

金融编程与计算-学习报告-week03

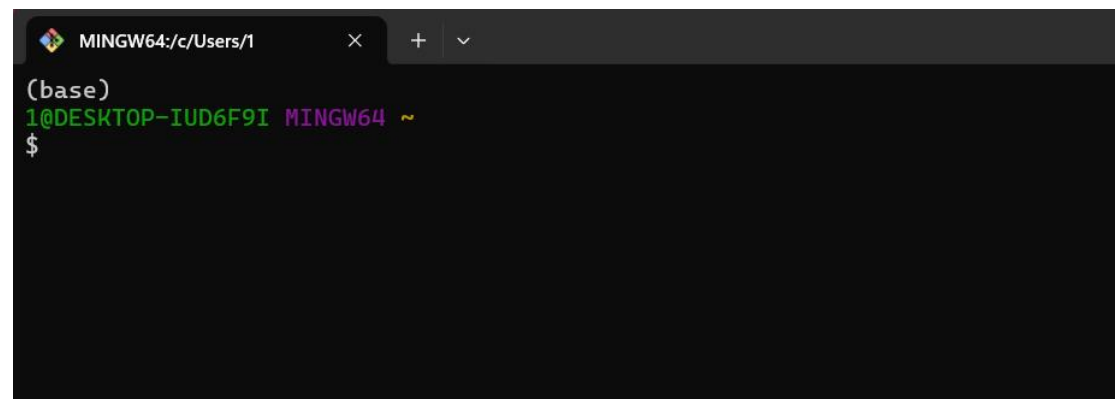
1.在自己的终端（比如 Git Bash、Zsh 等）配置好 Conda Init，使得启动终端后，在提示符（比如\$、%）前能够看到（base）

conda init bash

```
1@DESKTOP-IUD6F9I MINGW64 ~
$ conda init bash
no change      F:\biancheng\Anaconda\Scripts\conda.exe
no change      F:\biancheng\Anaconda\Scripts\conda-env.exe
no change      F:\biancheng\Anaconda\Scripts\conda-script.py
no change      F:\biancheng\Anaconda\Scripts\conda-env-script.py
no change      F:\biancheng\Anaconda\condabin\conda.bat
no change      F:\biancheng\Anaconda\Library\bin\conda.bat
no change      F:\biancheng\Anaconda\condabin\_conda_activate.bat
no change      F:\biancheng\Anaconda\condabin\rename_tmp.bat
no change      F:\biancheng\Anaconda\condabin\conda_auto_activate.bat
no change      F:\biancheng\Anaconda\condabin\conda_hook.bat
no change      F:\biancheng\Anaconda\Scripts\activate.bat
no change      F:\biancheng\Anaconda\condabin\activate.bat
no change      F:\biancheng\Anaconda\condabin\deactivate.bat
modified       F:\biancheng\Anaconda\Scripts\activate
modified       F:\biancheng\Anaconda\Scripts\deactivate
modified       F:\biancheng\Anaconda\etc\profile.d\conda.sh
modified       F:\biancheng\Anaconda\etc\fish\conf.d\conda.fish
no change      F:\biancheng\Anaconda\shell\condabin\Conda.psm1
modified       F:\biancheng\Anaconda\shell\condabin\conda-hook.ps1
no change      F:\biancheng\Anaconda\Lib\site-packages\xontrib\conda.xsh
modified       F:\biancheng\Anaconda\etc\profile.d\conda.csh
modified       C:\Users\1\.bash_profile

==> For changes to take effect, close and re-open your current shell. <==
```

重启终端后



A screenshot of a Windows terminal window titled 'MINGW64:/c/Users/1'. The prompt is '(base) 1@DESKTOP-IUD6F9I MINGW64 ~' followed by a '\$' symbol. The window has standard Windows taskbar controls (close, maximize, and a dropdown arrow) in the title bar.

Ctrl+L 清空

2.使用 conda info 命令查看本机 Conda 的配置信息

```
MINGW64/c/Users/1
1@DESKTOP-IUD6F9I MINGW64 ~
$ conda info

      active environment : base
      active env location : F:\biancheng\Anaconda
            shell level : 1
      user config file : C:\Users\1\.condarc
populated config files : F:\biancheng\Anaconda\.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
                       __cuda=11.1=0
                       __win=0=0
      base environment : F:\biancheng\Anaconda (writable)
      conda av data dir : F:\biancheng\Anaconda\etc\conda
      conda av metadata url : None
      channel URLs : https://repo.anaconda.com/pkgs/main/win-64
                    https://repo.anaconda.com/pkgs/main/noarch
                    https://repo.anaconda.com/pkgs/r/win-64
                    https://repo.anaconda.com/pkgs/r/noarch
                    https://repo.anaconda.com/pkgs/msys2/win-64
                    https://repo.anaconda.com/pkgs/msys2/noarch
      package cache : F:\biancheng\Anaconda\pkgs
                     C:\Users\1\.conda\pkgs
                     C:\Users\1\AppData\Local\conda\conda\pkgs
      envs directories : F:\biancheng\Anaconda\envs
                       C:\Users\1\.conda\envs
```

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

```
$ conda env list

# conda environments:
#
base                                * F:\biancheng\Anaconda
```

4.使用 conda create 命令创建两个 Conda 环境，一个里面安装 Python 3.12 和 requests 软件包，另一个里面安装 Python 3.9、pandas 和 statsmodels 软件包，能够在终端里切换 Conda 环境，验证 Python 和软件包的版本

conda create -n prj1 python=3.12 requests（文件名为 prj1）

```
$ conda create -n prj1 python=3.12 requests
Channels:
 - defaults
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: F:\biancheng\Anaconda\envs\prj1

added / updated specs:
 - python=3.12
 - requests

The following packages will be downloaded:

package-----|-----build-----|-----
brotli-python-1.0.9 | py312h5da7b33_9 | 347 KB
bzip2-1.0.8         | h2bbff1b_6      | 90 KB
charset-normalizer-3.3.2 | pyhd3eb1b0_0    | 44 KB
expat-2.6.4         | h8ddb27b_0      | 257 KB
idna-3.7            | py312haa95532_0 | 133 KB
```

conda create -n prj2 python=3.9 pandas statsmodels（文件名为 prj2）

```
$ conda create -n prj1 python=3.12 requests
Channels:
- defaults
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: done
```

