

# Lab107 : Random Number

## 亂數

(別怕! 跟著做你就會!)

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請至 [www.hcdtech.com.tw](http://www.hcdtech.com.tw) 下載教材



<http://www.hcdtech.com.tw/Python.htm>



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所有的考卷都可以考100分，是我們自己錯過了！

## 學習秘訣=發問+練習

考卷發下去，時間到了收回來，如果沒有考到100分，這很正常。重點來了，不會的可以問，問完了練習，準備好了考卷再發下去。第二次還是沒有考到100分，這也很正常。沒關係，再來一次，不會的可以問，問完了練習，準備好了考卷第三次再發下去，.....，考到第N次如果還是沒有考到100分。沒關係，再來，不會的可以問，問完了練習，N+1次、N+2次、.....，你們都很聰明，知道我在說什麼，到最後考卷一定可以考100分！看懂了妳/你就會知道，原來學習的秘訣就是發問和練習！今天開始不懂就問，問完了練習，明年的妳/你肯定不一樣！

# 學習如何學習！

1

1 2

1 2 3

.....

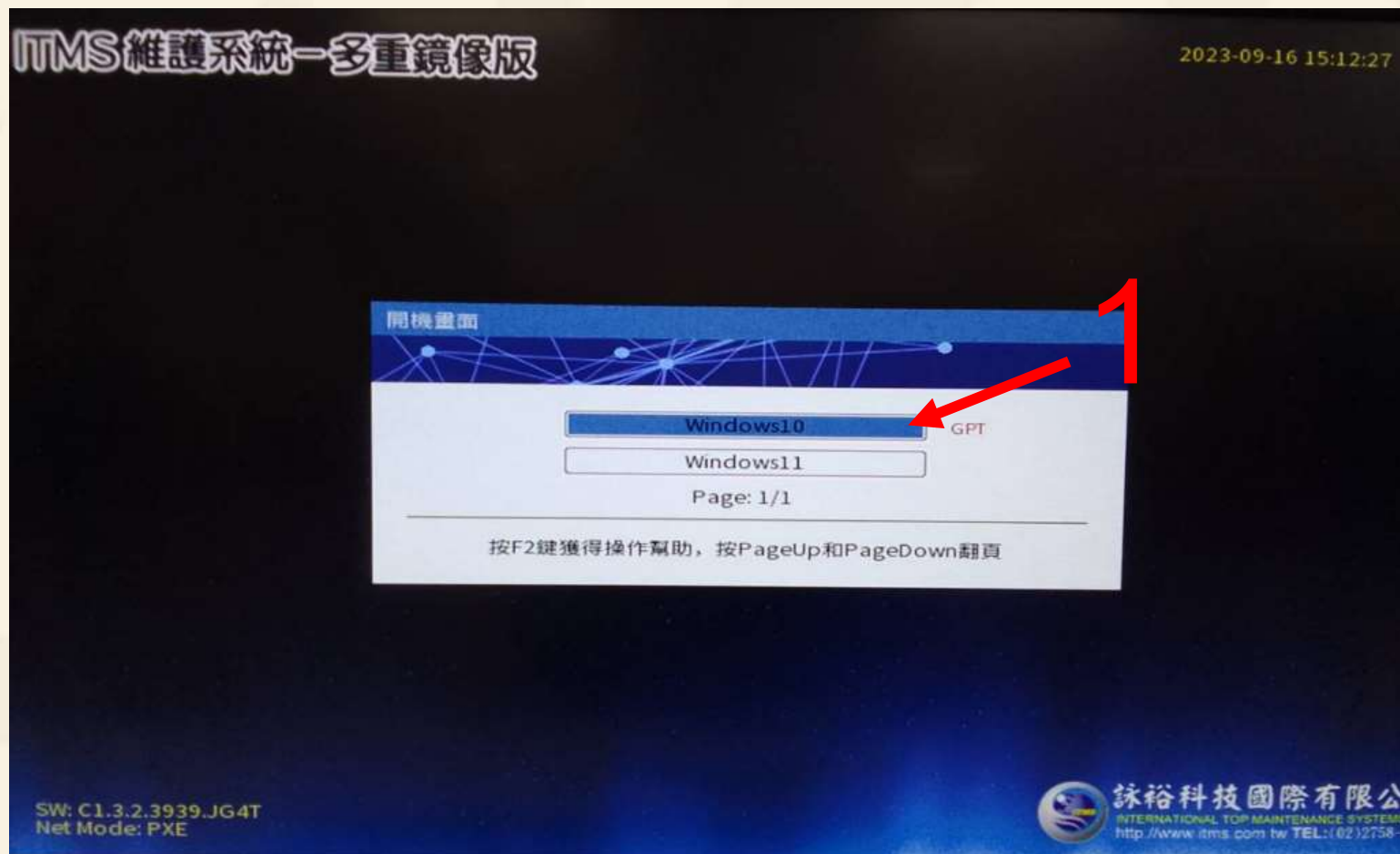
1 2 3 4 5 6 7 8 9 10

## 金字塔念書法



如果一本書有10個章節！先看第1章，在看第2章之前再把第1章看一遍，在看第3章之前再把第1, 2章看一遍，.....，等看到第10章的時候，第1, 2, 3, 4章恐怕已經背起來了！我稱這種念書法為金字塔念書法，今天開始照著做，明年的妳/你肯定不一樣！

