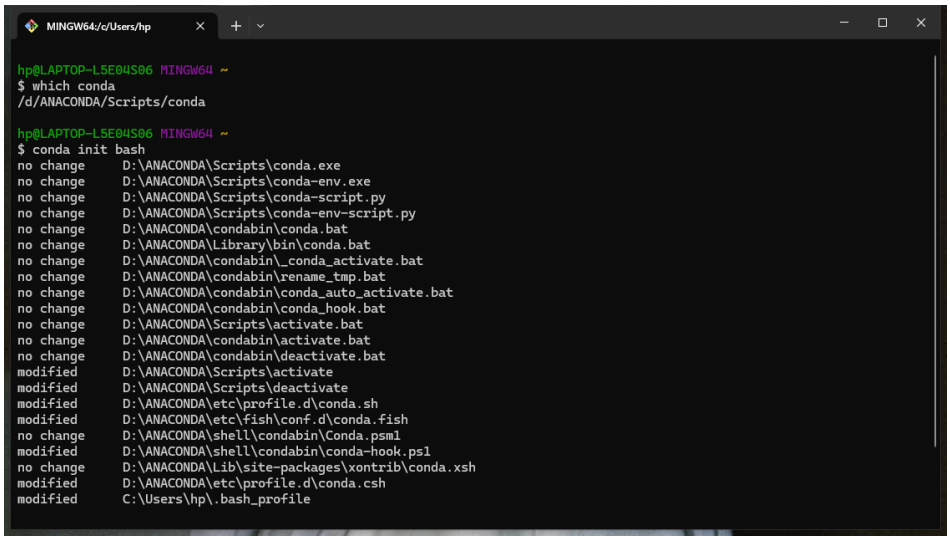
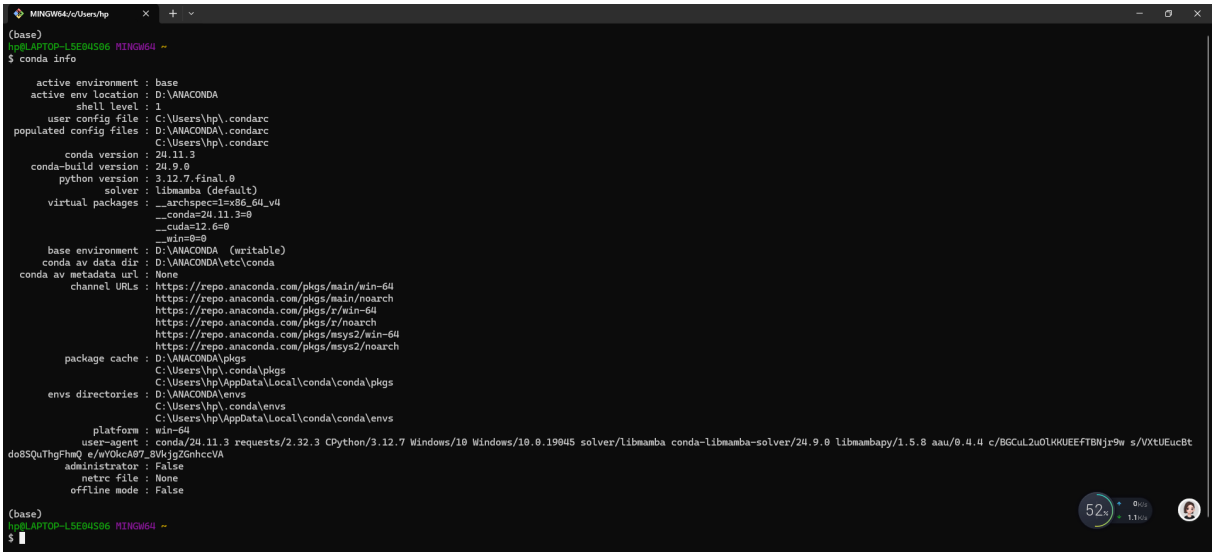
第三周学习报告

- 1.在Git Bash中配置好 Conda Init



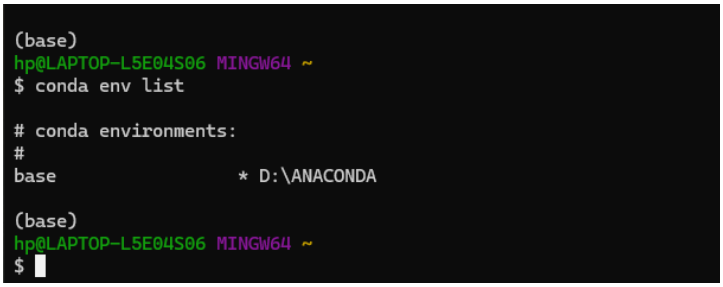
conda init 是 Conda 环境管理系统中的一个重要命令，它的主要功能是对 shell 进行初始化配置，从而让用户能够在 shell 会话里直接使用 conda 命令。

- 2.使用 conda info 命令查看本机 Conda 的配置信息



package cache：Conda 包缓存的路径。
envs directories：Conda 环境的存储目录。
user - agent：Conda 发送请求时使用的用户代理信息。
netrc file：Netrc 文件的路径，该文件用于存储认证信息。
offline mode：是否处于离线模式。