Package Plan

environment location: F:\biancheng\Anaconda\envs\prj1

added / updated specs:

- python=3.12
- requests

The following packages will be downloaded:

package	build	
-----	-----	-----
brotli-python-1.0.9	py312h5da7b33_9	347 KB
bzip2-1.0.8	h2bbff1b_6	90 KB
charset-normalizer-3.3.2	pyhd3eb1b0_0	44 KB
expat-2.6.4	h8ddb27b_0	257 KB
idna-3.7	py312haa95532_0	133 KB
libffi-3.4.4	hd77b12b_1	122 KB
pip-25.0	py312haa95532_0	3.0 MB

```
$ conda env list
```

```
# conda environments:
```

```
#
```

```
base * F:\biancheng\Anaconda
```

```
prj1 F:\biancheng\Anaconda\envs\prj1
```

```
prj2 F:\biancheng\Anaconda\envs\prj2
```

conda activate prj1: 激活 prj1

```
$ conda activate prj1
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$
```

检查版本

```
$ which python
/f/biancheng/Anaconda/envs/prj1/python
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$ python --version
Python 3.12.9
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$ python
Python 3.12.9 | packaged by Anaconda, Inc. | (main, Feb 6 2025, 18:49:16) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> python下语句, 此时打ls无法识别
```

```
$ python
Python 3.12.9 | packaged by Anaconda, Inc. | (main, Feb 6 2025, 18:49:16) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import requests
>>> requests
<module 'requests' from 'F:\biancheng\Anaconda\envs\prj1\Lib\site-packages\requests\__init__.py'>
>>> requests.__file__
'F:\biancheng\Anaconda\envs\prj1\Lib\site-packages\requests\__init__.py'
>>> import pandas
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
ModuleNotFoundError: No module named 'pandas'
>>> import statesmodels
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
ModuleNotFoundError: No module named 'statesmodels'
>>>
```

quit()退出

conda activate prj2: 激活 prj2

```
$ conda activate prj2
(prj2)
1@DESKTOP-IUD6F9I MINGW64 ~
$ which python
/f/biancheng/Anaconda/envs/prj2/python
(prj2)
1@DESKTOP-IUD6F9I MINGW64 ~
$ python --version
Python 3.9.21
(prj2)
1@DESKTOP-IUD6F9I MINGW64 ~
$ python
Python 3.9.21 (main, Dec 11 2024, 16:35:24) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas
>>> pandas.__file__
'F:\biancheng\Anaconda\envs\prj2\lib\site-packages\pandas\__init__.py'
>>> pandas.__version__
'2.2.3'
>>> import statsmodels
>>> statsmodels.__version__
'0.14.4'
>>> 
```

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

Prj2

```
>>> quit()
(prj2)
1@DESKTOP-IUD6F9I MINGW64 ~
$ conda list
# packages in environment at F:\biancheng\Anaconda\envs\prj2:
#
# Name                   Version           Build    Channel
blas                     1.0               mkl
bottleneck              1.4.2            py39hc99e966_0
ca-certificates         2025.2.25        haa95532_0
icc_rt                  2022.1.0         h6049295_2
intel-openmp            2023.1.0         h59b6b97_46320
mkl                     2023.1.0         h6b88ed4_46358
mkl-service             2.4.0            py39h827c3e9_2
mkl_fft                 1.3.11           py39h827c3e9_0
mkl_random              1.2.8            py39hc64d2fc_0
numexpr                 2.10.1           py39h4cd664f_0
numpy                   2.0.2            py39h055cbcc_0
numpy-base              2.0.2            py39h65a83cf_0
openssl                 3.0.16           h3f729d1_0
packaging                24.2             py39haa95532_0
pandas                  2.2.3            py39h5da7b33_0
patsy                   1.0.1            py39haa95532_0
pip                     25.0             py39haa95532_0
pybind11-abi            5                hd3eb1b0_0
python                  3.9.21           h8205438_1
python-dateutil         2.9.0post0       py39haa95532_2
python-tzdata           2023.3           pyhd3eb1b0_0
pytz                    2024.1           py39haa95532_0
scipy                   1.13.1           py39h8640f81_1
```

prj1

```
$ conda activate prj1
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$ conda list
# packages in environment at F:\biancheng\Anaconda\envs\prj1:
#
# Name                      Version                Build      Channel
brotli-python              1.0.9                  py312h5da7b33_9
bzip2                      1.0.8                  h2bbff1b_6
ca-certificates            2025.2.25              haa95532_0
certifi                    2025.1.31              py312haa95532_0
charset-normalizer         3.3.2                  pyhd3eb1b0_0
expat                      2.6.4                  h8ddb27b_0
idna                       3.7                    py312haa95532_0
libffi                     3.4.4                  hd77b12b_1
openssl                    3.0.16                 h3f729d1_0
pip                        25.0                   py312haa95532_0
pysocks                    1.7.1                  py312haa95532_0
python                     3.12.9                 h14fffc60_0
requests                   2.32.3                 py312haa95532_1
setuptools                 75.8.0                 py312haa95532_0
sqlite                     3.45.3                 h2bbff1b_0
tk                          8.6.14                 h0416ee5_0
tzdata                     2025a                  h04d1e81_0
urllib3                    2.3.0                  py312haa95532_0
```

