1.在自己的终端配置好 Conda Init，使得启动终端后，在提示符前能够看到 (base)

2.使用 conda info 命令查看本机 Conda 的配置信息

```
[(base) apple@appledeMacBook-Pro ~ % conda info

     active environment : base
    active env location : /Users/apple/anaconda3/anaconda3
            shell level : 1
       user config file : /Users/apple/.condarc
 populated config files : /Users/apple/anaconda3/anaconda3/.condarc
                          /Users/apple/.condarc
          conda version : 24.11.3
    conda-build version : 24.9.0
         python version : 3.12.7.final.0
               solver : libmamba (default)
       virtual packages : __archspec=1=skylake
                          __conda=24.11.3=0
                          __osx=10.16=0
                          __unix=0=0
       base environment : /Users/apple/anaconda3/anaconda3   (writable)
      conda av data dir : /Users/apple/anaconda3/anaconda3/etc/conda
  conda av metadata url : None
           channel URLs : https://repo.anaconda.com/pkgs/main/osx-64
                          https://repo.anaconda.com/pkgs/main/noarch
                          https://repo.anaconda.com/pkgs/r/osx-64
                          https://repo.anaconda.com/pkgs/r/noarch
```

3.使用 conda env list 命令查看已有的 Conda 环境的名称和路径

conda 环境：是一个独立的、隔离的 Python（以及其他语言和工具）运行环境

```
[(base) apple@appledeMacBook-Pro ~ % conda env list

# conda environments:
#
base                     * /Users/apple/anaconda3/anaconda3
```

4. 使用 conda create 命令创建两个 Conda 环境

创建 prj1 和 prj2 两个 conda 环境

```
[(base) apple@appledeMacBook-Pro ~ % conda create -n prj1 python=3.12 requests
Channels:
 - defaults
Platform: osx-64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: /Users/apple/anaconda3/anaconda3/envs/prj1

  added / updated specs:
    - python=3.12
    - requests


Downloading and Extracting Packages:

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
```

```
[(base) apple@appledeMacBook-Pro ~ % conda create -n prj2 python=3.9 pandas stats]
models
Channels:
 - defaults
Platform: osx-64
Collecting package metadata (repodata.json): done
Solving environment: done


Downloading and Extracting Packages:

Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate prj2
#
# To deactivate an active environment, use
#
#     $ conda deactivate
```

```
# conda environments:
#
base                  *  /Users/apple/anaconda3/anaconda3
prj1                     /Users/apple/anaconda3/anaconda3/envs/prj1
prj2                     /Users/apple/anaconda3/anaconda3/envs/prj2
```

```
[(base) apple@appledeMacBook-Pro ~ % conda activate prj1                    ]
[(prj1) apple@appledeMacBook-Pro ~ % which python                          ]
 /Users/apple/anaconda3/anaconda3/envs/prj1/bin/python
[(prj1) apple@appledeMacBook-Pro ~ % python --version                      ]
 Python 3.12.9
[(prj1) apple@appledeMacBook-Pro ~ % python                                ]
 Python 3.12.9 | packaged by Anaconda, Inc. | (main, Feb  6 2025, 13:04:33) [Clan
g 14.0.6 ] on darwin
Type "help", "copyright", "credits" or "license" for more information.
 [(prj1) apple@appledeMacBook-Pro ~ % conda activate prj2                   ]
 [(prj2) apple@appledeMacBook-Pro ~ % which python                         ]
  /Users/apple/anaconda3/anaconda3/envs/prj2/bin/python
 [(prj2) apple@appledeMacBook-Pro ~ % python --version                     ]
  Python 3.9.21
 [(prj2) apple@appledeMacBook-Pro ~ % ptthon                               ]
  zsh: command not found: ptthon
 [(prj2) apple@appledeMacBook-Pro ~ % python                               ]
  Python 3.9.21 (main, Dec 11 2024, 10:23:52)
  [Clang 14.0.6 ] :: Anaconda, Inc. on darwin
  Type "help", "copyright", "credits" or "license" for more information.
 [>>> import pandas                                                        ]

  pandas.>>>
 [>>> pandas._file__                                                       ]
  Traceback (most recent call last):
    File "<stdin>", line 1, in <module>
  AttributeError: module 'pandas' has no attribute '_file__'
 [>>> pandas.__file__                                                      ]
  '/Users/apple/anaconda3/anaconda3/envs/prj2/lib/python3.9/site-packages/pandas/_
  _init__.py'

 [>>> import requests                                                      ]
 [>>> requests                                                            ]
  <module 'requests' from '/Users/apple/anaconda3/anaconda3/envs/prj1/lib/python3.
  12/site-packages/requests/__init__.py'>
 [>>> requests.__file__                                                    ]
  '/Users/apple/anaconda3/anaconda3/envs/prj1/lib/python3.12/site-packages/request
  s/__init__.py'
```

