

教程：安装Selenium自动化（C++方向）

💡 提示：

- 1) 电脑至少已安装一种浏览器，如：**Chrome（推荐）**、Edge、Firefox、IE、Safari（课堂以Chrome浏览器演示）
- 2) 请同学们按照以下教程1、2、3、4分别安装并确认好python、pycharm、pip、自动化环境

提示：浏览器必须为官网下载的正版浏览器，根据以往经验，存在部分同学电脑安装的浏览器为盗版，导致无法执行自动化

1. 安装Python运行环境

1.1 找到官方网站



在搜索引擎中搜索 python 关键字，带有 "官网" logo 的结果即为 Python 官方网站(注意不要点到带有 "广告字样" 的结果)

PS: 下载安装软件，最靠谱的方法就是去官网上下载

1.2 找到下载页面

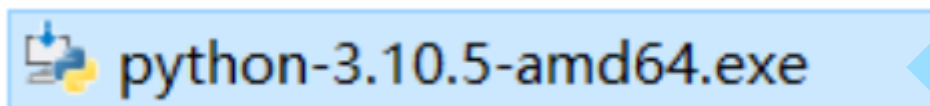
选择 "Download for Windows"

注意: Python 的版本在持续迭代更新中. 同学们看到的版本不一定和我这里完全一致, 但是基本不影响学习使用.

关于 Python 版本的补充

现在主流使用的 Python 版本是 Python 3 系列. 但是同学们以后在公司中, 接触到一些比较老的项目, 可能还在使用 Python 2 .

3 系列 和 2 系列 之间的语法还是存在不小差别的. 咱们课堂上学习的内容主要是依据 Python 3 系 列展开. 下载完成后, 会得到一个 exe 的安装程序



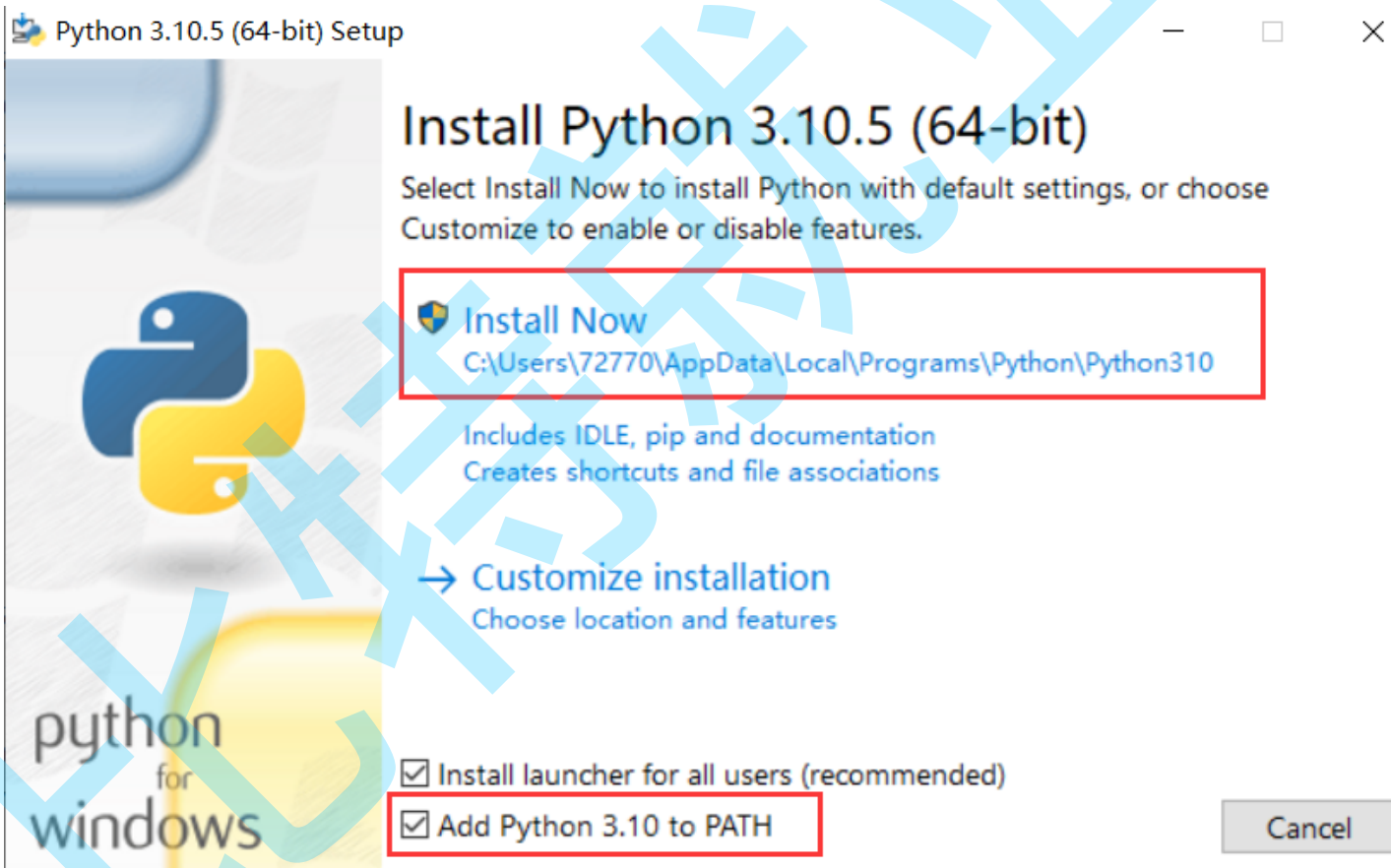
1.3 双击安装包

双击安装包. 注意选下安装路径.

注意:

最好勾选下 "Add Python 3.10 to PATH" 这个选项

要记得 Python 的安装目录(后面可能会用到)



点击 Install Now 之后, 稍等片刻, 就安装完毕了



Setup was successful

New to Python? Start with the [online tutorial](#) and [documentation](#). At your terminal, type "py" to launch Python, or search for Python in your Start menu.

See [what's new](#) in this release, or find more info about [using Python on Windows](#).

