

三种 Python IDE使用简介



IDLE

IDLE是开发 python 程序的基本集成开发环境（IDE，Integrated Development Environment）。初学者可以利用它方便地创建、运行、测试简单Python程序。



IDLE的安装

IDLE是跟Python一起安装的，因此先去官网<https://www.python.org/downloads/>下载Python。

Looking for a specific release?

Python releases by version number:

Release version	Release date	Click for more
Python 3.7.4	July 8, 2019	Download Release Notes
Python 3.6.9	July 2, 2019	Download Release Notes
Python 3.7.3	March 25, 2019	Download Release Notes
Python 3.4.10	March 18, 2019	Download Release Notes
Python 3.5.7	March 18, 2019	Download Release Notes
Python 2.7.16	March 4, 2019	Download Release Notes
Python 3.7.2	Dec. 24, 2018	Download Release Notes
Python 3.6.8	Dec. 24, 2018	Download Release Notes

选择所需的版本号后
进入下载界面



IDLE的安装

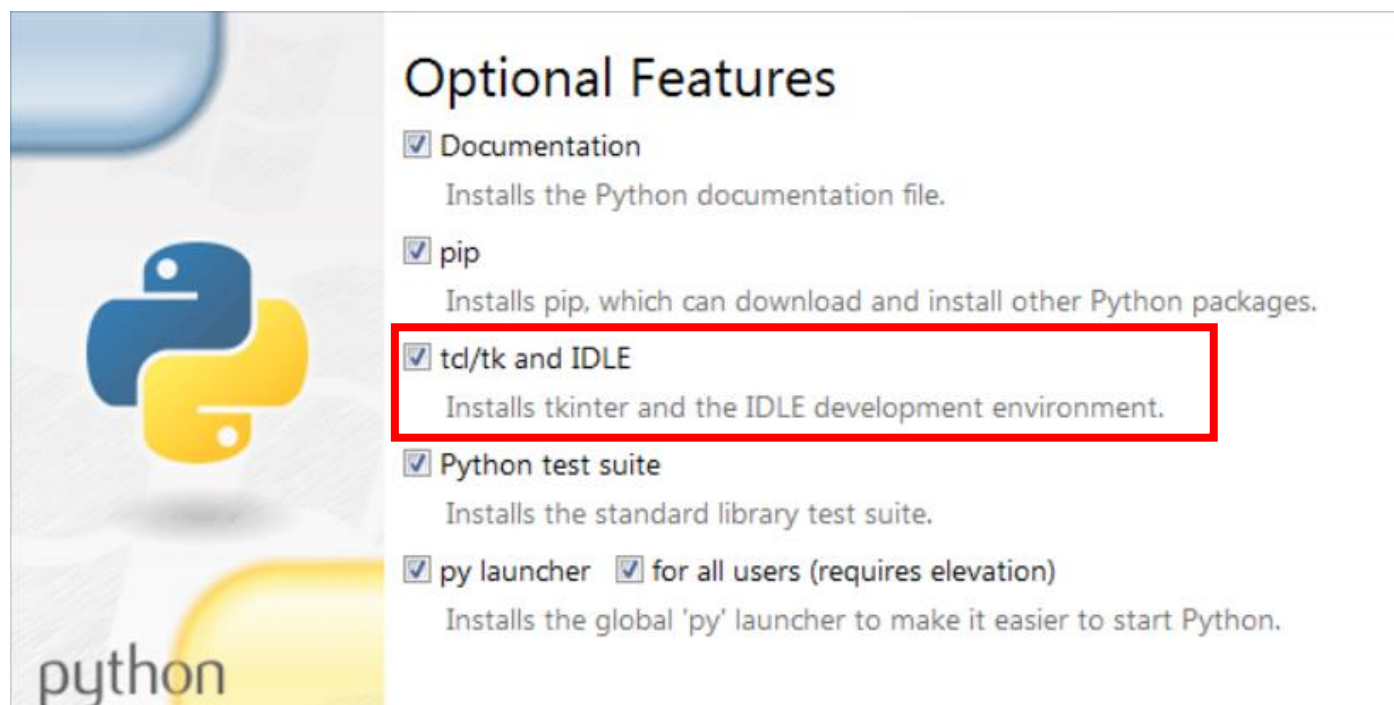
进入下载界面后，根据自己的操作系统状况，下载对应版本，如果是64位Windows建议下载Windowsx86-64 executable installer版本，因为zip版本会出现很多dll文件丢失情况。

Files					
Version	Operating System	Description	MD5 Sum	File Size	GPG
Gzipped source tarball	Source release		68111671e5b2db4aef7b9ab01bf0f9be	23017663	SIG
XZ compressed source tarball	Source release		d33e4aae66097051c2eca45ee3604803	17131432	SIG
macOS 64-bit/32-bit installer	Mac OS X	for Mac OS X 10.6 and later	6428b4fa7583daff1a442cba8cee08e6	34898416	SIG
macOS 64-bit installer	Mac OS X	for OS X 10.9 and later	5dd605c38217a45773bf5e4a936b241f	28082845	SIG
Windows help file	Windows		d63999573a2c06b2ac56cade6b4f7cd2	8131761	SIG
Windows x86-64 embeddable zip file	Windows	for AMD64/EM64T/x64	9b00c8cf6d9ec0b9abe83184a40729a2	7504391	SIG
Windows x86-64 executable installer	Windows	for AMD64/EM64T/x64	a702b4b0ad76debdb3043a583e563400	26680368	SIG
Windows x86-64 web-based installer	Windows	for AMD64/EM64T/x64	28cb1c608bbd73ae8e53a3bd351b4bd2	1362904	SIG
Windows x86 embeddable zip file	Windows		9fab3b81f8841879fda94133574139d8	6741626	SIG
Windows x86 executable installer	Windows		33cc602942a54446a3d6451476394789	25663848	SIG
Windows x86 web-based installer	Windows		1b670cfa5d317df82c30983ea371d87c	1324608	SIG



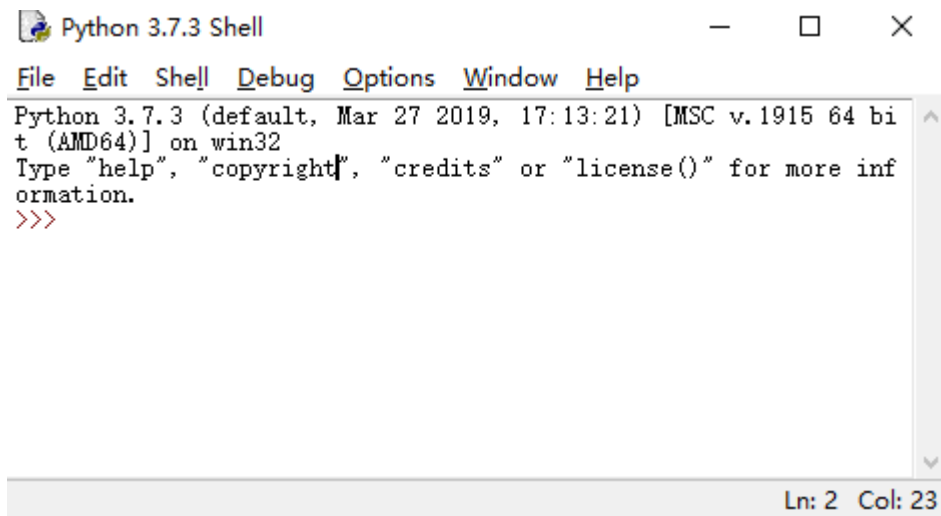
IDLE的安装

在安装的时候需要注意的是确保选中 “Tcl/Tk”组件。



IDLE的启动

在“开始”菜单中输入“IDLE”后回车，即可启动，其初始窗口下图所示：



启动IDLE就是打开一个Python shell,利用它可以在IDLE内部执行Python命令。shell的意思就是“外壳”，基本上来说，就是一个通过键入文本与程序交互的途径。

