

## 第三周学习报告：python 项目

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)

```
Last login: Sat Mar 22 14:51:21 on tty9000
(base) donghengxu@donghengxudeMacBook-Air ~ % which conda
conda () {
    local cmd=${1:-__missing__}
    case "$cmd" in
        (activate | deactivate) __conda_activate "$@" ;;
        (install | update | upgrade | remove | uninstall) __conda_exe "$@" || \return
        __conda_activate reactivate ;;
        (*) __conda_exe "$@" ;;
    esac
}
(base) donghengxu@donghengxudeMacBook-Air ~ % conda init --help
usage: conda init [-h] [--all] [--user] [--no-user] [--system] [--reverse]
                  [--json] [--console CONSOLE] [-v] [-q] [-d]
                  [SHELLS ...]

Initialize conda for shell interaction.

positional arguments:
  SHELLS                One or more shells to be initialized. If not given, the
                        default value is 'bash' on unix and 'cmd.exe' &
                        'powershell' on Windows. Use the '--all' flag to
                        initialize all shells. Available shells: ['bash', 'fish',
                        'powershell', 'tcsh', 'xonsh', 'zsh']

options:
  -h, --help            Show this help message and exit.
  --all                Initialize all currently available shells.
  -d, --dry-run        Only display what would have been done.

setup type:
  --user              Initialize conda for the current user (default).
  --no-user           Don't initialize conda for the current user.
  --system            Initialize conda for all users on the system.
  --reverse           Undo effects of last conda init.

Output, Prompt, and Flow Control Options:
  --json              Report all output as json. Suitable for using conda
                        programmatically.
  --console CONSOLE   Select the backend to use for normal output rendering.
                        Can be used multiple times. Once for detailed output,
                        twice for INFO logging, thrice for DEBUG logging, four
                        times for TRACE logging.
  -v, --verbose        Do not display progress bar.
  -q, --quiet

Key parts of conda's functionality require that it interact directly with the shell
within which conda is being invoked. The 'conda activate' and 'conda deactivate' commands
specifically are shell-level commands. That is, they affect the state (e.g. environment
variables) of the shell context being interacted with. Other core commands, like
'conda create' and 'conda install', also necessarily interact with the shell environment.
They're therefore implemented in ways specific to each shell. Each shell must be configured
to make use of them.

This command makes changes to your system that are specific and customized for each shell.
To see the specific files and locations on your system that will be affected before, use
the '--dry-run' flag. To see the exact changes that are being or will be made to each
location, use the '--verbose' flag.

IMPORTANT: After running 'conda init', most shells will need to be closed and restarted for
changes to take effect.
(base) donghengxu@donghengxudeMacBook-Air ~ % conda init zsh
no change      /opt/anaconda3/condabin/conda
no change      /opt/anaconda3/bin/conda
```

2、使用 conda info 命令查看本机 Conda 的配置信息

```
Last login: Sat Mar 22 21:41:45 on tty9001
(base) donghengxu@donghengxudeMacBook-Air ~ % conda info

active environment : base
active env location : /opt/anaconda3
shell level : 1
user config file : /Users/donghengxu/.condarc
populated config files : /opt/anaconda3/.condarc
                        /Users/donghengxu/.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=m1
                  __conda=24.11.3=0
                  __osx=12.2.1=0
                  __unix=0=0
base environment : /opt/anaconda3 (writable)
conda av data dir : /opt/anaconda3/etc/conda
conda av metadata url : None
channel URLs : https://repo.anaconda.com/pkgs/main/osx-arm64
               https://repo.anaconda.com/pkgs/main/noarch
               https://repo.anaconda.com/pkgs/r/osx-arm64
               https://repo.anaconda.com/pkgs/r/noarch
package cache : /opt/anaconda3/pkgs
                /Users/donghengxu/.conda/pkgs
envs directories : /opt/anaconda3/envs
                  /Users/donghengxu/.conda/envs
platform : osx-arm64
user-agent : conda/24.11.3 requests/2.32.3 CPython/3.12.7 Darwin/21.3.0 OSX/12.2.1 solver/libmamba conda-libmamba-solver/24.9.0 libmambapy/1.5.8 sau/0.4.4 c/MiohJKKAUdQFsDKaYtL2A s/IBISQQuAK
1tc00bXMP2Bw e/f-cnpfP1TZ2BSpz5t-0
UID:GID : 501:20
netrc file : None
offline mode : False
```

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

```
((base) donghengxu@donghengxudeMacBook-Air ~ % ls -la
.                  .ssh              Downloads
..                .tcshrc           Library
.CFUserTextEncoding .viminfo          Movies
.DS_Store         .vscode           Music
.Trash            .xonshrc          Parallels
.anaconda         .zprofile         Pictures
.bash_profile     .zsh_history      Public
.conda            .zsh_sessions    Visual Studio Code.app
.condarc          .zshrc            Visual Studio Code的副本.app
.config           .zshrc.swp        abc.txt
.continuum        .zshrc~           brew-install
.cups             Applications       repo
.gitconfig        Applications (Parallels)
.ipython          Desktop            report.txt
.python_history   Documents

(base) donghengxu@donghengxudeMacBook-Air ~ % conda env list

# conda environments:
#
base                * /opt/anaconda3
```