Close

这个安装过程非常简单, 一般只要不报错, 就算安装成功

1.4 运行 hello world

打开 Python 的安装目录看看

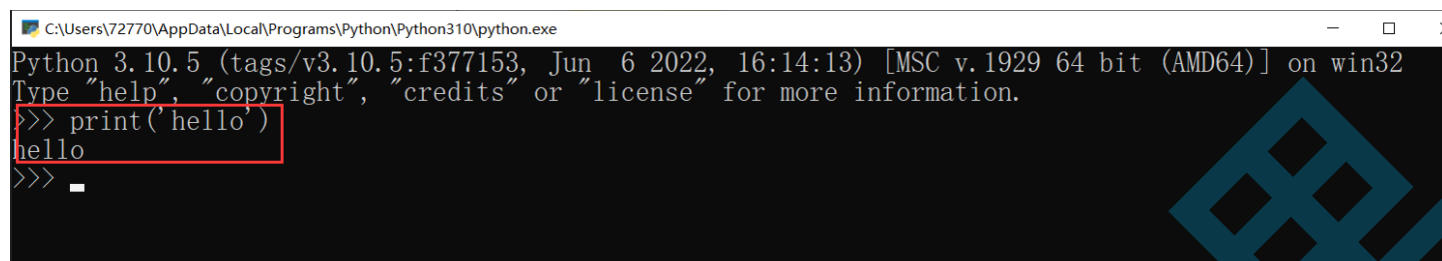
用户 > 72770 > AppData > Local > Programs > Python > Python310 > 在 Python310 中搜索

名称	修改日期	类型	大小
DLLs	2022/6/20 14:19	文件夹	
Doc	2022/6/20 14:19	文件夹	
include	2022/6/20 14:19	文件夹	
Lib	2022/6/20 14:19	文件夹	
libs	2022/6/20 14:19	文件夹	
Scripts	2022/6/20 14:19	文件夹	
tcl	2022/6/20 14:19	文件夹	
Tools	2022/6/20 14:19	文件夹	
LICENSE.txt	2022/6/6 16:24	文本文档	32 KB
NEWS.txt	2022/6/6 16:25	文本文档	1,232 KB
python.exe	2022/6/6 16:24	应用程序	98 KB
python3.dll	2022/6/6 16:24	应用程序扩展	62 KB
python310.dll	2022/6/6 16:24	应用程序扩展	4,346 KB
pythonw.exe	2022/6/6 16:24	应用程序	97 KB
vcruntime140.dll	2022/6/6 16:24	应用程序扩展	96 KB
vcruntime140_1.dll	2022/6/6 16:24	应用程序扩展	37 KB

其中最关键的就是这个 python.exe . 后续运行 Python 程序, 全靠这个 python.exe

如果直接双击这个 python.exe , 就会打开 Python 的交互式解释器(控制台程序). 在这个交互式解释器中, 就可以输入 Python 代码了

直接输入 `print('hello')` 这句代码, 按下 enter 键, 则打印出了 `hello` 这样的结果



```
C:\Users\72770\AppData\Local\Programs\Python\Python310\python.exe
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> print('hello')
hello
>>>
```

注意: 代码中的 () 和 ' ' 都是英文, 不要写中文标点符号!

编程语言中基本不会出现中文标点, 大家在写代码的时候一定要仔细注意.

2. 安装pycharm

2.1 找到官方网站

[PyCharm: the Python IDE for Professional Developers by JetBrains](https://www.jetbrains.com/pycharm/)

2021年6月2日- The Python IDE for Professional Developers Full-fledged Professional or Free Community Why PyCharm All the Python tools in one place Be More Productive Save...

<https://www.jetbrains.com/...>

注意: 这个搜索结果中没有标识出 "官网", 但是大家要认准 [jetbrains.com](https://www.jetbrains.com/) 这个域名

2.2 找到下载页面



注意: , 进入官网之后不着急直接点这个下载, 先把页面拖到最下面

	PyCharm Professional Edition	PyCharm Community Edition
Intelligent Python editor	✓	✓
Graphical debugger and test runner	✓	✓
Navigation and Refactorings	✓	✓
Code inspections	✓	✓
VCS support	✓	✓
Scientific tools	✓	
Web development	✓	
Python web frameworks	✓	
Python Profiler	✓	
Remote development capabilities	✓	
Database & SQL support	✓	

Download.exe

Free trial

Download.exe

Free, built on open-source

点击方框圈起来的位置, 进行下载.

PS: PyCharm 有三个版本:

专业版 (Professional Edition)


社区版 (Community Edition)

教育版 (Educational Edition)

咱们课堂上使用的是社区版专业版, 相比于社区版, 功能要更丰富一些, 但是专业版收费, 社区版免费 (显然要白嫖)

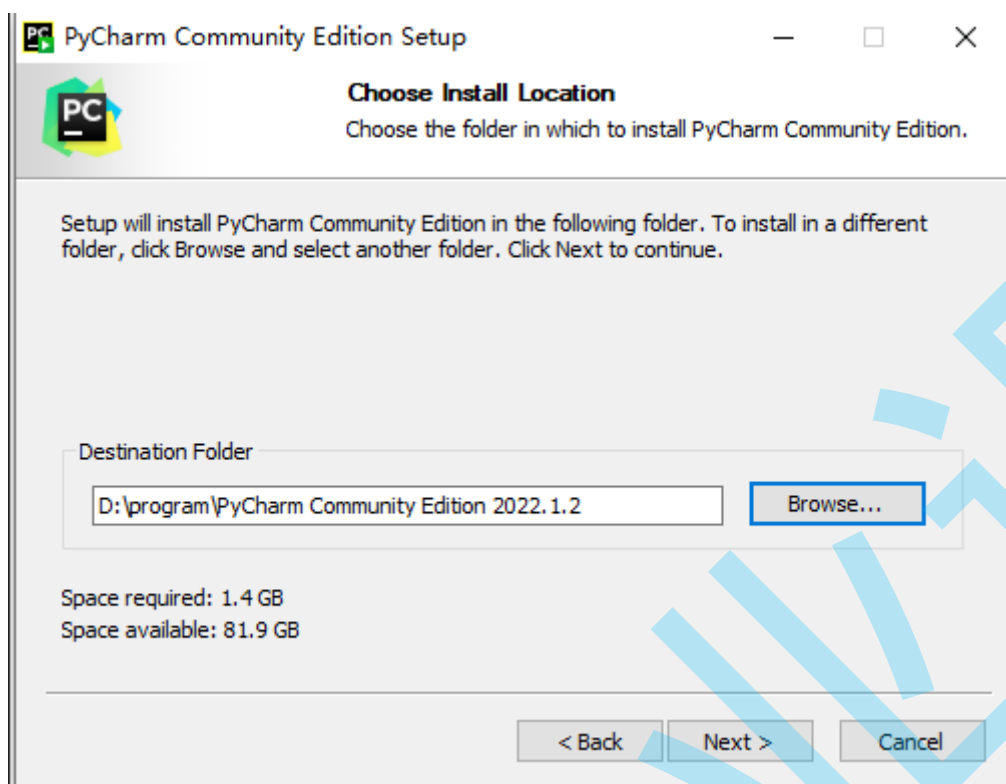
教育版功能和专业版相同, 但是需要凭 edu 邮箱去 JB 官网申请(过程其实也不麻烦, 但是俺没有 edu 邮箱), 咱们课堂上使用 社区版 就足够用了

下载完成后, 会得到一个 exe 程序.