- 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 环境是 Conda 这个开源软件包和环境管理系统里的一个关键概念，它为用户打造了独立且隔离的工作空间，下面详细解释其概念、作用、创建和管理方法。

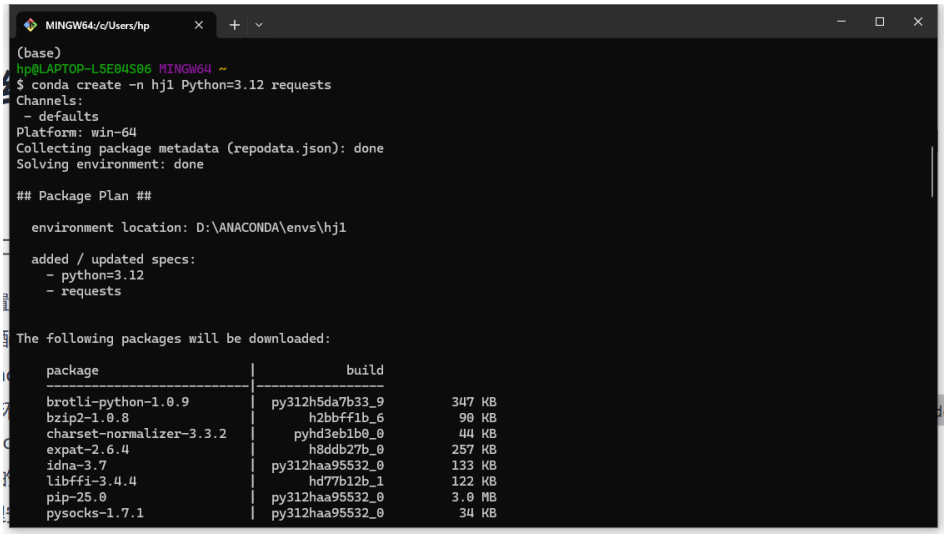
概念阐释

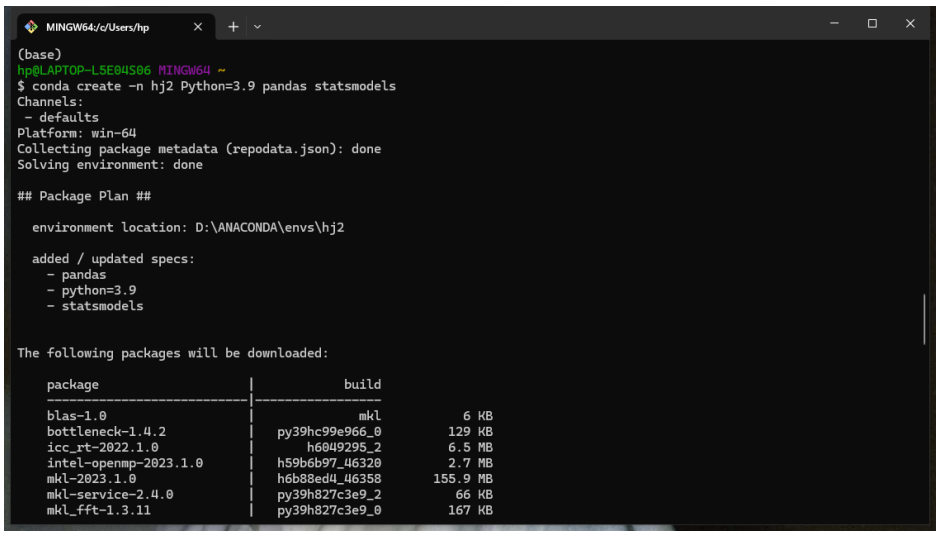
Conda 环境可以理解成一个独立的文件夹，其中存放着特定版本的软件包和依赖项。在不同的 Conda 环境中，你能安装不同版本的 Python 解释器和各类软件包，而且这些环境之间不会相互干扰。

主要作用

- **隔离性**：不同的项目可能会依赖不同版本的软件包。通过创建多个 Conda 环境，你能为每个项目单独配置所需的软件包版本，避免因版本冲突而引发的问题。
- **可重复性**：你可以把 Conda 环境的配置信息导出为一个文件，这样其他人就能依据这个文件创建出与你相同的环境，确保项目的可重复性。
- **环境管理**：借助 Conda 命令，你能轻松地创建、激活、停用和删除环境，方便管理不同的工作场景。