# 請使用 Windows 10



## 1. 選用 Windows 10.

# 善用 Google 翻譯



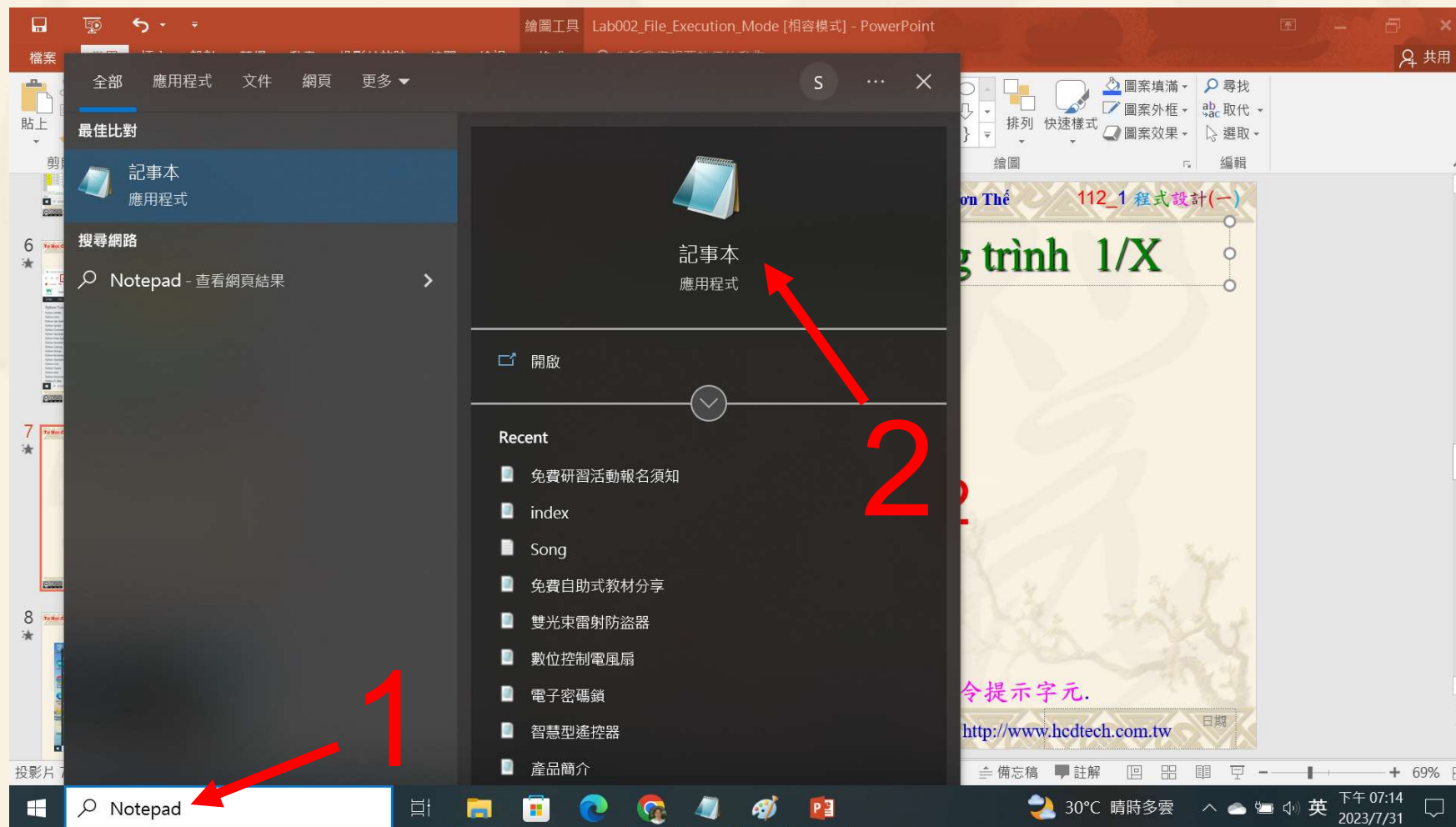
# 請先開啟網頁閱讀

The screenshot shows a web browser window with the URL `w3schools.com/python/numpy/numpy_random.asp` highlighted in the address bar. A yellow callout box with the text "請用善用 Google 翻譯 讀懂 網頁 內容" (Please use Google Translate to understand the website content) points to the browser. The page content includes a navigation menu with categories like HTML, CSS, JAVASCRIPT, SQL, and PYTHON. The main content area is titled "Random Numbers in NumPy" and contains sections for "What is a Random Number?" and "Pseudo Random and True Random." A sidebar on the right features a "WEEK SALE" banner for "53% OFF All Courses & Certificates" with a "BUY NOW" button. The Windows taskbar at the bottom shows the search bar, various application icons, and system tray information including the date and time (2023/11/20, 下午 03:48).

請用善用 Google 翻譯 讀懂 網頁 內容



# 建立程式文件 1/5



1. 鍵盤輸入Notepad. 2. 用滑鼠點選記事本.



