

Arduino \leftrightarrow Python

藍牙溝通

111-2 電資工程入門設計與實作

PART 1


pyserial

```
! 20190224_For BT_Demo_v05.py - C:\Users\JPChen\Desktop\108-2\From 107-2 Week-2\! 20190224_For BT_D
File Edit Format Run Options Window Help
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:\Users\JPChen\Desktop\108-2\From 107-2 Week-2\! 20190224_For BT_Demo_v05.py
Traceback (most recent call last):
  File "C:\Users\JPChen\Desktop\108-2\From 107-2 Week-2\! 20190224_For BT_Demo_v05.py", line 61, in <module>
    bt = bluetooth("COM3")
  File "C:\Users\JPChen\Desktop\108-2\From 107-2 Week-2\! 20190224_For BT_Demo_v05.py", line 11, in __init__
    self.ser = serial.Serial(port, baudrate=baudrate)
AttributeError: module 'serial' has no attribute 'Serial'
>>> |
```

執行後發生問題

pyserial · PyPI

https://pypi.org/project/pyserial/#files



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pyserial 3.5

Latest version

Released: Nov 23, 2020

`pip install pyserial`

Python Serial Port Extension

Navigation

Project description

Release history

Download files

Project links

Homepage

Statistics

Download files

Download the file for your platform. If you're not sure which to choose, learn more about [installing packages](#).

Source Distribution

pyserial-3.5.tar.gz

(159.1 kB)

[view hashes](#)

Uploaded Nov 23, 2020

source

Built Distribution

pyserial-3.5-py2.py3-none-any.whl

(90.6 kB)


[view hashes](#)

Uploaded Nov 23, 2020

py2py3

下載頁面

搜尋



07:41

2023/3/12

4

https://pypi.org/project/pyserial/#files

NTUEE電資工程入門設計與實作©

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Tutorials

Next topic
Managing Application Dependencies

Ensure you can run pip from the command line

Additionally, you'll need to make sure you have `pip` available. You can check this by running:

Unix/macOS Windows

```
py -m pip --version
```

If you installed Python from source, with an installer from [python.org](#), or via [Homebrew](#) you should already have `pip`. If you're on Linux and installed using your OS package manager, you may have to install `pip` separately, see [Installing pip/setuptools/wheel with Linux Package Managers](#).

If `pip` isn't already installed, then first try to bootstrap it from the standard library:

Unix/macOS Windows

```
py -m ensurepip --default-pip
```

If that still doesn't allow you to run `python -m pip`:

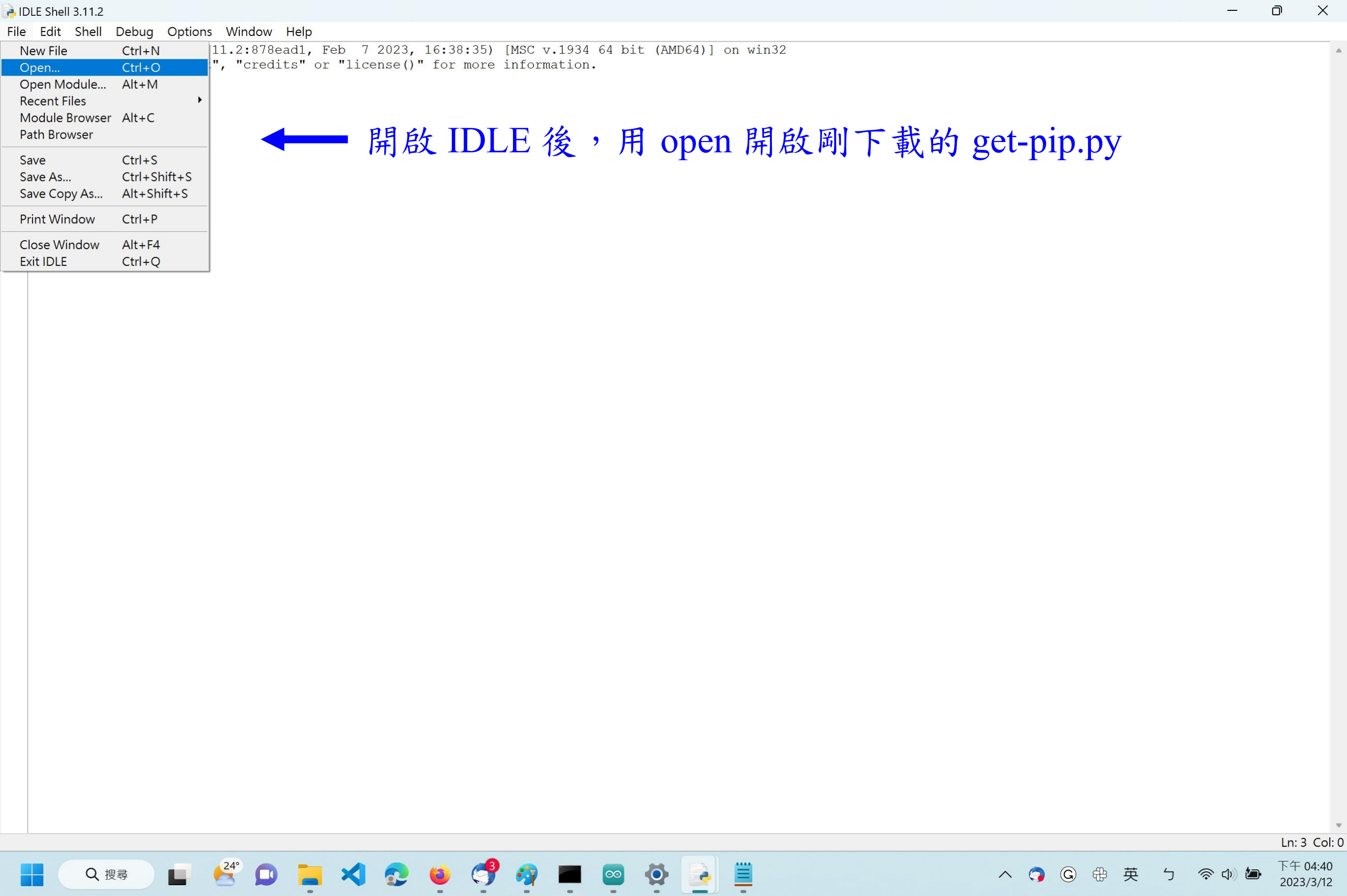
- Securely Download [get-pip.py](#) [1] ← 下載檔案
- Run `python get-pip.py`. [2] This will install or upgrade `pip`. Additionally, it will install `setuptools` and `wheel` if they're not installed already.

Warning: Be cautious if you're using a Python install that's managed by your operating system or another package manager. `get-pip.py` does not coordinate with those tools, and may leave your system in an inconsistent state. You can use `python get-pip.py --prefix=/usr/local/` to install in `/usr/local` which is designed for locally-installed software.