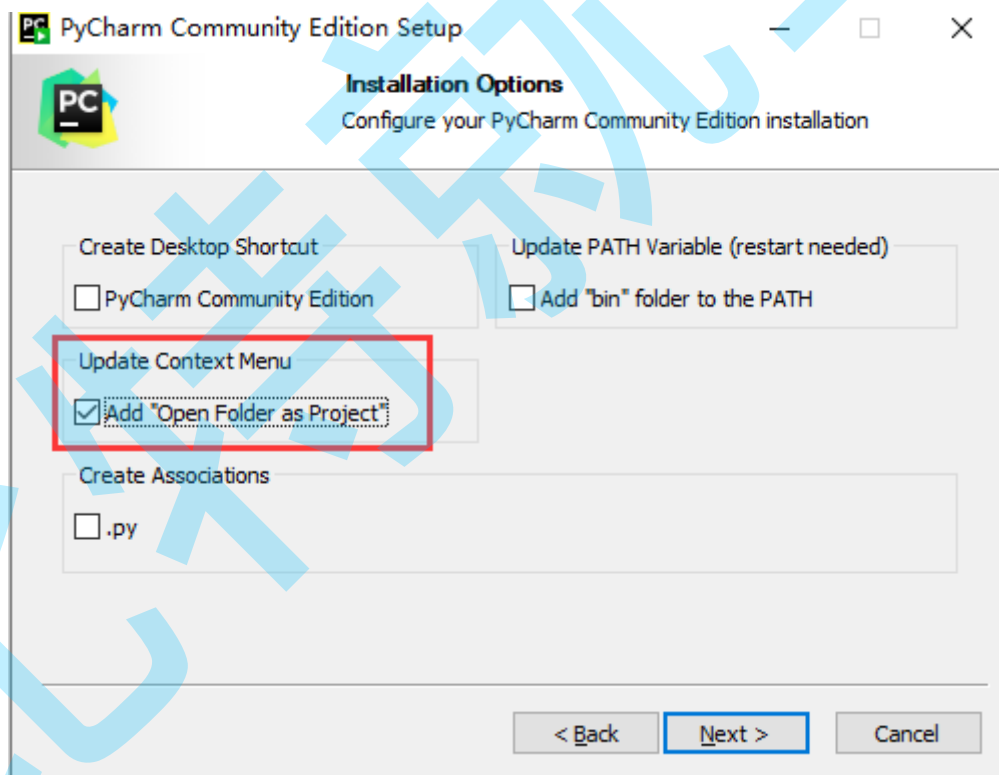
 pycharm-community-2022.1.2.exe

2.3 双击安装包

双击安装包. 注意选下安装路径



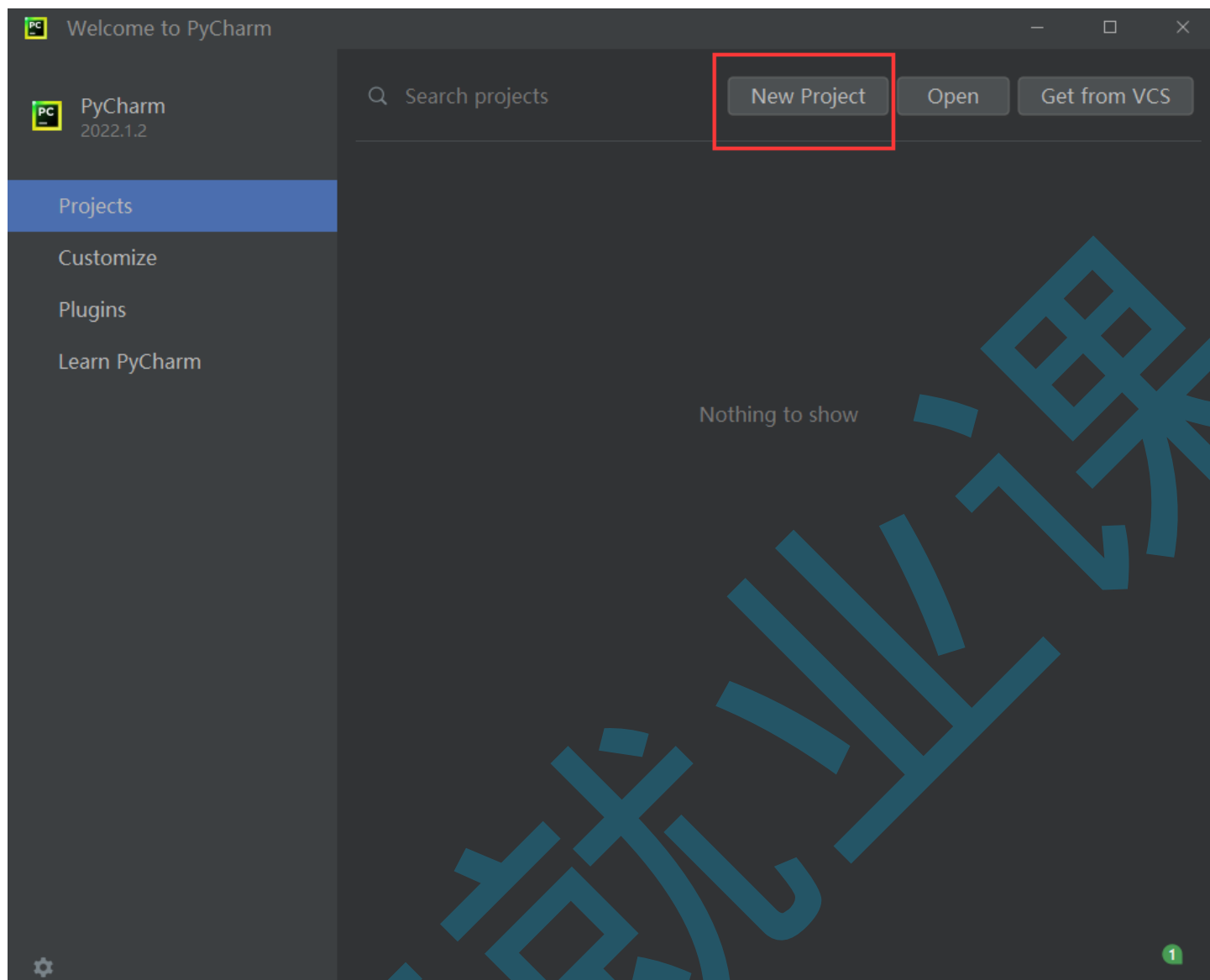
建议把这个选项勾上, 这样在任意目录鼠标右键就都可以直接用 PyCharm 打开目录了