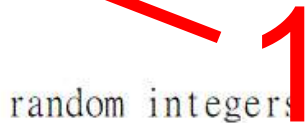
# 建立程式文件 2/5

```

*未命名 - 記事本
檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
print("P11211XXX practices Lab107.")
from numpy import random
print("Generate a random integer from 0 to 50:")
x = random.randint(50)
print("x = random.randint(50), the random integer x = ", x)
print()
print("Generate a random float from 0 to 1:")
x = random.rand()
print("x = random.rand(), the random float x = ", x)
print()
print("Generate a 1-D array containing 4 random integers from 0 to 50:")
x = random.randint(50, size = (4))
print("x = random.randint(50, size = (4)), the random 1-D array x = ", x)
print()
print("Generate a 1-D array containing 3 random floats:")
x = random.rand(3)
print("x = random.rand(3), the random 1-D array x = ", x)
print()
"""Generate a 2-D array with 3 rows, each row containing 5 random integers
   from 0 to 100:
   """

```

Replace P11211XXX with your student ID

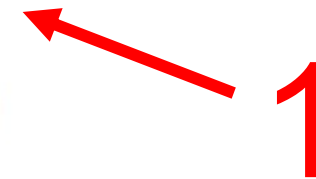


1. 用鍵盤輸入程式代碼 ( 下一頁還有 ) .

