

工業物聯網

Week 2

2/25

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Outline

- 基本軟體安裝
 - Python
 - VSCode
- 基本 Code (Python) 介紹 + 實作
- 本次作業:p. 21
- 註: 本次課程內容面向 連 **Python** 與 **VSCode** 都沒安裝過 的人。會提一些簡單的 **python** 函數用法，熟稔這些已足以應付本課程。若已經學過的可以直接到 p. 21 完成作業然後 **demo** 給冠鈞助教，即可提早下課。

Python

<https://www.python.org/>



The screenshot shows the Python.org homepage. At the top is the Python logo and a navigation bar with links: About, Downloads, Documentation, Community, Success Stories, News, and Events. A red arrow points to the 'Downloads' link. Below the navigation bar, a dropdown menu is open for 'Downloads', listing options: All releases, Source code, Windows, macOS, Other Platforms, License, and Alternative Implementations. To the right of the dropdown, a section titled 'Download for Windows' is visible. It features a button for 'Python 3.13.2', which is highlighted by a red arrow. Below the button, there is a note: 'Note that Python 3.9+ cannot be used on Windows 7 or earlier.' and a link to 'View the full list of downloads.'

```
# Python 3: List of fruits
>>> fruits = ['Banana', 'Apple', 'Orange']
>>> loud_fruits = [fruit.upper() for fruit in fruits]
>>> print(loud_fruits)
['BANANA', 'APPLE', 'ORANGE']

# List and the enumerate function
>>> list(enumerate(fruits))
[(0, 'Banana'), (1, 'Apple'), (2, 'Orange')]
```

Download for Windows

Python 3.13.2

Note that Python 3.9+ cannot be used on Windows 7 or earlier.

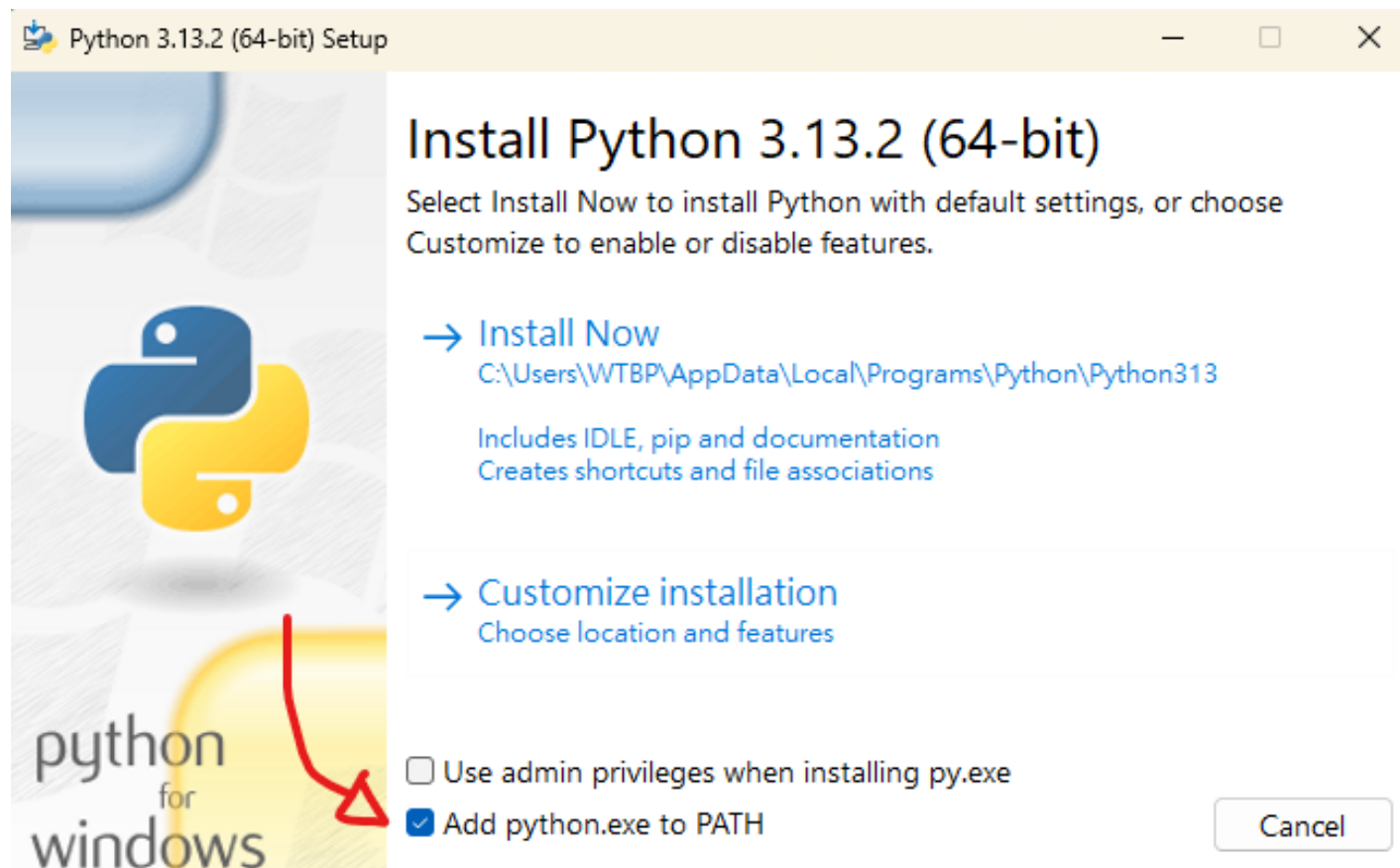
Not the OS you are looking for? Python can be used on many operating systems and environments.