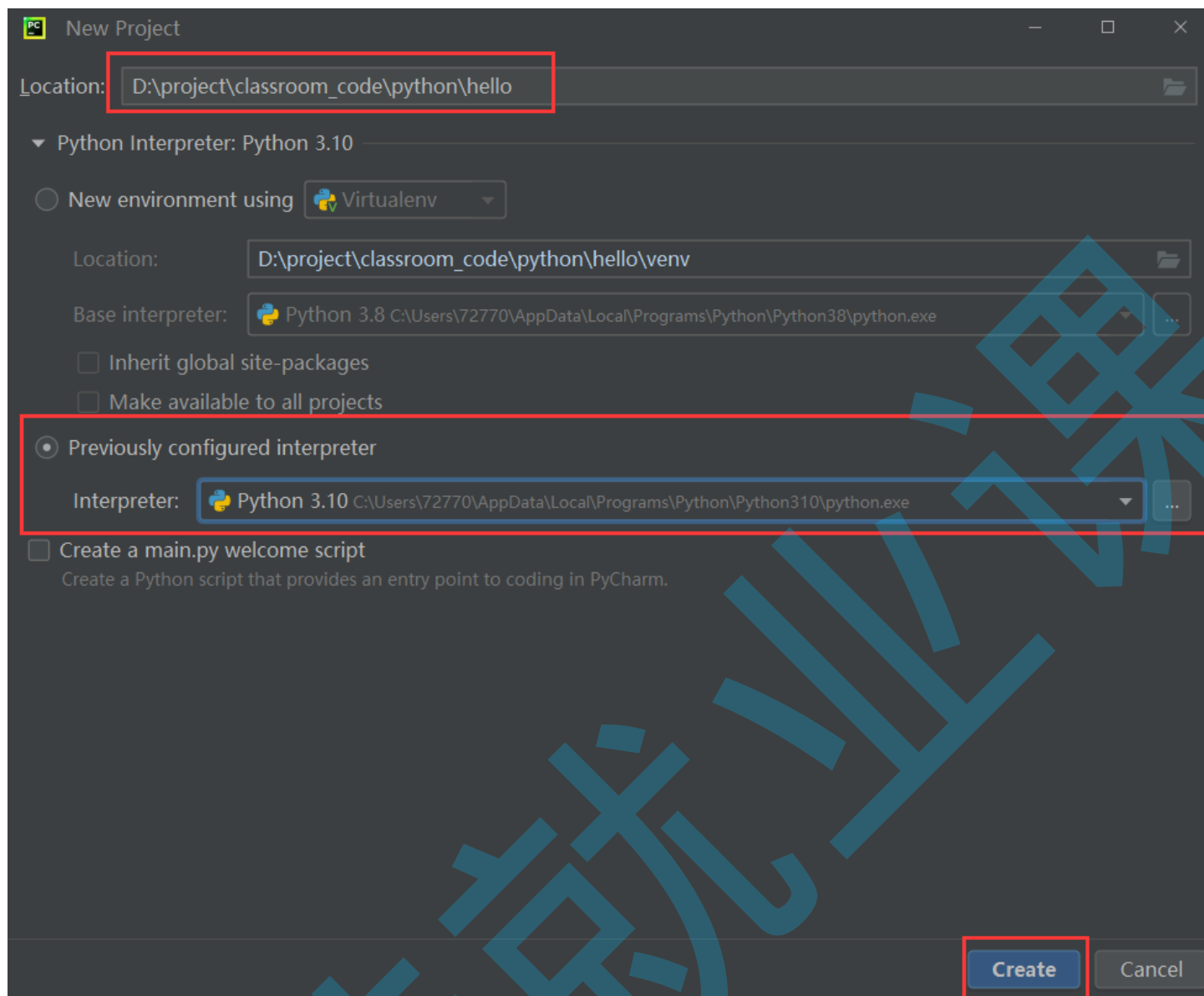
这个安装过程非常简单, 一般只要不报错, 就算安装成功

2.4 运行 hello world

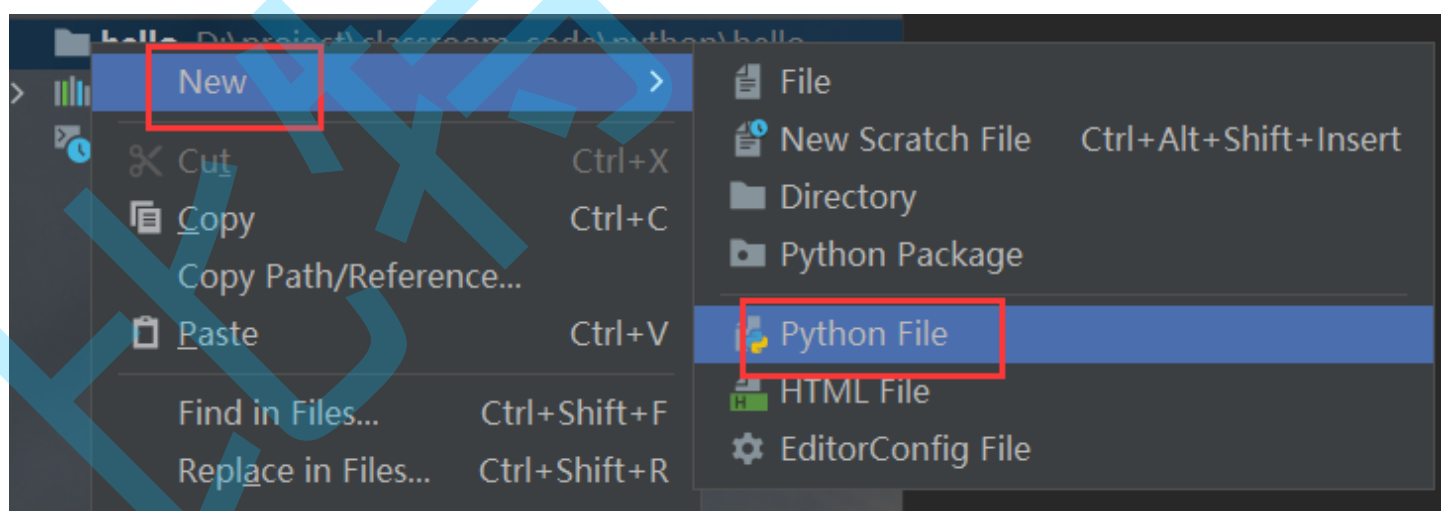
1) 创建一个项目



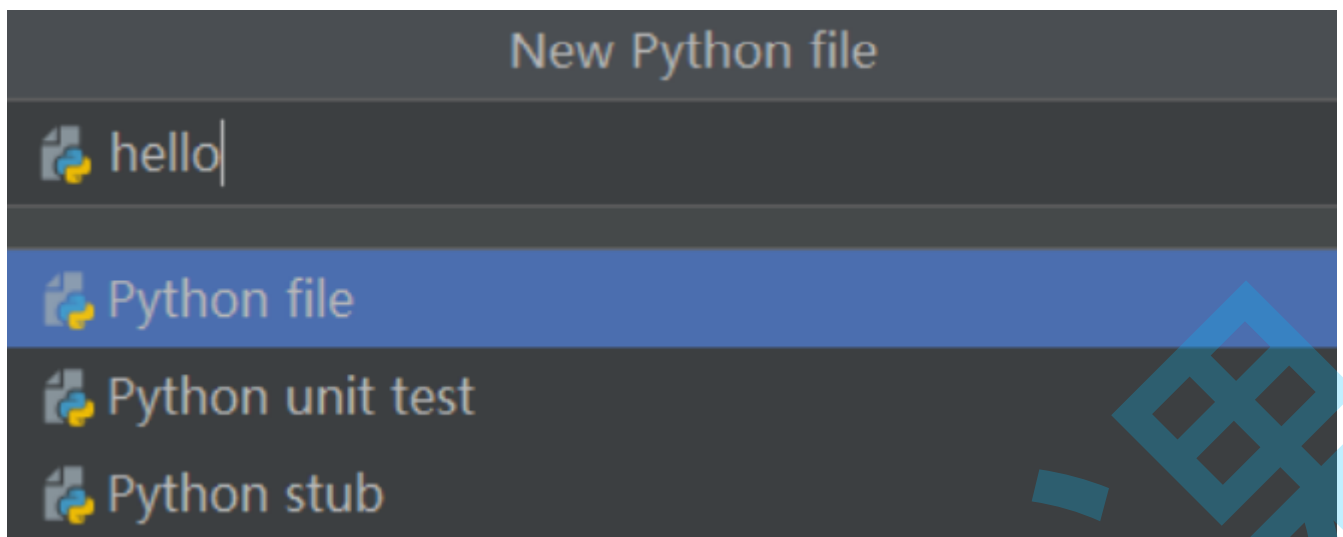