# 建立程式文件 3/5

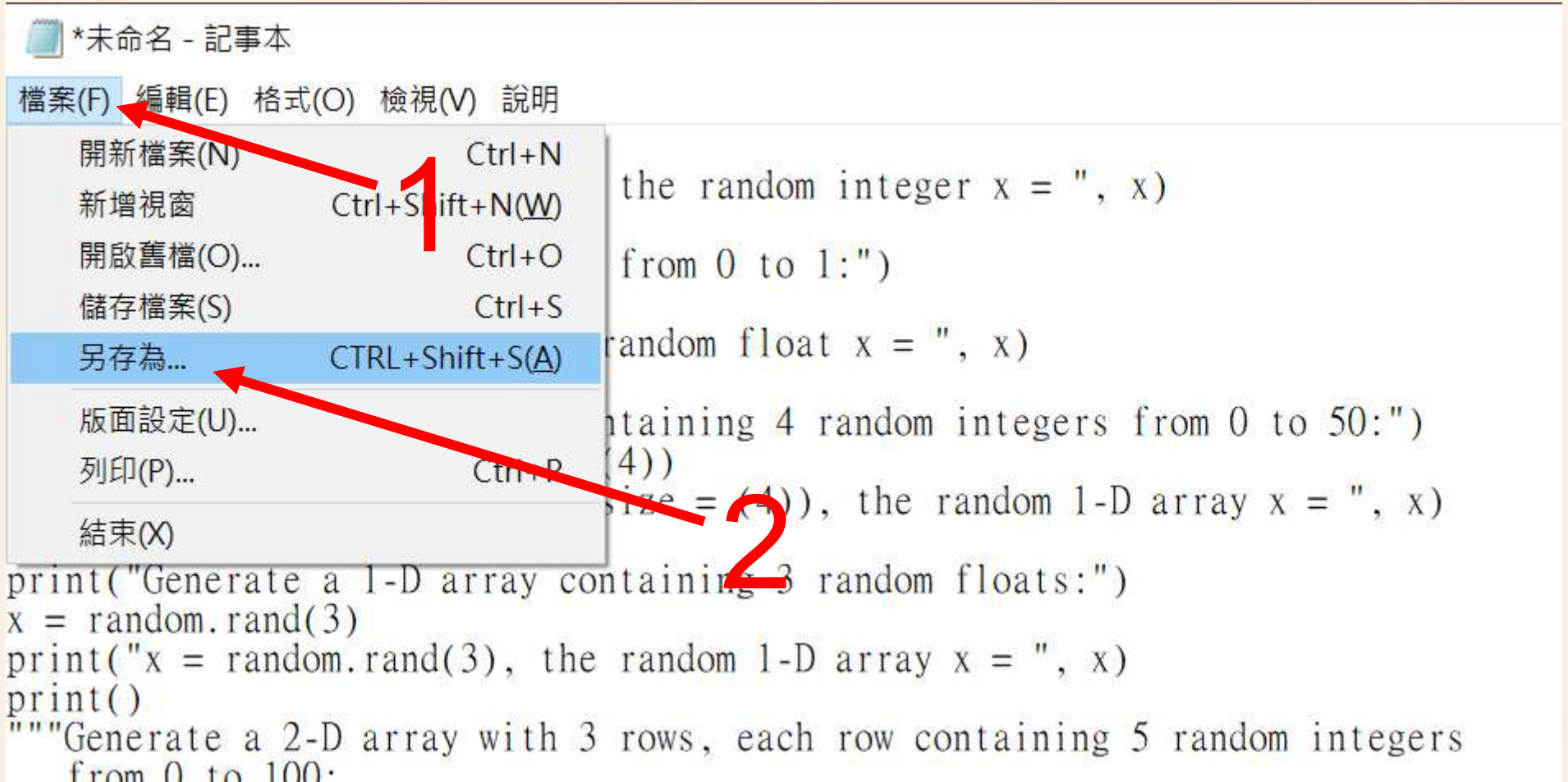
```

y = random.randint(100, size = (3, 5))
print("y = random.randint(100, size = (3, 5)), the random 2-D array y = ")
print(y)
print()
#Generate a 2-D array with 3 rows, each row containing 4 random floats:
z = random.rand(3, 4)
print("z = random.rand(3, 4), the random 2-D array z = ")
print(z)
print()
print("Return one of the values in an array:")
x = random.choice([1, 2, 3, 5, 7, 9])
print("x = random.choice([1, 2, 3, 5, 7, 9]), x = ", x)
print()
"""Generate a 2-D array that consists of the values in the
   array parameter (2, 3, 6, and 7):
   """
x = random.choice([2, 3, 6, 7], size=(3, 5))
print("x = random.choice([2, 3, 6, 7], size=(3, 5)), x = ")
print(x)
    
```