5.使用 conda list 命令显示 Conda 环境里的软件包列表及其版本信息
分别查看了 prj1 和 prj2 两个 conda 环境的内容

```
[(prj2) apple@appledeMacBook-Pro ~ % conda list
# packages in environment at /Users/apple/anaconda3/anaconda3/envs/prj2:
#
# Name                    Version                   Build  Channel
blas                      1.0                     openblas
bottleneck                1.4.2             py39hf3fd67a_0
ca-certificates           2025.2.25            hecd8cb5_0
libcxx                    14.0.6               h9765a3e_0
libffi                    3.4.4                hecd8cb5_1
libgfortran               5.0.0          11_3_0_hecd8cb5_28
libgfortran5              11.3.0               h9dfd629_28
libopenblas               0.3.21               h54e7dc3_0
llvm-openmp               14.0.6               h0dcd299_0
ncurses                   6.4                  hcec6c5f_0
numexpr                   2.10.1            py39hc59c7be_0
numpy                     2.0.2             py39h1d7cfa2_0
numpy-base                2.0.2             py39h03d8c7d_0
openssl                   3.0.16               h184c1cd_0
packaging                 24.2              py39hecd8cb5_0
pandas                    2.2.3             py39h6d0c2b6_0
patsy                     1.0.1             py39hecd8cb5_0
pip                       25.0              py39hecd8cb5_0
pybind11-abi              4                    hd3eb1b0_1
```

```
[(prj1) apple@appledeMacBook-Pro ~ % conda list
# packages in environment at /Users/apple/anaconda3/anaconda3/envs/prj1:
#
# Name                    Version                   Build  Channel
brotli-python             1.0.9           py312h6d0c2b6_9
bzip2                     1.0.8                h6c40b1e_6
ca-certificates           2025.2.25            hecd8cb5_0
certifi                   2025.1.31       py312hecd8cb5_0
charset-normalizer        3.3.2              pyhd3eb1b0_0
expat                     2.6.4                h6d0c2b6_0
idna                      3.7             py312hecd8cb5_0
libcxx                    14.0.6               h9765a3e_0
libffi                    3.4.4                hecd8cb5_1
ncurses                   6.4                  hcec6c5f_0
openssl                   3.0.16               h184c1cd_0
pip                       25.0            py312hecd8cb5_0
pysocks                   1.7.1           py312hecd8cb5_0
python                    3.12.9               hcd54a6c_0
readline                  8.2                  hca72f7f_0
requests                  2.32.3          py312hecd8cb5_1
setuptools                75.8.0          py312hecd8cb5_0
sqlite                    3.45.3               h6c40b1e_0
tk                        8.6.14               h4d00af3_0
```