[View the full list of downloads.](#)

Python is a programming language that lets you work quickly and integrate systems more effectively. [>>> Learn More](#)

Python

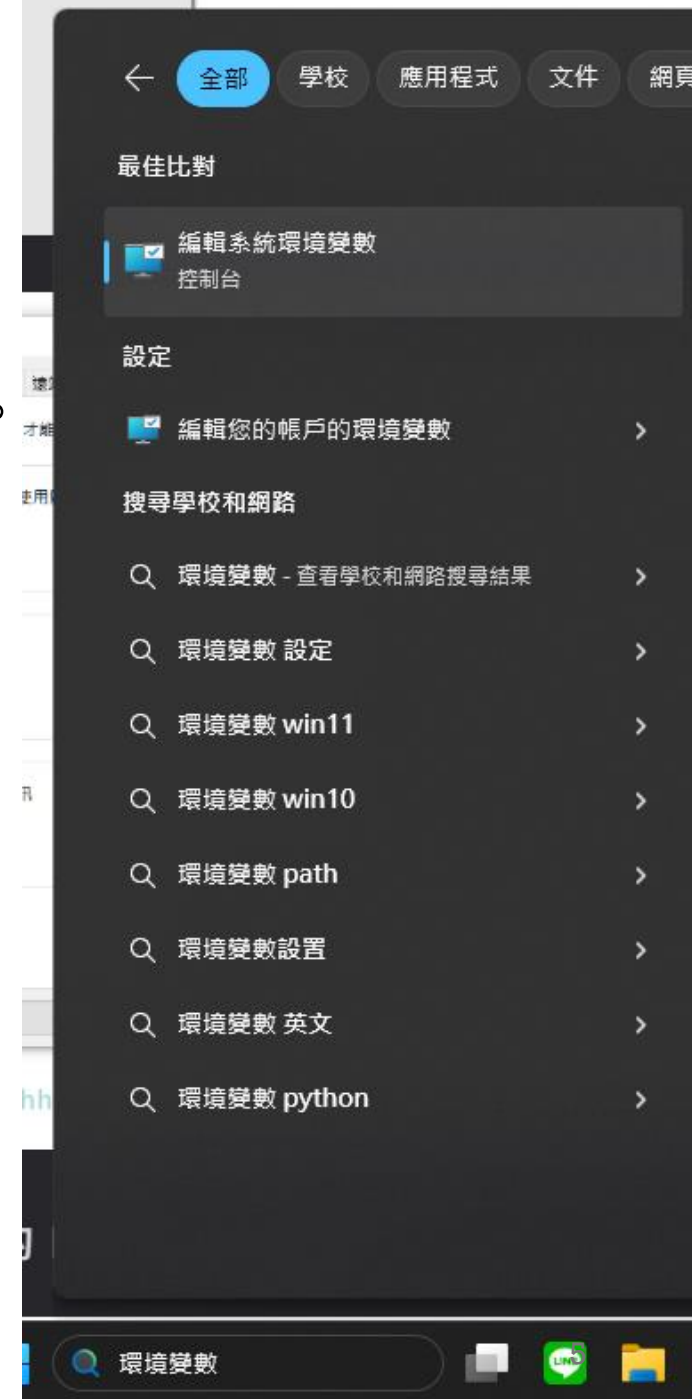
- 要記得勾 add to PATH



Python

- 如果沒勾到添加路徑，可以照著下列步驟添加。

➔ 在搜尋列查詢“環境變數”，打開編輯系統環境變數



Python

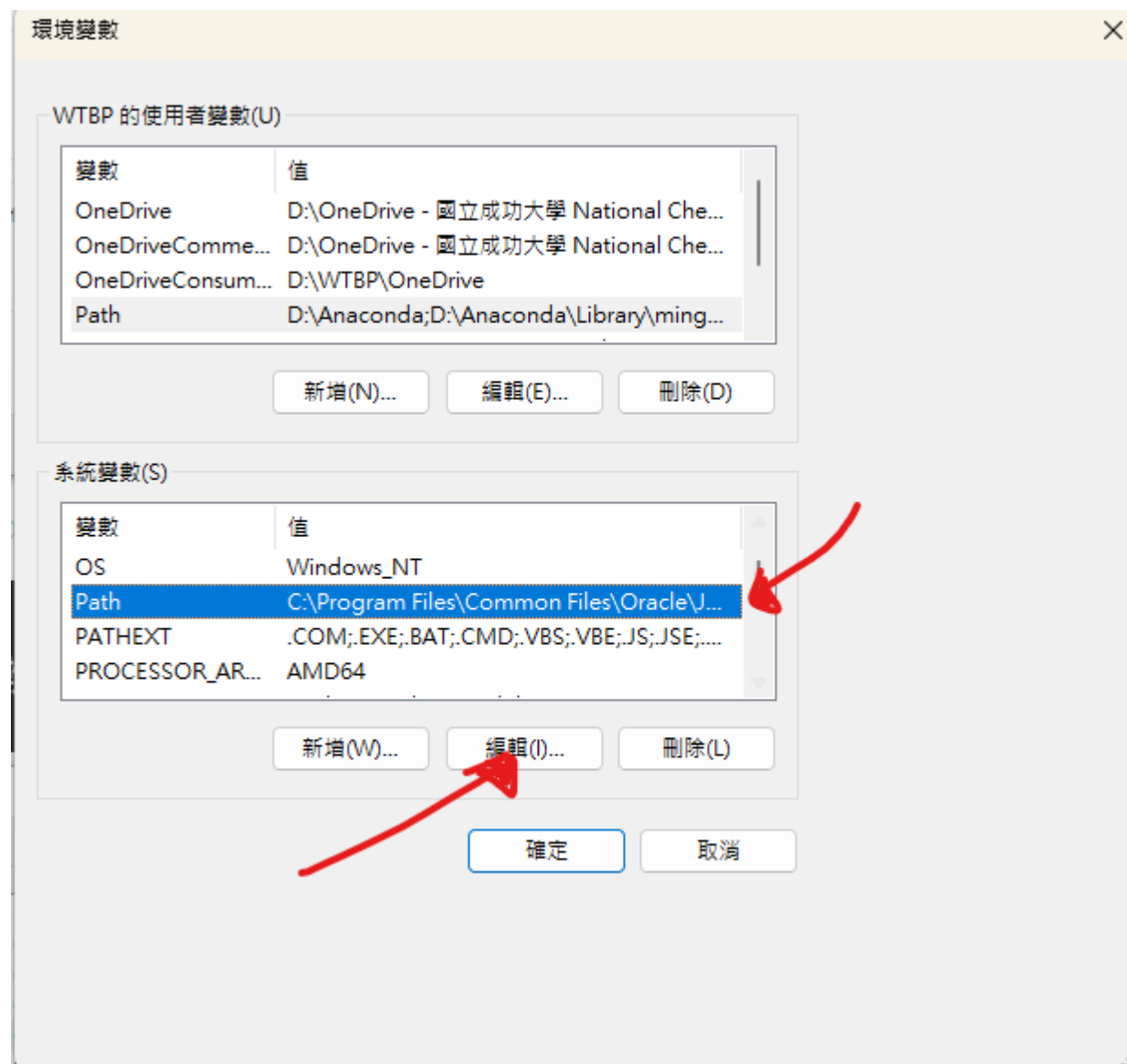
➔ 點選環境變數



Python

➔ 點選系統變數中的 PATH

➔ 點選編輯



Python

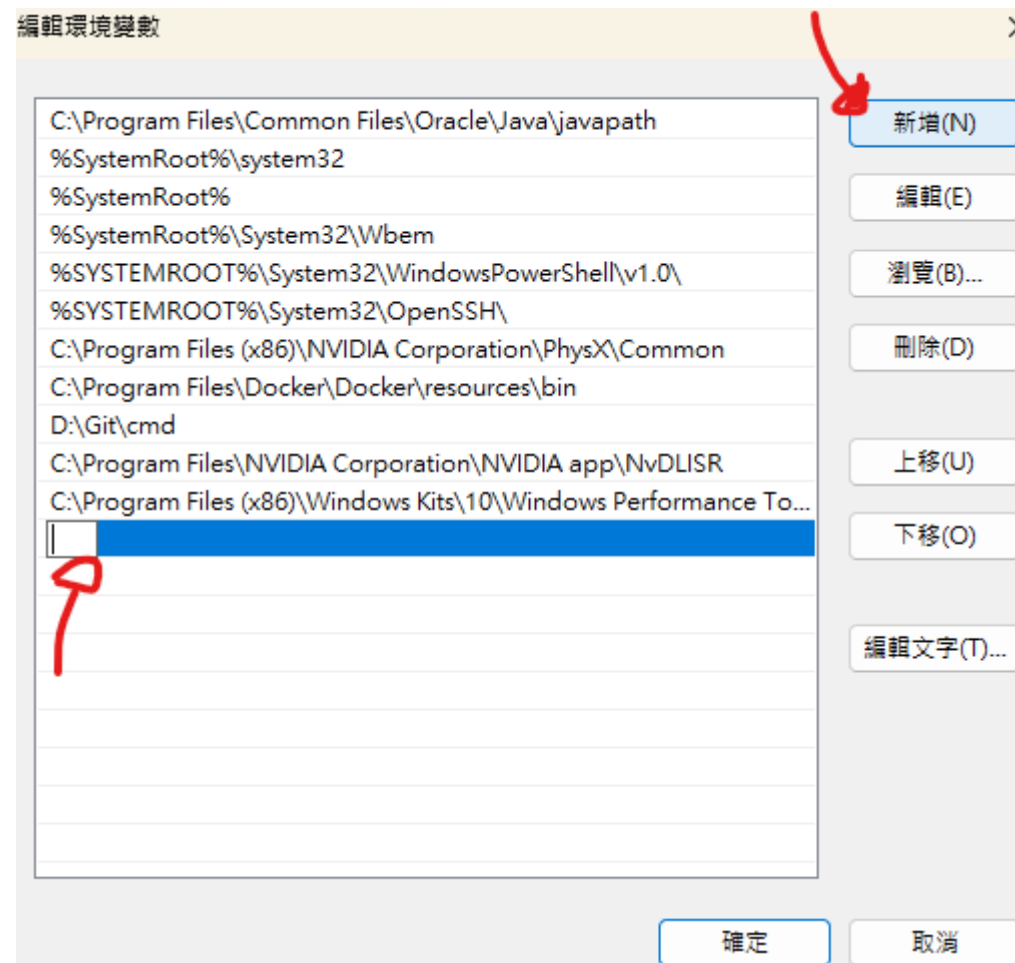
➔ 點選新增

➔ 輸入安裝的 Python 路徑

➔ Python3x 與裡面的 Scripts 都要

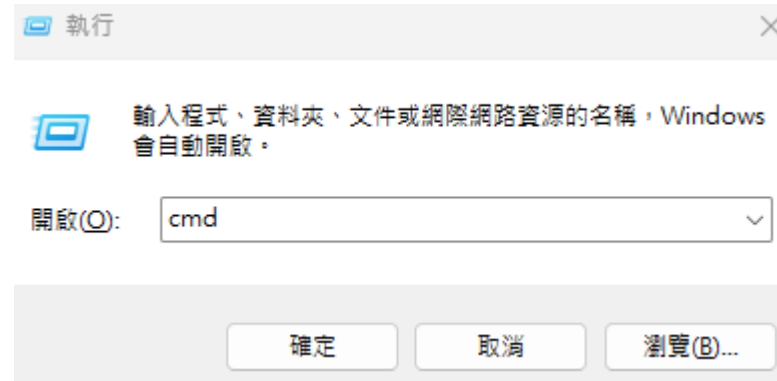
如: path\Python\Python313

與 path\Python\Python313\Scripts



Python – 測試

- Win + R
- 輸入 cmd
- 鍵入 python + enter



```
C:\Users\WTBP>python
Python 3.12.4 | packaged by Anaconda, Inc. | (main, Jun 18 2024, 15:03:56) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> |
