

### 第三周

1. 我的电脑的 ubuntu 中已经配置过 conda init，如下

```
(base) sherry@LAPTOP-05T5IN81:~$ which conda
/home/sherry/miniconda3/bin/conda
(base) sherry@LAPTOP-05T5IN81:~$
```

2. 运行了 conda info，如下图，将显示的信息交给 AI 分析之后，我发现我配置了清华大学的镜像源，故我搜索了镜像源的作用：（1）加速下载：将海外官方源的软件包（如 Python、Conda、Docker 镜像等）同步到国内服务器，用户从国内节点下载速度更快。（2）降低延迟：减少因跨国网络不稳定导致的下载失败或速度慢的问题。（3）支持开源社区：为国内开发者、科研人员提供高效的开源资源访问渠道。

```
(base) sherry@LAPTOP-05T5IN81:~$ conda info

active environment : base
active env location : /home/sherry/miniconda3
shell level : 1
user config file : /home/sherry/.condarc
populated config files : /home/sherry/.condarc
conda version : 22.9.0
conda-build version : not installed
python version : 3.9.13.final.0
virtual packages : __cuda=11.4=0
                  __linux=5.10.16.3=0
                  __glibc=2.35=0
                  __unix=0=0
                  __archspec=1=x86_64
base environment : /home/sherry/miniconda3 (writable)
conda av data dir : /home/sherry/miniconda3/etc/conda
conda av metadata url : None
channel URLs : https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud/conda-forge/linux-64
               https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud/conda-forge/noarch
               https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/main/linux-64
               https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/main/noarch
               https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/r/linux-64
               https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/r/noarch
               https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/msys2/linux-64
               https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/msys2/noarch
package cache : /home/sherry/miniconda3/pkg
                 /home/sherry/.conda/pkg
envs directories : /home/sherry/miniconda3/envs
                  /home/sherry/.conda/envs
platform : linux-64
user-agent : conda/22.9.0 requests/2.28.1 CPython/3.9.13 Linux/5.10.16.3-microsoft-s
tandard-WSL2 ubuntu/22.04.1 glibc/2.35
UID:GID : 1000:1000
netrc file : None
offline mode : False
```

3. 运行 conda env list 后，我看到我当前有三个 Conda 环境：base：默认环境，当前已激活。e0101-terminal：自定义环境。pystudy：自定义环境。通过搜索后，我了解到 Conda 环境是一个隔离的目录，其中包含特定项目所需的 Python 解释器、软件包及其依赖项。可以把 Conda 环境想象成一个独立的“容器”，每个容器都有自己的 Python 环境和软件包。

```
(base) sherry@LAPTOP-05T5IN81:~$ conda env list
# conda environments:
#
base                  *  /home/sherry/miniconda3
e0101-terminal        /home/sherry/miniconda3/envs/e0101-terminal
pystudy               /home/sherry/miniconda3/envs/pystudy
```

4. 使用命令 conda create -n aaa python=3.12 requests 安装名为 aaa 的 Python 3.12 和 requests 软件包，如下图 1 这个环境位于/home/sherry/miniconda3/envs/aaa。。另一个里面安装了名为 bbd 的 Python 3.9、pandas 和 statsmodels 软件包

```
(base) sherry@LAPTOP-05T5IN81:~$ conda create -n aaa python=3.12 requests
Collecting package metadata (current_repodata.json): /
done
Solving environment: done
```

```
==> WARNING: A newer version of conda exists. <==
current version: 22.9.0
latest version: 25.1.1
```

Please update conda by running

```
$ conda update -n base -c conda-forge conda
```

## ## Package Plan ##

environment location: /home/sherry/miniconda3/envs/aaa

added / updated specs:

- python=3.12
- requests

The following packages will be downloaded:

package	build		
-----	-----		
brotli-python-1.1.0	py312h2ec8cdc_2	342 KB	conda-forge
bzip2-1.0.8	h4bc722e_7	247 KB	conda-forge
ca-certificates-2025.1.31	hbcca054_0	154 KB	conda-forge
certifi-2025.1.31	pyhd8ed1ab_0	159 KB	conda-forge
cffi-1.17.1	py312h06ac9bb_0	288 KB	conda-forge
charset-normalizer-3.4.1	pyhd8ed1ab_0	46 KB	conda-forge
h2-4.2.0	pyhd8ed1ab_0	53 KB	conda-forge
hpack-4.1.0	pyhd8ed1ab_0	30 KB	conda-forge
hyperframe-6.1.0	pyhd8ed1ab_0	17 KB	conda-forge
idna-3.10	pyhd8ed1ab_1	49 KB	conda-forge
ld_impl_linux-64-2.43	h712a8e2_4	656 KB	conda-forge
libexpat-2.6.4	h5888daf_0	72 KB	conda-forge
libffi-3.4.6	h2dba641_0	52 KB	conda-forge
libgcc-14.2.0	h767d61c_2	828 KB	conda-forge
libgcc-ng-14.2.0	h69a702a_2	52 KB	conda-forge
libgomp-14.2.0	h767d61c_2	449 KB	conda-forge
liblzma-5.6.4	hb9d3cd8_0	109 KB	conda-forge
libssl-2.0.1	hd590300_0	33 KB	conda-forge

```
(base) sherry@LAPTOP-05T5IN81:~$ conda create -n bbb python=3.9 pandas statsmodels
Collecting package metadata (current_repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
  current version: 22.9.0
  latest version: 25.1.1

Please update conda by running

  $ conda update -n base -c conda-forge conda

## Package Plan ##

  environment location: /home/sherry/miniconda3/envs/bbb

  added / updated specs:
    - pandas
    - python=3.9
    - statsmodels

The following packages will be downloaded:
```

package	build		
libblas-3.9.0	31_h59b9bed_openblas	16 KB	conda-forge
libcblas-3.9.0	31_he106b2a_openblas	16 KB	conda-forge
libgfortran-14.2.0	h69a702a_2	52 KB	conda-forge
libgfortran-ng-14.2.0	h69a702a_2	53 KB	conda-forge
libgfortran5-14.2.0	hf1ad2bd_2	1.4 MB	conda-forge
liblapack-3.9.0	31_h7ac8fdf_openblas	16 KB	conda-forge
libopenblas-0.3.29	pthread_h94d23a6_0	5.6 MB	conda-forge
libstdcxx-ng-14.2.0	h4852527_2	53 KB	conda-forge
numpy-2.0.2	py39h9cb892a_1	7.6 MB	conda-forge
packaging-24.2	pyhd8ed1ab_2	59 KB	conda-forge
pandas-2.2.3	py39h3b40f6f_2	12.3 MB	conda-forge
patsy-1.0.1	pyhd8ed1ab_1	182 KB	conda-forge
python-3.9.21	h9c0c6dc_1_cpython	22.5 MB	conda-forge
python-dateutil-2.9.0.post0	pyhff2d567_1	217 KB	conda-forge
python-tzdata-2025.1	pyhd8ed1ab_0	140 KB	conda-forge
python_abi-3.9	5_cp39	6 KB	conda-forge
pytz-2024.1	pyhd8ed1ab_0	184 KB	conda-forge
scipy-1.13.1	py39haf93ffa_0	15.8 MB	conda-forge
six-1.17.0	pyhd8ed1ab_0	16 KB	conda-forge

5.运行了 conda env list 后，可看到我各个环境的位置

```
(base) sherry@LAPTOP-05T5IN81:~$ conda env list
# conda environments:
#
base                *  /home/sherry/miniconda3
aaa                  /home/sherry/miniconda3/envs/aaa
bbb                  /home/sherry/miniconda3/envs/bbb
e0101-terminal       /home/sherry/miniconda3/envs/e0101-terminal
pystudy              /home/sherry/miniconda3/envs/pystudy
```

5. 如下图，可成功在各个环境之间切换，python 的版本是 3.9.13

```
(base) sherry@LAPTOP-05T5IN81:~$ conda activate aaa
(aaa) sherry@LAPTOP-05T5IN81:~$ conda activate bbb
(bbb) sherry@LAPTOP-05T5IN81:~$ conda activate base
(base) sherry@LAPTOP-05T5IN81:~$ python --version
Python 3.9.13
(base) sherry@LAPTOP-05T5IN81:~$
```