2) 选择项目所在的位置, 并选择使用的 Python 解释器



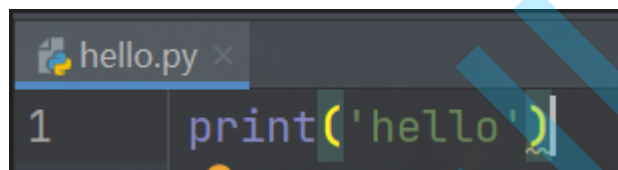
3) 创建文件



4) 填写文件名

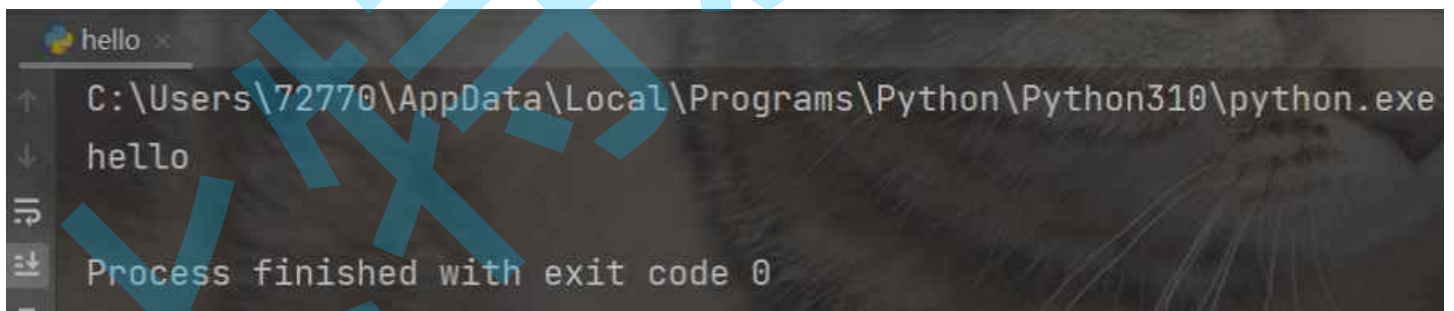
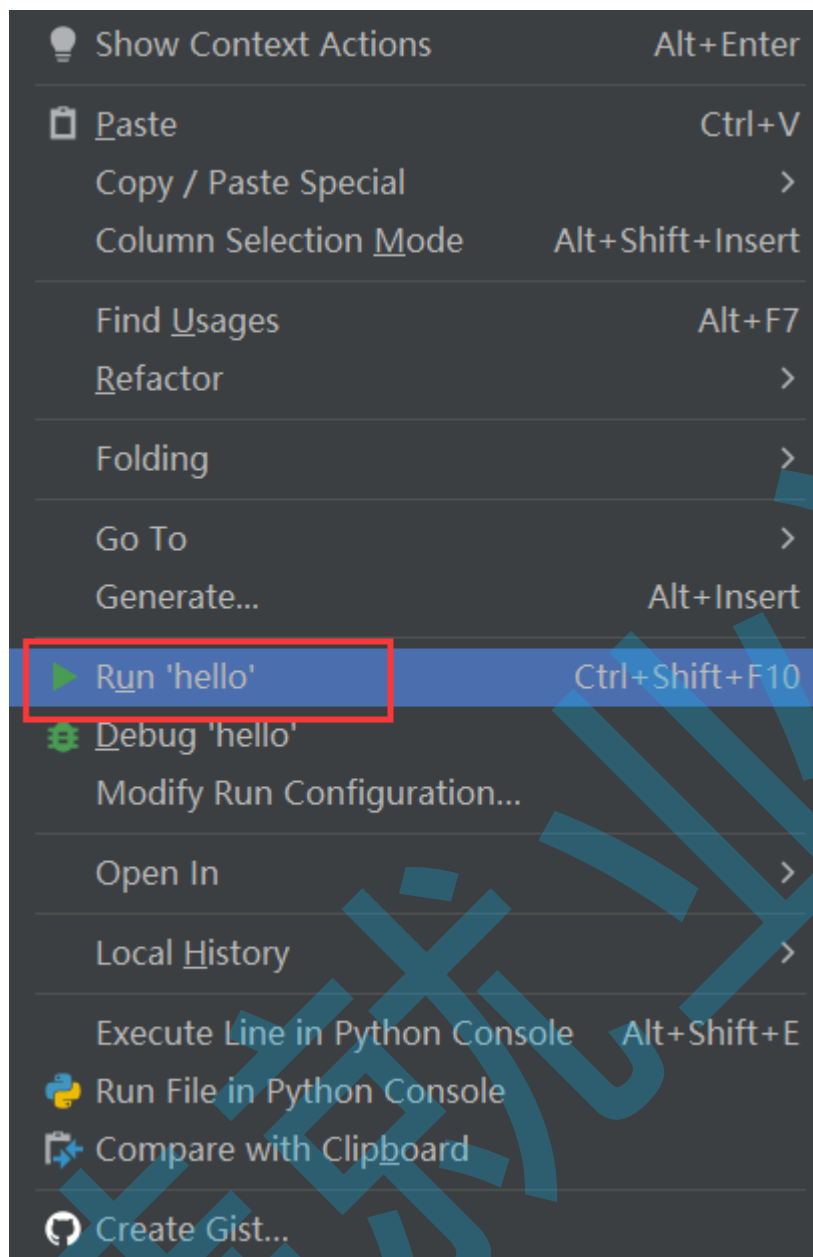