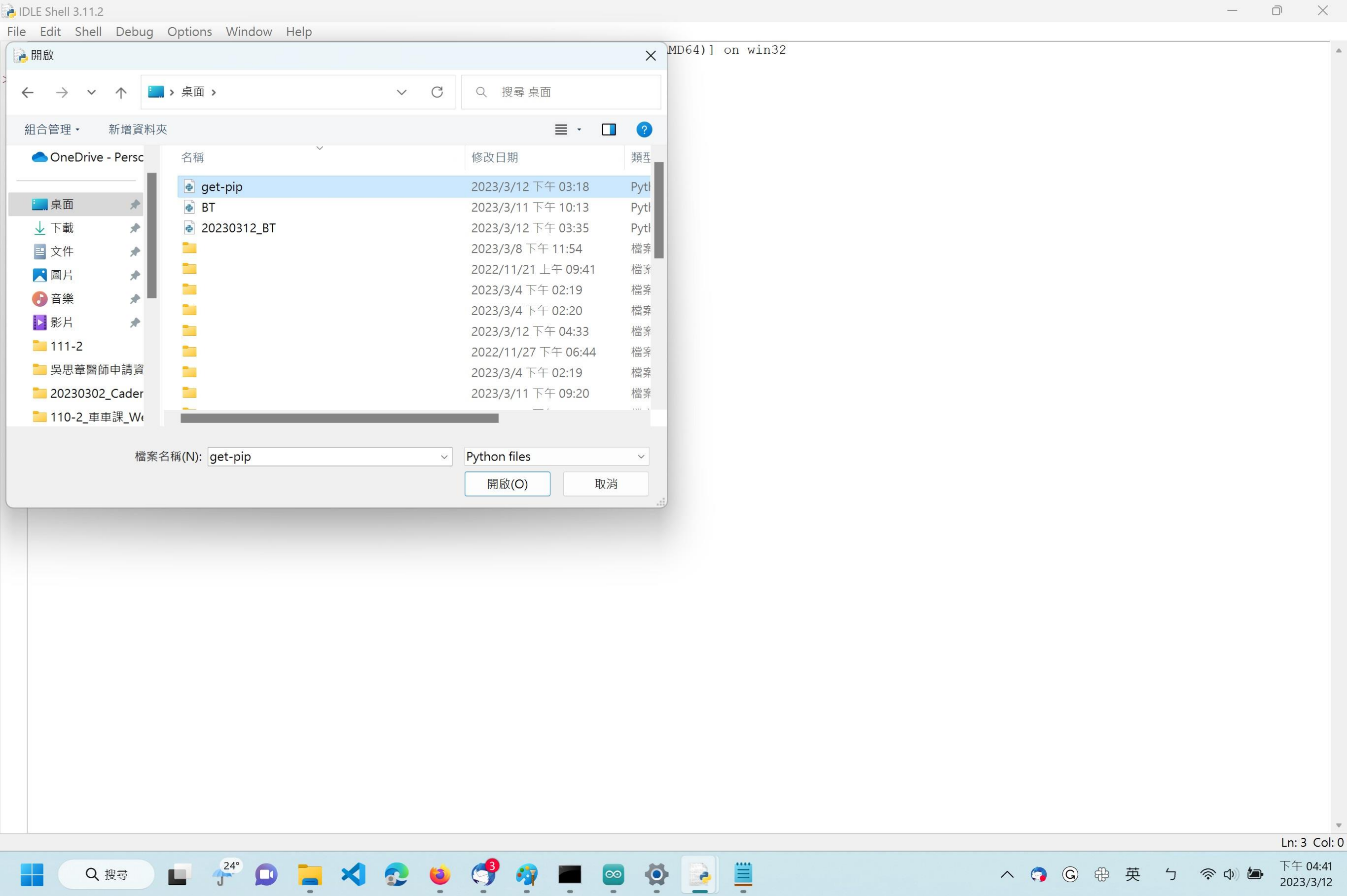
Ensure pip, setuptools, and wheel are up to date

v: latest

While `pip` alone is sufficient to install from pre-built binary archives, up to date copies of the `setuptools` and `wheel` projects are useful to ensure you can also install from source archives:



← 開啟 IDLE 後，用 open 開啟剛下載的 get-pip.py



Python 3.11.2 (tags/v3.11.2:878cd1f, Feb 7 2023, 16:28:25) [AMD64] on win32

File Edit Shell Debug Options Window Help

get-pip.py - C:\Users\Jiun-Peng CHEN\Desktop\get-pip.py (3.11.2)

File Edit Format Run Options Window Help

Run Module F5
Run... Customized Shift+F5
Check Module Alt+X
Python Shell

點選執行它

```
#!/usr/bin/env python
#
# Hi There!
#
# You may be wondering what this giant blob of binary data here is, you might
# even be worried that we're up to something nefarious (good for you for being
# paranoid!). This is a base85 encoding of a zip file, this zip file contains
# an entire copy of pip (version 23.0.1).
#
# Pip is a thing that installs packages, pip itself is a package that someone
# might want to install, especially if they're looking to run this get-pip.py
# script. Pip has a lot of code to deal with the security of installing
# packages, various edge cases on various platforms, and other such sort of
# "tribal knowledge" that has been encoded in its code base. Because of this
# we basically include an entire copy of pip inside this blob. We do this
# because the alternatives are attempt to implement a "minipip" that probably
# doesn't do things correctly and has weird edge cases, or compress pip itself
# down into a single file.
#
# If you're wondering how this is created, it is generated using
# `scripts/generate.py` in https://github.com/pypa/get-pip.

import sys

this_python = sys.version_info[:2]
min_version = (3, 7)
if this_python < min_version:
    message_parts = [
        "This script does not work on Python {}.{}".format(*this_python),
        "The minimum supported Python version is {}.{}".format(*min_version),
        "Please use https://bootstrap.pypa.io/pip/{}.{} /get-pip.py instead.".for
    ]
    print("ERROR: " + " ".join(message_parts))
    sys.exit(1)

import os.path
import pkgutil
import shutil
import tempfile
```