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

### (1) 创建第一个环境

```
(base) donghengxu@donghengxudeMacBook-Air ~ % conda create -n prj1 python=3.12 requests
Channels:
 - defaults
Platform: osx-arm64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: /opt/anaconda3/envs/prj1

added / updated specs:
  - python=3.12
  - requests

The following packages will be downloaded:
```

package	build	
brotli-python-1.0.9	py312h313beb8_9	367 KB
bzip2-1.0.8	h80987f9_6	129 KB
charset-normalizer-3.3.2	pyhd3eb1b9_0	44 KB
expat-2.6.4	h313beb8_0	152 KB
idna-3.7	py312hca83da5_0	133 KB
libcxx-14.0.6	h8da8dc8_0	965 KB
libffi-3.4.4	hca83da5_1	128 KB
ncurses-6.4	h313beb8_0	884 KB
pip-25.0	py312hca83da5_0	2.8 MB
pysocks-1.7.1	py312hca83da5_0	35 KB
python-3.12.9	h99e199e_0	13.9 MB
readline-8.2	h1a28f6b_0	353 KB
requests-2.32.3	py312hca83da5_1	128 KB
setuptools-75.8.0	py312hca83da5_0	2.2 MB
sqlite-3.45.3	h80987f9_0	1.2 MB
tk-8.6.14	h6ba3821_0	3.3 MB
tzdata-2025a	h04d1e81_0	117 KB
urllib3-2.3.0	py312hca83da5_0	234 KB
wheel-0.45.1	py312hca83da5_0	148 KB
xz-5.6.4	h80987f9_1	289 KB
zlib-1.2.13	h18a0788_1	91 KB
Total:		27.4 MB

```
The following NEW packages will be INSTALLED:
```

brotli-python	pkgs/main/osx-arm64::brotli-python-1.0.9-py312h313beb8_9
bzip2	pkgs/main/osx-arm64::bzip2-1.0.8-h80987f9_6
ca-certificates	pkgs/main/osx-arm64::ca-certificates-2025.2.25-hca83da5_0
certifi	pkgs/main/osx-arm64::certifi-2025.1.31-py312hca83da5_0
charset-normalizer	pkgs/main/noarch::charset-normalizer-3.3.2-pyhd3eb1b9_0
expat	pkgs/main/osx-arm64::expat-2.6.4-h313beb8_0
idna	pkgs/main/osx-arm64::idna-3.7-py312hca83da5_0
libcxx	pkgs/main/osx-arm64::libcxx-14.0.6-h8da8dc8_0
libffi	pkgs/main/osx-arm64::libffi-3.4.4-hca83da5_1
ncurses	pkgs/main/osx-arm64::ncurses-6.4-h313beb8_0
openssl	pkgs/main/osx-arm64::openssl-3.16-h82f4b3c_0
pip	pkgs/main/osx-arm64::pip-25.0-py312hca83da5_0
pysocks	pkgs/main/osx-arm64::pysocks-1.7.1-py312hca83da5_0
python	pkgs/main/osx-arm64::python-3.12.9-h99e199e_0
readline	pkgs/main/osx-arm64::readline-8.2-h1a28f6b_0
requests	pkgs/main/osx-arm64::requests-2.32.3-py312hca83da5_1

#### 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) donghengxu@donghengxudeMacBook-Air ~ %
```

## (2) 创建第二个

```
Channels:
- defaults
Platform: osx-arm64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

environment location: /opt/anaconda3/envs/prj2

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

The following packages will be downloaded:
```

package	build	
blas-1.0	openblas	10 KB
bottleneck-1.4.2	py39hbd83bc_0	109 KB
libgfortran-5.0.0	11_3_0_hca83da5_28	142 KB
libgfortran5-11.3.0	h009349e_28	1.0 MB
libopenblas-0.3.21	h269837a_0	3.3 MB
llvmlib-14.0.6	hca83da5_0	253 KB
numexpr-2.10.1	py39h5d9532f_0	158 KB
numpy-2.0.2	py39h3b2db8e_0	12 KB
numpy-base-2.0.2	py39ha981a2_0	6.1 MB
packaging-24.2	py39hca83da5_0	172 KB
pandas-2.2.3	py39hcf29cfe_0	12.2 MB
patsy-1.0.1	py39hca83da5_0	284 KB
pip-25.0	py39hca83da5_0	2.3 MB
pybind11-abi-4	h3eb1b01_1	14 KB
python-3.9.21	h0888b11_1	12.4 MB
python-dateutil-2.9.0post0	py39hca83da5_2	282 KB
python-trdata-2023.3	pyh3eb1b01_0	140 KB
pytz-2024.1	py39hca83da5_0	214 KB
scipy-1.13.1	py39h336fd7_1	20.4 MB
setuptools-72.1.0	py39hca83da5_0	2.4 MB
six-1.16.0	pyh3eb1b01_1	10 KB
statsmodels-0.14.4	py39h08987f9_0	10.5 MB
wheel-0.45.1	py39hca83da5_0	115 KB
Total:		72.9 MB

The following NEW packages will be INSTALLED:

blas	pkgs/main/osx-arm64::blas-1.0-openblas
bottleneck	pkgs/main/osx-arm64::bottleneck-1.4.2-py39hbd83bc_0
ca-certificates	pkgs/main/osx-arm64::ca-certificates-2025.2.25-hca83da5_0
libcxx	pkgs/main/osx-arm64::libcxx-14.0.6-h08488c0_0
libffi	pkgs/main/osx-arm64::libffi-3.4.4-hca83da5_1
libgfortran	pkgs/main/osx-arm64::libgfortran-5.0.0-11.3.0_hca83da5_28
libgfortran5	pkgs/main/osx-arm64::libgfortran5-11.3.0-h009349e_28
libopenblas	pkgs/main/osx-arm64::libopenblas-0.3.21-h269837a_0
llvmlib	pkgs/main/osx-arm64::llvmlib-14.0.6-hca83da5_0
ncurses	pkgs/main/osx-arm64::ncurses-6.4-h313b0eb_0
numexpr	pkgs/main/osx-arm64::numexpr-2.10.1-py39h5d9532f_0
numpy	pkgs/main/osx-arm64::numpy-2.0.2-py39h3b2db8e_0
numpy-base	pkgs/main/osx-arm64::numpy-base-2.0.2-py39ha981a2_0
openssl	pkgs/main/osx-arm64::openssl-3.0.16-h0276b3c_0
packaging	pkgs/main/osx-arm64::packaging-24.2-py39hca83da5_0

## (3) 切换 conda 环境