6.使用 conda install 命令往 Conda 环境里安装更多的软件包，并验证版本
prj1 里安装 ipython

```
1@DESKTOP-IUD6F9I MINGW64 ~
$ conda install ipython
Channels:
- defaults
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: F:\biancheng\Anaconda\envs\prj1

  added / updated specs:
  - ipython

The following packages will be downloaded:

  package                                     build
-----
asttokens-2.0.5                             pyhd3eb1b0_0      20 KB
colorama-0.4.6                              py312haa95532_0   53 KB
decorator-5.1.1                             pyhd3eb1b0_0      12 KB
executing-0.8.3                             pyhd3eb1b0_0      18 KB
ipython-8.30.0                              py312haa95532_0   1.5 MB
jedi-0.19.2                                 py312haa95532_0   1.2 MB
matplotlib-inline-0.1.6                     py312haa95532_0    19 KB
parso-0.8.4                                 py312haa95532_0   239 KB
prompt-toolkit-3.0.43                       py312haa95532_0   733 KB
```



```
$ conda list
# packages in environment at F:\biancheng\Anaconda\envs\prj1:
#
# Name                        Version      Build      Channel
asttokens                     2.0.5        pyhd3eb1b0_0
brotli-python                 1.0.9        py312h5da7b33_9
bzip2                         1.0.8        h2bbff1b_6
ca-certificates               2025.2.25    haa95532_0
certifi                       2025.1.31    py312haa95532_0
charset-normalizer            3.3.2        pyhd3eb1b0_0
colorama                      0.4.6        py312haa95532_0
decorator                     5.1.1        pyhd3eb1b0_0
executing                     0.8.3        pyhd3eb1b0_0
expat                         2.6.4        h8ddb27b_0
idna                          3.7          py312haa95532_0
ipython                       8.30.0       py312haa95532_0
jedi                          0.19.2       py312haa95532_0
libffi                        3.4.4        hd77b12b_1
matplotlib-inline             0.1.6        py312haa95532_0
openssl                       3.0.16       h3f729d1_0
parso                         0.8.4        py312haa95532_0
pip                           25.0         py312haa95532_0
prompt-toolkit                3.0.43       py312haa95532_0
prompt_toolkit                3.0.43       hd3eb1b0_0
pure_eval                     0.2.2        pyhd3eb1b0_0
pygments                      2.15.1       py312haa95532_1
pysocks                       1.7.1        py312haa95532_0
```

7.根据文档，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

```
! .condarc X
! .condarc
1 channels:
2   - defaults
3 show_channel_urls: true
4 default_channels:
5   - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/main
6   - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/r
7   - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/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
```

Ctrl+S: 保存 code

```
$ conda clean --help
usage: conda-script.py clean [-h] [-a] [-i] [-p] [-t] [-f] [-c [TEMPFILES ...]] [-l] [--json] [--console CONSOLE] [-v]
                             [-q] [-d] [-y]

Remove unused packages and caches.

options:
  -h, --help            Show this help message and exit.

Removal Targets:
  -a, --all              Remove index cache, lock files, unused cache packages, tarballs, and logfiles.
  -i, --index-cache      Remove index cache.
  -p, --packages         Remove unused packages from writable package caches. WARNING: This does not check for packages
                           installed using symlinks back to the package cache.
  -t, --tarballs         Remove cached package tarballs.
  -f, --force-pkgs-dirs  Remove *all* writable package caches. This option is not included with the --all flag.
                           WARNING: This will break environments with packages installed using symlinks back to the
                           package cache.
  -c [TEMPFILES ...], --tempfiles [TEMPFILES ...] Remove temporary files that could not be deleted earlier due to being in-use. The argument for
                           the --tempfiles flag is a path (or list of paths) to the environment(s) where the tempfiles
                           should be found and removed.
  -l, --logfiles         Remove log files.

Output, Prompt, and Flow Control Options:
```

```
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$ conda clean -i
Will remove 1 index cache(s).
Proceed ([y]/n)? y

(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$
```

修改 channels 为 conda-forge（更新及时）

```
! .condarc X
! .condarc
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
```

```
$ conda config --set channel_priority strict
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$
```

```
! .condarc X
! .condarc
1 channels:
2   - conda-forge
3   - defaults
4 show_channel_urls: true
5 default_channels:
6   - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/main
7   - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/r
8   - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/msys2
9 custom_channels:
10  conda-forge: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
11  pytorch: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
12  channel_priority: strict
13
```

```
$ conda install polars
Channels:
- conda-forge
- defaults
- https://repo.anaconda.com/pkgs/main
- https://repo.anaconda.com/pkgs/r
- https://repo.anaconda.com/pkgs/msys2
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: F:\biancheng\Anaconda\envs\prj1

  added / updated specs:
    - polars

The following packages will be downloaded:

  package | build
  ----- | -----
  certifi-2025.1.31 | pyhd8ed1ab_0 159 KB conda-forge
  intel-openmp-2024.2.1 | h57928b3_1083 1.8 MB conda-forge
```

```

libblas 3.9.0 31_h5e41251_mkl conda-forge
libexpat 2.6.4 he0c23c2_0 conda-forge
libffi 3.4.4 hd77b12b_1 https://repo.anaconda.com/pkgs/main
libhwloc 2.11.2 default_ha69328c_1001 conda-forge
libiconv 1.18 h135ad9c_1 conda-forge
liblapack 3.9.0 31_h1aa476e_mkl conda-forge
liblzma 5.6.4 h2466b09_0 conda-forge
libsqlite 3.49.1 h67fdade_2 conda-forge
libwinpthread 12.0.0.r4.gg4f2fc60ca h57928b3_9 conda-forge
libxml2 2.13.6 he286e8c_0 conda-forge
libzlib 1.3.1 h2466b09_2 conda-forge
matplotlib-inline 0.1.6 py312haa95532_0 https://repo.anaconda.com/pkgs/main
mkl 2024.2.2 h66d3029_15 conda-forge
numpy 2.2.4 py312h3150e54_0 conda-forge
openssl 3.4.1 ha4e3fda_0 conda-forge
packaging 24.2 pyhd8ed1ab_2 conda-forge
parso 0.8.4 py312haa95532_0 https://repo.anaconda.com/pkgs/main
pip 25.0 py312haa95532_0 https://repo.anaconda.com/pkgs/main
polars 1.24.0 pypi_0 pypi conda list
prompt-toolkit 3.0.43 py312haa95532_0 https://repo.anaconda.com/pkgs/main
prompt_toolkit 3.0.43 hd3eb1b0_0 https://repo.anaconda.com/pkgs/main
pure_eval 0.2.2 pyhd3eb1b0_0 https://repo.anaconda.com/pkgs/main
pygments 2.15.1 py312haa95532_1 https://repo.anaconda.com/pkgs/main
pysocks 1.7.1 py312haa95532_0 https://repo.anaconda.com/pkgs/main
python 3.12.9 h3f84c4b_1_cpython conda-forge
python_abi 3.12 5_cp312 conda-forge
requests 2.32.3 py312haa95532_1 https://repo.anaconda.com/pkgs/main
setuptools 75.8.0 py312haa95532_0 https://repo.anaconda.com/pkgs/main
six 1.16.0 pyhd3eb1b0_1 https://repo.anaconda.com/pkgs/main
sqlite 3.45.3 h2bbff1b_0 https://repo.anaconda.com/pkgs/main