5. 使用 conda install 命令往 Conda 环境里安装更多的软件包，并验证版本
   安装了 ipython

```
[(prj1) apple@appledeMacBook-Pro ~ % conda install ipython
Channels:
 - defaults
Platform: osx-64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: /Users/apple/anaconda3/anaconda3/envs/prj1

  added / updated specs:
    - ipython
```

```
(prj1) apple@appledeMacBook-Pro ~ % conda list
# packages in environment at /Users/apple/anaconda3/anaconda3/envs/prj1:
#
# Name                    Version                   Build  Channel
asttokens                 2.0.5              pyhd3eb1b0_0
brotli-python             1.0.9           py312h6d0c2b6_9
bzip2                     1.0.8                h6c40b1e_6
ca-certificates           2025.2.25            hecd8cb5_0
certifi                   2025.1.31       py312hecd8cb5_0
charset-normalizer        3.3.2              pyhd3eb1b0_0
decorator                 5.1.1              pyhd3eb1b0_0
executing                 0.8.3              pyhd3eb1b0_0
expat                     2.6.4                h6d0c2b6_0
idna                      3.7             py312hecd8cb5_0
ipython                   8.30.0          py312hecd8cb5_0
jedi                      0.19.2          py312hecd8cb5_0
libcxx                    14.0.6               h9765a3e_0
libffi                    3.4.4                hecd8cb5_1
matplotlib-inline         0.1.6           py312hecd8cb5_0
ncurses                   6.4                  hcec6c5f_0
openssl                   3.0.16               h184c1cd_0
parso                     0.8.4           py312hecd8cb5_0
pexpect                   4.8.0              pyhd3eb1b0_3
```

6. 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，让 conda install 能够安装更多的软件包

```
1    channels:
2     - conda-forge
3    show_channel_urls: true
4    default_channels:
5     - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/main
6     - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/r
7     - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/msys2
8    custom_channels:
9      conda-forge: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
10     pytorch: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
```

7.使用 pip install 命令往 Conda 环境里安装 Python 软件包，并验证版本

```
[(prj1) apple@appledeMacBook-Pro ~ % pip install tushare
Collecting tushare
  Downloading tushare-1.4.19-py3-none-any.whl.metadata (3.1 kB)
Collecting pandas (from tushare)
  Downloading pandas-2.2.3-cp312-cp312-macosx_10_9_x86_64.whl.metadata (89 kB)
Requirement already satisfied: requests in ./anaconda3/anaconda3/envs/prj1/lib/p
ython3.12/site-packages (from tushare) (2.32.3)
Collecting lxml (from tushare)
  Downloading lxml-5.3.1-cp312-cp312-macosx_10_9_x86_64.whl.metadata (3.7 kB)
Collecting simplejson (from tushare)
  Downloading simplejson-3.20.1-cp312-cp312-macosx_10_9_x86_64.whl.metadata (3.3
 kB)
Collecting bs4 (from tushare)
  Downloading bs4-0.0.2-py2.py3-none-any.whl.metadata (411 bytes)
Collecting websocket-client>=0.57.0 (from tushare)
  Downloading websocket_client-1.8.0-py3-none-any.whl.metadata (8.0 kB)
Collecting tqdm (from tushare)
  Downloading tqdm-4.67.1-py3-none-any.whl.metadata (57 kB)
Collecting beautifulsoup4 (from bs4->tushare)
  Downloading beautifulsoup4-4.13.3-py3-none-any.whl.metadata (3.8 kB)
Collecting numpy>=1.26.0 (from pandas->tushare)
  Downloading numpy-2.2.4-cp312-cp312-macosx_10_13_x86_64.whl.metadata (62 kB)
Collecting python-dateutil>=2.8.2 (from pandas->tushare)
```