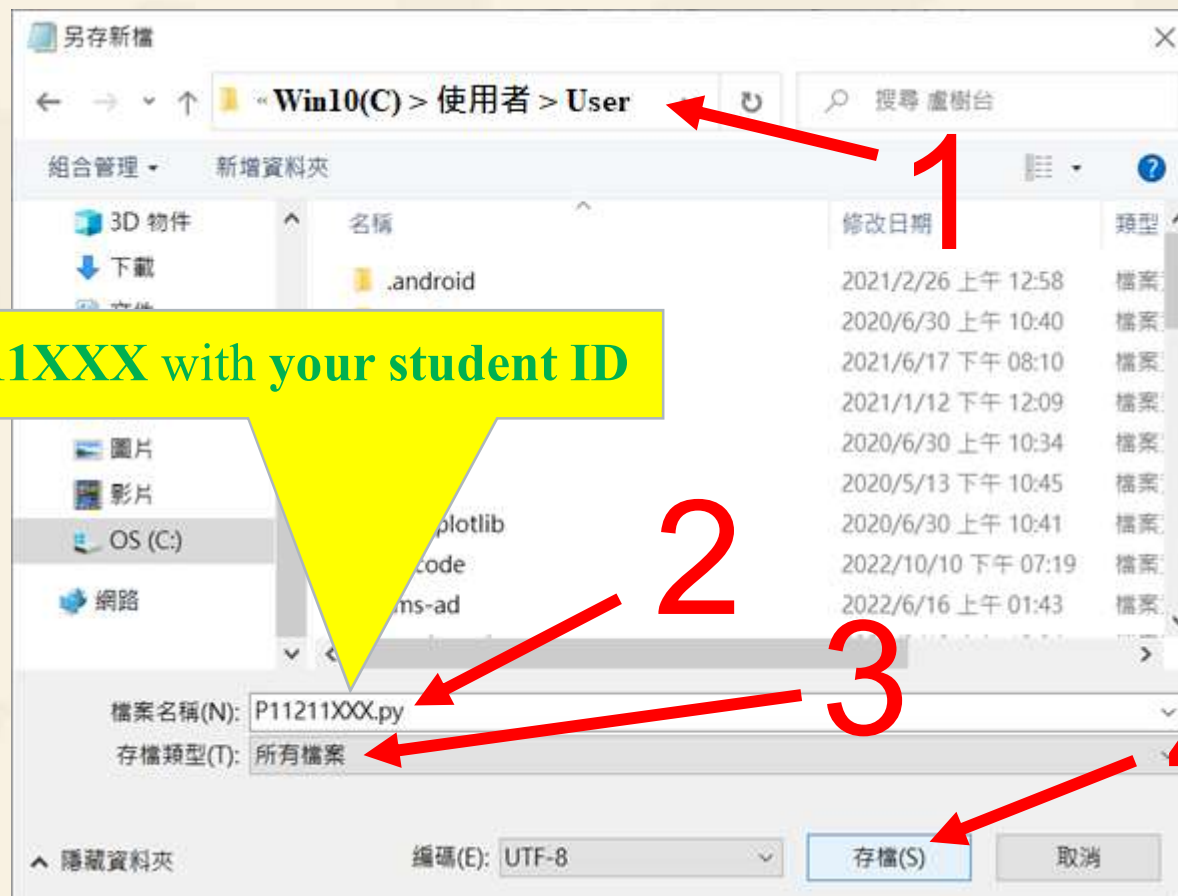
## 1. 用鍵盤輸入程式代碼.