```
(base) donghengxu@donghengxudeMacBook-Air ~ % conda env list

# conda environments:
#
base                  * /opt/anaconda3
prj1                  /opt/anaconda3/envs/prj1
prj2                  /opt/anaconda3/envs/prj2

(base) donghengxu@donghengxudeMacBook-Air ~ % conda activate prj1
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda activate prj2
(prj2) donghengxu@donghengxudeMacBook-Air ~ % conda activate base
(base) donghengxu@donghengxudeMacBook-Air ~ % which python
/opt/anaconda3/bin/python
(base) donghengxu@donghengxudeMacBook-Air ~ % conda activate prj1
(prj1) donghengxu@donghengxudeMacBook-Air ~ % which python
/opt/anaconda3/envs/prj1/bin/python
(prj1) donghengxu@donghengxudeMacBook-Air ~ % python --version
Python 3.12.9
(prj1) donghengxu@donghengxudeMacBook-Air ~ % python
Python 3.12.9 | packaged by Anaconda, Inc. | (main, Feb  6 2025, 12:55:12) [Clang 14.0.6 ] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> quit()
(prj1) donghengxu@donghengxudeMacBook-Air ~ % python
Python 3.12.9 | packaged by Anaconda, Inc. | (main, Feb  6 2025, 12:55:12) [Clang 14.0.6 ] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> import requests
>>> requests
<module 'requests' from '/opt/anaconda3/envs/prj1/lib/python3.12/site-packages/requests/__init__.py'>
>>> request.__file__
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
NameError: name 'request' is not defined. Did you mean: 'requests'?
>>> requests.__file__
'/opt/anaconda3/envs/prj1/lib/python3.12/site-packages/requests/__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

```
ptyprocess      pkgs/main/noarch::ptyprocess-0.7.0-pyhd3eb1b0_2
pure_eval       pkgs/main/noarch::pure_eval-0.2.2-pyhd3eb1b0_0
pygments        pkgs/main/osx-arm64::pygments-2.15.1-py312hca83da5_1
six             pkgs/main/noarch::six-1.16.0-pyhd3eb1b0_1
stack_data      pkgs/main/noarch::stack_data-0.2.0-pyhd3eb1b0_0
traitlets       pkgs/main/osx-arm64::traitlets-5.14.3-py312hca83da5_0
wcwidth         pkgs/main/noarch::wcwidth-0.2.5-pyhd3eb1b0_0
```

Proceed (y)/n)? yes

Downloading and Extracting Packages:

```
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda list
# packages in environment at /opt/anaconda3/envs/prj1:
#
# Name                    Version            Build    Channel
asttokens                  2.0.5              pyhd3eb1b0_0
brotli-python             1.0.9              py312h31beb8_9
bzip2                     1.0.8              h80987f9_6
ca-certificates           2025.2.25          hca83da5_0
certifi                    2025.1.31          py312hca83da5_0
charset-normalizer        3.1.2              pyhd3eb1b0_0
decorator                  5.1.1              pyhd3eb1b0_0
executing                  0.8.3              pyhd3eb1b0_0
expat                     2.4.4              h313beb8_0
idna                       3.7                py312hca83da5_0
ipython                   8.30.0             py312hca83da5_0
jedi                       0.19.2             py312hca83da5_0
libcxx                    14.0.6             h848a8c0_0
libffi                     3.4.4              hca83da5_1
matplotlib-inline         0.1.6              py312hca83da5_0
ncurses                   6.4                h313beb8_0
openssl                   3.0.16             h82f6b3c_0
parso                      0.8.4              py312hca83da5_0
pexpect                   4.8.0              pyhd3eb1b0_3
pip                        25.0               py312hca83da5_0
prompt-toolkit             3.0.43             py312hca83da5_0
prompt_toolkit             3.0.43             hd3eb1b0_0
ptyprocess                 0.7.0              pyhd3eb1b0_2
pure_eval                  0.2.2              pyhd3eb1b0_0
pygments                   2.15.1             py312hca83da5_1
pysocks                    1.7.1              py312hca83da5_0
python                     3.12.9             h9e12f9e_0
readline                   8.2                h1a2f60b_0
requests                   2.32.3             py312hca83da5_1
setuptools                 75.8.0             py312hca83da5_0
six                        1.16.0             pyhd3eb1b0_1
sqlite                     3.45.3             h80987f9_0
stack_data                 0.2.0              pyhd3eb1b0_0
tk                         8.6.14             h6ba3021_0
traitlets                  5.14.3             py312hca83da5_0
tzdata                     2025a              h84d1e61_0
urllib3                    2.3.0              py312hca83da5_0
wcwidth                    0.2.5              pyhd3eb1b0_0
wheel                      0.45.1             py312hca83da5_0
xz                         5.6.4              h80987f9_1
zlib                       1.2.13             h18a8788_1
(prj1) donghengxu@donghengxudeMacBook-Air ~ %
```