```

- 鍵入 愛妳(你)的人 + enter

```
C:\Users\WTBP>python
Python 3.12.4 | packaged by Anaconda, Inc. | (main, Jun 18 2024, 15:03:56) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> 愛妳的人|
```

- 退出方法: exit() 或 quit() 或 ctrl + z 再 enter

Python – 可能碰到的問題

如果 cmd 執行 python 跑出 Microsoft Store

➔ 設定 (或是直接在工作列搜尋) ”管理應用程式執行別名”

➔ App Installer 功能關閉



App Installer
python.exe

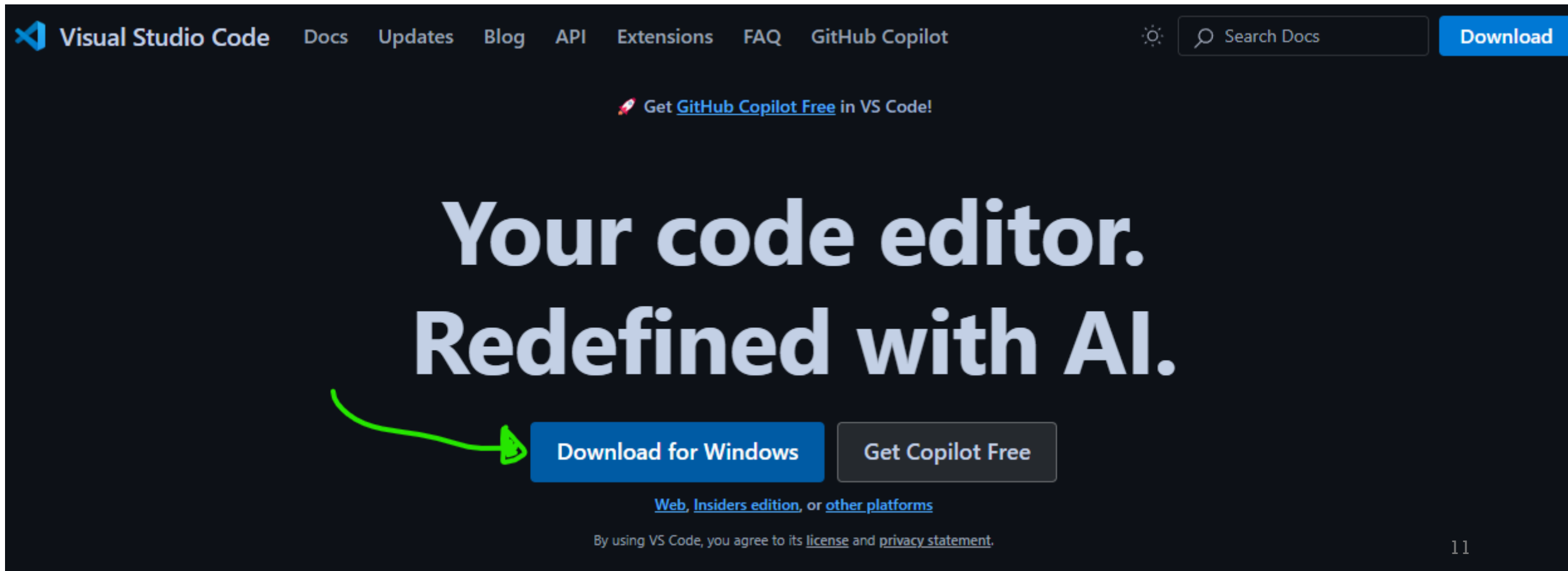


App Installer
python3.exe



VSCode

- <https://code.visualstudio.com/>



The image is a screenshot of the Visual Studio Code website homepage. The background is dark blue. At the top, there is a navigation bar with the Visual Studio Code logo and links for Docs, Updates, Blog, API, Extensions, FAQ, and GitHub Copilot. On the right side of the navigation bar, there is a search bar labeled 'Search Docs' and a blue 'Download' button. Below the navigation bar, there is a banner with the text 'Get GitHub Copilot Free in VS Code!' and a rocket icon. The main heading in the center reads 'Your code editor. Redefined with AI.' in large, white, sans-serif font. Below the heading, there are two buttons: a blue 'Download for Windows' button and a grey 'Get Copilot Free' button. A green hand-drawn arrow points from the left towards the 'Download for Windows' button. Below these buttons, there is a link that says 'Web, Insiders edition, or other platforms'. At the very bottom, there is a small line of text: 'By using VS Code, you agree to its license and privacy statement.'