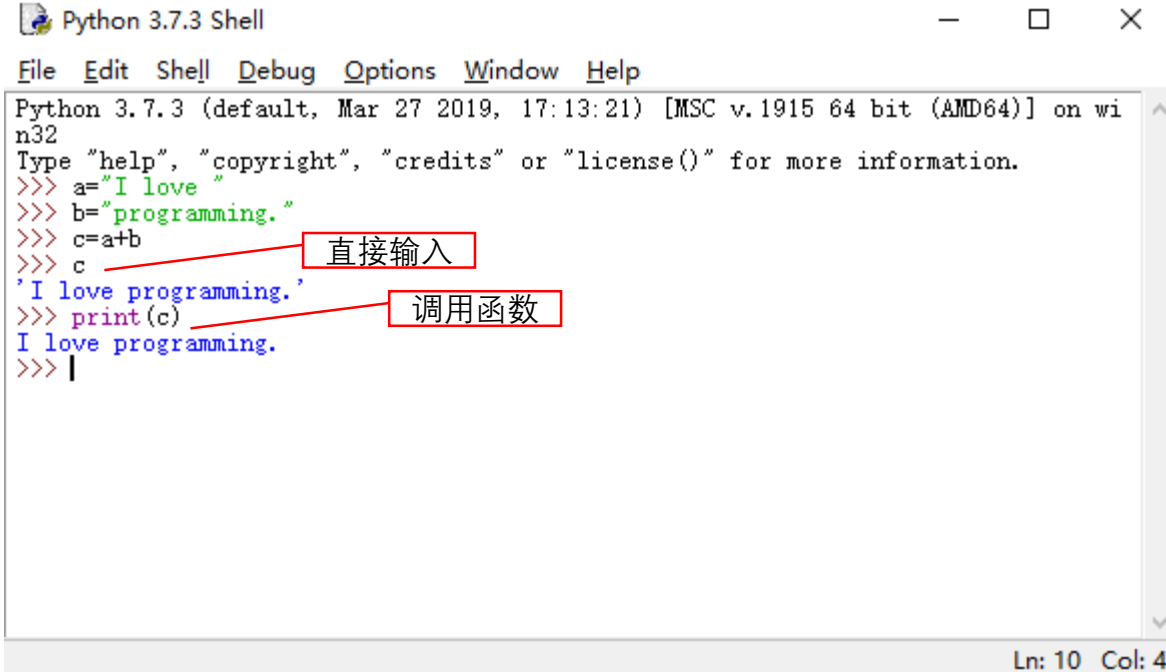


在DILE交互模式中执行Python指令

>>> 是提示符，在其后面输入Python指令后敲击“回车”键即表示一个指令输入完成。

输出一个变量可以直接输入一个变量后敲击“回车”键，也可以用print()函数。

利用Alt+p可以翻看之前的输入指令



The screenshot shows a Python 3.7.3 Shell window with the following content:

```
Python 3.7.3 (default, Mar 27 2019, 17:13:21) [MSC v.1915 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> a="I love "
>>> b="programming."
>>> c=a+b
>>> c
'I love programming.'
>>> print(c)
I love programming.
>>> |
```

Annotations in the image:

- A red box labeled "直接输入" (Direct Input) points to the variable `c` being entered at the prompt.
- A red box labeled "调用函数" (Call Function) points to the `print(c)` command.

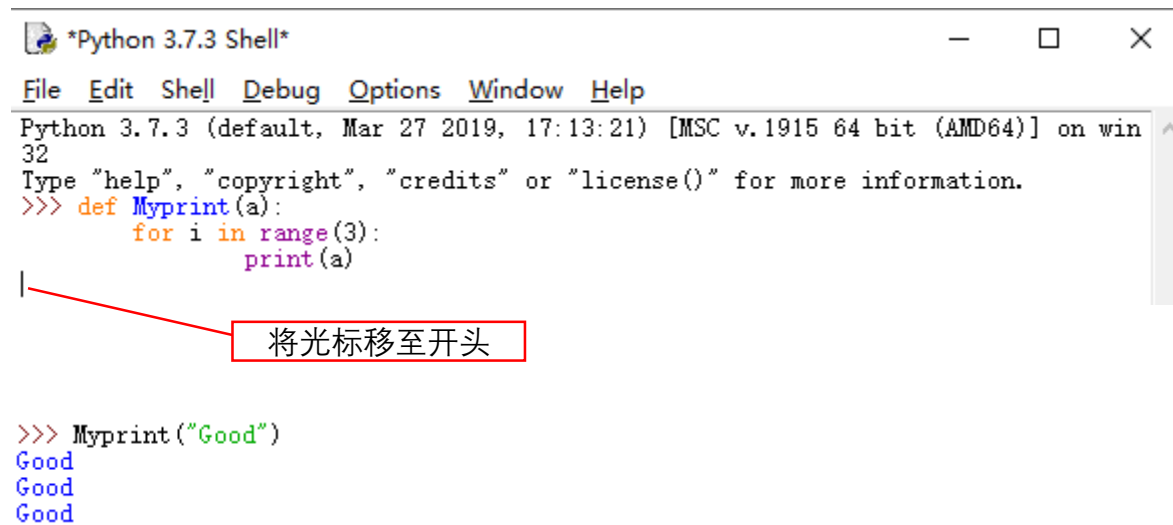
The status bar at the bottom right indicates "Ln: 10 Col: 4".



在DILE交互模式中执行Python指令

在交互模式中也可编写函数，需要注意的时候，当函数定义结束后，需将光标移动至新起一行的开头，再按“回车”键，表示函数定义结束。

接着就可在交互模式下通过函数名调用函数



The screenshot shows a Python 3.7.3 Shell window. The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The status bar indicates 'Python 3.7.3 (default, Mar 27 2019, 17:13:21) [MSC v.1915 64 bit (AMD64)] on win32'. The prompt is 'Type "help", "copyright", "credits" or "license()" for more information.' The code being entered is a function definition: `>>> def Myprint(a):`, `for i in range(3):`, `print(a)`. A red arrow points from a text box '将光标移至开头' (Move cursor to the beginning) to the start of the new line after the function definition. Below the function definition, the code `>>> Myprint("Good")` is entered, and the output shows 'Good' printed three times.