# 建立程式文件 4/5



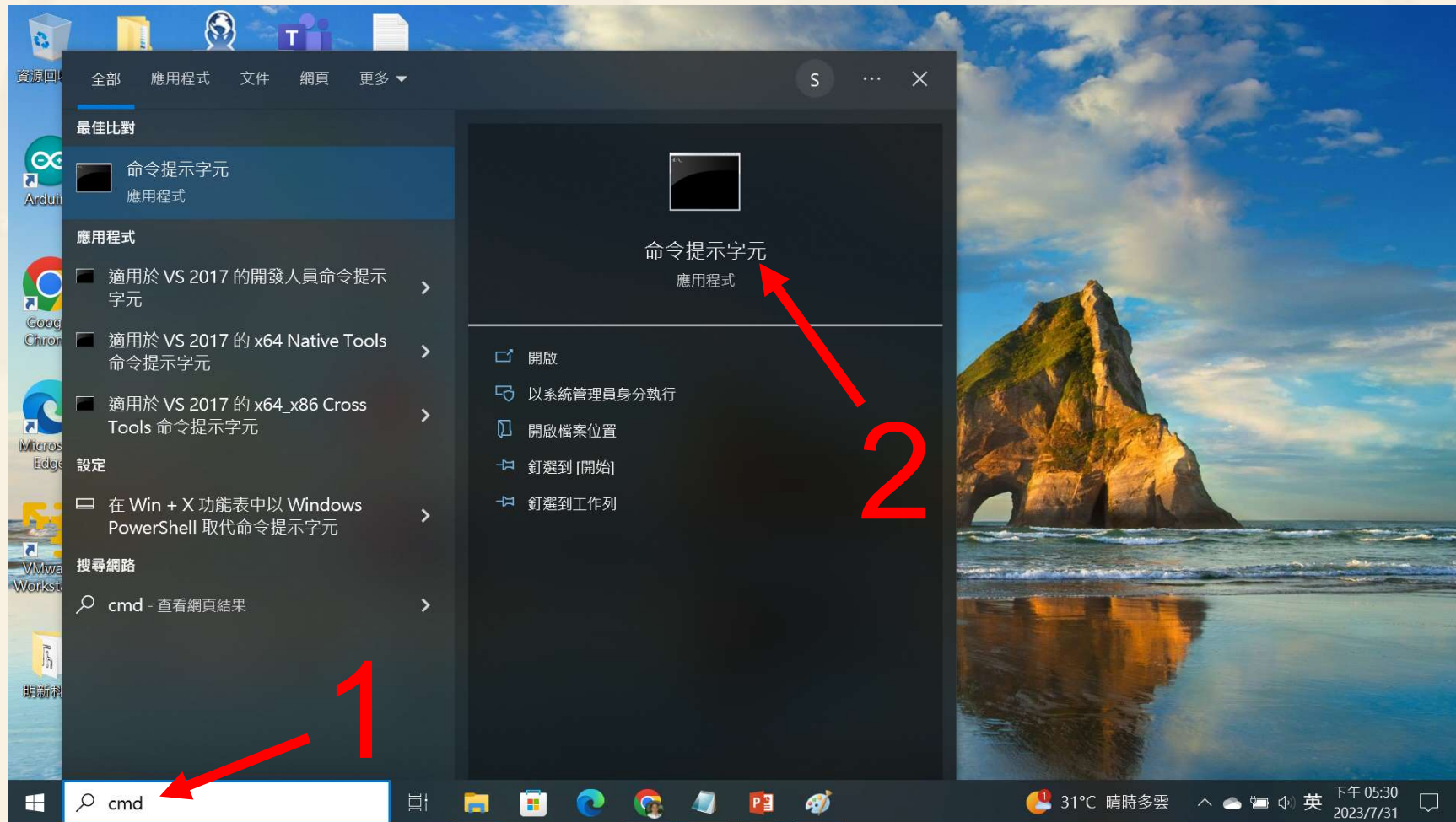
1. 用滑鼠點選檔案. 2. 用滑鼠點選另存為....