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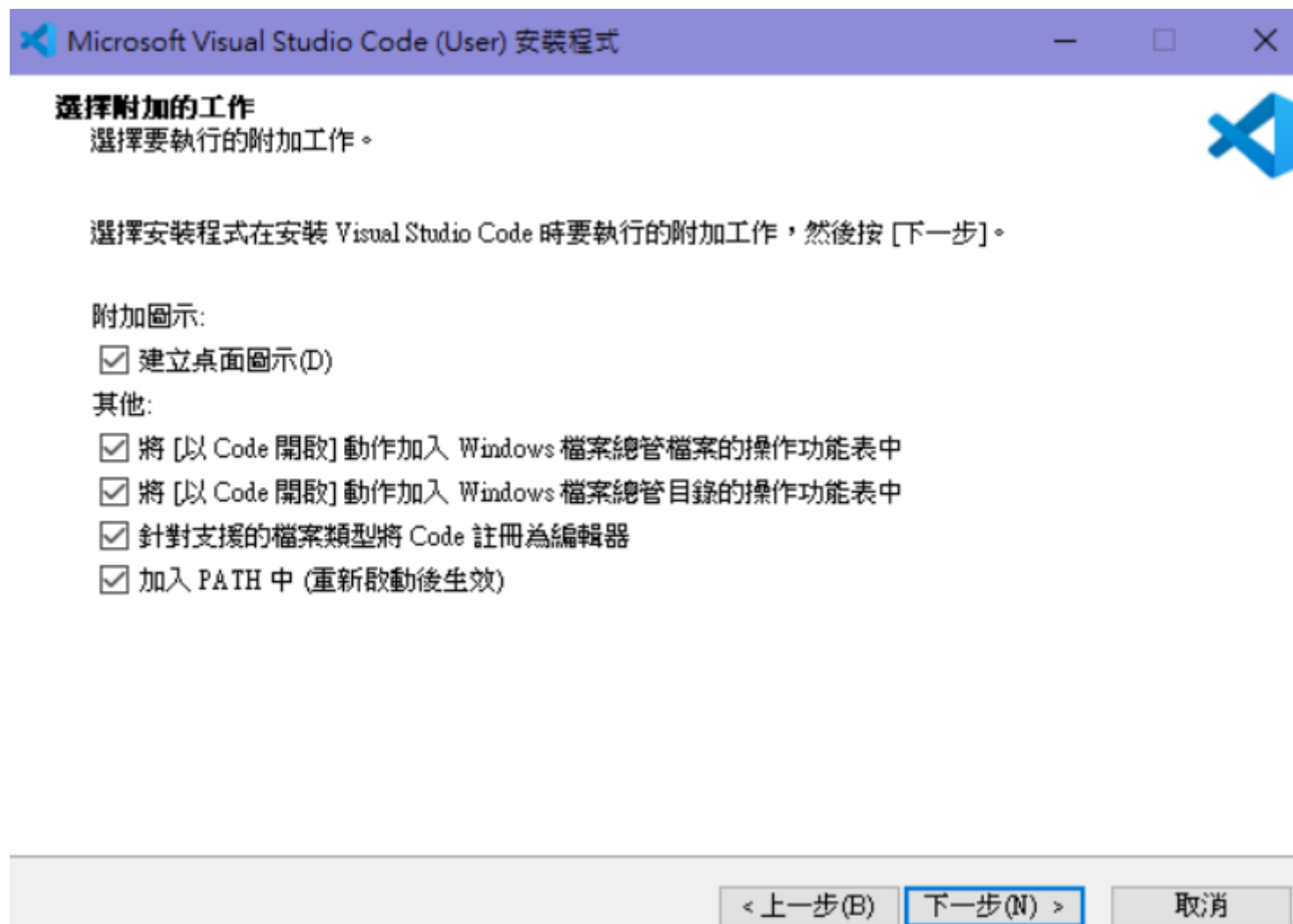
Download for Windows Get Copilot Free

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By using VS Code, you agree to its [license](#) and [privacy statement](#).