- 4.使用 conda create 命令创建两个 Conda 环境





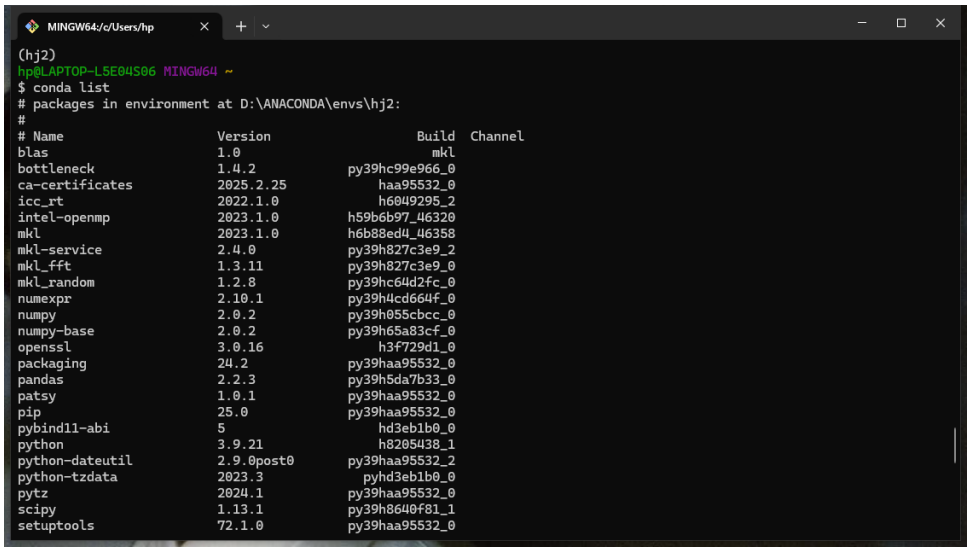

```
(base)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda env list

# conda environments:
#
base                  * D:\ANACONDA
hj1                     D:\ANACONDA\envs\hj1
hj2                     D:\ANACONDA\envs\hj2
```

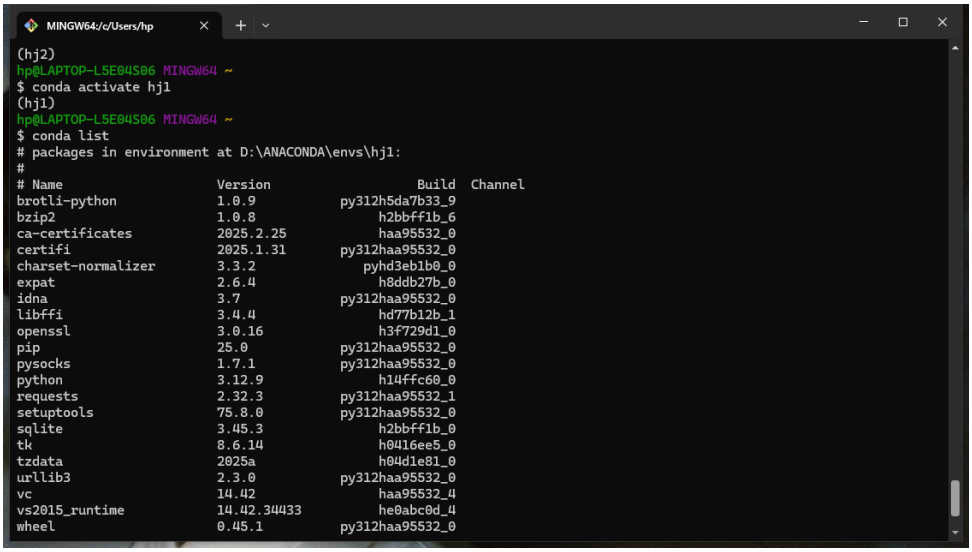
验证 Python 和软件包的版本

```
(base)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda activate hj1
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ which python
/d/ANACONDA/envs/hj1/python
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ python --version
Python 3.12.9
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda activate hj2
(hj2)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ which python
/d/ANACONDA/envs/hj2/python
(hj2)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ python --version
Python 3.9.21
```

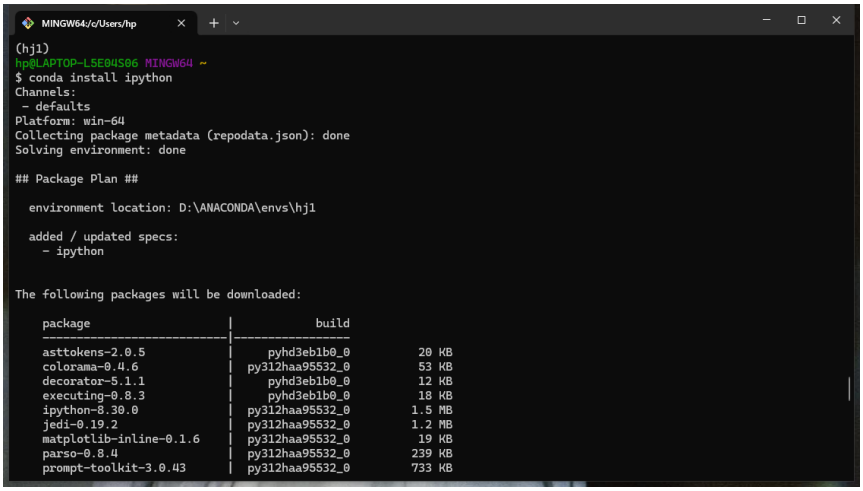
```
(hj2)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ python
Python 3.9.21 (main, Dec 11 2024, 16:35:24) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas
>>> pandas.__file__
'D:\\ANACONDA\\envs\\hj2\\lib\\site-packages\\pandas\\__init__.py'
>>> pandas.__version__
'2.2.3'
>>> quit()
```