5) 编写代码



6) 运行程序

右键文件, 选择 "Run 'hello' "

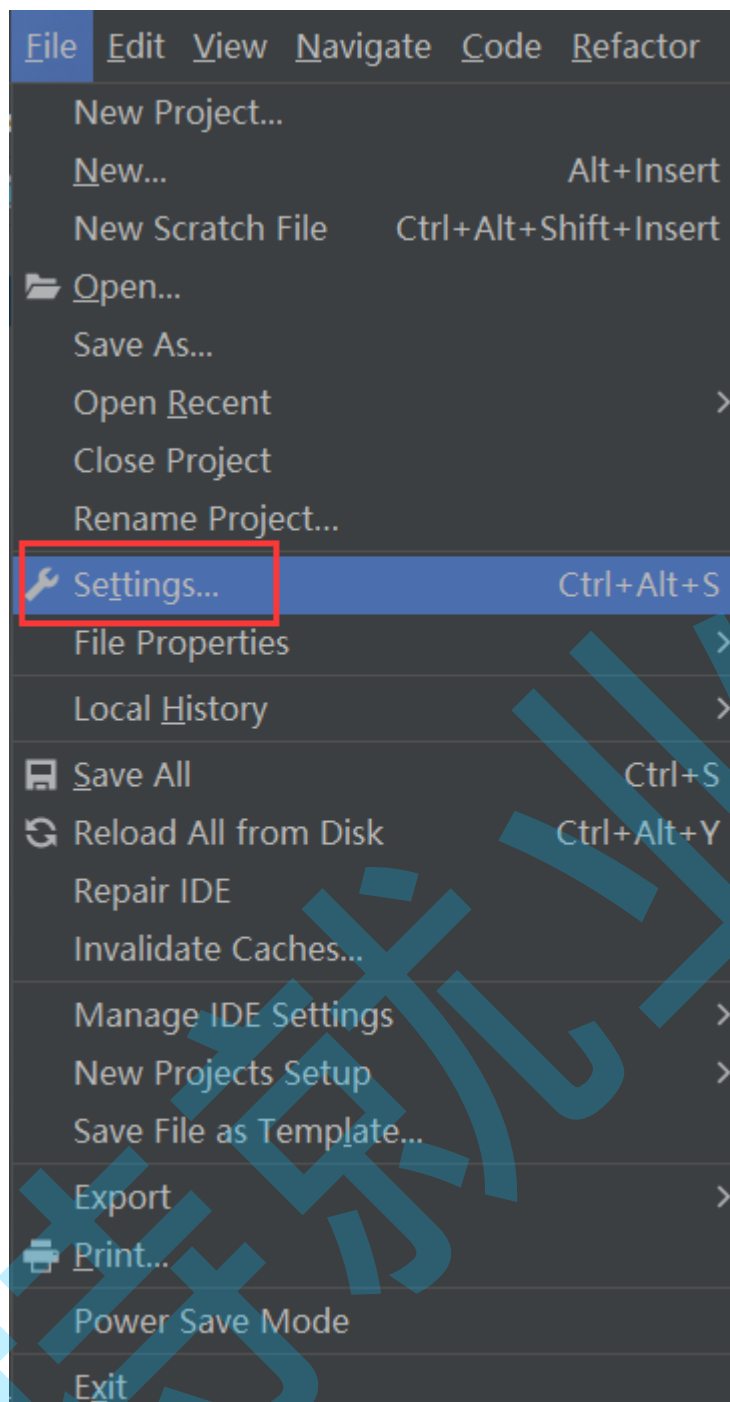


2.5 基本设置

1) 设置字体大小

PyCharm 默认的字体比较小, 看起来很费眼睛. 可以设置大一点

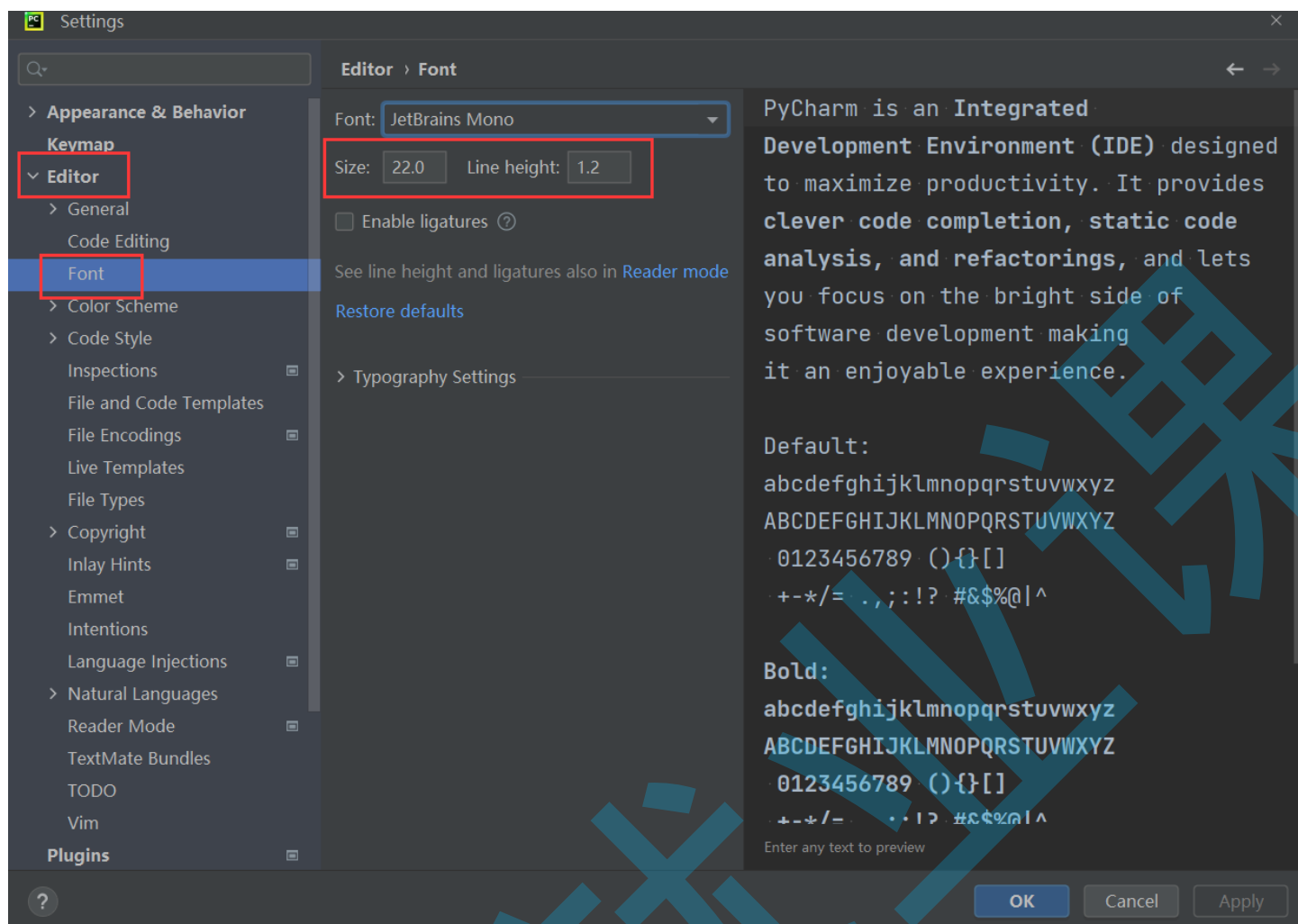
选择 File -> Settings



找到 Editor -> Font, 把字体 Size 和 Line height 都适当调整

Size 表示字体大小, 数字越大文字越大

Line height 表示行高, 数字越大则两行文字之间的间隔就越大.



3. Python管理工具pip

3.1 认识pip

pip是Python内置的包管理器

所谓包管理器就类似于我们平时使用的手机 app 应用商店一样

第三方库有很多, 是不同的人, 不同的组织实现的, 为了方便大家整理, Python官方提供了一个网站 PyPI <https://pypi.org/> 来收集第三方库, 其他大佬写好的第三方库也会申请上传到 PyPI 上, 这个时候就可以方便的使用 pip 工具来下载 PyPI 上的库了

pip 在我们安装 Python 的时候就已经内置了, **无需额外安装**, pip 是一个可执行程序, 就在 Python 的安装目录中

打开 cmd, 直接输入 pip. 如果显示以下帮助信息, 说明 pip 已经准备就绪

```
C:\Users\72770>pip
```

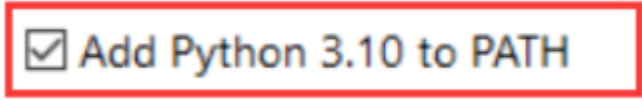
Usage:

```
pip <command> [options]
```

Commands:

install	Install packages.
download	Download packages.
uninstall	Uninstall packages.
freeze	Output installed packages in requirements format.
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.

如果最开始按照要求在安装 Python 的时候勾选了



☒ Add Python 3.10 to PATH

那么 pip 就是默认可用的

3.2 pip常见问题

1) 'pip' 不是内部或外部命令，也不是可运行的程序或批处理文件。

说明没有正确把pip加入到PATH中，可以手动将pip所在路径加入到PATH环境变量中，参考：

<https://www.jianshu.com/p/1de0acf7185d>

(或者卸载重装 Python, 记得勾上上述选项, 也许是更简单的办法)

4. 搭建自动化环境

4.1 安装驱动管理

命令: `pip install webdriver-manager`

```
C:\Users\mamian\AppData\Local\Programs\Python\Python39\Scripts>pip install webdriver-manager
Collecting webdriver-manager
  Downloading webdriver_manager-4.0.1-py2.py3-none-any.whl (27 kB)
Collecting python-dotenv
  Downloading python_dotenv-1.0.1-py3-none-any.whl (19 kB)
Requirement already satisfied: requests in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from webdriver-manager) (2.31.0)
Requirement already satisfied: packaging in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from webdriver-manager) (21.3)
Requirement already satisfied: pyparsing!=3.0.5, >=2.0.2 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from packaging->webdriver-manager) (3.0.9)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from requests->webdriver-manager) (2022.5.18.1)
Requirement already satisfied: idna<4, >=2.5 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from requests->webdriver-manager) (3.3)
Requirement already satisfied: charset-normalizer<4, >=2 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from requests->webdriver-manager) (3.2.0)
Requirement already satisfied: urllib3<3, >=1.21.1 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from requests->webdriver-manager) (1.26.9)
Installing collected packages: python-dotenv, webdriver-manager
Successfully installed python-dotenv-1.0.1 webdriver-manager-4.0.1
WARNING: You are using pip version 21.2.3, however, version 24.0 is available.
You should consider upgrading via the 'C:\Users\mamian\AppData\Local\Programs\Python\Python39\python.exe -m pip install --upgrade pip' command.
```