# 建立程式文件 5/5



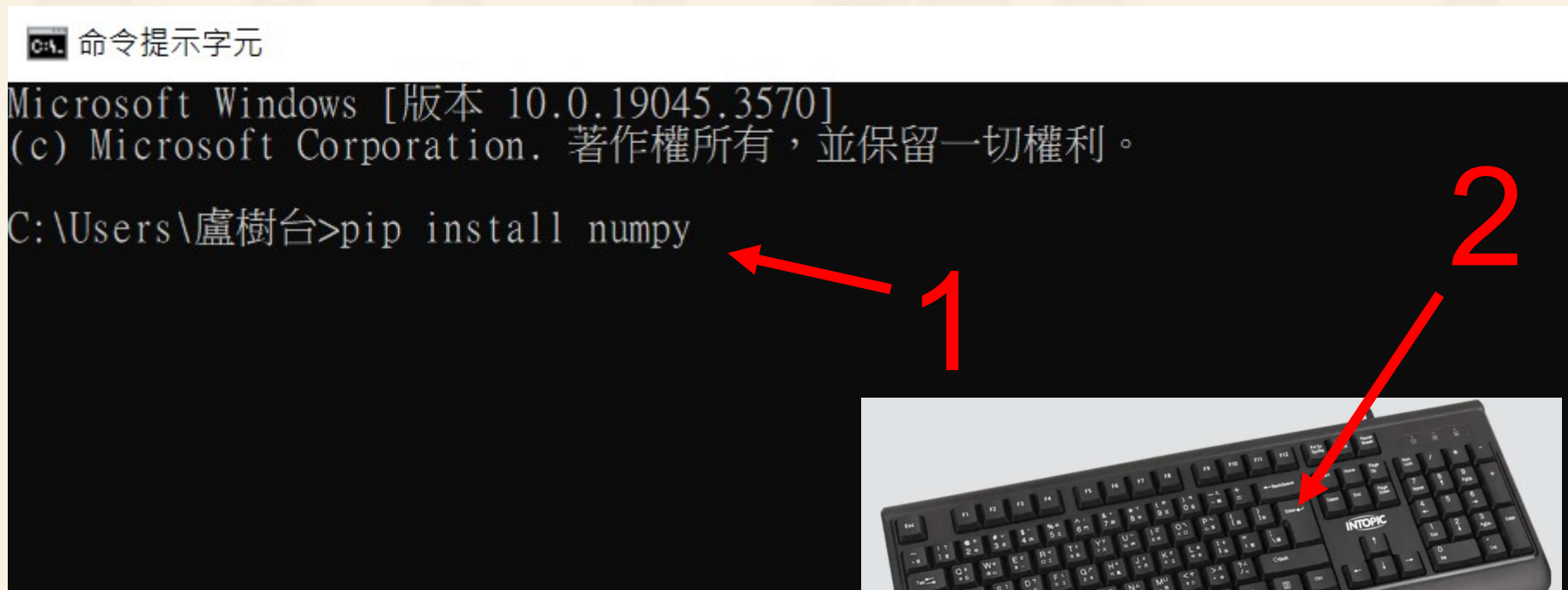
1. 資料夾 = C:\使用者>User>.
2. 檔案名稱 = P11211XXX.py .
3. 存檔類型(T) = 所有檔案.
4. 用滑鼠點選存檔.

# 檔案執行模式 1/3



1. 鍵盤輸入cmd.
2. 用滑鼠點選命令提示字元.

# 檔案執行模式 2/3



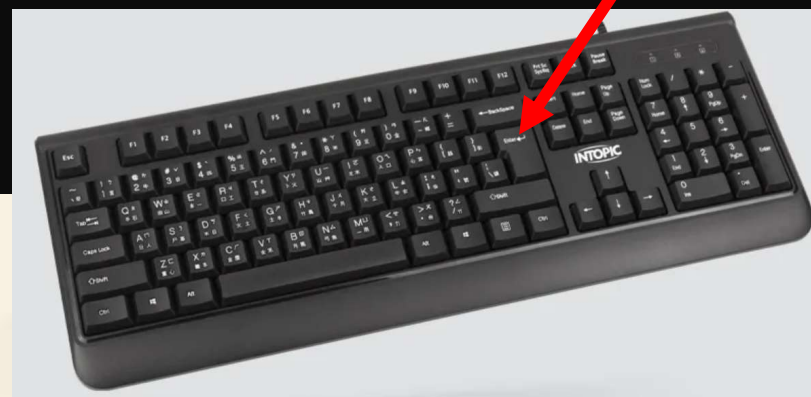
1. 用鍵盤輸入pip install numpy.
2. 按一下Enter.