## 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

```
Last login: Sat Mar 22 21:54:50 on tty000
(base) donghengxu@donghengxudeMacBook-Air ~ % conda activate prj1
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda install ipython
Channels:
 - defaults
Platform: osx-arm64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: /opt/anaconda3/envs/prj1

added / updated specs:
 - ipython
```

The following packages will be downloaded:

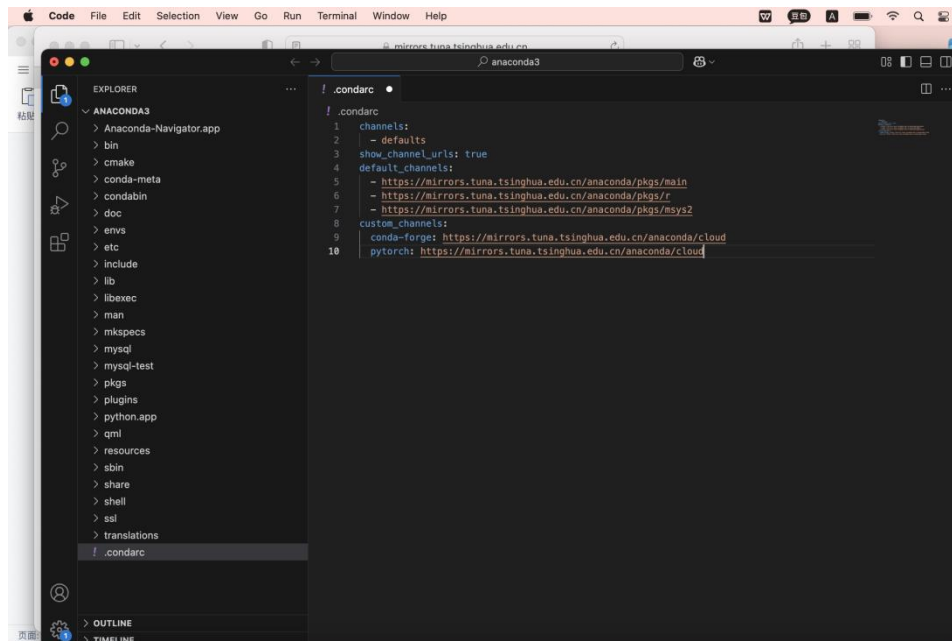
package	build	
asttokens-2.0.5	pyhd3eb1b0_0	20 KB
decorator-5.1.1	pyhd3eb1b0_0	12 KB
executing-0.8.3	pyhd3eb1b0_0	18 KB
ipython-8.30.0	py312hca83da5_0	1.4 MB
jedi-0.19.2	py312hca83da5_0	1.2 MB
matplotlib-inline-0.1.6	py312hca83da5_0	18 KB
parso-0.8.4	py312hca83da5_0	239 KB
pexpect-4.8.0	pyhd3eb1b0_3	53 KB
prompt-toolkit-3.0.43	py312hca83da5_0	723 KB
prompt_toolkit-3.0.43	hd3eb1b0_0	5 KB
ptyprocess-0.7.0	pyhd3eb1b0_2	17 KB
pure_eval-0.2.2	pyhd3eb1b0_0	14 KB
pygments-2.15.1	py312hca83da5_1	1.0 MB
stack_data-0.2.0	pyhd3eb1b0_0	22 KB
traitlets-5.14.3	py312hca83da5_0	216 KB
wcwidth-0.2.5	pyhd3eb1b0_0	26 KB
Total:		5.7 MB

The following NEW packages will be INSTALLED:

```
asttokens      pkgs/main/noarch::asttokens-2.0.5-pyhd3eb1b0_0
decorator       pkgs/main/noarch::decorator-5.1.1-pyhd3eb1b0_0
executing       pkgs/main/noarch::executing-0.8.3-pyhd3eb1b0_0
ipython         pkgs/main/osx-arm64::ipython-8.30.0-py312hca83da5_0
jedi            pkgs/main/osx-arm64::jedi-0.19.2-py312hca83da5_0
matplotlib-inline pkgs/main/osx-arm64::matplotlib-inline-0.1.6-py312hca83da5_0
parso           pkgs/main/noarch::parso-0.8.4-py312hca83da5_0
pexpect         pkgs/main/noarch::pexpect-4.8.0-pyhd3eb1b0_3
prompt-toolkit  pkgs/main/osx-arm64::prompt-toolkit-3.0.43-py312hca83da5_0
prompt_toolkit  pkgs/main/noarch::prompt_toolkit-3.0.43-hd3eb1b0_0
ptyprocess      pkgs/main/noarch::ptyprocess-0.7.0-pyhd3eb1b0_2
pure_eval       pkgs/main/noarch::pure_eval-0.2.2-pyhd3eb1b0_0
pygments        pkgs/main/osx-arm64::pygments-2.15.1-py312hca83da5_1
six             pkgs/main/noarch::six-1.16.0-pyhd3eb1b0_1
stack_data      pkgs/main/noarch::stack_data-0.2.0-pyhd3eb1b0_0
traitlets       pkgs/main/osx-arm64::traitlets-5.14.3-py312hca83da5_0
wcwidth         pkgs/main/noarch::wcwidth-0.2.5-pyhd3eb1b0_0
```