## 6. 通过 conda install 下载了 ipython

```
(base) sherry@LAPTOP-05T5IN81:~$ conda install ipython
Collecting package metadata (current_repodata.json): done
Solving environment: -

Downloading and Extracting Packages
pickleshare-0.7.5      | 11 KB | #####
asttokens-3.0.0       | 28 KB | #####
jedi-0.19.2           | 824 KB | #####
pexpect-4.9.0         | 52 KB | #####
parso-0.8.4           | 74 KB | #####
wcwidth-0.2.13        | 32 KB | #####
pygments-2.19.1       | 868 KB | #####
backcall-0.2.0        | 13 KB | #####
pure_eval-0.2.3       | 16 KB | #####
traitlets-5.14.3      | 107 KB | #####
pluggy-1.5.0         | 23 KB | #####
executing-2.1.0       | 28 KB | #####
decorator-5.2.1       | 14 KB | #####
ruamel.yaml-0.17.40   | 192 KB | #####
stack_data-0.6.3      | 26 KB | #####
conda-22.11.1         | 904 KB | #####
matplotlib-inline-0. | 14 KB | #####
ptyprocess-0.7.0      | 19 KB | #####
typing_extensions-4. | 39 KB | #####
ruamel.yaml.clib-0.2 | 142 KB | #####
ipython-8.12.0        | 568 KB | #####
prompt_toolkit-3.0.5 | 7 KB | #####
prompt-toolkit-3.0.5 | 266 KB | #####
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
Retrieving notices: ...working... done
```

## 7. 配置 Anaconda 清华镜像, 加快 conda install 安装软件包的速度, 将 conda-forge 设置为默认 Channel

```
Users > admin > ! .condarc
```

```
1 channels:
2 | - conda-forge
3 show_channel_urls: true
4 default_channels:
5 | - https://mirrors.tuna.tsinghua
6 | - https://mirrors.tuna.tsinghua
7 | - https://mirrors.tuna.tsinghua
8 custom_channels:
9 | conda-forge: https://mirrors.t
10 | pytorch: https://mirrors.tuna.
11 channel_priority:strict
```

```
libzlib          conda-forge/linux-64::libzlib-1.3.1-hb9d3cd8_2
ncurses          conda-forge/linux-64::ncurses-6.5-h2d0b736_3
numpy            conda-forge/linux-64::numpy-2.2.4-py313h17eae1a_0
openssl          conda-forge/linux-64::openssl-3.4.1-h7b32b05_0
pip              conda-forge/noarch::pip-25.0.1-pyh145f28c_0
python           conda-forge/linux-64::python-3.13.2-hf636f53_101_cp313
python_abi       conda-forge/linux-64::python_abi-3.13-5_cp313
readline         conda-forge/linux-64::readline-8.2-h8c095d6_2
tk               conda-forge/linux-64::tk-8.6.13-noxft_h4845f30_101
tzdata           conda-forge/noarch::tzdata-2025b-h78e105d_0
```

```
Proceed ([y]/n)?
```

```
Downloading and Extracting Packages
```

```
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate myenv
#
# To deactivate an active environment, use
#
#     $ conda deactivate
```

