

# 1. Python第三方库下载

pip是Python的包管理器，是下载和安装Python第三方库的最常用工具之一。要使用pip，首先需要在电脑上进入CMD命令行下(WIN+R键打开)。

输入pip后，回车，出现pip的详细信息，证明可以直接使用pip下载第三方库。如果是出现不是内部命令等提示，则需要检查环境变量是否有问题。

```
C:\Users\jqfo>pip
Usage:
  pip <command> [options]

Commands:
  install          Install packages.
  download         Download packages.
  uninstall        Uninstall packages.
  freeze           Output installed packages in requirements format.
  inspect          Inspect the python environment.
  list             List installed packages.
  show            Show information about installed packages.
  check            Verify installed packages have compatible dependencies.
  config           Manage local and global configuration.
  search           Search PyPI for packages.
  cache            Inspect and manage pip's wheel cache.
  index            Inspect information available from package indexes.
  wheel            Build wheels from your requirements.
  hash             Compute hashes of package archives.
  completion       A helper command used for command completion.
  debug            Show information useful for debugging.
  help             Show help for commands.
```

## 1.1 原始镜像下载库

如果要安装库，只需输入以下命令。

```
1 | pip install <library_name>
```

其中，<library\_name>是您要安装的库的名称。例如，要安装numpy库，只需输入以下命令。

```
1 | pip install numpy
```

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jqfo>pip install numpy_
```

回车之后，等待下载完成，如下所示。

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jyqfo>pip install numpy
Defaulting to user installation because normal site-packages is not writeable
Collecting numpy
  Downloading numpy-2.0.1-cp312-cp312-win_amd64.whl.metadata (60 kB)
    ----- 60.9/60.9 kB 249.5 kB/s eta 0:00:00
Downloading numpy-2.0.1-cp312-cp312-win_amd64.whl (16.3 MB)
  -- 1.2/16.3 MB 320.7 kB/s eta 0:00:48
```

下载完成的效果如下（WARNING警告暂时不用理，可能是我本机环境的问题，不会影响正常使用）。

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jyqfo>pip install numpy
Defaulting to user installation because normal site-packages is not writeable
Collecting numpy
  Downloading numpy-2.0.1-cp312-cp312-win_amd64.whl.metadata (60 kB)
    ----- 60.9/60.9 kB 249.5 kB/s eta 0:00:00
Downloading numpy-2.0.1-cp312-cp312-win_amd64.whl (16.3 MB)
  ----- 16.3/16.3 MB 53.4 kB/s eta 0:00:00
Installing collected packages: numpy
  WARNING: The scripts f2py.exe and numpy-config.exe are installed in 'C:\Users\jyqfo\AppData\Roaming\Python\Python312\Scripts' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed numpy-2.0.1

[notice] A new release of pip is available: 24.0 -> 24.2
[notice] To update, run: python.exe -m pip install --upgrade pip

C:\Users\jyqfo>
```

此时会发现，下载速度是比较慢的，特别是针对一些库比较大的时候，下载时间会很久，有什么办法可以解决呢？

## 1.2 国内镜像下载库

Python 国内镜像是为了解决在某些地区由于网络问题或者安全政策，直接访问 Python 官方镜像下载文件时速度慢或不可行的问题。国内常用的 Python 镜像有阿里云、清华大学、中国科技大学等提供的镜像服务。

使用镜像的方法通常是在安装或更新 Python 包时指定镜像源。例如，使用 pip 安装包时，可以通过 `-i` 参数指定镜像源。

例如，使用清华大学的镜像来安装 pandas 包。

```
1 | pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ pandas
```

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jyqfo>pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ pandas
Defaulting to user installation because normal site-packages is not writeable
Looking in indexes: https://pypi.tuna.tsinghua.edu.cn/simple/
Collecting pandas
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/22/a5/a0b255295406ed5426981
  MB)
  ----- 2.5/11.5 MB 2.2 MB/s eta 0:00:05
```