4.2 安装selenium库

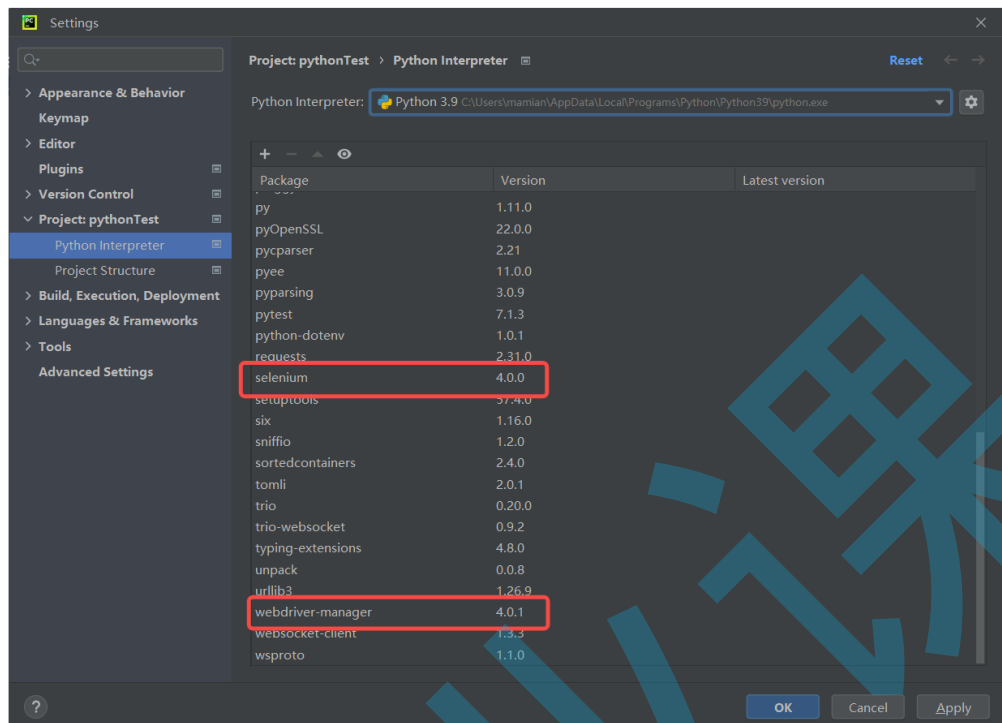
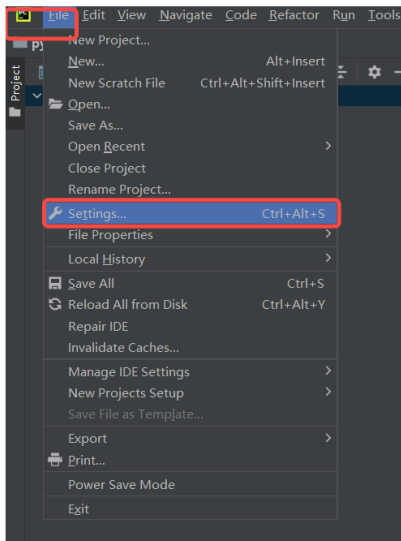
selenium版本很多，统一使用selenium 4.0.0版本

pip install selenium==4.0.0

```
C:\Users\mamian\AppData\Local\Programs\Python\Python39\Scripts>pip install selenium==4.0.0
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'ReadTimeoutError("HTTPSConnectionPool(host='pypi.org', port=443): Read timed out. (read timeout=15)')': /simple/selenium/
Collecting selenium==4.0.0
  WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'ConnectTimeoutError(<pip._vendor.urllib3.connection.HTTPSConnection object at 0x0000022C98AC0160>, 'Connection to files.pythonhosted.org timed out. (connect timeout=15)')': /packages/ad/24/39cab5fbaf425ff522e151cce79f94f10f9523f015d2b2251e43f45e8a2/selenium-4.0.0-py3-none-any.whl
  WARNING: Retrying (Retry(total=3, connect=None, read=None, redirect=None, status=None)) after connection broken by 'ConnectTimeoutError(<pip._vendor.urllib3.connection.HTTPSConnection object at 0x0000022C98AC03A0>, 'Connection to files.pythonhosted.org timed out. (connect timeout=15)')': /packages/ad/24/39cab5fbaf425ff522e151cce79f94f10f9523f015d2b2251e43f45e8a2/selenium-4.0.0-py3-none-any.whl
  Downloading selenium-4.0.0-py3-none-any.whl (954 kB)
    954 kB 49 kB/s
Requirement already satisfied: trio<0.17, >=0.17 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from selenium==4.0.0) (0.20.0)
Requirement already satisfied: trio-websocket<0.9, >=0.9 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from selenium==4.0.0) (0.9.2)
Requirement already satisfied: urllib3[secure]<1.26, >=1.26 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from selenium==4.0.0) (1.26.9)
Requirement already satisfied: idna in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from trio==0.17->selenium==4.0.0) (3.3)
Requirement already satisfied: attrs<19.2.0, >=19.2.0 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from trio==0.17->selenium==4.0.0) (21.4.0)
Requirement already satisfied: async-generator<1.9, >=1.9 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from trio==0.17->selenium==4.0.0) (1.10)
Requirement already satisfied: sniffio in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from trio==0.17->selenium==4.0.0) (1.2.0)
Requirement already satisfied: outcome in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from trio==0.17->selenium==4.0.0) (1.1.0)
Requirement already satisfied: sortedcontainers in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from trio==0.17->selenium==4.0.0) (2.4.0)
Requirement already satisfied: cffi<1.14, >=1.14 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from trio==0.17->selenium==4.0.0) (1.15.0)
Requirement already satisfied: pycparser in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from cffi==1.14->trio==0.17->selenium==4.0.0) (2.21)
Requirement already satisfied: wsproto<0.14, >=0.14 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from trio-websocket==0.9->selenium==4.0.0) (1.1.0)
Requirement already satisfied: cryptography<1.3.4, >=1.3.4 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from urllib3[secure]==1.26->selenium==4.0.0) (37.0.2)
Requirement already satisfied: certifi in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from urllib3[secure]==1.26->selenium==4.0.0) (2022.5.18.1)
Requirement already satisfied: pyOpenSSL<0.14, >=0.14 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from urllib3[secure]==1.26->selenium==4.0.0) (22.0.0)
Requirement already satisfied: h11<1, >=0.9.0 in c:\users\mamian\AppData\Local\Programs\Python\Python39\lib\site-packages (from wsproto==0.14->trio-websocket==0.9->selenium==4.0.0) (0.13.0)
Installing collected packages: selenium
  Attempting uninstall: selenium
    Found existing installation: selenium 4.1.5
    Uninstalling selenium-4.1.5:
      Successfully uninstalled selenium-4.1.5
Successfully installed selenium-4.0.0
WARNING: You are using pip version 21.2.3, however, version 24.0 is available.
You should consider upgrading via the 'C:\Users\mamian\AppData\Local\Programs\Python\Python39\python.exe -m pip install --upgrade pip' command.
```

4.3 检查python解释器

确定selenium库和WebDriverManager库都安装成功并加载到当前项目中



4.4 使用selenium编写代码

firstTest.py

```
1 from selenium import webdriver
2 from selenium.webdriver.chrome.service import Service as ChromeService
3 from selenium.webdriver.common.by import By
4 from webdriver_manager.chrome import ChromeDriverManager
5
6 #驱动程序管理的自动化
7 #创建驱动对象
8 #1. 打开浏览器
9 driver =
    webdriver.Chrome(service=ChromeService(ChromeDriverManager().install()))
10
11 #2. 输入百度网址:https://www.baidu.com
12 driver.get("https://www.baidu.com")
13
14 #3. 找到输入框并输入“迪丽热巴”
15 driver.find_element(By.CSS_SELECTOR, "#kw").send_keys("迪丽热巴")
16
17 #4. 找到“百度一下”按钮并点击
18 driver.find_element(By.CSS_SELECTOR, "#su").click()
19
20 #5. 关闭浏览器
21 driver.quit()
```

自动化运行成功