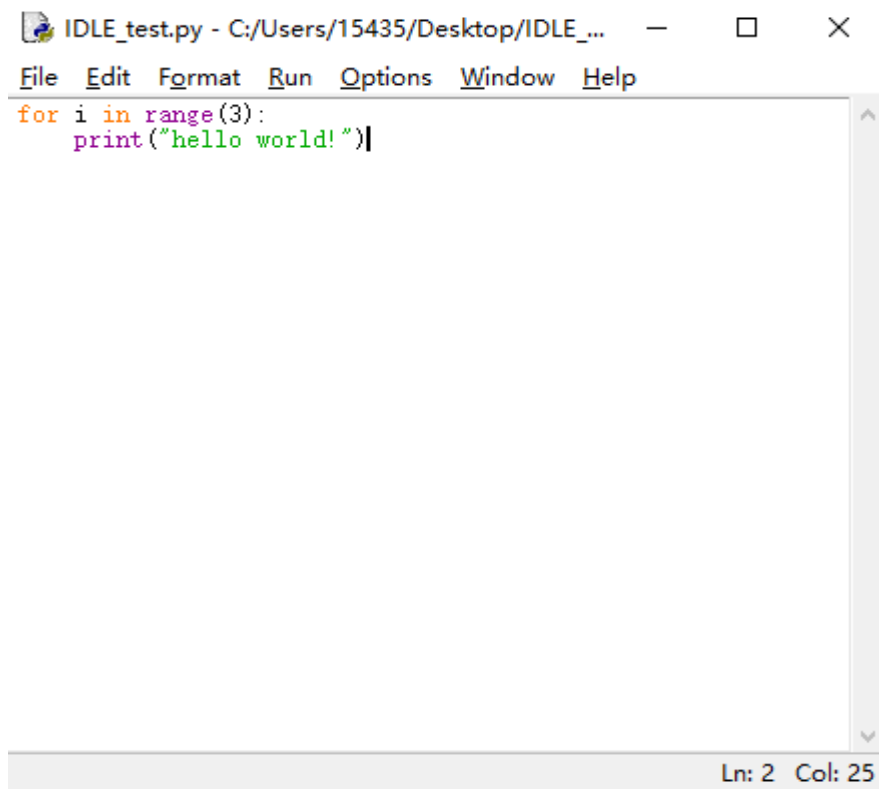
```
*Python 3.7.3 Shell*
File Edit Shell Debug Options Window Help
Python 3.7.3 (default, Mar 27 2019, 17:13:21) [MSC v.1915 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> def Myprint(a):
        for i in range(3):
            print(a)

>>> Myprint("Good")
Good
Good
Good
```



利用IDLE创建Python程序

在菜单栏中点击“File”，选择“New File”即可创建一个空的Python程序，并可以在新出现的窗口中输入程序代码。按F5编译并运行，编译之后我们就可以在交互模式下调用所编写的函数。

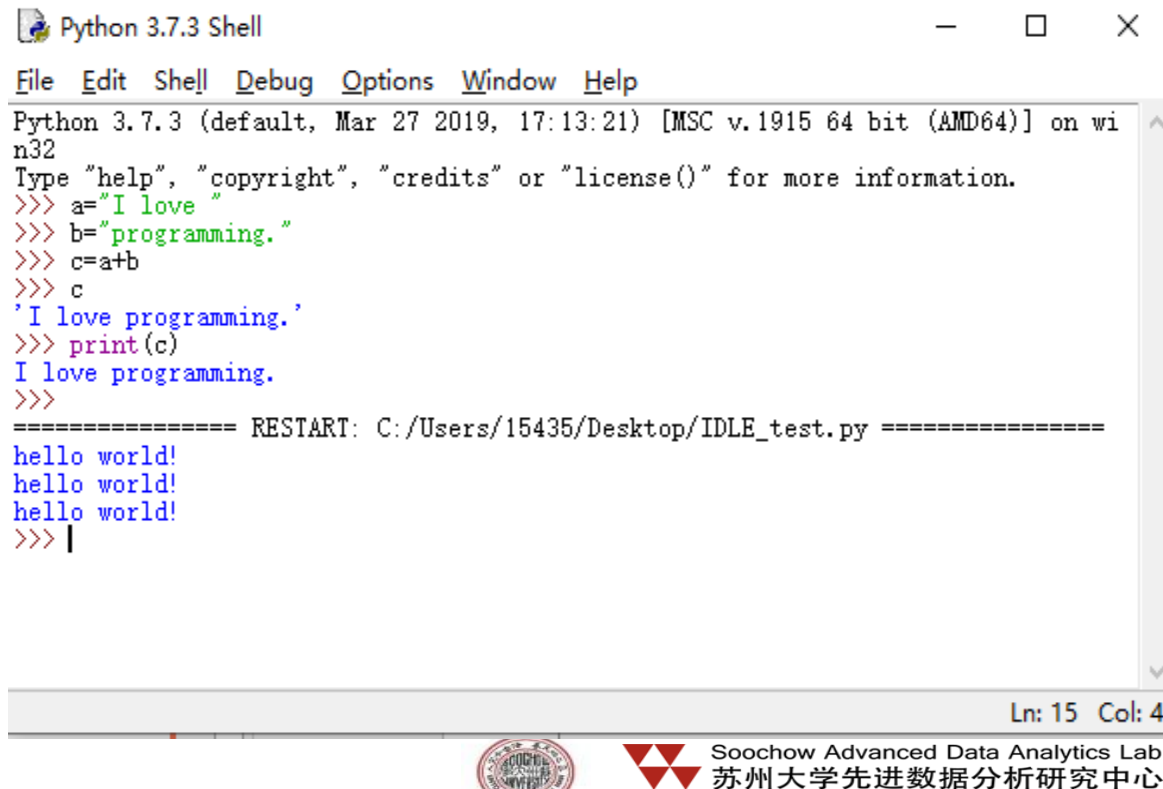


The screenshot shows the IDLE editor window titled "IDLE_test.py - C:/Users/15435/Desktop/IDLE_...". The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code editor contains the following Python code:

```
for i in range(3):  
    print("hello world!")
```

The status bar at the bottom indicates "Ln: 2 Col: 25".

F5运行



The screenshot shows the Python 3.7.3 Shell window titled "Python 3.7.3 Shell". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The shell displays the following output:

```
Python 3.7.3 (default, Mar 27 2019, 17:13:21) [MSC v.1915 64 bit (AMD64)] on win32  
Type "help", "copyright", "credits" or "license()" for more information.  
>>> a="I love "  
>>> b="programming."  
>>> c=a+b  
>>> c  
>>> 'I love programming.'  
>>> print(c)  
I love programming.  
>>>  
===== RESTART: C:/Users/15435/Desktop/IDLE_test.py =====  
hello world!  
hello world!  
hello world!  
>>> |
```

The status bar at the bottom indicates "Ln: 15 Col: 4".