Ln: 1 Col: 0

Ln: 3 Col: 0


```
Python 3.11.2 (tags/v3.11.2:878ead1, Feb 7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Jiun-Peng CHEN\Desktop\get-pip.py =====
Collecting pip
  Using cached pip-23.0.1-py3-none-any.whl (2.1 MB)
Installing collected packages: pip
  Attempting uninstall: pip
    Found existing installation: pip 23.0.1
    Uninstalling pip-23.0.1:
      Successfully uninstalled pip-23.0.1
  WARNING: The scripts pip.exe, pip3.11.exe and pip3.exe are installed in 'C:\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\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 pip-23.0.1
```

← 成功安裝 pip

```
===== RESTART: C:\Users\Jiun-Peng CHEN\Desktop\get-pip.py =====
```

```
Using cached pip-23.0.1-py3-none-any.whl (2.1 MB)
```

```
Attempting uninstall: pip
```

```
Found existing installation: pip 23.0.1
```

Uninstalling pip-23.0.1:

```
Successfully uninstalled pip-23.0.1
```

WARNING: The scripts pip.exe, pip3.11.exe and pip3.exe are installed in 'C:\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts' which is not on PATH.

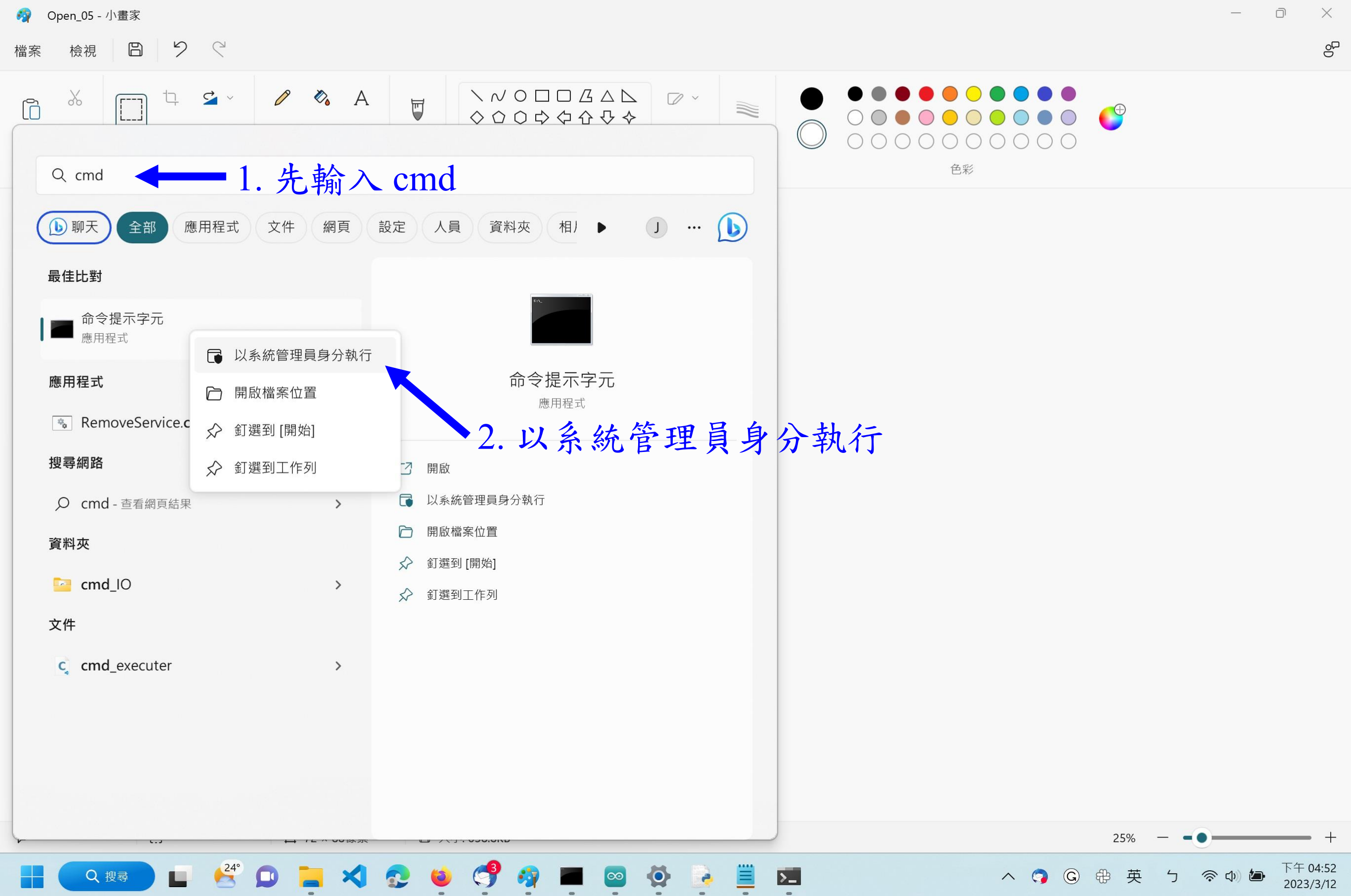
Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.