- 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

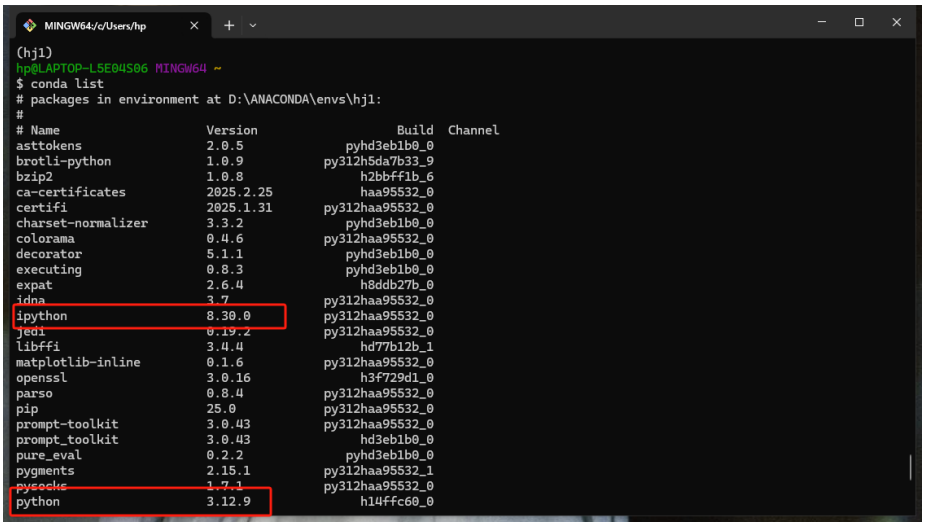




- 6.使用 conda install 命令往 Conda 环境里安装更多的软件包，并验证版本

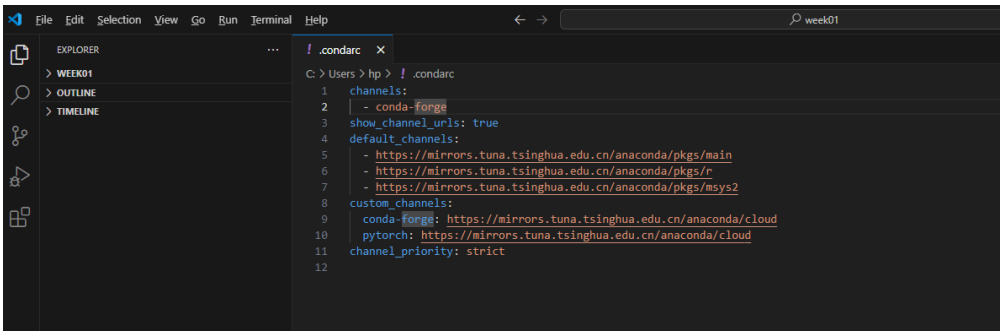


```
MINGW64:/c/Users/hp
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda install ipython
Channels:
 - defaults
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: D:\ANACONDA\envs\hj1

  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
```



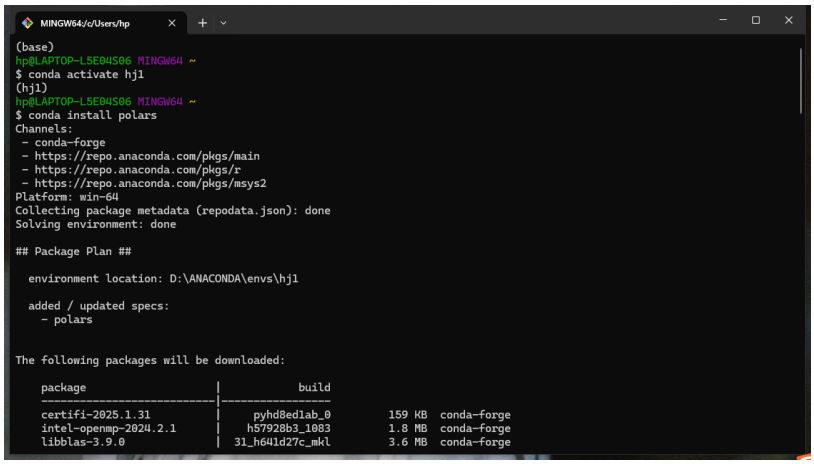
```
MINGW64:/c/Users/hp
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda list
# packages in environment at D:\ANACONDA\envs\hj1:
#
# Name                    Version                   Build  Channel
asttokens                 2.0.5              pyhd3eb1b0_0
brotli-python             1.0.9           py312h5da7b33_9
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
python                    3.12.9               h14ffc60_0
```