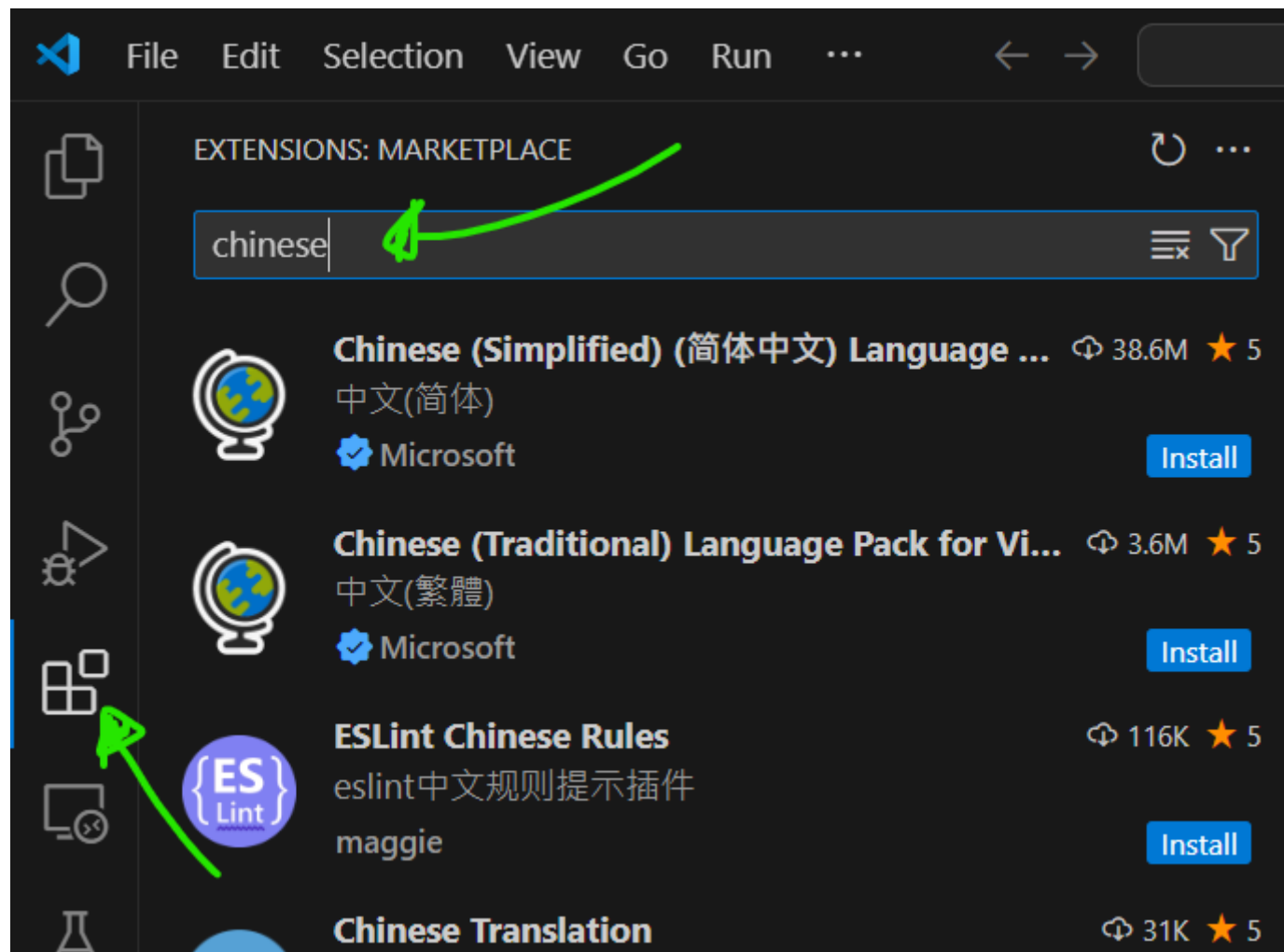
VSCode

- 一直按下一步
- 這頁推薦全部勾選
- 等它安裝



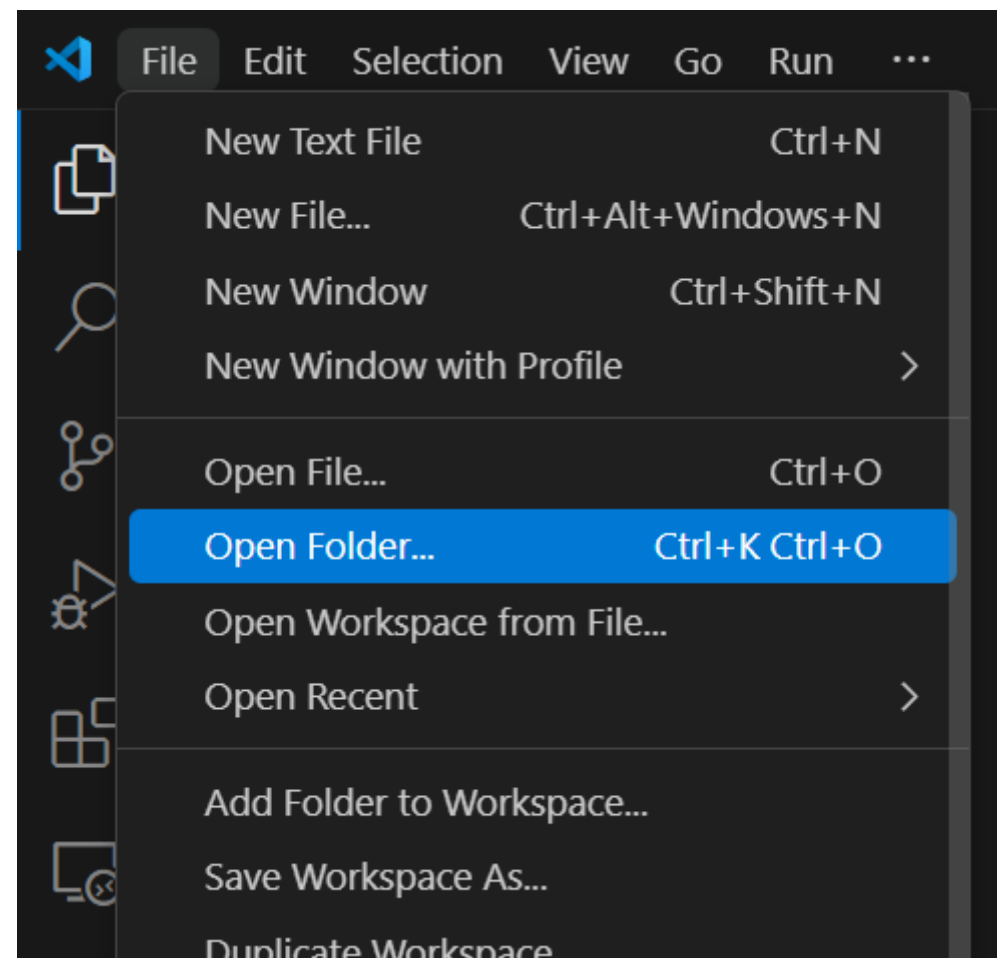
VSCode

- 點左邊的四個框框 (Extention)
- 上面的搜尋列可以找自己想安裝的擴充功能。
- 請安裝：
 - Python
 - Remote – SSH
- 彈性安裝：
 - (Chinese)