9.配置 PyPI 清华镜像，加快 pip install 安装软件包的速度

```
[(prj1) apple@appledeMacBook-Pro ~ % pip install tushare
Looking in indexes: https://mirrors.tuna.tsinghua.edu.cn/pypi/web/simple
Requirement already satisfied: tushare in ./anaconda3/anaconda3/envs/prj1/lib/py
thon3.12/site-packages (1.4.19)
Requirement already satisfied: pandas in ./anaconda3/anaconda3/envs/prj1/lib/pyt
hon3.12/site-packages (from tushare) (2.2.3)
Requirement already satisfied: requests in ./anaconda3/anaconda3/envs/prj1/lib/p
ython3.12/site-packages (from tushare) (2.32.3)
Requirement already satisfied: lxml in ./anaconda3/anaconda3/envs/prj1/lib/pytho
n3.12/site-packages (from tushare) (5.3.1)
Requirement already satisfied: simplejson in ./anaconda3/anaconda3/envs/prj1/lib
/python3.12/site-packages (from tushare) (3.20.1)
Requirement already satisfied: bs4 in ./anaconda3/anaconda3/envs/prj1/lib/python
3.12/site-packages (from tushare) (0.0.2)
Requirement already satisfied: websocket-client>=0.57.0 in ./anaconda3/anaconda3
/envs/prj1/lib/python3.12/site-packages (from tushare) (1.8.0)
Requirement already satisfied: tqdm in ./anaconda3/anaconda3/envs/prj1/lib/pytho
n3.12/site-packages (from tushare) (4.67.1)
Requirement already satisfied: beautifulsoup4 in ./anaconda3/anaconda3/envs/prj1
/lib/python3.12/site-packages (from bs4->tushare) (4.13.3)
Requirement already satisfied: numpy>=1.26.0 in ./anaconda3/anaconda3/envs/prj1/
lib/python3.12/site-packages (from pandas->tushare) (2.2.4)
Requirement already satisfied: python-dateutil>=2.8.2 in ./anaconda3/anaconda3/e
nvs/prj1/lib/python3.12/site-packages (from pandas->tushare) (2.9.0.post0)
```

```
[(prj1) apple@appledeMacBook-Pro ~ % python
Python 3.12.9 | packaged by Anaconda, Inc. | (main, Feb  6 2025, 13:04:33) [Clan
g 14.0.6 ] on darwin
Type "help", "copyright", "credits" or "license" for more information.
[>>> import tushare
tushare.__version__
>>> tushare.__version__
'1.4.19'
```

10. 导出 environment.yml Conda 环境配置文件，删除 Conda 环境，用 environment.yml 配置文件重建 Conda 环境

```
[(prj1) apple@appledeMacBook-Pro ~ % conda env export
name: prj1
channels:
  - defaults
  - https://repo.anaconda.com/pkgs/main
  - https://repo.anaconda.com/pkgs/r
  - conda-forge
dependencies:
  - asttokens=2.0.5=pyhd3eb1b0_0
  - brotli-python=1.0.9=py312h6d0c2b6_9
  - bzip2=1.0.8=h6c40b1e_6
  - ca-certificates=2025.2.25=hecd8cb5_0
  - certifi=2025.1.31=py312hecd8cb5_0
  - charset-normalizer=3.3.2=pyhd3eb1b0_0
  - decorator=5.1.1=pyhd3eb1b0_0
  - executing=0.8.3=pyhd3eb1b0_0
  - expat=2.6.4=h6d0c2b6_0
  - idna=3.7=py312hecd8cb5_0
  - ipython=8.30.0=py312hecd8cb5_0
  - jedi=0.19.2=py312hecd8cb5_0
  - libcxx=14.0.6=h9765a3e_0
  - libffi=3.4.4=hecd8cb5_1
  - matplotlib-inline=0.1.6=py312hecd8cb5_0
  - ncurses=6.4=hcec6c5f_0
```

```
[(base) apple@appledeMacBook-Pro ~ % conda env remove -n prj1

Remove all packages in environment /Users/apple/anaconda3/anaconda3/envs/prj1:


## Package Plan ##

  environment location: /Users/apple/anaconda3/anaconda3/envs/prj1


The following packages will be REMOVED:

  asttokens-2.0.5-pyhd3eb1b0_0
  brotli-python-1.0.9-py312h6d0c2b6_9
  bzip2-1.0.8-h6c40b1e_6
  ca-certificates-2025.2.25-hecd8cb5_0
  certifi-2025.1.31-py312hecd8cb5_0
  charset-normalizer-3.3.2-pyhd3eb1b0_0
  decorator-5.1.1-pyhd3eb1b0_0
  executing-0.8.3-pyhd3eb1b0_0
  expat-2.6.4-h6d0c2b6_0
```

```
[(base) apple@appledeMacBook-Pro prj1 % conda env create
Retrieving notices: done
Warning: you have pip-installed dependencies in your environment file, but you d
o not list pip itself as one of your conda dependencies.  Conda may not use the
correct pip to install your packages, and they may end up in the wrong place.  P
lease add an explicit pip dependency.  I'm adding one for you, but still nagging
 you.
Collecting package metadata (repodata.json): done
Solving environment: done


==> WARNING: A newer version of conda exists. <==
  current version: 24.11.3
  latest version: 25.3.0

Please update conda by running

    $ conda update -n base -c https://repo.anaconda.com/pkgs/main conda

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

      conda install conda=25.3.0
```