8.使用 `pip install` 命令往 Conda 环境里安装 tushare 软件包，并验证版本



```
(base) sherry@LAPTOP-05T5IN81:~$ pip install tushare
Collecting tushare
  Downloading tushare-1.4.19-py3-none-any.whl (142 kB)
    142.7/142.7 kB 893.6 kB/s eta 0:00:00
Collecting lxml
  Downloading lxml-5.3.1-cp39-cp39-manylinux_2_28_x86_64.whl (5.2 MB)
    5.2/5.2 MB 5.1 MB/s eta 0:00:00
Requirement already satisfied: requests in ./miniconda3/lib/python3.9/site-packages (from tushare) (2.28.1)
Requirement already satisfied: tqdm in ./miniconda3/lib/python3.9/site-packages (from tushare) (4.64.1)
Collecting websocket-client>=0.57.0
  Downloading websocket_client-1.8.0-py3-none-any.whl (58 kB)
    58.8/58.8 kB 2.4 MB/s eta 0:00:00
Collecting bs4
  Downloading bs4-0.0.2-py2.py3-none-any.whl (1.2 kB)
Collecting simplejson
  Downloading simplejson-3.20.1-cp39-cp39-manylinux_2_5_x86_64_manylinux1_x86_64_manylinux_2_17_x86_64_manylinux2014_x86_64.whl (137 kB)
    137.4/137.4 kB 5.3 MB/s eta 0:00:00
Collecting pandas
  Downloading pandas-2.2.3-cp39-cp39-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (13.1 MB)
    13.1/13.1 MB 3.4 MB/s eta 0:00:00
Collecting beautifulsoup4
  Downloading beautifulsoup4-4.13.3-py3-none-any.whl (186 kB)
    186.0/186.0 kB 1.5 MB/s eta 0:00:00
Collecting numpy>=1.22.4
  Downloading numpy-2.0.2-cp39-cp39-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (19.5 MB)
    19.5/19.5 MB 994.9 kB/s eta 0:00:00
Collecting python-dateutil>=2.8.2
  Downloading python_dateutil-2.9.0.post0-py2.py3-none-any.whl (229 kB)
    229.9/229.9 kB 1.1 MB/s eta 0:00:00
Collecting tzdata>=2022.7
  Downloading tzdata-2025.2-py2.py3-none-any.whl (347 kB)
    347.8/347.8 kB 1.1 MB/s eta 0:00:00
```

```
(base) sherry@LAPTOP-05T5IN81:~$ python
Python 3.9.13 | packaged by conda-forge | (main, May 27 2022, 16:58:50)
[GCC 10.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import tushare
>>> tushare.__version__
'1.4.19'
>>>
```

9. 导出 environment.yml Conda 环境配置文件，能够删除 Conda 环境，能够用 environment.yml 配置文件重建 Conda 环境。遇到的问题：确认已删除 prj1 环境，但是重建时系统提示仍然存在同名环境，故我参考 help 文件，在命令中加入了--force，强行覆盖已有环境

```
(base) sherry@LAPTOP-05T5IN81:~$ conda env list
# conda environments:
#
base                  *  /home/sherry/miniconda3
aaa                   /home/sherry/miniconda3/envs/aaa
bbb                   /home/sherry/miniconda3/envs/bbb
e0101-terminal        /home/sherry/miniconda3/envs/e0101-terminal
myenv                 /home/sherry/miniconda3/envs/myenv
prj1                   /home/sherry/miniconda3/envs/prj1
pystudy               /home/sherry/miniconda3/envs/pystudy

(base) sherry@LAPTOP-05T5IN81:~$ conda activate prj1
(prj1) sherry@LAPTOP-05T5IN81:~$ pip install tushare
Command 'pip' not found, but can be installed with:
sudo apt install python3-pip
(prj1) sherry@LAPTOP-05T5IN81:~$ conda env export -f environment.yml
(prj1) sherry@LAPTOP-05T5IN81:~$ conda deactivate
(base) sherry@LAPTOP-05T5IN81:~$ conda env list
# conda environments:
#
base                  *  /home/sherry/miniconda3
aaa                   /home/sherry/miniconda3/envs/aaa
bbb                   /home/sherry/miniconda3/envs/bbb
e0101-terminal        /home/sherry/miniconda3/envs/e0101-terminal
myenv                 /home/sherry/miniconda3/envs/myenv
prj1                   /home/sherry/miniconda3/envs/prj1
pystudy               /home/sherry/miniconda3/envs/pystudy

(base) sherry@LAPTOP-05T5IN81:~$ conda env remove -n prj1
```

```
(base) sherry@LAPTOP-05T5IN81:~$ conda env create --force -f environment.yml
Collecting package metadata (repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
  current version: 22.11.1
  latest version: 25.1.1

Please update conda by running

  $ conda update -n base -c conda-forge conda

Or to minimize the number of packages updated during conda update use

  conda install conda=25.1.1

Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate prj1
#
# To deactivate an active environment, use
#
#     $ conda deactivate
```

10.