Proceed (y)/n)? yes

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



## 将 conda-forge 设置为默认 channel

```
Last login: Sun Mar 23 13:28:35 on ttys000
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda config --add channels conda-forge
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda config --set channel_priority strict
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda config --show channels
channels:
- conda-forge
- defaults
- https://repo.anaconda.com/pkg/main
- https://repo.anaconda.com/pkg/r
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda config --show channel_priority
channel_priority: strict
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda install polars
Channels:
- conda-forge
- defaults
- https://repo.anaconda.com/pkg/main
- https://repo.anaconda.com/pkg/r
Platform: osx-arm64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

  environment location: /opt/anaconda3/envs/prj1

added / updated specs:
- polars

The following packages will be downloaded:
```

package	build	size	channel
certifi-2025.1.31	pyh88ed1ab_0	159 KB	conda-forge
libblas-3.9.0	31_h10e41b3_openblas	17 KB	conda-forge
libcblas-3.9.0	31_hb3479ef_openblas	17 KB	conda-forge
libcxx-20.1.1	ha82da77_0	548 KB	conda-forge
libexpat-2.6.4	h286801f_0	63 KB	conda-forge
libgfortran-5.0.0	14_2_0_h6c33f7e_1	152 KB	conda-forge
libgfortran5-14.2.0	h6c33f7e_1	788 KB	conda-forge
liblapack-3.9.0	31_hc9a63f6_openblas	17 KB	conda-forge
libopenblas-0.3.29	openmp_hf332438_0	4.0 MB	conda-forge
libsqlite-3.45.2	h971b4b1_0	886 KB	conda-forge
libzlib-1.3.1	h8359387_2	45 KB	conda-forge
llvm-openmp-20.1.1	hdb05f8b_1	275 KB	conda-forge
numpy-2.2.4	py312h7c1f314_0	6.3 MB	conda-forge
openssl-3.4.1	h81ee809_0	2.8 MB	conda-forge
packaging-24.2	pyh88ed1ab_2	59 KB	conda-forge
polars-1.24.0	py312hc3c0a03_0	22.2 MB	conda-forge
python-3.12.2	hdf8ec26_0_cpython	12.5 MB	conda-forge
python_abi-3.12	5_cp312	6 KB	conda-forge
sqlite-3.45.2	hf2abe2d_0	793 KB	conda-forge
tk-8.6.13	h5083fa2_1	3.0 MB	conda-forge
zlib-1.3.1	h8359387_2	76 KB	conda-forge
Total:		54.4 MB	

```
The following NEW packages will be INSTALLED:
libblas      conda-forge/osx-arm64::libblas-3.9.0-31_h10e41b3_openblas
libcblas     conda-forge/osx-arm64::libcblas-3.9.0-31_hb3479ef_openblas
libexpat     conda-forge/osx-arm64::libexpat-2.6.4-h286801f_0
libgfortran  conda-forge/osx-arm64::libgfortran-5.0.0-14_2_0_h6c33f7e_1
```

```

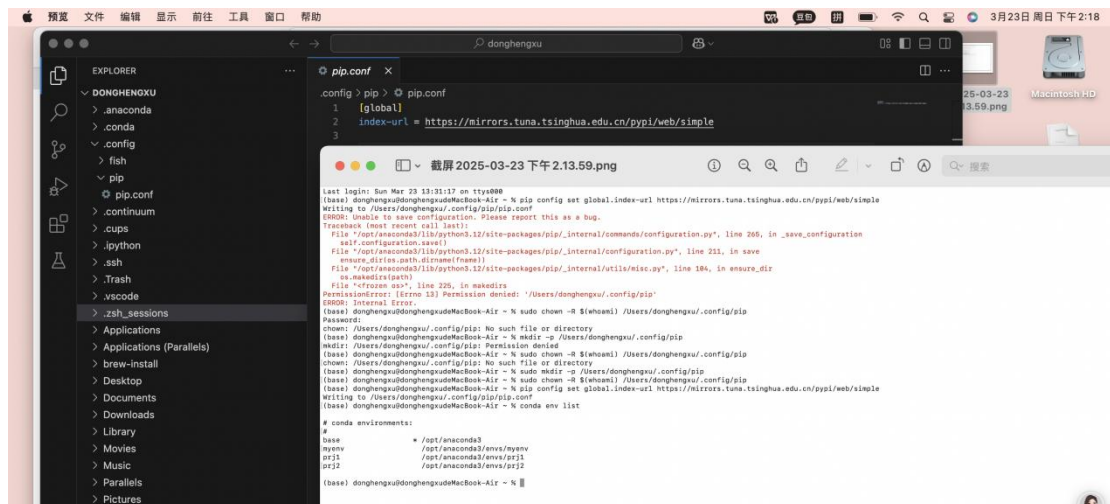
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
(prj1) donghengxu@donghengxudeMacBook-Air ~ % conda list
# packages in environment at /opt/anaconda3/envs/prj1:
#
# Name                    Version            Build                Channel
asttokens                  2.0.5              pyhd3eb1b8_0         https://repo.anaconda.com/pkgs/main
brotli-python              1.0.9              py312h313be8b_9       https://repo.anaconda.com/pkgs/main
bzip2                      4.0.6              h8b9779f_6            https://repo.anaconda.com/pkgs/main
ca-certificates            2025.2.25          hca03da5_0            https://repo.anaconda.com/pkgs/main
certifi                    2025.1.31          pyhd8ed1ab_0          conda-forge
charset-normalizer         3.3.2              pyhd3eb1b8_0          https://repo.anaconda.com/pkgs/main
decorator                  5.1.1              pyhd3eb1b8_0          https://repo.anaconda.com/pkgs/main
executing                  0.8.3              pyhd3eb1b8_0          https://repo.anaconda.com/pkgs/main
expat                      2.6.4              h313b8eb_0            https://repo.anaconda.com/pkgs/main
idna                       3.7                py312hca03da5_0       https://repo.anaconda.com/pkgs/main
ipython                    8.30.0             py312hca03da5_0       https://repo.anaconda.com/pkgs/main
jedi                       0.19.2             py312hca03da5_0       https://repo.anaconda.com/pkgs/main
libblas                    3.9.0              31_h10e41b3_openblas  conda-forge