- 7.配置 Anaconda 清华镜像

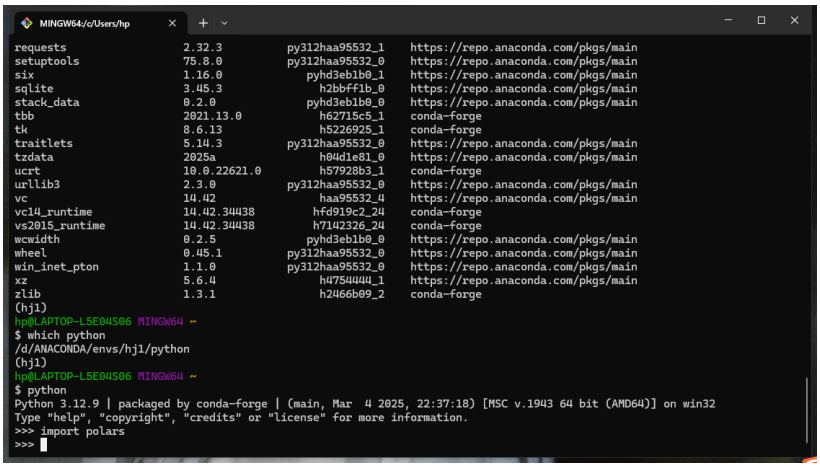


```
File  Edit  Selection  View  Go  Run  Terminal  Help        week01

EXPLORER                    .condarc
> WEEK01                    C: > Users > hp > .condarc
> OUTLINE
> TIMELINE
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
11  channel_priority: strict
12
```

安装polars并测试

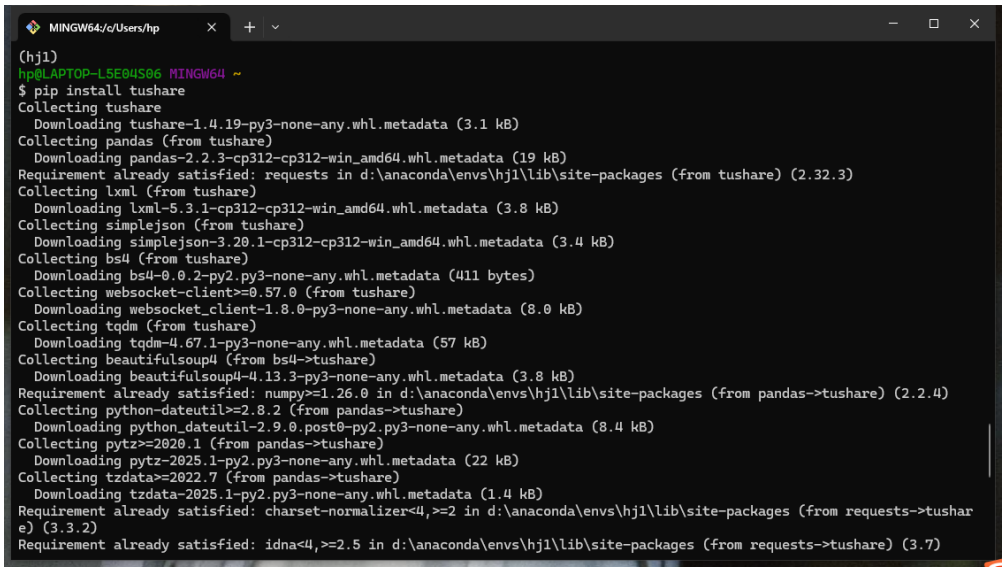


```
MINGW64:/c/Users/hp
(base)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda activate hj1
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda install polars
Channels:
 - conda-forge
 - https://repo.anaconda.com/pkgs/main
 - https://repo.anaconda.com/pkgs/r
 - https://repo.anaconda.com/pkgs/msys2
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: D:\ANACONDA\envs\hj1

  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_h641d27c_mkl         3.6 MB  conda-forge
```