IDLE编辑器快捷键

运行代码	F5
自动补全代码	Tab
撤销	Ctrl+z
加缩进	Ctrl+]
减缩进	Ctrl+[
加注释	Alt+3
去注释	Alt+4



Spyder

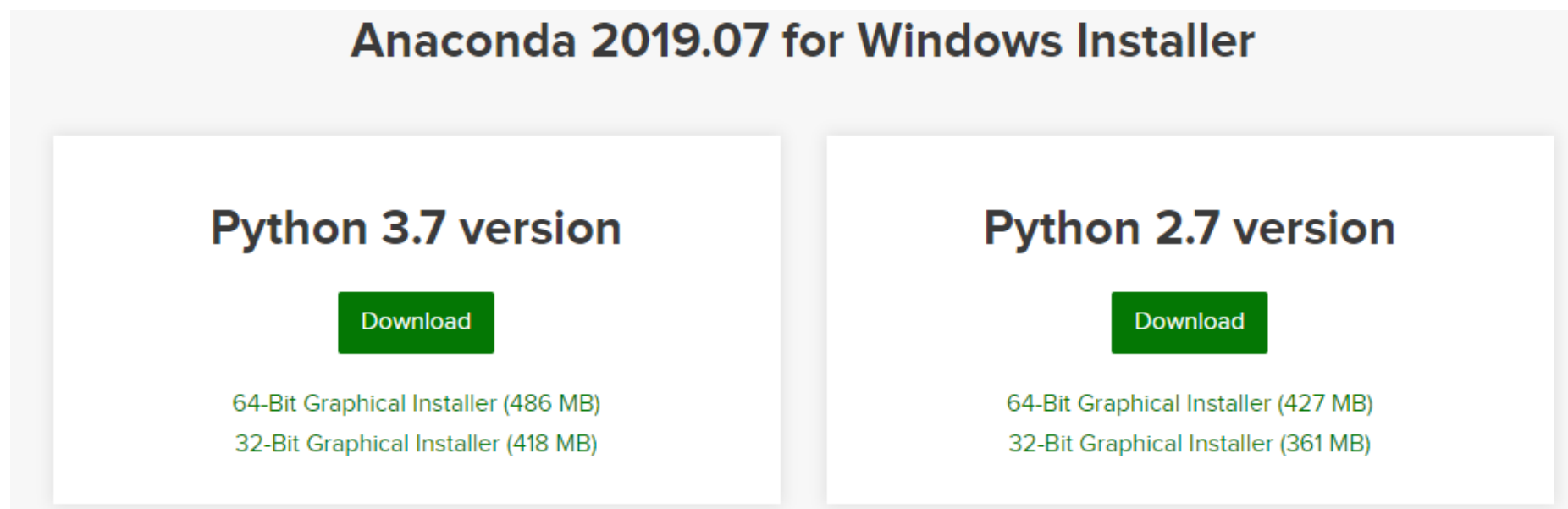
Spyder是一个使用Python语言的开放源代码跨平台科学运算集成开发环境，Spyder集成了Numpy，SciPy，Matplotlib与Ipython，以及其他开源软件，非常适用于数据处理与分析。



Spyder的安装

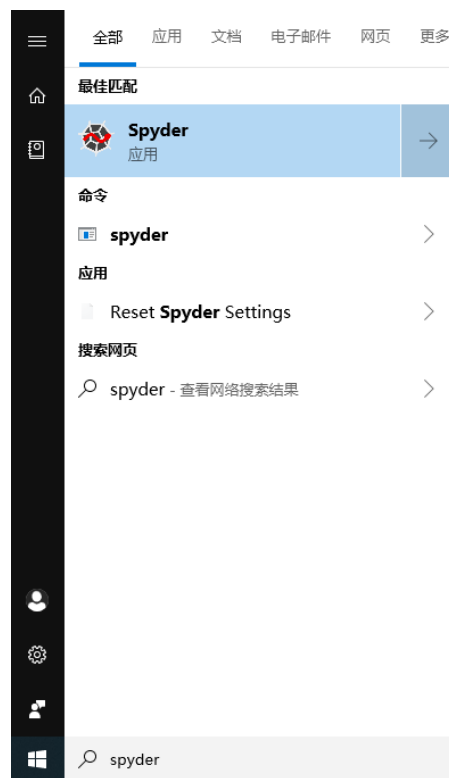
现在anaconda本身集成了Spyder编辑器，不用我们再额外下载安装Spyder。anaconda可在网页链接

<https://www.anaconda.com/distribution/#download-section>中进行下载，进入下载页面后，根据系统与需求选择对应的版本即可。



Spyder的安装

根据提示下载安装anaconda后，便可以在开始菜单就可以找到Spyder，如下图：

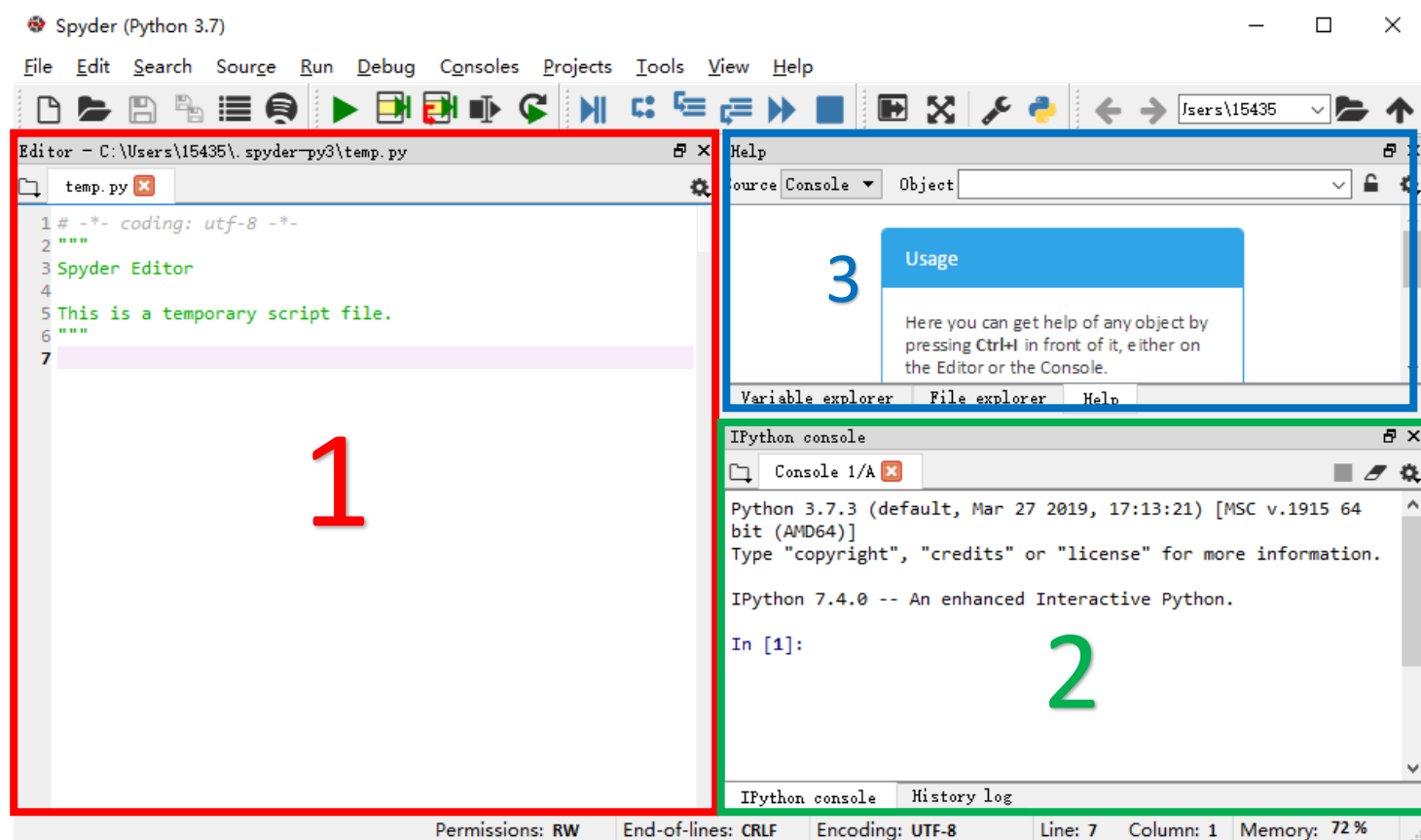


Spyder打开页面介绍

1、Editor窗口：即左边的窗口，可以用来写大段的代码

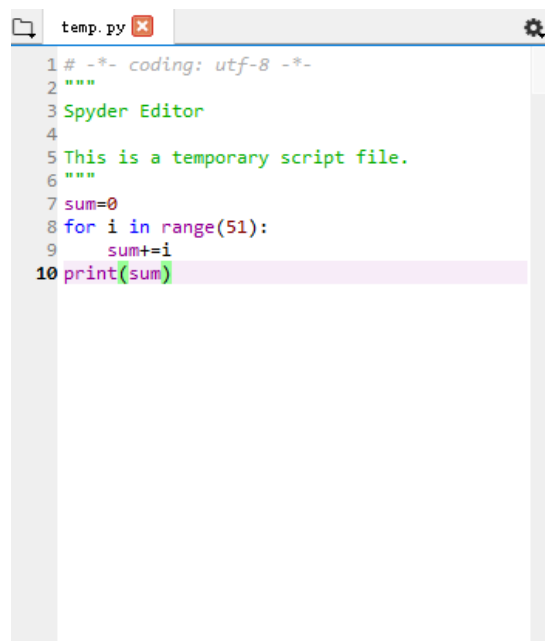
2、IPython consol窗口：直接在窗口里输入代码或terminal 指令，敲回车就能执行