libbclblas                 3.9.0              31_hb3479ef_openblas  conda-forge
libcxx                     20.1.1             ha82da77_0            conda-forge
libexpat                   2.6.4              h286801f_0            conda-forge
libffi                     3.4.4              hca03da5_1            https://repo.anaconda.com/pkgs/main
libfortran                 5.0.0              14_2_0_hdc3377e_1     conda-forge
libgfortran5               14.2.0             h6c3377e_1            conda-forge
liblapack                  3.9.0              31_hc9a63f6_openblas  conda-forge
libopenblas                0.3.29             openmp_hf3243d8_0     conda-forge
libsqlite                  3.45.2             h891b4b1_0            conda-forge
libzlib                    1.3.1              h8393987_2            conda-forge
llvmlib                    10.0.0             hdb0e5fb_1            conda-forge
matplotlib-inline          0.1.6              py312hca03da5_0       https://repo.anaconda.com/pkgs/main
ncurses                    6.4                h313be8b_0            https://repo.anaconda.com/pkgs/main
numpy                      2.2.4              py312h7c1f21a_0       conda-forge
openssl                    3.4.1              h81ee809_0            conda-forge
packaging                  24.2               pyhd8ed1ab_2          conda-forge
parsi                      0.8.4.4            py312hca03da5_0       https://repo.anaconda.com/pkgs/main
pep517                     4.0.0              pyhd3eb1b8_3          https://repo.anaconda.com/pkgs/main
pip                        25.0               py312hca03da5_0       https://repo.anaconda.com/pkgs/main
polars                     1.24.0             py312h3c8a5d3_0       conda-forge
prompt-toolkit             3.0.43             py312hca03da5_0       https://repo.anaconda.com/pkgs/main
prompt_toolkit             3.0.43             h3be1b8b_0            https://repo.anaconda.com/pkgs/main
ptyprocess                 0.7.0             pyhd3eb1b8_2          https://repo.anaconda.com/pkgs/main
pure_eval                  0.2.2              pyhd3eb1b8_0          https://repo.anaconda.com/pkgs/main
pygments                   2.15.1             py312hca03da5_1       https://repo.anaconda.com/pkgs/main
pysocks                    1.7.1              py312hca03da5_0       https://repo.anaconda.com/pkgs/main
python                     3.12.2             hf8ec26_0_cp312h       conda-forge
python_abi                 3.12               5_cp312               conda-forge
readline                   8.2                h12876fb_0            https://repo.anaconda.com/pkgs/main
requests                   2.32.3             py312hca03da5_1       https://repo.anaconda.com/pkgs/main
setuptools                 75.8.0             py312hca03da5_0       https://repo.anaconda.com/pkgs/main
six                         1.16.0             pyhd3eb1b8_1          https://repo.anaconda.com/pkgs/main
sqlite                     3.45.2             hf2ab2cd_0            conda-forge
stack_data                 0.2.0              pyhd3eb1b8_0          https://repo.anaconda.com/pkgs/main
tk                          8.6.13             h5883fa2_1            https://repo.anaconda.com/pkgs/main
traitlets                  5.14.3             py312hca03da5_0       https://repo.anaconda.com/pkgs/main
tzdata                     2025a              h84d1e81_0            https://repo.anaconda.com/pkgs/main
urllib3                    2.2.0              py312hca03da5_0       https://repo.anaconda.com/pkgs/main
wcwidth                    0.2.5              pyhd3eb1b8_0          https://repo.anaconda.com/pkgs/main
wheel                      0.45.1             py312hca03da5_0       https://repo.anaconda.com/pkgs/main
xz                          5.6.4              h8b9779f_1            https://repo.anaconda.com/pkgs/main
zlib                       1.3.1              h8393987_2            conda-forge
(prj1) donghengxu@donghengxudeMacBook-Air ~ %