```

```

$ which python
/f/biancheng/Anaconda/envs/prj1/python
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$ python
Python 3.12.9 | packaged by conda-forge | (main, Mar 4 2025, 22:37:18) [MSC v.1943 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import polars
>>>

```

conda 不要删除软件包，否则可能会出现更大的瘫痪！！！！

conda env list

conda deactivate 取消激活

conda env remove -n prj1 把整个环境的所有东西删掉 (y)

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

```

$ conda install tushare
Channels:
- conda-forge
- defaults
- https://repo.anaconda.com/pkgs/main
- https://repo.anaconda.com/pkgs/r
- https://repo.anaconda.com/pkgs/msys2
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: failed

PackagesNotFoundError: The following packages are not available from current channels:

- tushare

Current channels:

- https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud/conda-forge
- defaults
- https://repo.anaconda.com/pkgs/main
- https://repo.anaconda.com/pkgs/r
- https://repo.anaconda.com/pkgs/msys2

To search for alternate channels that may provide the conda package you're
looking for, navigate to

https://anaconda.org

```

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


```

Downloading soupsieve-2.6-py3-none-any.whl.metadata (4.6 kB)
Collecting typing-extensions>=4.0.0 (from beautifulsoup4->tushare)
Downloading typing_extensions-4.12.2-py3-none-any.whl.metadata (3.0 kB)
Downloading tushare-1.4.19-py3-none-any.whl (142 kB)
Downloading websocket_client-1.8.0-py3-none-any.whl (58 kB)
Downloading bs4-0.0.2-py2.py3-none-any.whl (1.2 kB)
Downloading lxml-5.3.1-cp312-cp312-win_amd64.whl (3.8 MB)
1.0/3.8 MB 13.1 kB/s eta 0:03:32
ERROR: Operation cancelled by user
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$ python -m pip install --upgrade pip
Requirement already satisfied: pip in f:\biancheng\anaconda\envs\prj1\lib\site-packages (25.0)
Collecting pip
  Downloading pip-25.0.1-py3-none-any.whl.metadata (3.7 kB)
  Downloading pip-25.0.1-py3-none-any.whl (1.8 MB)
1.8/1.8 MB 26.8 kB/s eta 0:00:00
Installing collected packages: pip
  Attempting uninstall: pip
    Found existing installation: pip 25.0
    Uninstalling pip-25.0:
      Successfully uninstalled pip-25.0
Successfully installed pip-25.0.1
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$ pip config set global.index-url https://mirrors.tuna.tsinghua.edu.cn/pypi/web/simple
Writing to c:\Users\1\AppData\Roaming\pip\pip.ini
(prj1)
1@DESKTOP-IUD6F9I MINGW64 ~
$

```

```

! .condarc  pip.ini X
AppData > Roaming > pip > pip.ini
1 [global]
2 index-url = https://mirrors.tuna.tsinghua.edu.cn/pypi/web/simple
3
4

```

python_abi	3.12	5_cp312	conda-forge
pytz	2025.1	pypi_0	pypi
requests	2.32.3	py312haa95532_1	https://repo.anaconda.com/pkgs/main
setuptools	75.8.0	py312haa95532_0	https://repo.anaconda.com/pkgs/main
simplejson	3.20.1	pypi_0	pypi
six	1.16.0	pyhd3eb1b0_1	https://repo.anaconda.com/pkgs/main
soupsieve	2.6	pypi_0	pypi
sqlite	3.45.3	h2bbff1b_0	https://repo.anaconda.com/pkgs/main
stack_data	0.2.0	pyhd3eb1b0_0	https://repo.anaconda.com/pkgs/main
tbb	2021.13.0	h62715c5_1	conda-forge
tk	8.6.13	h5226925_1	conda-forge
tqdm	4.67.1	pypi_0	pypi
traitlets	5.14.3	py312haa95532_0	https://repo.anaconda.com/pkgs/main
tushare	1.4.19	pypi_0	pypi
typing-extensions	4.12.2	pypi_0	pypi
tzdata	2025.1	pypi_0	pypi
ucrt	10.0.22621.0	h57928b3_1	conda-forge
urllib3	2.3.0	py312haa95532_0	https://repo.anaconda.com/pkgs/main
vc	14.42	haa95532_4	https://repo.anaconda.com/pkgs/main
vc14_runtime	14.42.34438	hfd919c2_24	conda-forge
vs2015_runtime	14.42.34438	h7142326_24	conda-forge
wcwidth	0.2.5	pyhd3eb1b0_0	https://repo.anaconda.com/pkgs/main
websocket-client	1.8.0	pypi_0	pypi
wheel	0.45.1	py312haa95532_0	https://repo.anaconda.com/pkgs/main
win_inet_pton	1.1.0	py312haa95532_0	https://repo.anaconda.com/pkgs/main
xz	5.6.4	h4754444_1	https://repo.anaconda.com/pkgs/main
zlib	1.3.1	h2466b09_2	conda-forge
(prj1)			

```

$ pip install tushare
Looking in indexes: https://mirrors.tuna.tsinghua.edu.cn/pypi/web/simple
Collecting tushare
  Downloading https://mirrors.tuna.tsinghua.edu.cn/pypi/web/packages/2b/b1/8aa06e934b778920624047770cc8fd5518a1e9d3066043150a691f71edc1/tushare-1.4.19-py3-none-any.whl (142 kB)
Collecting pandas (from tushare)
  Downloading https://mirrors.tuna.tsinghua.edu.cn/pypi/web/packages/29/d4/1244ab8edf173a10fd601f7e13b9566c1b525c4f365d6bee918e68381889/pandas-2.2.3-cp312-cp312-win_amd64.whl (11.5 MB)
11.5/11.5 MB 4.1 MB/s eta 0:00:00
Requirement already satisfied: requests in f:\biancheng\anaconda\envs\prj1\lib\site-packages (from tushare) (2.32.3)
Collecting lxml (from tushare)
  Downloading https://mirrors.tuna.tsinghua.edu.cn/pypi/web/packages/2b/9c/8abe21585d20ef70ad9cec7562da4332b764ed69ec29b7389d23dfabcea0/lxml-5.3.1-cp312-cp312-win_amd64.whl (3.8 MB)
3.8/3.8 MB 4.9 MB/s eta 0:00:00
Collecting simplejson (from tushare)
  Downloading https://mirrors.tuna.tsinghua.edu.cn/pypi/web/packages/bc/5d/4e243e937fa3560107c69f6f7c2eed8589163f5ed14324e64871daa2dd9/simplejson-3.20.1-cp312-cp312-win_amd64.whl (75 kB)
Collecting bs4 (from tushare)
  Downloading https://mirrors.tuna.tsinghua.edu.cn/pypi/web/packages/51/bb/bf7aab772a159614954d84aa832c129624ba6c32faa559dfb200a534e50b/bs4-0.0.2-py2.py3-none-any.whl (1.2 kB)
Collecting websocket-client>=0.57.0 (from tushare)
  Downloading https://mirrors.tuna.tsinghua.edu.cn/pypi/web/packages/5a/84/44687a29792a70e111c5c477230a72c4b957d88d16141199bf9ac7537a3/websocket_client-1.8.0-py3-none-any.whl (58 kB)
Collecting tqdm (from tushare)
  Downloading https://mirrors.tuna.tsinghua.edu.cn/pypi/web/packages/d0/30/dc54f88dd4a2b5dc8a0279bdd7270e735851848b762ae