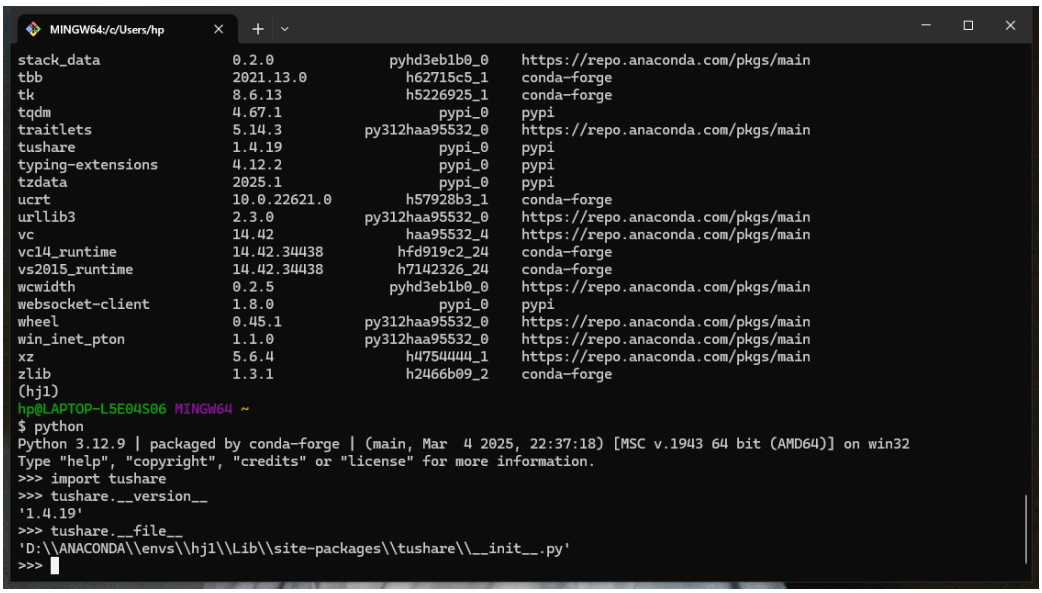


删除整个环境：
conda env remove --n <env_name> --all

- 8.使用 pip install 命令在Conda 环境里安装 tushare



验证tushare版本和路径



- 9.配置 PyPI 清华镜像

```
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ python -m pip install --upgrade pip
Requirement already satisfied: pip in d:\anaconda\envs\hj1\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 1.0 MB/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
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ pip config set global.index-url https://mirrors.tuna.tsinghua.edu.cn/pypi/web/simple
Writing to C:\Users\hp\AppData\Roaming\pip\pip.ini
```

- 10.能够导出 environment.yml Conda 环境配置文件

```
MINGW64:/c/Users/hp
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$  conda env export -f environment.yml
name: hj1
channels:
  - conda-forge
  - 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
  - libcblas=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
```

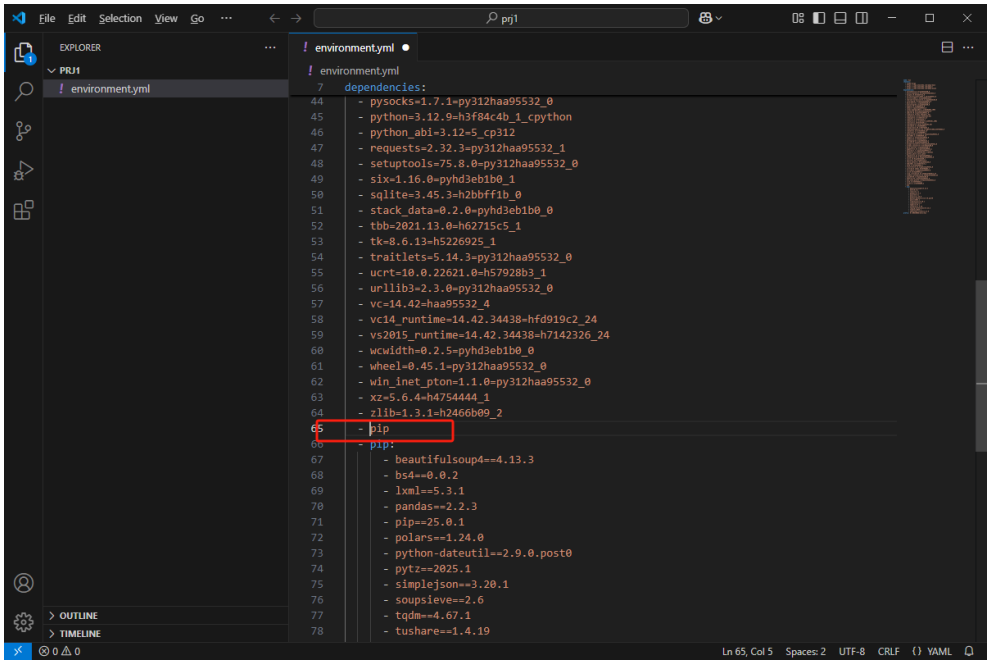
删除 Conda 环境

```
MINGW64:/c/Users/hp
(hj1)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda deactivate
(base)
hp@LAPTOP-L5E04S06 MINGW64 ~
$ conda env remove -n hj1

Remove all packages in environment D:\ANACONDA\envs\hj1:


## Package Plan ##

  environment location: D:\ANACONDA\envs\hj1


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
  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
```

❖ 用 environment.yml 配置文件重建 Conda 环境时报错

```
(base)
hp@LAPTOP-L5E04S06 MINGW64 ~/repo/prj1
$ conda env create
Warning: you have pip-installed dependencies in your environment file, but you do not list pip itself as one of your con
da 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.
```

通过询问AI，了解这个警告信息是因为在 environment.yml 文件里使用了 pip 来安装依赖，但没有把 pip 作为 conda 依赖明确列出。为了解决这个问题，需要手动在 environment.yml 中添加 pip 依赖项。
根据AI 提示，做出如下操作：打开 environment.yml 文件，在 dependencies 部分添加 pip 依赖