# 檔案執行模式 3/3

C:\> 命令提示字元

```
Microsoft Windows [版本 10.0.19045.3570]  
(c) Microsoft Corporation. 著作權所有，並保留一切權利。  
C:\Users\盧樹台>pip install numpy  
Requirement already satisfied: numpy in c:\python39\lib\site-packages (1.26.1)  
C:\Users\盧樹台>Python P11211XXX.py
```

Replace P11211XXX with your student ID



1. 用鍵盤輸入Python P11211XXX.py .
2. 按一下Enter.

# Verification Criteria of Lab107 (Lab107的驗收規範)亂數

**P11211XXX 必需  
更換為您的學號**

Ask the teacher to give you points after completing the illustrated results.

(完成右圖指定成果後請教師在您的座位驗收並讓您簽名加分)

```

命令提示字元
Microsoft Windows [版本 10.0.19045.3570]
(c) Microsoft Corporation. 著作權所有, 並保留一切權利。
C:\Users\User>Python P11211XXX.py
P11211XXX practices Lab107.
Generate a random integer from 0 to 50:
x = random.randint(50), the random integer x = 16

Generate a random float from 0 to 1:
x = random.rand(), the random float x = 0.673736122922819

Generate a 1-D array containing 4 random integers from 0 to 50:
x = random.randint(50, size = (4)), the random 1-D array x = [13 37 46 36]

Generate a 1-D array containing 3 random floats:
x = random.rand(3), the random 1-D array x = [0.06293092 0.84020885 0.96613555]

y = random.randint(100, size = (3, 5)), the random 2-D array y =
[[62 44 33 30 48]
 [96 68 87 40 47]
 [90 12 60 52 87]]

z = random.rand(3, 4), the random 2-D array z =
[[0.18129164 0.09628066 0.4383191 0.10638739]
 [0.1424964 0.32189051 0.68839931 0.45077595]
 [0.82585266 0.86519879 0.62234609 0.11270377]]

Return one of the values in an array:
x = random.choice([1, 2, 3, 5, 7, 9]), x = 9

x = random.choice([2, 3, 6, 7], size=(3, 5)), x =
[[2 2 7 7 2]
 [2 3 6 2 6]
 [6 3 7 6 6]]
C:\Users\User>

```

```

P11211XXX - 記事本
檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
print("P11211XXX practices Lab107.")
from numpy import random
print("Generate a random integer from 0 to 50:")
x = random.randint(50)
print("x = random.randint(50), the random integer x = ", x)
print()
print("Generate a random float from 0 to 1:")
x = random.rand()
print("x = random.rand(), the random float x = ", x)
print()
print("Generate a 1-D array containing 4 random integers from 0 to 50:")
x = random.randint(50, size = (4))
print("x = random.randint(50, size = (4)), the random 1-D array x = ", x)
print()
print("Generate a 1-D array containing 3 random floats:")
x = random.rand(3)
print("x = random.rand(3), the random 1-D array x = ", x)
print()
print("Generate a 2-D array with 3 rows, each row containing 5 random integers
from 0 to 100:
""")
y = random.randint(100, size = (3, 5))
print("y = random.randint(100, size = (3, 5)), the random 2-D array y = ")
print(y)
print()
#Generate a 2-D array with 3 rows, each row containing 4 random floats:
z = random.rand(3, 4)
print("z = random.rand(3, 4), the random 2-D array z = ")
print(z)
print()
print("Return one of the values in an array:")
x = random.choice([1, 2, 3, 5, 7, 9])
print("x = random.choice([1, 2, 3, 5, 7, 9]), x = ", x)
print()
print("Generate a 2-D array that consists of the values in the
array parameter (2, 3, 6, and 7):
""")
x = random.choice([2, 3, 6, 7], size=(3, 5))
print("x = random.choice([2, 3, 6, 7], size=(3, 5)), x = ")
print(x)

```

**Every student must do Lab107 once!**





# 養成良好的工作態度

- 離開實驗室時請整理自己的工作座位，為自己的工作態度加分：
  - (1)滑鼠鍵盤歸位 (2)電腦關機 (3)螢幕關閉電源 (4)椅背靠妥 (5)個人責任區(工作座位及週邊範圍)應整潔，不遺留垃圾紙屑等。