```

```
1@DESKTOP-IUD6F9I MINGW64 ~  
$ python  
Python 3.12.9 | packaged by conda-forge | (main, Mar  4 2025, 22:37:18) [MSC v.1943 64 bit (AMD64)] on win32  
Type "help", "copyright", "credits" or "license()" for more information.  
>>> import tushare  
>>> tushare.__version__  
'1.4.19'  
>>> tushare.__file__  
'F:\\biancheng\\Anaconda\\envs\\prj1\\Lib\\site-packages\\tushare\\__init__.py'  
>>> quit()  
(prj1)  
1@DESKTOP-IUD6F9I MINGW64 ~  
$
```

10.能够导出 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

```

00DESKTOP-IUD6F9T MINGW64 ~
$ conda env export -f environment.yml
name: prj1
channels:
  - conda-forge
  - defaults
  - https://repo.anaconda.com/pkgs/main
  - https://repo.anaconda.com/pkgs/r
  - https://repo.anaconda.com/pkgs/msys2
dependencies:
  - asttokens=2.0.5=pyhd3eb1b0_0
  - brotli-python=1.0.9=py312h5da7b33_9
  - bzip2=1.0.8=h2bbff1b_6
  - ca-certificates=2025.2.25=haa95532_0
  - certifi=2025.1.31=pyhd8ed1ab_0
  - charset-normalizer=3.3.2=pyhd3eb1b0_0
  - colorama=0.4.6=py312haa95532_0
  - decorator=5.1.1=pyhd3eb1b0_0
  - executing=0.8.3=pyhd3eb1b0_0
  - expat=2.6.4=h8ddb27b_0
  - idna=3.7=py312haa95532_0
  - intel-openmp=2024.2.1=h57928b3_1083
  - ipython=8.30.0=py312haa95532_0
  - jedi=0.19.2=py312haa95532_0
  - libblas=3.9.0=31_h641d27c_mkl
  - libcbblas=3.9.0=31_h5e41251_mkl
  - libexpat=2.6.4=he0c23c2_0
  - libffi=3.4.4=hd77b12b_1
  - libhwloc=2.11.2=default_ha69328c_1001
  - libiconv=1.18=h135ad9c_1

```

```
1 environment.yml
2 name: prj1
3 channels:
4   - conda-forge
5   - defaults
6   - https://repo.anaconda.com/pkgsrc/main
7   - https://repo.anaconda.com/pkgsrc/r
8   - https://repo.anaconda.com/pkgsrc/msys2
9 dependencies:
10  - asttokens=2.0.5-pyhd3eb1b0_0
11  - brotli-python=1.0.9-py312h5da7b33_9
12  - bzip2=1.0.8-h2bbf1b_6
13  - ca-certificates=2025.2.25-haa95532_0
14  - certifi=2025.1.31-pyhd8ed1ab_0
15  - charset-normalizer=3.3.2-pyhd3eb1b0_0
16  - colorama=0.4.6-py312haa95532_0
17  - decorator=5.1.1-pyhd3eb1b0_0
18  - executing=0.8.3-pyhd3eb1b0_0
19  - expat=2.6.4-h8ddb27b_0
20  - idna=3.7-py312haa95532_0
21  - intel-openmp=2024.2.1-h57928b3_1083
22  - ipython=8.30.0-py312haa95532_0
23  - jedi=0.19.2-py312haa95532_0
24  - libblas=3.9.0=31_h641d27c_mkl
25  - libcblas=3.9.0=31_h5e41251_mkl
26  - libexpat=2.6.4-he0c23c2_0
27  - libffi=3.4.4-hd77b12b_1
28  - libhwloc=2.11.2-default_ha69328c_1001
29  - libiconv=1.18-h135ad9c_1
30  - liblapack=3.9.0=31_h1aa476e_mkl
31  - liblzma=5.6.4-h2466b09_0
32  - libsqlite=3.49.1=h67fdade_2
33  - libwinpthread=12.0.0.r4.gg4f2fc60ca-h57928b3_9
34  - libxml2=2.13.6-he286ec0_0
35  - matplotlib=3.1.3-h2466b09_2
36  - matplotlib-inline=0.1.6-py312haa95532_0
```