可以看到，下载速度明显提高了不少，等待下载完成即可使用，下载完成如下所示。

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

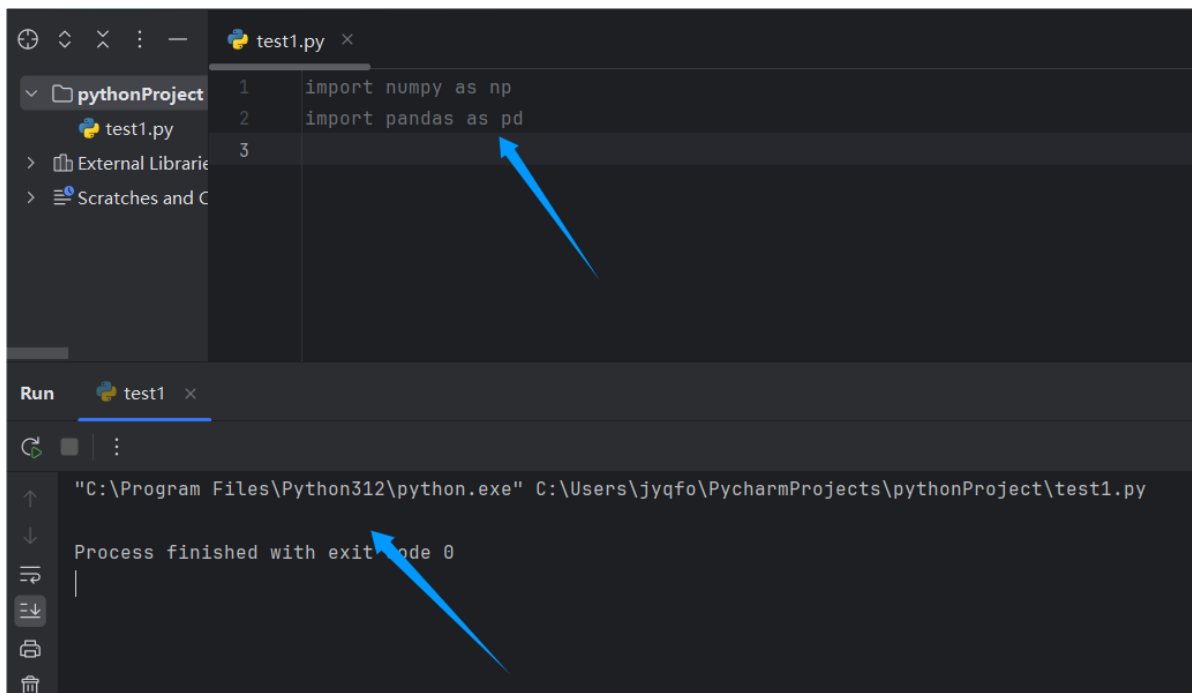
C:\Users\jyqfo>pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ pandas
Defaulting to user installation because normal site-packages is not writeable
Looking in indexes: https://pypi.tuna.tsinghua.edu.cn/simple/
Collecting pandas
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/22/a5/a0b255295406ed54269814bc93723cfd1a0da63fb9aaf99e1364f07923e3
  MB)
  ----- 11.5/11.5 MB 3.0 MB/s eta 0:00:00
Requirement already satisfied: numpy>=1.26.0 in c:\users\jyqfo\appdata\roaming\python\python312\site-packages (from pandas)
Collecting python-dateutil>=2.8.2 (from pandas)
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/ec/57/56b9bcc3c9c6a792fcbaf139543cee77261f3651ca9da0c93f5c1221264b
  whl (229 kB)
  ----- 229.9/229.9 kB 2.0 MB/s eta 0:00:00
Collecting pytz>=2020.1 (from pandas)
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/9c/3d/a121f284241f08268b21359bd425f7d4825c5ac5cd0e1b3d82ffd2b10
  ----- 505.5/505.5 kB 2.6 MB/s eta 0:00:00
Collecting tzdata>=2022.7 (from pandas)
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/65/58/f9c9e6be752e9fcb8b6a0ee9fb87e6e7alf6bcab2cdc73f02bb7ba91ada0
  ----- 345.4/345.4 kB 1.5 MB/s eta 0:00:00
Collecting six>=1.5 (from python-dateutil>=2.8.2->pandas)
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/d9/5a/e7c31adbe875f2abbb91bd84cf2dc52d792b5a01506781dbcf25c91daf1
  -----
Installing collected packages: pytz, tzdata, six, python-dateutil, pandas
Successfully installed pandas-2.2.2 python-dateutil-2.9.0.post0 pytz-2024.1 six-1.16.0 tzdata-2024.1

[notice] A new release of pip is available: 24.0 -> 24.2
[notice] To update, run: python.exe -m pip install --upgrade pip

C:\Users\jyqfo>
```

## 1.3 测试是否下载成功

可以在编译器上直接导入该库，然后进行运行，没有报错，则证明下载成功，如下所示。



## 1.4 pip其他操作

- 使用pip卸载库

```
1 pip uninstall package_name
2 pip uninstall numpy
```

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation. 保留所有权利。

C:\Users\jqfo>pip uninstall numpy
Found existing installation: numpy 2.0.1
Uninstalling numpy-2.0.1:
  Would remove:
    c:\users\jqfo\appdata\roaming\python\python312\scripts\f2py.exe
    c:\users\jqfo\appdata\roaming\python\python312\scripts\numpy-config.exe
    c:\users\jqfo\appdata\roaming\python\python312\site-packages\numpy-2.0.1-cp312-cp312-win_amd64.whl
    c:\users\jqfo\appdata\roaming\python\python312\site-packages\numpy-2.0.1.dist-info*
    c:\users\jqfo\appdata\roaming\python\python312\site-packages\numpy.libs\libscipy_openblas64_-fb1711452d1449ee5c7.dll
    c:\users\jqfo\appdata\roaming\python\python312\site-packages\numpy.libs\msvcpl40-8021418012832a07a8ca5111
    c:\users\jqfo\appdata\roaming\python\python312\site-packages\numpy\*
Proceed (Y/n)? y_
```

- 使用pip列出所有已安装的库

```
1 pip list
```

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jyqfo>pip list
Package            Version
-----
certifi            2024.7.4
charset-normalizer 3.3.2
idna               3.7
numpy              2.0.1
pandas             2.2.2
pip               24.0
python-dateutil    2.9.0.post0
pytz               2024.1
requests           2.32.3
six                1.16.0
tzdata            2024.1
urllib3            2.2.2
```

- 使用pip升级库

```
1 | pip install --upgrade package_name
2 | pip install --upgrade pandas
```