```

利用 `conda env remove -n prj1`，删除整个环境，而不是删除单独一个软件包

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

9、根据 文档 配置 PyPI 清华镜像，加快 `pip install` 安装软件包的速度

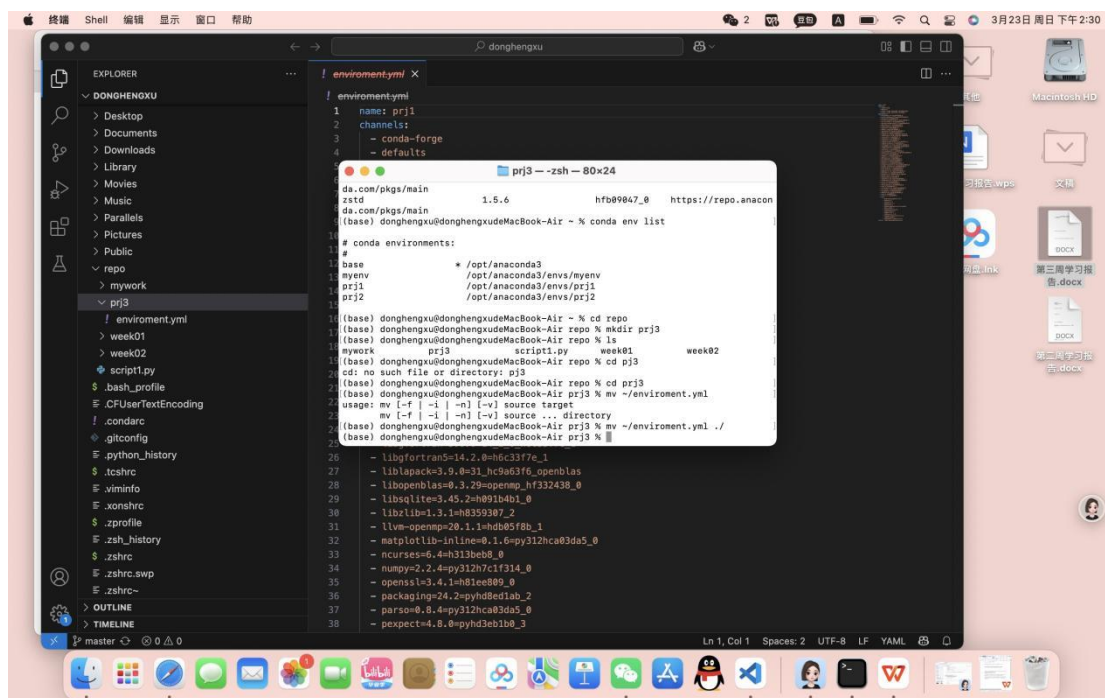
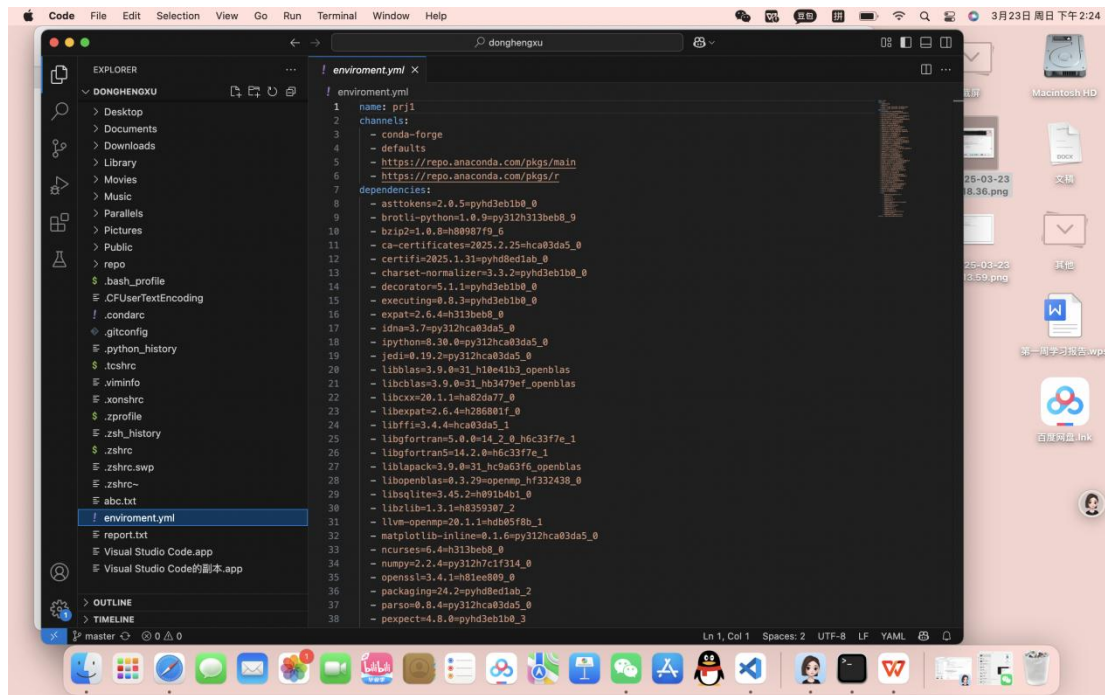


10、能够导出 `environment.yml` Conda 环境配置文件，能够删除 Conda 环境，能够用 `environment.yml` 配置文件重建 Conda 环境