删除 conda 环境 (y、y)

```

1@DESKTOP-IUD6F9I MINGW64 ~
$ conda deactivate
(base)
1@DESKTOP-IUD6F9I MINGW64 ~
$ conda env list

# conda environments:
#
base                * F:\biancheng\Anaconda
prj1                 F:\biancheng\Anaconda\envs\prj1
prj2                 F:\biancheng\Anaconda\envs\prj2

(base)
1@DESKTOP-IUD6F9I MINGW64 ~
$ conda env remove -n prj1

Remove all packages in environment F:\biancheng\Anaconda\envs\prj1:

## Package Plan ##

  environment location: F:\biancheng\Anaconda\envs\prj1

The following packages will be REMOVED:

  asttokens-2.0.5-pyhd3eb1b0_0
  brotli-python-1.0.9-py312h5da7b33_9
  bzip2-1.0.8-h2bbff1b_6
  ca-certificates-2025.2.25-haa95532_0

```

```

$ conda env list

# conda environments:
#
base                * F:\biancheng\Anaconda
prj2                 F:\biancheng\Anaconda\envs\prj2

(base)

```

```

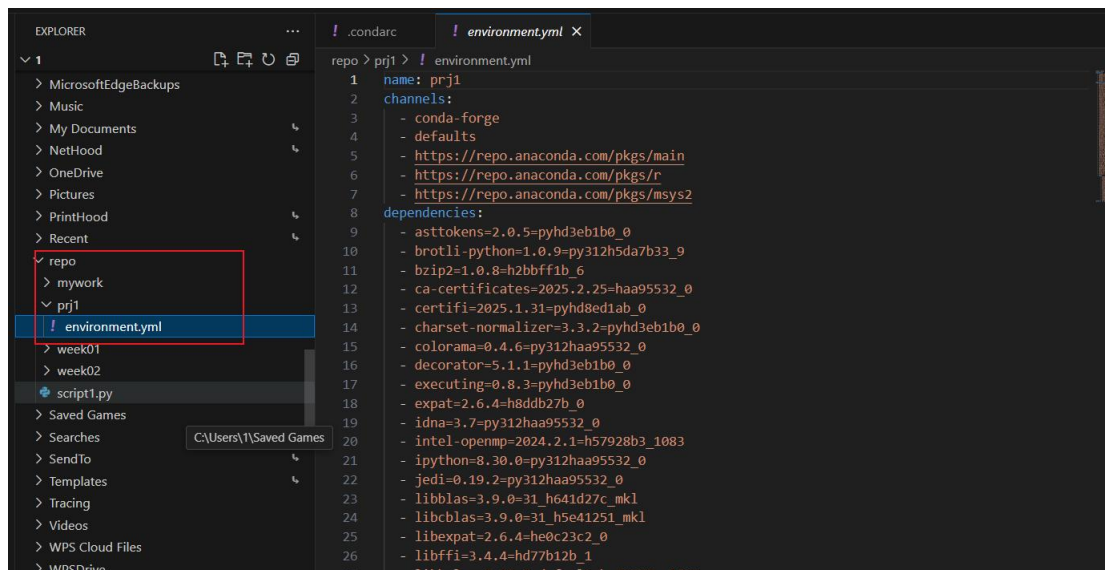
(base)
1@DESKTOP-IUD6F9I MINGW64 ~
$ cd repo
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo
$ ls -l
total 9
drwxr-xr-x 1 1 197609 0 3月 15 17:31 mywork/
-rw-r--r-- 1 1 197609 434 3月 9 14:16 script1.py
drwxr-xr-x 1 1 197609 0 3月 9 18:18 week01/
drwxr-xr-x 1 1 197609 0 3月 15 18:10 week02/
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo
$ mkdir prj1
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo
$ ls -l
total 9
drwxr-xr-x 1 1 197609 0 3月 15 17:31 mywork/
drwxr-xr-x 1 1 197609 0 3月 20 22:00 prj1/
-rw-r--r-- 1 1 197609 434 3月 9 14:16 script1.py
drwxr-xr-x 1 1 197609 0 3月 9 18:18 week01/
drwxr-xr-x 1 1 197609 0 3月 15 18:10 week02/
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo
$ cd prj1
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/prj1
$ ls -l
total 0

```

```

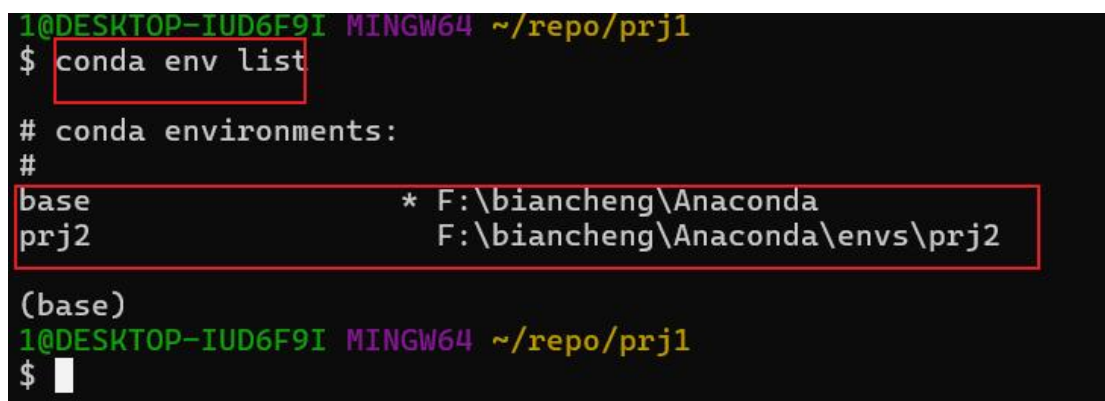
$ mv ~/environment.yml ./
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/prj1
$