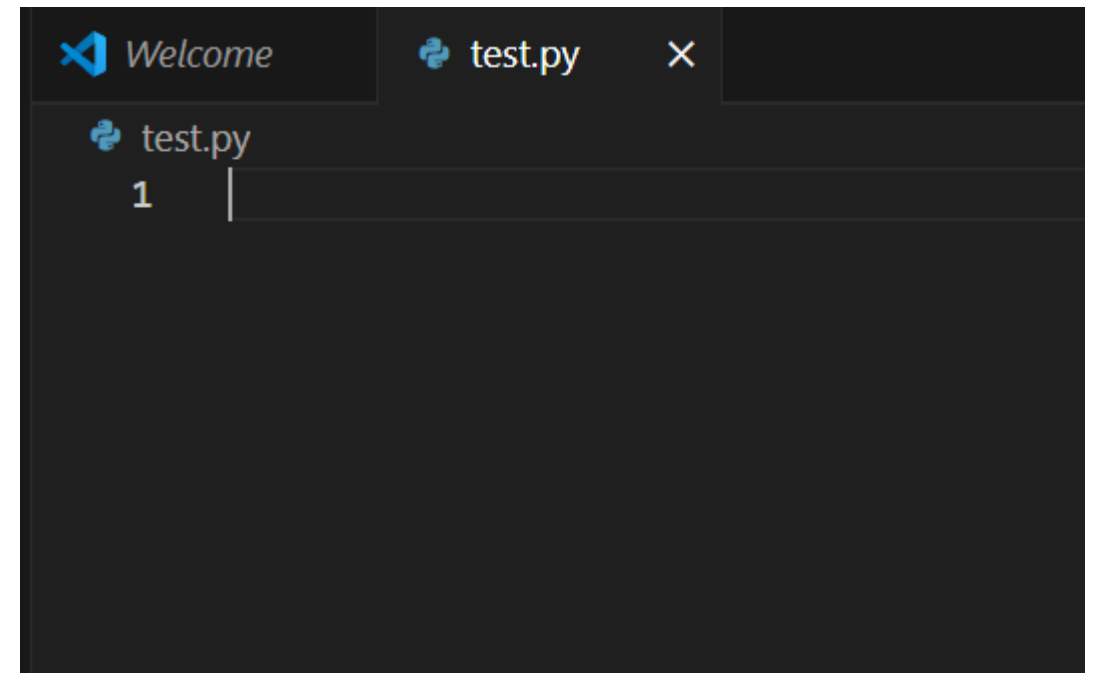
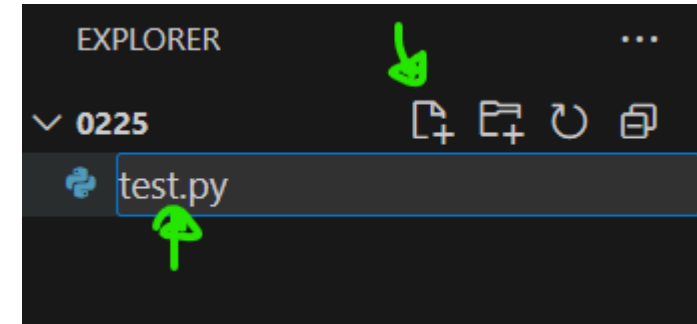
VSCode

- 左上的 **File** → **Open Folder**
- 在你心儀的地方新增(或選擇)一個放程式碼的資料夾
- **Yes, I trust the authors.**