删除环境 `conda env remove -n prj1`

重建环境 `conda env remove`





```

- sqlite=3.45.2=h72abe2d_0
- stack_data=0.2.0=pyhd3eb1b0_0
- tk=8.6.13=h5883fa2_1
- traitlets=5.14.3=py312hca83da5_0
- urllib3=2.3.0=py312hca83da5_0
- wcwidth=0.2.5=pyhd3eb1b0_0
- wheel=0.46.1=py312hca83da5_0
- xz=5.6.4=h88987f9_1
- zlib=1.3.1=h83593b7_2
- pip:
  - beautifulsoup4==4.13.3
  - bs4==0.0.2
  - lxml==5.1.1
  - pandas==2.2.3
  - pip==25.0.1
  - python-dateutil==2.9.0.post0
  - pytz==2025.1
  - simplejson==3.20.1
  - soupsieve==2.6
  - tqdm==4.67.1
  - tushare==1.4.19
  - typing-extensions==4.12.2
  - tzdata==2025.1
(prj1) donghengxu@donghengxudeMacBook-Air: ~ % conda env export -f environment.yml
name: prj1
channels:
- conda-forge
- defaults
- https://repo.anaconda.com/pkg/main
- https://repo.anaconda.com/pkg/r
dependencies:
- asttokens=2.0.5=pyhd3eb1b0_0
- brotli-python=1.0.9=py312h313beb8_9
- bz2==1.0.8=h0987f9_6
- ca-certificates=2025.2.25=hca83da5_0
- certifi=2025.1.31=pyhd8ed1ab_0
- charset-normalizer=3.3.2=pyhd3eb1b0_0
- decorator=5.1.1=pyhd3eb1b0_0
- executing=0.8.3=pyhd3eb1b0_0
- expat=2.6.4=h313beb8_0
- idna=3.7=py312hca83da5_0
- ipython=8.30.0=py312hca83da5_0
- jedi=0.19.2=py312hca83da5_0
- libblas=3.9.0=31_h0e4b3_openblas
- libcbblas=3.9.0=31_hb3479ef_openblas
- libccx=20.1.1=h82da77_0
- libexpat=2.6.4=h266801f_0
- libffi=3.4.4=hca83da5_1
- libfortran=5.0.0=14.2.0_hdc33f7e_1
- libfortran5=14.2.0=hdc33f7e_1
- liblapack=3.9.0=31_hc9a63f6_openblas
- libopenblas=0.3.29=openmp_hf32439_0
- libsqlite=3.45.2=h091b4b1_0
- libzlib=1.3.1=h83593b7_2
- live-openmp=20.1.1-hd805f9b_1
- matplotlib-inline=0.1.0=py312hca83da5_0
- ncurses=6.4=h313beb8_0
- numpy=2.2.4=py312h7c1f314_0
- openssl=3.4.2=h1ee0807_0
- packaging=24.2=pyhd8ed1ab_2
- parso=0.8.4=py312hca83da5_0
- pexpect=4.8.0=pyhd3eb1b0_3
- polars=1.24.0=py312hc3c68d3_0

```

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

(1) conda 不仅可以管理 python 软件包,还可以管理其他编程语言。

conda 创造不同环境,安装不同版本的 python。

环境隔离。

跨平台兼容性。

环境共享与配置。(environment.yml)

(2) conda-forge 是一个软件包仓库,为 conda 提供大量软件包

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

1. 创建项目文件及环境



```

Last login: Sun Mar 23 14:36:18 on tty805
(base) donghengxu@donghengxudeMacBook-Air ~ % cd repo
(base) donghengxu@donghengxudeMacBook-Air repo % mkdir myproject
(base) donghengxu@donghengxudeMacBook-Air repo % cat environment.yml
cat: environment.yml: No such file or directory
(base) donghengxu@donghengxudeMacBook-Air repo % cd myproject
(base) donghengxu@donghengxudeMacBook-Air myproject % cat environment.yml
name: myproject
channels:
  - conda-forge
dependencies:
  - python=3.12
(base) donghengxu@donghengxudeMacBook-Air myproject % conda env list

# conda environments:
#
base                  * /opt/anaconda3
myenv                 /opt/anaconda3/envs/myenv
prj1                  /opt/anaconda3/envs/prj1
prj2                  /opt/anaconda3/envs/prj2

(base) donghengxu@donghengxudeMacBook-Air myproject % conda env create

Channels:
- conda-forge
- defaults
- https://repo.anaconda.com/pkgs/main
- https://repo.anaconda.com/pkgs/r
Platform: osx-arm64
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

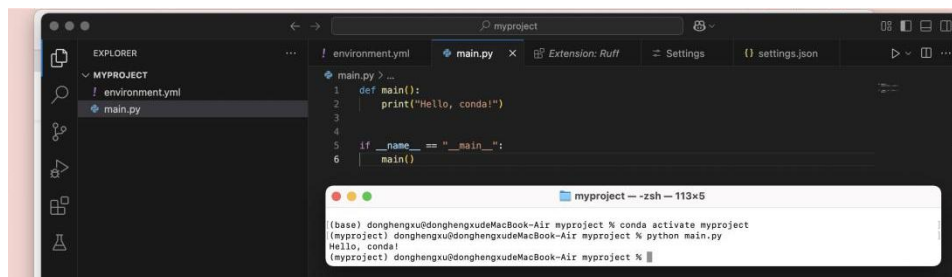
(base) donghengxu@donghengxudeMacBook-Air myproject % conda env list

# conda environments:
#
base                  * /opt/anaconda3
myenv                 /opt/anaconda3/envs/myenv
myproject             /opt/anaconda3/envs/myproject
prj1                  /opt/anaconda3/envs/prj1
prj2                  /opt/anaconda3/envs/prj2

(base) donghengxu@donghengxudeMacBook-Air myproject % conda activate myproject
(myproject) donghengxu@donghengxudeMacBook-Air myproject %

```

## 2、创建 python 程序



## 3、更新项目 conda env update

