路上的重要交通枢纽和商埠重镇。它拥有着丰富的历史文化遗产，包括莫高窟、鸣沙山月牙泉、雅丹魔鬼城等著名景点。同时，敦煌也是中国历史文化名城之一，有着深厚的文化底蕴和独特的民俗风情。



一、莫高窟

莫高窟，又名“千佛洞”，是中国四大石窟之一，始建于十六国的前秦时期，距今已有1600多年的历史。它是世界上现存规模最大、内容最丰富的佛教艺术宝库，被誉为“东方卢浮宫”。莫高窟内共有735个洞窟，壁画总面积达45000多平方米，彩塑佛像5000余尊，是世界上最大的佛教艺术中心之一。在这里，游客可以欣赏到精美的壁画、雕塑和音乐表演，感受佛教文化的博大精深。



二、鸣沙山月牙泉

鸣沙山月牙泉是一处自然奇观，位于敦煌市西北约40公里处的沙漠中。这里地势平坦，沙丘连绵起伏，形成了一片广袤无垠的沙漠景观。而月牙泉则静静地镶嵌在这片沙漠之中，泉水清澈见底，形状如新月，故称“月牙泉”。每到夜晚，月亮升起时，月牙泉周围会发出阵阵清脆的响声，犹如天籁之音，令人心旷神怡。

←

🔄

⚠️ 不安全 | 0.0.0.0:6006

又见青岛

2018年5月1日，我们一家三口从北京出发，坐高铁前往青岛。这次是第二次去青岛了，上一次是在2016年夏天，也是带着孩子一起去的。当时因为时间有限，只去了栈桥、五四广场和奥帆中心等几个地方，所以对青岛的印象并不是特别深刻。这一次来青岛，我们的行程安排得比较松散，主要目的是带孩子玩一玩，感受下海滨城市的魅力。下面简单记录一下这几天在青岛的所见所闻吧。

第一天

早上7点多到达青岛北站，出站后直接乘坐地铁2号线到海泊桥站下车，然后步行10多分钟就到了住的酒店——如家快捷酒店（青岛火车站东步行街店）。这家酒店的位置非常好，距离地铁站非常近，而且旁边就是台东步行街，吃喝玩乐都非常方便。我们在携程上提前预定了这个酒店，价格很实惠，一晚才不到200元。酒店的房间不大，设施也比较陈旧，但胜在干净整洁，床品也很舒适，整体感觉还不错。放下行李后，我们就迫不及待地出门开始逛吃逛吃之旅了。



第一站：劈柴院小吃街



第二站：信号山公园

吃完午饭之后，我们来到信号山公园游玩。信号山公园位于青岛市市南区中部，海拔约100米，是一个集观光、休闲、娱乐于一体的综合性公园。登上山顶，可以俯瞰整个青岛市的全貌，景色非常壮观。此外，这里还有一个旋转观景台，可以在上面360度无死角地欣赏青岛的美景。可惜的是，我们去的时候天气不太好，天空阴沉沉的，拍出来的照片效果不太理想。





InternLM-XComposer

中文

Write Interleaved-text-image Article (创作图文并茂文章)

Multimodal Chat (多模态对话)

Image

拖放图片至此处
- 或 -
点击上传

Parameters

Max output tokens 512

Beam Size 3

Repetition_penalty 1

☒ Do_sample

Chatbot



请你回答以下三个问题：1，图上有几个人，2，他们在干什么，3，他们是哪个乐队？

1，图上有两个人。2，他们在表演，跳着舞。3，他们是皇后乐队 (Queen)。