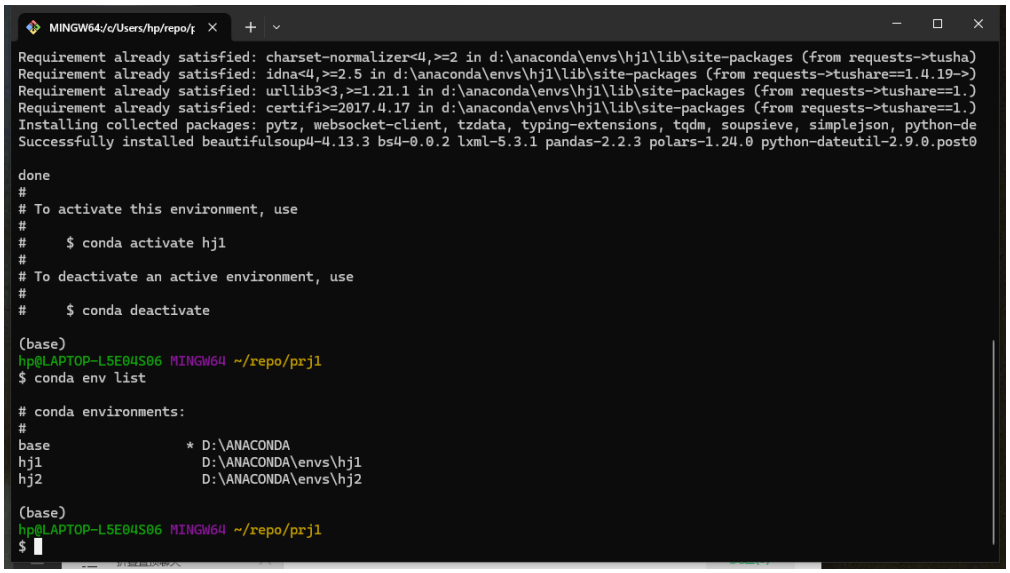


❖ 运行后，再次报错

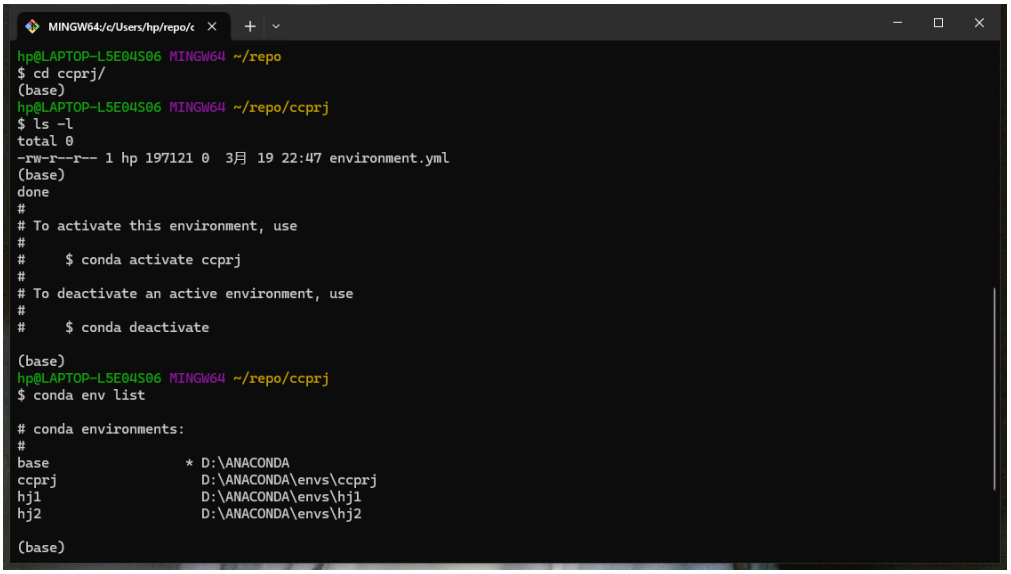
```
MINGW64:/c/Users/hp/repo/p
hp@LAPTOP-L5E04S06 MINGW64 ~/repo/prj1
$ conda env create
Channels:
 - conda-forge
 - https://repo.anaconda.com/pkgs/main
 - https://repo.anaconda.com/pkgs/r
 - https://repo.anaconda.com/pkgs/msys2
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: failed

LibMambaUnsatisfiableError: Encountered problems while solving:
  - package brotli-python-1.0.9-py312h5da7b33_9 is excluded by strict repo priority
  - package bzip2-1.0.8-h2bbff1b_6 is excluded by strict repo priority
  - package ca-certificates-2025.2.25-haa95532_0 is excluded by strict repo priority
  - package colorama-0.4.6-py312haa95532_0 is excluded by strict repo priority
  - package decorator-5.1.1-pyhd3eb1b0_0 is excluded by strict repo priority
  - package expat-2.6.4-h8ddb27b_0 is excluded by strict repo priority
  - package idna-3.7-py312haa95532_0 is excluded by strict repo priority
  - package ipython-8.30.0-py312haa95532_0 is excluded by strict repo priority
  - package jedi-0.19.2-py312haa95532_0 is excluded by strict repo priority
  - package libffi-3.4.4-hd77b12b_1 is excluded by strict repo priority
  - package prompt_toolkit-3.0.43-hd3eb1b0_0 is excluded by strict repo priority
  - package pygments-2.15.1-py312haa95532_1 is excluded by strict repo priority
  - package pysocks-1.7.1-py312haa95532_0 is excluded by strict repo priority
  - package requests-2.32.3-py312haa95532_1 is excluded by strict repo priority
  - package setuptools-75.8.0-py312haa95532_0 is excluded by strict repo priority
  - package six-1.16.0-pyhd3eb1b0_1 is excluded by strict repo priority
  - package sqlite-3.45.3-h2bbff1b_0 is excluded by strict repo priority
  - package traitlets-5.14.3-py312haa95532_0 is excluded by strict repo priority
```