```



The image shows the VS Code interface. On the left, the Explorer sidebar shows a file tree with 'repo' as the selected folder. Inside 'repo', there is a subfolder 'prj1' which contains a file named 'environment.yml'. This file is highlighted with a red box. The main editor area displays the content of 'environment.yml'. The file defines a Conda environment named 'prj1' with specific channels and a list of dependencies.

```
1 name: prj1
2 channels:
3   - conda-forge
4   - defaults
5   - https://repo.anaconda.com/pkg/main
6   - https://repo.anaconda.com/pkg/r
7   - https://repo.anaconda.com/pkg/msys2
8 dependencies:
9   - asttokens=2.0.5=pyhd3eb1b0_0
10  - brotli-python=1.0.9=py312h5da7b33_9
11  - bzip2=1.0.8=h2bbff1b_6
12  - ca-certificates=2025.2.25=haa95532_0
13  - certifi=2025.1.31=pyhd8ed1ab_0
14  - charset-normalizer=3.3.2=pyhd3eb1b0_0
15  - colorama=0.4.6=py312haa95532_0
16  - decorator=5.1.1=pyhd3eb1b0_0
17  - executing=0.8.3=pyhd3eb1b0_0
18  - expat=2.6.4=h8ddb27b_0
19  - idna=3.7=py312haa95532_0
20  - intel-openmp=2024.2.1=h57928b3_1083
21  - ipython=8.30.0=py312haa95532_0
22  - jedi=0.19.2=py312haa95532_0
23  - libblas=3.9.0=31_h641d27c_mkl
24  - libcbblas=3.9.0=31_h5e41251_mkl
25  - libexpat=2.6.4=he0c23c2_0
26  - libffi=3.4.4=hd77b12b_1
```



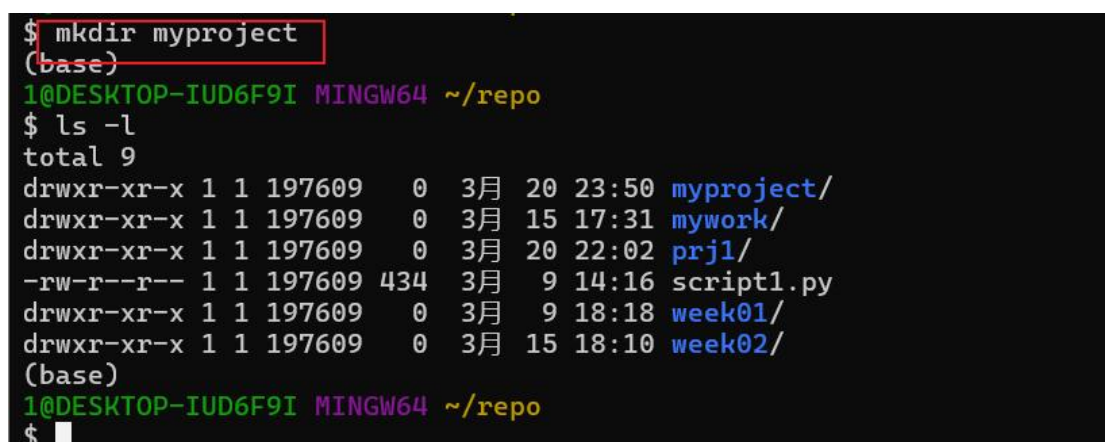
The image shows a terminal window with the command 'conda env list' entered. The output shows the current Conda environment 'base' and a newly created environment 'prj2'. The 'prj2' environment is located at 'F:\biancheng\Anaconda\envs\prj2'. The terminal prompt is at the end of the line, indicating the user is ready to enter another command.

```
1@DESKTOP-IUD6F9I MINGW64 ~/repo/prj1
$ conda env list

# conda environments:
#
base                  * F:\biancheng\Anaconda
prj2                  F:\biancheng\Anaconda\envs\prj2

(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/prj1
$
```

- 11.理解 Conda 与 Python 的关系,理解 Conda-Forge 与 Conda 的关系,理解 Python 解释器、第三方软件包、PyPI 软件仓库、以及程序/软件包的路径问题
- 12.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



The image shows a terminal window with the command 'mkdir myproject' entered. The output shows the directory 'myproject' has been created. The terminal prompt is at the end of the line, indicating the user is ready to enter another command.

```
$ mkdir myproject
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo
$ ls -l
total 9
drwxr-xr-x 1 1 197609 0 3月 20 23:50 myproject/
drwxr-xr-x 1 1 197609 0 3月 15 17:31 mywork/
drwxr-xr-x 1 1 197609 0 3月 20 22:02 prj1/
-rw-r--r-- 1 1 197609 434 3月 9 14:16 script1.py
drwxr-xr-x 1 1 197609 0 3月 9 18:18 week01/
drwxr-xr-x 1 1 197609 0 3月 15 18:10 week02/

(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo
$
```



```
$ cd myproject/
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$ ls -l
total 1
-rw-r--r-- 1 1 197609 75  3月 21 00:01 environment.yml
(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$ cat environment.yml
name: myproject
channels:
  - conda-forge
dependencies:
  - python=3.12(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$
```

```
$ conda env create
Channels:
  - conda-forge
  - defaults
  - https://repo.anaconda.com/pkgs/main
  - https://repo.anaconda.com/pkgs/r
  - https://repo.anaconda.com/pkgs/msys2
Platform: win-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 myproject
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$
```

```
$ conda env list

# conda environments:
#
base                  * F:\biancheng\Anaconda
myproject             F:\biancheng\Anaconda\envs\myproject
prj1                  F:\biancheng\Anaconda\envs\prj1
prj2                  F:\biancheng\Anaconda\envs\prj2
```



```

$ conda activate myproject
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$ conda list
# packages in environment at F:\biancheng\Anaconda\envs\myproject:
#
# Name                    Version            Build                Channel
bzip2                     1.0.8              h2466b09_7          conda-forge
ca-certificates           2025.1.31          h56e8100_0          conda-forge
libexpat                  2.6.4              he0c23c2_0          conda-forge
libffi                    3.4.6              h537db12_0          conda-forge
liblzma                   5.6.4              h2466b09_0          conda-forge
libsqlite                 3.49.1             h67fdade_2          conda-forge
libzlib                   1.3.1              h2466b09_2          conda-forge
openssl                   3.4.1              ha4e3fda_0          conda-forge
pip                       25.0.1             pyh8b19718_0        conda-forge
python                    3.12.9             h3f84c4b_1_cpython  conda-forge
setuptools                75.8.2             pyhff2d567_0        conda-forge
tk                         8.6.13             h5226925_1          conda-forge
tzdata                    2025a              h78e105d_0          conda-forge
ucrt                      10.0.22621.0       h57928b3_1          conda-forge
vc                         14.3               hbf610ac_24         conda-forge
vcl4_runtime              14.42.34438        hfd919c2_24         conda-forge
wheel                     0.45.1             pyhd8ed1ab_1        conda-forge
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$