3、Variable explorer/File explorer/Help：分别显示现有的变量、文件，和帮助。

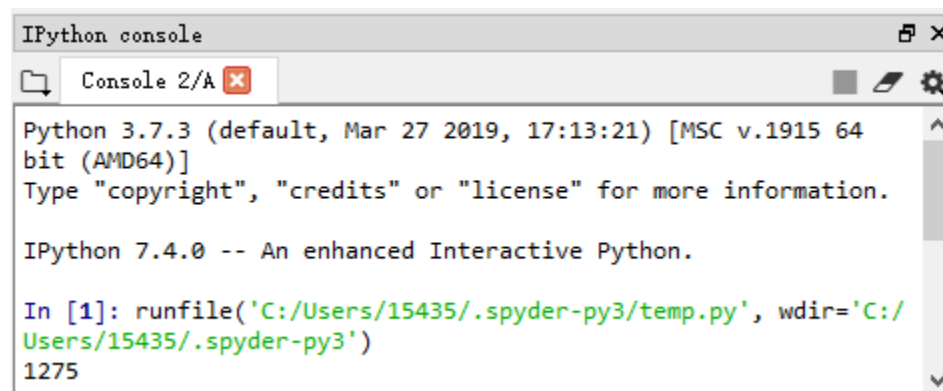


Spyder编写Python程序

在Editor窗口编写完代码后，点击运行按钮，或按F5键即可编译运行代码，结果显示在IPython consol窗口中。



```
1 # -*- coding: utf-8 -*-
2 """
3 Spyder Editor
4
5 This is a temporary script file.
6 """
7 sum=0
8 for i in range(51):
9     sum+=i
10 print(sum)
```



```
IPython console
Console 2/A
Python 3.7.3 (default, Mar 27 2019, 17:13:21) [MSC v.1915 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 7.4.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/15435/.spyder-py3/temp.py', wdir='C:/Users/15435/.spyder-py3')
1275
```



Spyder控制台常用的terminal指令

In [5]: ls _____ ls 列出所在目录的所有文件

驱动器 C 中的卷是 OS
卷的序列号是 F08E-2515

C:\Users\15435\.spyder-py3 的目录

```
2019/07/28 周日 10:55 <DIR> .  
2019/07/28 周日 10:55 <DIR> ..
```

In [6]: pwd _____ pwd 获得当前目录的绝对路径

Out[6]: 'C:\\Users\\15435\\.spyder-py3'

In [7]: cd .. _____ cd 切换路径, ..表示当前目录的上一层目录
C:\Users\15435

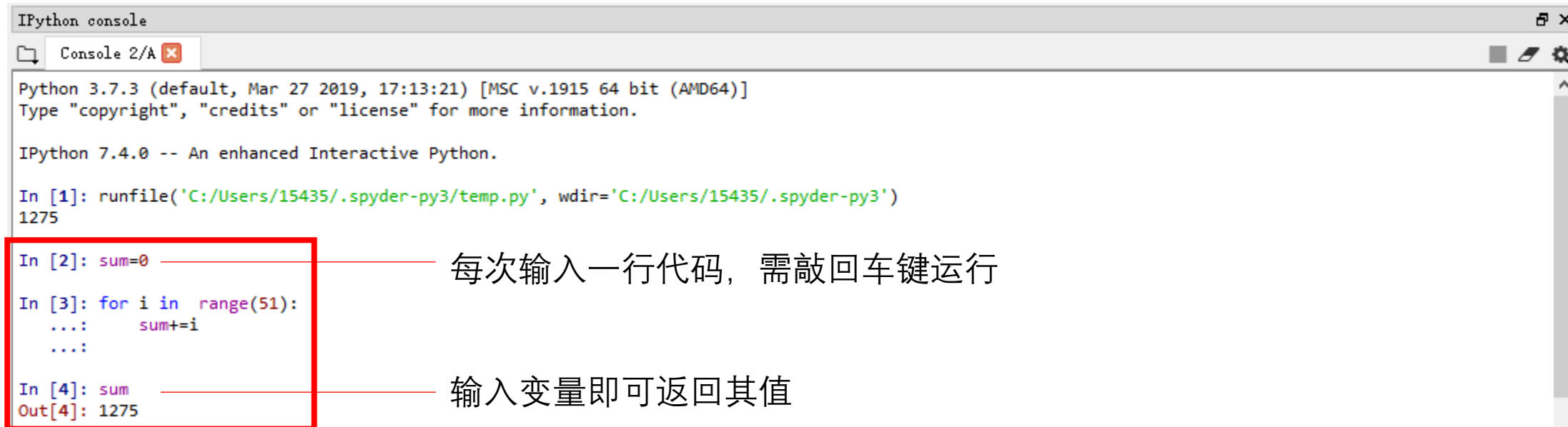
In [8]: run temp.py _____ run 运行程序
1275

In [18]: pip install package _____ 下载需要的包



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Spyder控制台中编写代码



The screenshot shows the IPython console window in Spyder. The title bar is 'IPython console'. The console output shows the Python version (3.7.3) and the Spyder version (7.4.0). The first input is `runfile('C:/Users/15435/.spyder-py3/temp.py', wdir='C:/Users/15435/.spyder-py3')`, which outputs `1275`. The second input is `sum=0`, which is highlighted with a red box. The third input is a for loop: `for i in range(51):`, `...: sum+=i`, `...:`. The fourth input is `sum`, which outputs `1275`. Red lines connect the text annotations to the corresponding code lines in the console.

```
IPython console
Console 2/A x
Python 3.7.3 (default, Mar 27 2019, 17:13:21) [MSC v.1915 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 7.4.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/15435/.spyder-py3/temp.py', wdir='C:/Users/15435/.spyder-py3')
1275

In [2]: sum=0
In [3]: for i in range(51):
...:     sum+=i
...:
In [4]: sum
Out[4]: 1275
```

每次输入一行代码，需敲回车键运行

输入变量即可返回其值

```
In [20]: def mysum(n):
...:     sum=0
...:     for i in range(n+1):
...:         sum+=i
...:     return sum
...:
```