AI给出的解释是：这些软件包因为严格的仓库优先级设置而被排除，这往往是在设置了严格的渠道优先级后，conda 无法从优先级最高的渠道找到合适的软件包版本所造成的。
在终端里运行：
conda config --set channel_priority flexible 后 问题得到解决。

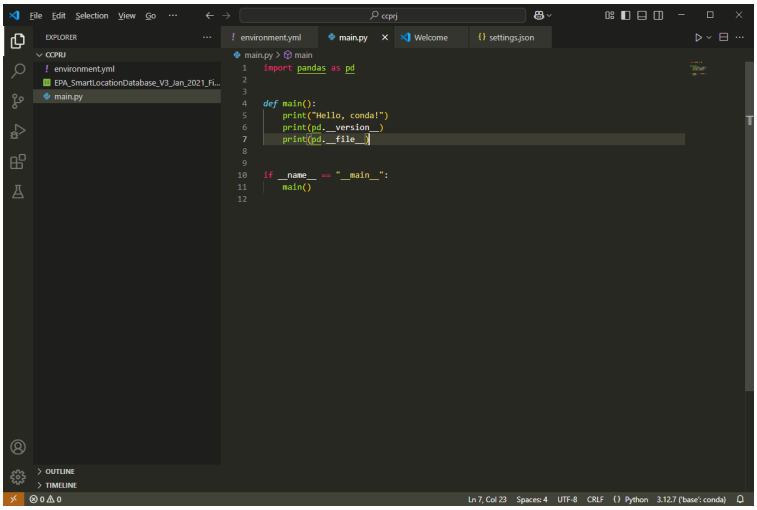
用 environment.yml 配置文件重建 Conda 环境成功！



- 11.创建项目目录



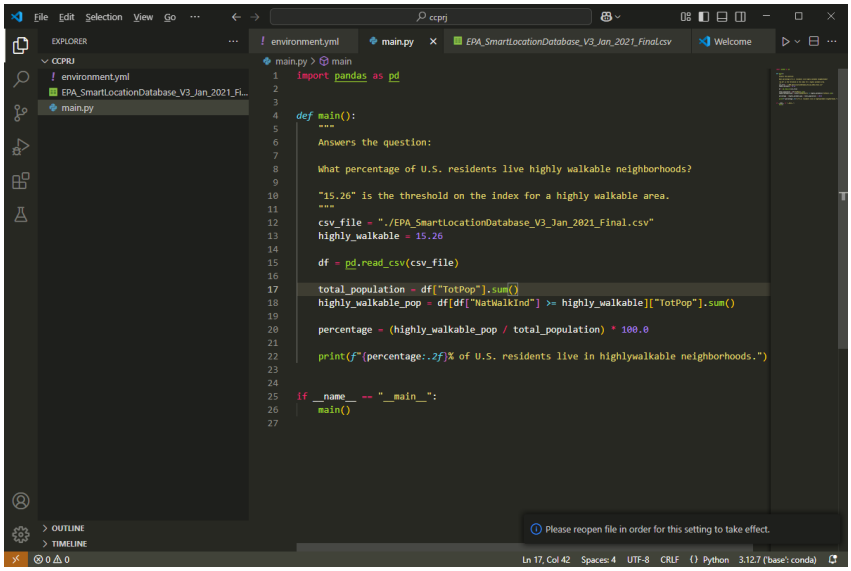
编写 main.py 脚本



在该环境中添加pandas 后运行 conda env update 更新环境并成功运行脚本

```
(ccprj)
hp@LAPTOP-L5E04S06 MINGW64 ~/repo/ccprj
$ python main.py
Hello, conda!
(ccprj)
hp@LAPTOP-L5E04S06 MINGW64 ~/repo/ccprj
$ python main.py
Hello, conda!
2.2.3
D:\ANACONDA\envs\ccprj\Lib\site-packages\pandas\__init__.py
(ccprj)
```

- 12.下载csv文件并运行main.py脚本




```
(ccprj)
hp@LAPTOP-L5E04S06 MINGW64 ~/repo/ccprj
$ curl -O https://edg.epa.gov/EPADataCommons/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   410k      0  0:07:59  0:07:59 --:--:--  238k
(ccprj)
hp@LAPTOP-L5E04S06 MINGW64 ~/repo/ccprj
$ ls -lh
total 193M
-rw-r--r-- 1 hp 197121   83  3月 20 20:07 environment.yml
-rw-r--r-- 1 hp 197121 193M  3月 20 20:27 EPA_SmartLocationDatabase_V3_Jan_2021_Final.csv
-rw-r--r-- 1 hp 197121  161  3月 20 20:17 main.py
(ccprj)
hp@LAPTOP-L5E04S06 MINGW64 ~/repo/ccprj
$ python main.py
10.69% of U.S. residents live in highlywalkable neighborhoods.
```