Successfully installed pip-23.0.1

- Cut
- Copy**
- Copy with prompts
- Paste

- Go to file/line
- Squeeze

複製路徑



Microsoft Windows [Version 10.0.22621.1265]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts

C:\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts>py -m pip install --upgrade pip setuptools wheel

Requirement already satisfied: pip in c:\users\jiun-peng chen\appdata\local\programs\python\python311\lib\site-packages (23.0.1)

Requirement already satisfied: setuptools in c:\users\jiun-peng chen\appdata\local\programs\python\python311\lib\site-packages (67.6.0)

Requirement already satisfied: wheel in c:\users\jiun-peng chen\appdata\local\programs\python\python311\lib\site-packages (0.38.4)

C:\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts>pip install pyserial

C:\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts>

C:\Windows\System32>cd\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts

cd\切換到剛複製的路徑

C:\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts>py -m pip install --upgrade pip setuptools wheel

輸入 py -m pip install --upgrade pip setuptools wheel

C:\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts>pip install pyserial

輸入 pip install pyserial

C:\Users\Jiun-Peng CHEN\AppData\Local\Programs\Python\Python311\Scripts>



搜尋



下午 05:02
2023/3/12

PART 2

Arduino 與 Python 對話

111_2_BT | Arduino IDE 2.0.4

File Edit Sketch Tools Help

Arduino Mega or Mega ...

111_2_BT.ino

```
3 #include <SoftwareSerial.h>
4 SoftwareSerial BT (10, 11);
5
6
7 .....
8
9 void setup () {
10   Serial.begin (9600);
11   BT.begin(9600);
12   .....
13
14
15
16 }
17 void loop () {
18   兩個迴圈，
19   傳送與接受字元內容。
20
21 }
22
23
24
25
```

Output Serial Monitor x

Message (Enter to send message to 'Arduino Mega or Mega 25 New Line 9600 baud

Serial Connect!

Ln 1, Col 1 Arduino Mega or Mega 2560 on COM4 2

2. 可在此框內輸入文字

IDLE Shell 3.11.2

File Edit Shell Debug Options Window Help

Python 3.11.2 (tags/v3.11.2:878ead1, Feb 7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

>>>

===== RESTART: C:/Users/Jiun-Peng CHEN/Desktop/20230312_BT.py =====

BT Connected!

Ln: 5 Col: 0

1. 兩邊連上後，
程式設定出現上述文字

111_2_BT | Arduino IDE 2.0.4

File Edit Sketch Tools Help

Arduino Mega or Mega ...