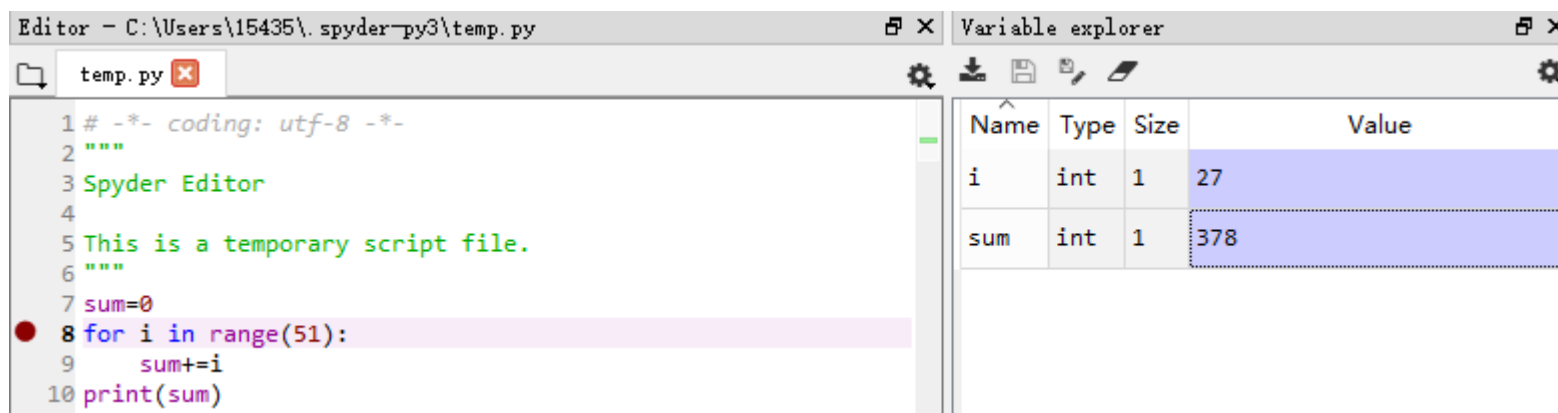
同样也可以在控制台中编写函数，并通过函数名调用

```
In [21]: print(mysum(5))
15
```

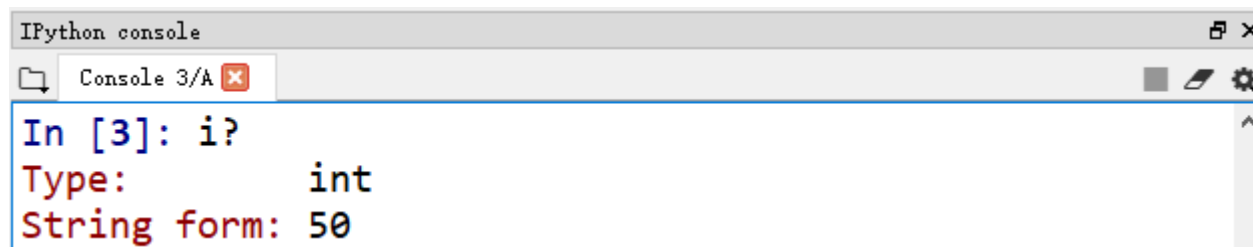


Spyder小技巧

- 1、在Editor窗口中，先按住Ctrl键，再单击某一变量，光标会跳至那个变量定义的地方
- 2、F12下断点，Ctrl+F11单步调试，在调试的时候打开Variable explore可查看变量的值



- 3、在ipython console输入变量名+'?'，会显示变量的说明



Pycharm

Pycharm是由JetBrains开发的一款Python IDE。正如所有其它JetBrains 集成开发环境一样，PyCharm 具有智能代码编辑器，能理解 Python 的特性并提供卓越的生产力推进工具：自动代码格式化、代码完成、重构、自动导入和一键代码导航等。



Pycharm的安装

进入官网<https://www.jetbrains.com/pycharm/download/#section=windows>
根据系统环境下载对应版本的Pycharm，推荐安装社区版，因为是免费使用的

Download PyCharm

Windows

macOS

Linux

Professional

For both Scientific and Web Python development. With HTML, JS, and SQL support.