11. Conda 与 Python 的关系：Conda 是一个通用的软件包管理和环境管理系统，它不仅可以管理 Python 相关的软件包和环境，还能管理其他语言的软件包。Python 是 Conda 最常用的应用场景之一。

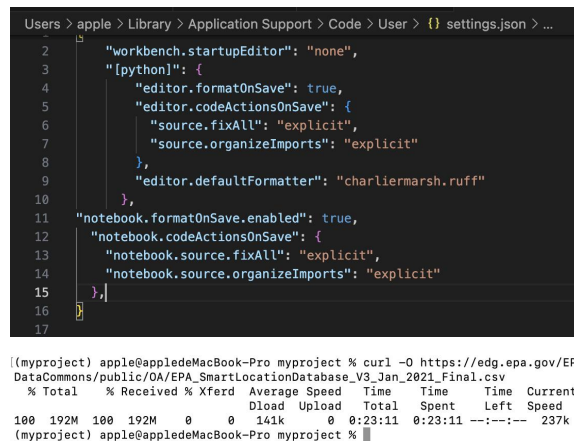Conda-Forge 与 Conda 的关系：Conda-Forge 是一个社区驱动的 Conda 软件包仓库，它为 Conda 提供了丰富的软件包资源。

Python 解释器：Python 解释器是执行 Python 代码的程序。Conda 可以用来管理不同版本的 Python 解释器。

第三方软件包：第三方软件包是由 Python 社区或其他开发者开发的，用于扩展 Python 功能的软件包。Conda 可以在其管理的环境中安装这些第三方软件包。

PyPI 软件仓库：是 Python 官方的软件包仓库，它包含了大量的 Python 第三方软件包。pip 默认从 PyPI 下载软件包。

程序/软件包的路径问题：每个 Conda 环境都有自己的根目录，在这个目录下包含了 Python 解释器、安装的软件包等文件。

12. 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

```
Users > apple > Library > Application Support > Code > User > {} settings.json > ...
  2        "workbench.startupEditor": "none",
  3        "[python]": {
  4            "editor.formatOnSave": true,
  5            "editor.codeActionsOnSave": {
  6              "source.fixAll": "explicit",
  7              "source.organizeImports": "explicit"
  8            },
  9            "editor.defaultFormatter": "charliermarsh.ruff"
 10        },
 11      "notebook.formatOnSave.enabled": true,
 12        "notebook.codeActionsOnSave": {
 13          "notebook.source.fixAll": "explicit",
 14          "notebook.source.organizeImports": "explicit"
 15        },
 16    }
 17
```

```
[(myproject) apple@appledeMacBook-Pro myproject % curl -O https://edg.epa.gov/EPA
DataCommons/public/OA/EPA_SmartLocationDatabase_V3_Jan_2021_Final.csv
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  192M  100  192M    0     0   141k      0  0:23:11  0:23:11 --:--:--  237k
(myproject) apple@appledeMacBook-Pro myproject %
```

```
[(myproject) apple@appledeMacBook-Pro myproject % python main.py
Hello, conda!

[(myproject) apple@appledeMacBook-Pro myproject % python main.py
10.69% of U.S. residents live in highlywalkable neighborhoods.
10.69% of U.S. residents live in highlywalkable neighborhoods.
```