VSCode

- 在左上的地方點選 **New File...**
- 輸入檔案名稱，存成 **.py** 檔。
- 右邊就可以開始寫程式了。



Python Code

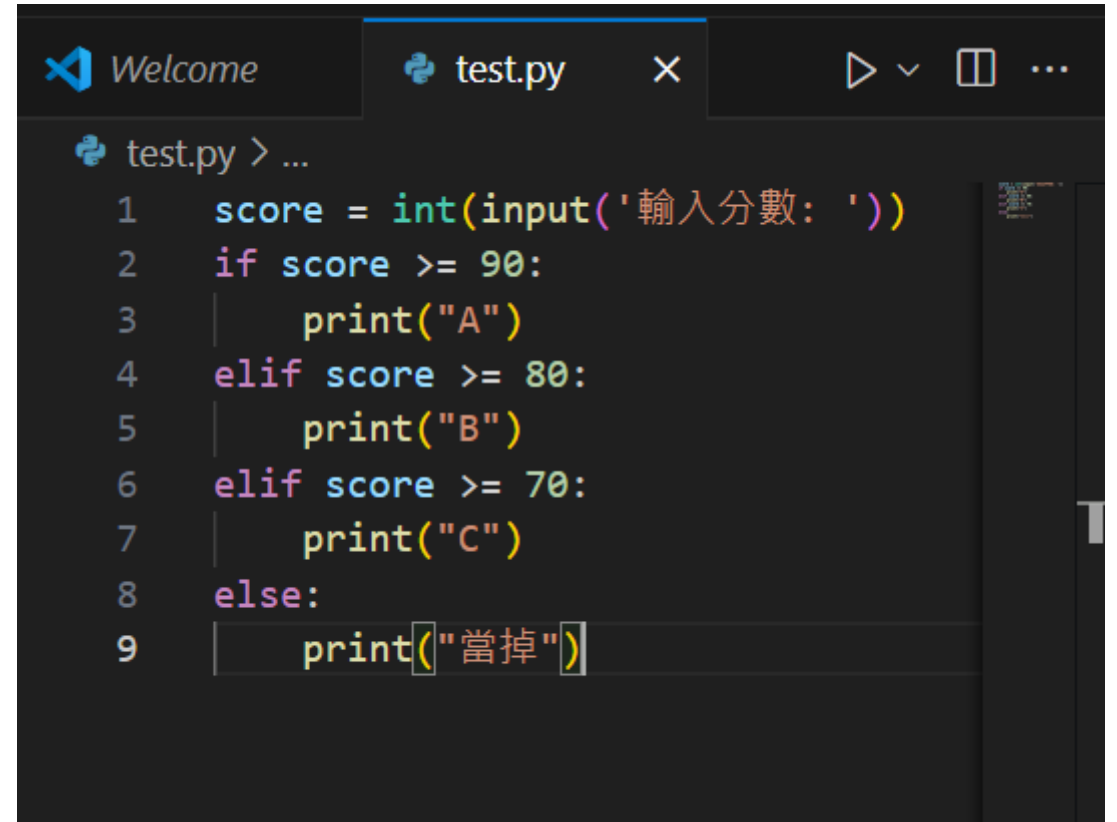
條件判斷: If...elif...else

- 用法:



```
test.py
1  if (條件一):
2      (執行的程式碼)
3  elif (條件二):
4      (執行這個)
5  else:
6      (執行這個)
7
```

- 例子:



```
test.py > ...
1  score = int(input('輸入分數: '))
2  if score >= 90:
3      print("A")
4  elif score >= 80:
5      print("B")
6  elif score >= 70:
7      print("C")
8  else:
9      print("當掉")
```

迴圈: for

- 用法:

```
test.py > ...  
1 print("老師叫我罰寫 100 次以後不可以說髒話")  
2 for i in range(100):  
3     print("我不可說髒話")
```

- 例子:

```
test.py > ...  
1 for i in range(1, 10, 2):  
2     print("現在 i = ",i)
```

PROBLEMS OUTPUT DEBUG CONSOLE

```
PS C:\Users\WTBP\Desktop\0225> &  
現在 i = 1  
現在 i = 3  
現在 i = 5  
現在 i = 7  
現在 i = 9
```

迴圈: while

- 例子:

- 用法:

```
Welcome test.py ×
test.py
1 while True:
2     print("我在執行")
3
4     print("我被蛋雕力")
```

```
Welcome test.py ×
test.py > ...
1 flag = 1
2 while flag < 10:
3     print("現在 flag = ", flag)
4     flag = flag + 2

PROBLEMS OUTPUT DEBUG CONSOLE TERM
PS C:\Users\WTBP\Desktop\0225> & D:/
現在 flag = 1
現在 flag = 3
現在 flag = 5
現在 flag = 7
現在 flag = 9
```

我在執行
我在執行
我在執行
我在執行
我在執行

```
Traceback (most recent call last):
  File "c:\Users\WTBP\Desktop\0225\test.py", line 2, in <module>
    print("我在執行")
KeyboardInterrupt
PS C:\Users\WTBP\Desktop\0225> 
```

迴圈: while

- 例子:

```
Welcome test.py ×  
test.py > ...  
1 flag = 1  
2 while flag <= 3 :  
3     print("*另一半看著妳/你，問妳/你晚餐想吃什麼*")  
4     print(f"第 {flag} 次嘗試...")  
5     guess = input("請輸入你的猜測:")  
6     flag += 1  
7     if guess == "義大利麵":  
8         print("好，走")  
9         break  
10    else:  
11        print("你根本不懂我!!!")  
12    print("Bad end... 你們分手ㄌ...")
```

```
Welcome test.py ×  
test.py > ...  
1 flag = 1  
2 while flag <= 3 :  
3     print("*另一半看著妳/你，問妳/你晚餐想吃什麼*")  
4     print(f"第 {flag} 次嘗試...")  
5     guess = input("請輸入你的猜測:")  
6     flag += 1  
7     if guess == "義大利麵":  
8         print("好，走")  
9         break  
10    else:  
11        print("你根本不懂我!!!")  
12  
13 else:  
14    print("Bad end... 你們分手ㄌ...")
```

HW

- 請寫一個 **Python** 程式，讓使用者輸入 **n** 位同學的分數，程式需要判斷並輸出每位同學的評分：
- 要求：
 - 90 ~ 100 : A, 80 ~ 89 : B, under 80 : fail
 - 那個 **n** 需要可以根據使用者改變，之後 **print** 出評分。
- **Hint:**
 - 使用 **for** 輸入 **n** 個同學的分數，並存入 **List**
 - 可自行決定何時進行 **if** 判斷
 - 使用 **while** 迴圈確保使用者輸入的是有效數字 (非負且 $0 < \text{score} < 100$)
 - 可以查：
 - **list** 的用法
 - **and / or** 的用法

HW 答案範例

- 需要繳交截圖 (如下) 於 Moodle ，可得本次作業的 90% 分數。
- 進階題為完成之後 demo 給助教看，可得本次作業全部的分數

```
請輸入學生個數： 2  
請輸入第 1 同學的成績： 90  
請輸入第 2 同學的成績： 80  
成績級別為： ['A', 'B']
```