```

```

! environment.yml  main.py X
main.py > ...
1  def main():
2      print("Hello, conda!")
3
4
5  if __name__ == "__main__":
6      main()

```

运行编辑的 main.py 脚本

```

$ python main.py
Hello, conda!
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject

```

```

! environment.yml  main.py 1 X
main.py >
1  import pandas as pd
2
3
4  def main():
5      print("Hello, conda!")
6
7
8  if __name__ == "__main__":
9      main()

```

```
$ python main.py
Traceback (most recent call last):
  File "C:\Users\1\repo\myproject\main.py", line 1, in <module>
    import pandas as pd
ModuleNotFoundError: No module named 'pandas'
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
```

```
! environment.yml X main.py 1
! environment.yml
1 name: myproject
2 channels:
3   - conda-forge
4 dependencies:
5   - python=3.12
6   - pandas
```

```
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$ conda env update
Channels:
- conda-forge
- defaults
- https://repo.anaconda.com/pkgs/main
- https://repo.anaconda.com/pkgs/r
- https://repo.anaconda.com/pkgs/msys2
Platform: win-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 myproject
#
# To deactivate an active environment, use
#
#   $ conda deactivate
#
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
```

```
$ conda list
# packages in environment at F:\biancheng\Anaconda\envs\myproject:
#
# Name                        Version                        Build      Channel
bzip2                        1.0.8                        h2466b09_7  conda-forge
ca-certificates              2025.1.31                    h56e8100_0  conda-forge
intel-openmp                 2024.2.1                    h57928b3_1083  conda-forge
libblas                      3.9.0                        31_h641d27c_mkl  conda-forge
libcblas                     3.9.0                        31_h5e41251_mkl  conda-forge
libexpat                     2.6.4                        he0c23c2_0  conda-forge
libffi                       3.4.6                        h537db12_0  conda-forge
libhwloc                     2.11.2                      default_ha69328c_1001  conda-forge
libiconv                     1.18                         h135ad9c_1  conda-forge
liblapack                    3.9.0                        31_h1aa476e_mkl  conda-forge
liblzma                      5.6.4                        h2466b09_0  conda-forge
libsqlite                    3.49.1                      h67fdade_2  conda-forge
libwinpthread                12.0.0.r4.gg4f2fc60ca      h57928b3_9  conda-forge
libxml2                      2.13.6                      he286e8c_0  conda-forge
libzlib                      1.3.1                        h2466b09_2  conda-forge
mkl                          2024.2.2                    h66d3029_15  conda-forge
numpy                        2.2.4                      py312h3150e54_0  conda-forge
openssl                      3.4.1                      ha4e3fda_0  conda-forge
pandas                       2.2.3                      py312h72972c8_1  conda-forge
pip                          25.0.1                      pyh8b19718_0  conda-forge
python                      3.12.9                      h3f84c4b_1_cpython  conda-forge
python-dateutil              2.9.0.post0                 pyhf2d567_1  conda-forge
```

```
! environment.yml  main.py 1 X
main.py > main
1  import pandas as pd
2
3
4  def main():
5      print("Hello, conda!")
6      print(pd.__version__)
7      print(pd.__file__)
8
9
10 if __name__ == "__main__":
11     main()
```

```
$ python main.py
Hello, conda!
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$ python main.py
Hello, conda!
2.2.3
F:\biancheng\Anaconda\envs\myproject\Lib\site-packages\pandas\__init__.py
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$
```

```

$ ls -l
total 2
-rw-r--r-- 1 1 197609 87 3月 21 10:27 environment.yml
-rw-r--r-- 1 1 197609 159 3月 21 10:37 main.py
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$ curl -O https://edq.epa.gov/EPADDataCommons/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 381k 0 0:08:36 0:08:36 --:--:-- 338k
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$ ls -lh
total 193M
-rw-r--r-- 1 1 197609 87 3月 21 10:27 environment.yml
-rw-r--r-- 1 1 197609 193M 3月 21 10:50 EPA_SmartLocationDatabase_V3_Jan_2021_Final.csv
-rw-r--r-- 1 1 197609 159 3月 21 10:37 main.py
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$

```

在 VS Code 里安装 Rainbow CSV 插件

```

1 OBJECTID,GEOID10,GEOID20,STATEFP,COUNTYFP,TRACTCE,BLKGRPCE,CSA,CSA_Name,CBSA,CBSA_Name,CBSA_POP,CB
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30 29,4.8113E+11,4.8113E+11,48,113,13608,1,206,"Dallas-Fort Worth, TX-OK",19100,"Dallas-Fort Worth-Ar

```



```
! environment.yml  main.py 1 X
main.py > ...
1  import pandas as pd
2
3
4  def main():
5      """
6      Answers the question:
7
8      What percentage of U.S. residents live highly walkable neighborhoods?
9
10     "15.26" is the threshold on the index for a highly walkable area.
11     """
12     csv_file = "../EPA_SmartLocationDatabase_V3_Jan_2021_Final.csv"
13     highly_walkable = 15.26
14
15     df = pd.read_csv(csv_file)
16
17     total_population = df["TotPop"].sum()
18     highly_walkable_pop = df[df["NatWalkInd"] >= highly_walkable]["TotPop"].sum()
19
20     percentage = (highly_walkable_pop / total_population) * 100.0
21
22     print(
23         f"{percentage:.2f}% of U.S. residents live in highly " "walkable neighborhoods."
24     )
25
26
27 if __name__ == "__main__":
28     main()
```

```
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$ python main.py
10.69% of U.S. residents live in highlywalkable neighborhoods.
(myproject)
1@DESKTOP-IUD6F9I MINGW64 ~/repo/myproject
$
```