#### (1) .Conda 与 Python

- Conda 是跨平台环境与包管理器，可安装 Python 解释器、Python 包（如 NumPy）及非 Python 工具（如 FFmpeg）。
- 每个 Conda 环境隔离 Python 版本和依赖，避免冲突。

#### (2) .Conda-Forge 与 Conda

- Conda 默认从 Anaconda 官方仓库下载包（稳定但较少）。
- Conda-Forge 是社区维护的扩展仓库，包更全、更新更快，通过 `-c conda-forge` 指定使用。

#### (3) .Python 解释器 & PyPI

- Python 解释器：执行代码的核心程序，不同环境可绑定不同版本（如 3.8 或 3.9）。
- PyPI：Python 官方包仓库，`pip` 默认从此安装纯 Python 包（如 `requests`），不处理非 Python 依赖。

#### (4) . 路径管理

- Conda 环境路径：
- 环境内所有内容（Python、包、工具）存储在 `envs/环境名/` 下，与系统和其他环境隔离。
- 激活环境时，优先使用环境内的工具和包。

#### (5) Conda vs pip/PyPI

Conda	pip/PyPI
管理 Python + 非 Python 包	仅 Python 包
严格解决依赖冲突	依赖冲突更常见
内置环境隔离	需借助其他工具

一句话总结：

Conda 是“全能管家”，管理 Python、非 Python 工具及环境；PyPI 是“Python 专属商店”，由 `pip` 负责搬运。

11.按照 教程 创建项目目录，在 VS Code 文本编辑器里安装一些支持 Python 开发的常用扩展，编写 main.py 脚本，创建该项目专用的 Conda 环境，在终端里激活该环境并成功运行该脚本，可以看到结果 6.41% 的美国居民居住在高度适宜步行的社区中

```
(base) sherry@LAPTOP-05T5IN81:~$ cd myproject
(base) sherry@LAPTOP-05T5IN81:~/myproject$ ls -l
总用量 4
-rw-r--r-- 1 sherry sherry 71  3月 25 17:44 environment.yml
(base) sherry@LAPTOP-05T5IN81:~/myproject$ conda env create
Collecting package metadata (repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
  current version: 22.11.1
  latest version: 25.1.1

Please update conda by running


  $ conda update -n base -c conda-forge conda

Or to minimize the number of packages updated during conda update use





  conda install conda=25.1.1

Downloading and Extracting Packages



Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate myproject
#
# To deactivate an active environment, use
#
```



## Python

Microsoft  [microsoft.com](https://microsoft.com) |  161,790,042 |  


Python language support with extension access points...

[Reload Window](#) [Disable](#)  [Uninstall](#)  [Switch to Pre-Release](#)




Extension is enabled on 'WSL: Ubuntu'

[DETAILS](#) [FEATURES](#) [CHANGELOG](#) [EXTENSION PACK](#)








# Ruff

Astral Software  [astral.sh](https://astral.sh) |  1,667,838 | 

A Visual Studio Code extension with support for the R...

Disable  Uninstall  ☒ Auto Update 

Extension is enabled on 'WSL: Ubuntu'

```
(myproject) sherry@LAPTOP-05T5IN81:~/myproject$ python main.py
Hello, conda!
2.2.3
/home/sherry/miniconda3/envs/myproject/lib/python3.12/site-packages/pandas/__init__.py
(myproject) sherry@LAPTOP-05T5IN81:~/myproject$
```

```
import pandas as pd

def main():
    print("Hello, conda!")
    print(pd.__version__)
    print(pd.__file__)

if __name__ == "__main__":
    main()
```

```
(myproject) sherry@LAPTOP-05T5IN81:~/myproject$ python main.py
6.41% of U.S. residents live in highlywalkable neighborhoods.
(myproject) sherry@LAPTOP-05T5IN81:~/myproject$
```