111_2_BT.ino

```
3 #include <SoftwareSerial.h>
4 SoftwareSerial BT (10, 11);
5
6
7
8
9 void setup () {
10   Serial.begin (9600);
11   BT.begin(9600);
12
13
14
15
16 }
17 void loop () {
18   兩個迴圈，
19   傳送與接受字元內容。
20
21 }
22
23
24
25
```

3. 在此輸入1234567890

Output Serial Monitor x

1234567890 New Line 9600 baud

Serial Connect!

Ln 1, Col 1 Arduino Mega or Mega 2560 on COM4 2

IDLE Shell 3.11.2

File Edit Shell Debug Options Window Help

Python 3.11.2 (tags/v3.11.2:878ead1, Feb 7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

>>>

===== RESTART: C:/Users/Jiun-Peng CHEN/Desktop/20230312_BT.py =====

==

BT Connected!

Ln: 5 Col: 0

111_2_BT | Arduino IDE 2.0.4

File Edit Sketch Tools Help

Arduino Mega or Mega ...

111_2_BT.ino

```
3 #include <SoftwareSerial.h>
4 SoftwareSerial BT (10, 11);
5
6
7 .....
8
9 void setup () {
10   Serial.begin (9600);
11   BT.begin(9600);
12   .....
13
14
15
16 }
17 void loop () {
18   兩個迴圈，
19   傳送與接受字元內容。
20
21 }
22
23
24
25
```

Output Serial Monitor x

Message (Enter to send message to 'Arduino Mega or Mega 2560 on COM4') New Line 9600 baud

Serial Connect!

Ln 1, Col 1 Arduino Mega or Mega 2560 on COM4 2

IDLE Shell 3.11.2

File Edit Shell Debug Options Window Help

Python 3.11.2 (tags/v3.11.2:878ead1, Feb 7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

>>>

===== RESTART: C:/Users/Jiun-Peng CHEN/Desktop/20230312_BT.py =====

BT Connected!

1234567890

|

4. 在此按輸入「Enter」後 (可多按幾次)
，才會顯示 Arduino IDE 傳來的文字

Ln: 12 Col: 0

111_2_BT | Arduino IDE 2.0.4

File Edit Sketch Tools Help

Arduino Mega or Mega ...

111_2_BT.ino

```
3 #include <SoftwareSerial.h>
4 SoftwareSerial BT (10, 11);
5
6
7 .....
8
9 void setup () {
10   Serial.begin (9600);
11   BT.begin(9600);
12   .....
13
14
15
16 }
17 void loop() {
18   兩個迴圈，
19   傳送與接受字元內容。
20 }
21
22
23
24
25
```

Output Serial Monitor x

Message (Enter to send message to 'Arduino Mega or Mega 2560 on COM4') New Line 9600 baud

Serial Connect!

Ln 1, Col 1 Arduino Mega or Mega 2560 on COM4 2

IDLE Shell 3.11.2

File Edit Shell Debug Options Window Help

```
Python 3.11.2 (tags/v3.11.2:878ead1, Feb 7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/Jiun-Peng CHEN/Desktop/20230312_BT.py =====
BT Connected!

1234567890
qwertyuiop|
```

5. 在此按輸入qwertyuiop，直接按「Enter」

Ln 12 Col: 10

111_2_BT | Arduino IDE 2.0.4

File Edit Sketch Tools Help

Arduino Mega or Mega ...

```
111_2_BT.ino
3  #include <SoftwareSerial.h>
4  SoftwareSerial BT (10, 11);
5
6
7  ....
8
9  void setup () {
10   Serial.begin (9600);
11   BT.begin(9600);
12   ....
13
14
15
16 }
17 void loop () {
18     兩個迴圈，
19     傳送與接受字元內容。
20 }
21
22
23
24
25
```

Output Serial Monitor x

Message (Enter to send message to 'Arduino Mega or Mega 2560 on COM4') New Line 9600 baud

Serial Connect!
qwertyuiop

← 6. 這直接顯示 qwertyuiop

IDLE Shell 3.11.2

File Edit Shell Debug Options Window Help

```
Python 3.11.2 (tags/v3.11.2:878ead1, Feb 7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

>>>

===== RESTART: C:/Users/Jiun-Peng CHEN/Desktop/20230312_BT.py =====
==
BT Connected!

1234567890

qwertyuiop
```

Ln: 13 Col: 0