DOWNLOAD

Free trial

Community

For pure Python development

DOWNLOAD

Free, open-source



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苏州大学先进数据分析研究中心

Pycharm打开界面介绍

1、菜单栏

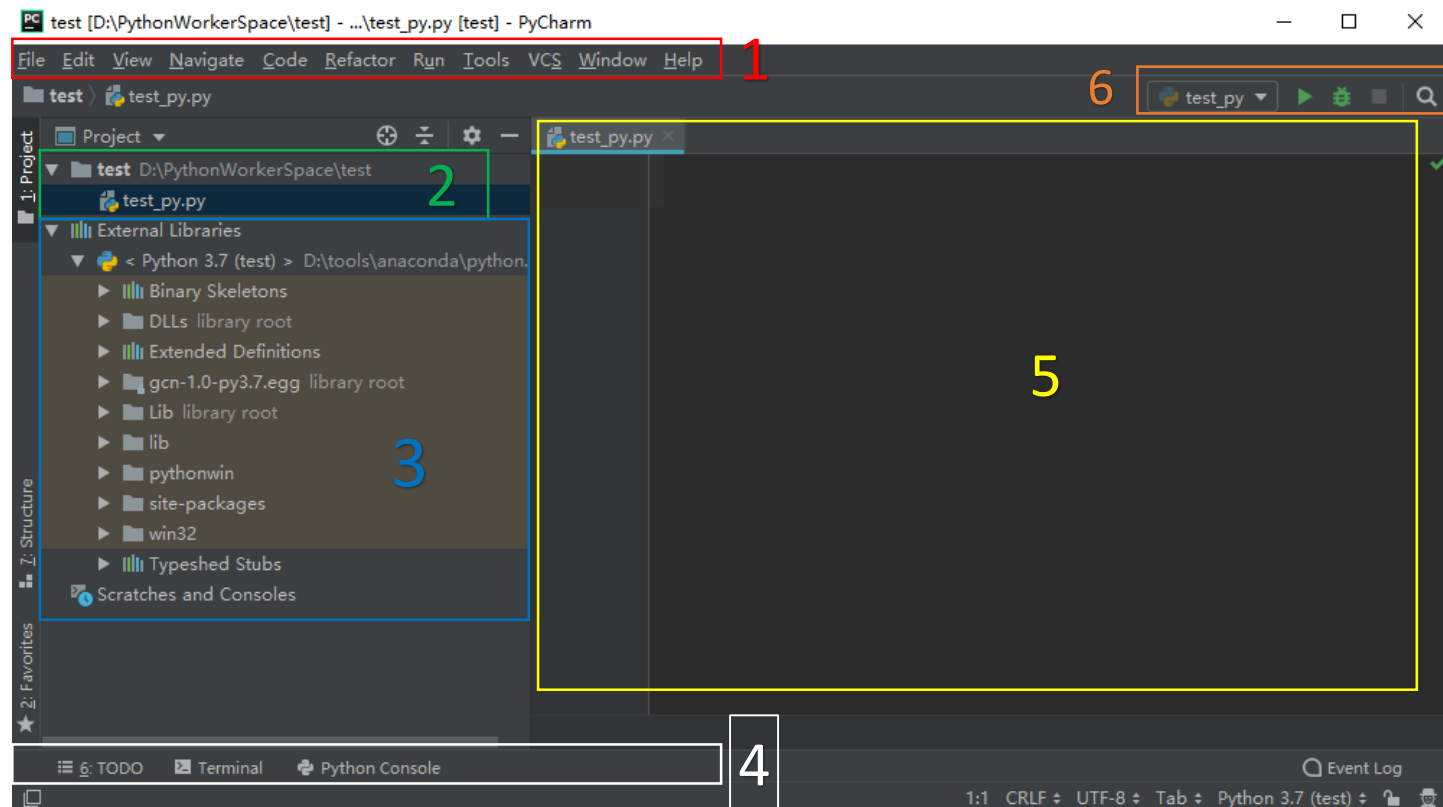
2、项目目录

3、当前项目使用的Python解释器

4、控制台（指令同Spyder）

5、代码编辑区域

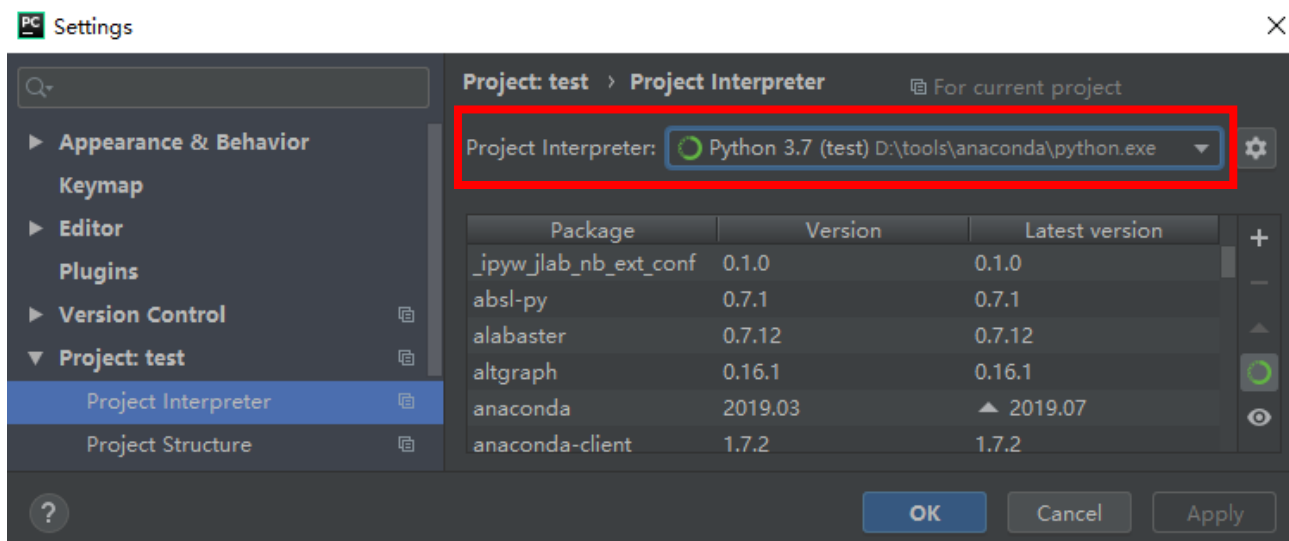
6、运行和debug相关按钮



Pycharm常用设置

1、更换Python解释器

File → Settings → Project: test → Project Interpreter



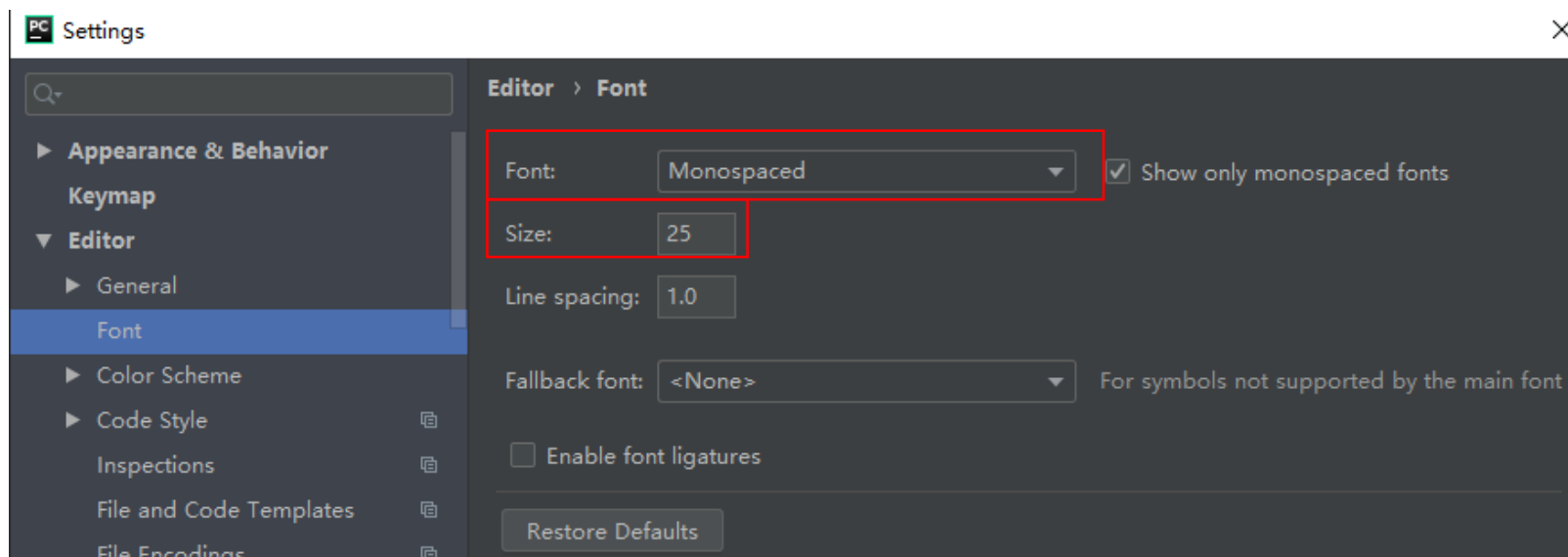
注意:在选择 Python 解释器的时候,一定要选择 **python.exe** 这个文件,而不是 python 的安装文件夹。



Pycharm常用设置

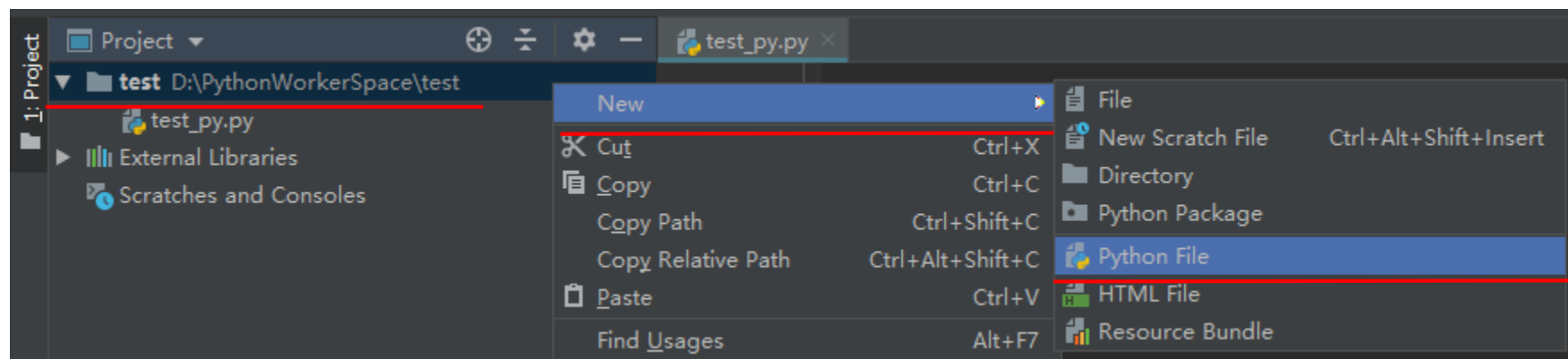
2、调整编辑器字体及其大小

File → Settings → Editor → Font

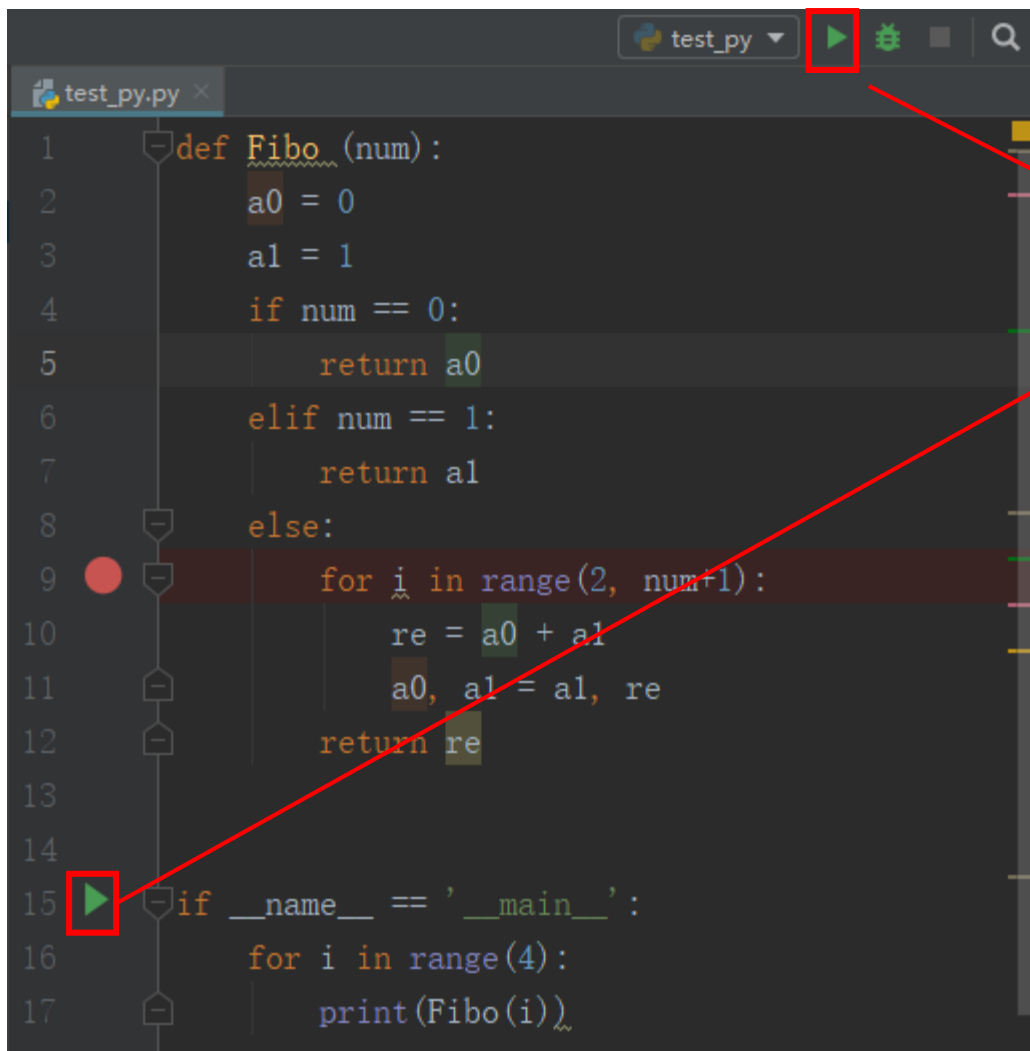


Pycharm新建Python文件

右击项目名称→New →Python File



Pycharm调试与运行程序



点击运行
或
按快捷键Ctrl+Shift+F10 运行



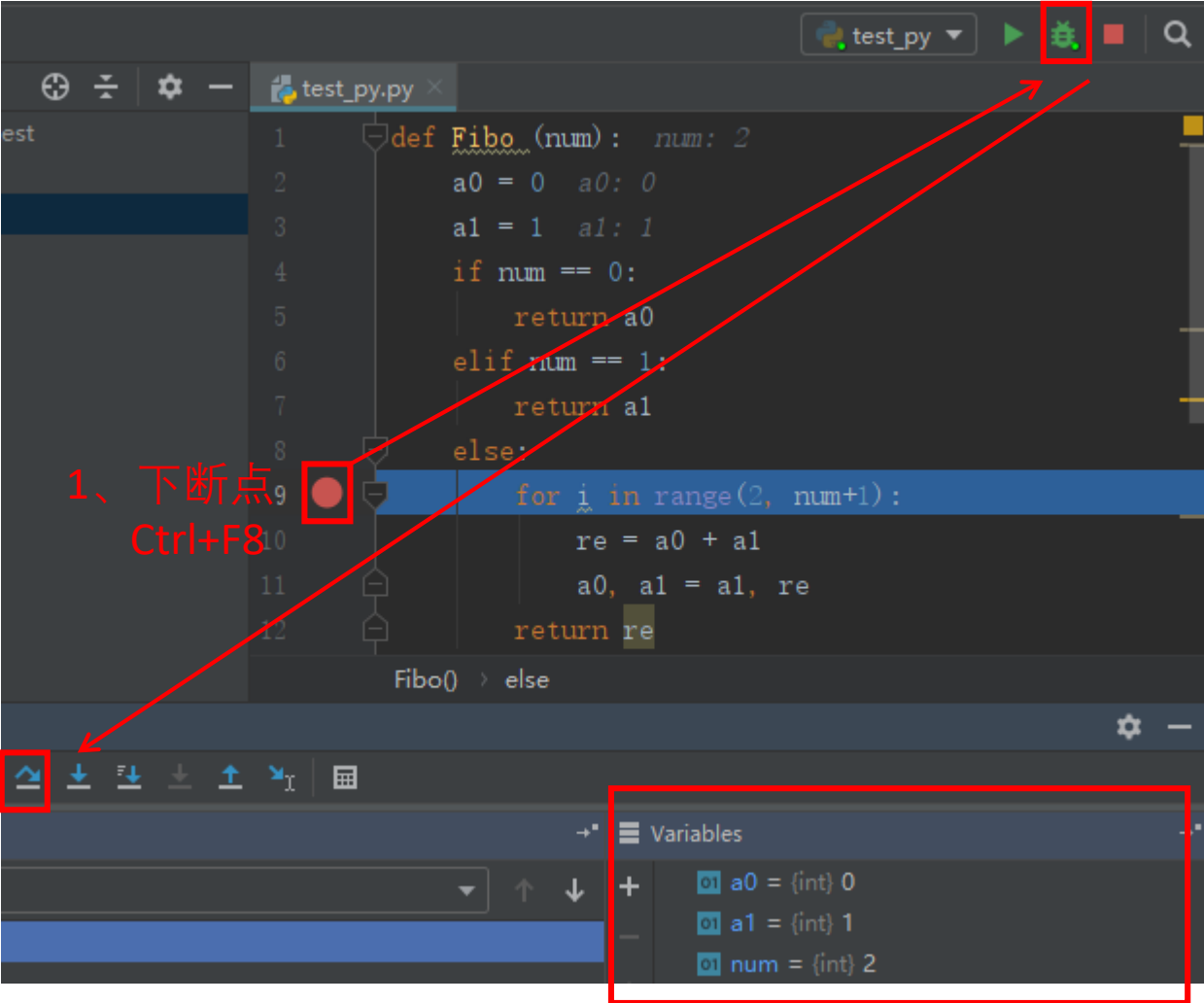
Pycharm调试与运行程序

2、点击调试（小虫子）
Shift+F9

1、下断点
Ctrl+F8

3、单步调试
F8

4、查看变量值



```
1 def Fibo(num): num: 2
2     a0 = 0 a0: 0
3     a1 = 1 a1: 1
4     if num == 0:
5         return a0
6     elif num == 1:
7         return a1
8     else:
9         for i in range(2, num+1):
10             re = a0 + a1
11             a0, a1 = a1, re
12         return re
```

Variables

- a0 = (int) 0
- a1 = (int) 1
- num = (int) 2

