



資訊科技教育領袖協會
Association of I.T. Leaders in Education

學生如何運用生成式人工智能 學習算法與程式編寫

How students use Generative AI for Learning Algorithm and Programming

資訊科技教育領袖協會
Association of I.T. Leaders in Education (AiTLE)
Albert Wong, Peter Chung

Content

- Using Bot from Poe as A.I. Tutor (Algorithm challenge, ...)
- Classical Usage of POE (Chat GPT)
- Notes Taking using Notion.AI and Canva
- Auto A.I. feature in Repl.it
- New K12GPT.AI tutor to monitor students' prompt
- Demonstration



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2天 · 🌐



黃仁勳認為， AI 發展迅速，現在編程重要性已不如以往.....



新聞

NVIDIA 黃仁勳：小孩不應學寫程式 學懂如何用 AI 更重要




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NVIDIA 黃仁勳：小孩不應學寫程式 學懂如何用 AI 更重要

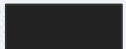
最近 NVIDIA 行政總裁黃仁勳公開表示，現代小朋友不需要再學習編寫程式，反而應該專注發...



作者

UNWIRE.HK 

其實小編不太同意這個說法，我覺得人生中最大得益是小時候學懂寫程式。其實就是學懂了人世間的Logic思考，它可應用到生活大大小小的事情上，了解到事件的成功大既由甚麼成份所組成，有那些不能缺少必需要努力做好，有那些可以跳過節省時間。亦因如此，當問題出現時，可以快速找到核心原因去解決，因此學寫程式並不只在於寫出甚麼app 或甚麼遊戲搵錢，是終身得益的事，會令人生有很大的改變。

我自己也經常利用 AI 幫忙寫程式，當我使用 chatgpt 4 時不知口中說過多少次「咁都寫到」，你不需要學懂那個程式語言，就連程式中最難想的logic程序 if else +X 等都會幫你想好，但必需要懂得程式的基本功，才可輸入合適的提問及修改。AI 寫程式是會「偷懶」的，明明你要求有 4 個功能，它debug 後可能會 skip 走 3 個功能，你再問他為甚麼自己刪走已寫好的程式碼，它只會 say sorry 不給你任何解釋，這些都必需要你學懂寫程式的基本才能跟它好好溝通

我覺得小朋友學寫程式是必需的，AI 的到來只能代表小朋友不需要再學習多款的語言，甚至不用太深造。

Computational Thinking (CT)

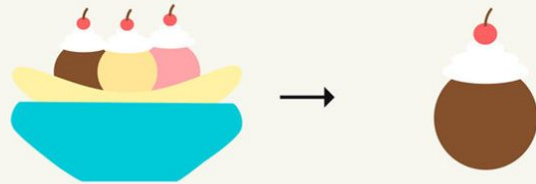
DECOMPOSITION



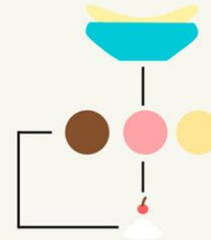
PATTERN RECOGNITION



ABSTRACTION



ALGORITHM





教學流程 Pedagogy



python

Bot

用戶



PythonMind

A Python and programming expert, guiding users on best practices for writing clean, efficient, and well-documented Python code.

每月 2401 名使用者



PythonAIChat

Python programming how know everything about python language.

每月 1.1萬 名使用者



RunPythonCode

Runs your Python code. If you want to generate code before running it, check out <https://poe.com/PythonAgent>

每月 450 名使用者



Poe





RunPythonCode

Poe

output



複製

2

```
print("1"+"1")
```



RunPythonCode

Poe

output



複製

11

Can you explain why the output of `print("1" + "1")` is "11"?

algorithm

Bot

用戶



JSai

A JavaScript expert who can help you with your coding needs by providing advice on best practices, debugging, algorithms, data structures, and optimization techniques.

每月 265 名使用者




AlgorithmChallenger

An AI algorithm master that can help you learn algorithm and get that FAANG job

每月 44 名使用者



WriterMaster-1Click

 **WriterMaster-1Click:** Your Ultimate SEO-Optimized Content Generator Effortlessly create SEO-optimized articles up to 4000 words in a single click. Boost your online presence and save time with...

每月 1.1萬 名使用者





Easy Answer

AlgorithmChallenger



分享



AlgorithmChallenger

Poe

Great! Here's an easy question for you:

Algorithm: Print Hello World

1. Set a variable `message` to the string "Hello World".
2. Print the value of `message`.

Can you provide a code implementation for this algorithm?

```
print("Hello World")
```

Demonstration by ChatGPT / Poe

write a python program that can calculation the sum of two input integers



ChatGPT

Poe



Certainly! Here's a simple Python program that calculates the sum of two input integers:

python



Copy

```
# Get input from the user
num1 = int(input("Enter the first integer: "))
num2 = int(input("Enter the second integer: "))

# Calculate the sum
sum = num1 + num2

# Print the result
print("The sum of the two integers is:", sum)
```

IDE (e.g. Colab)

✓
7s



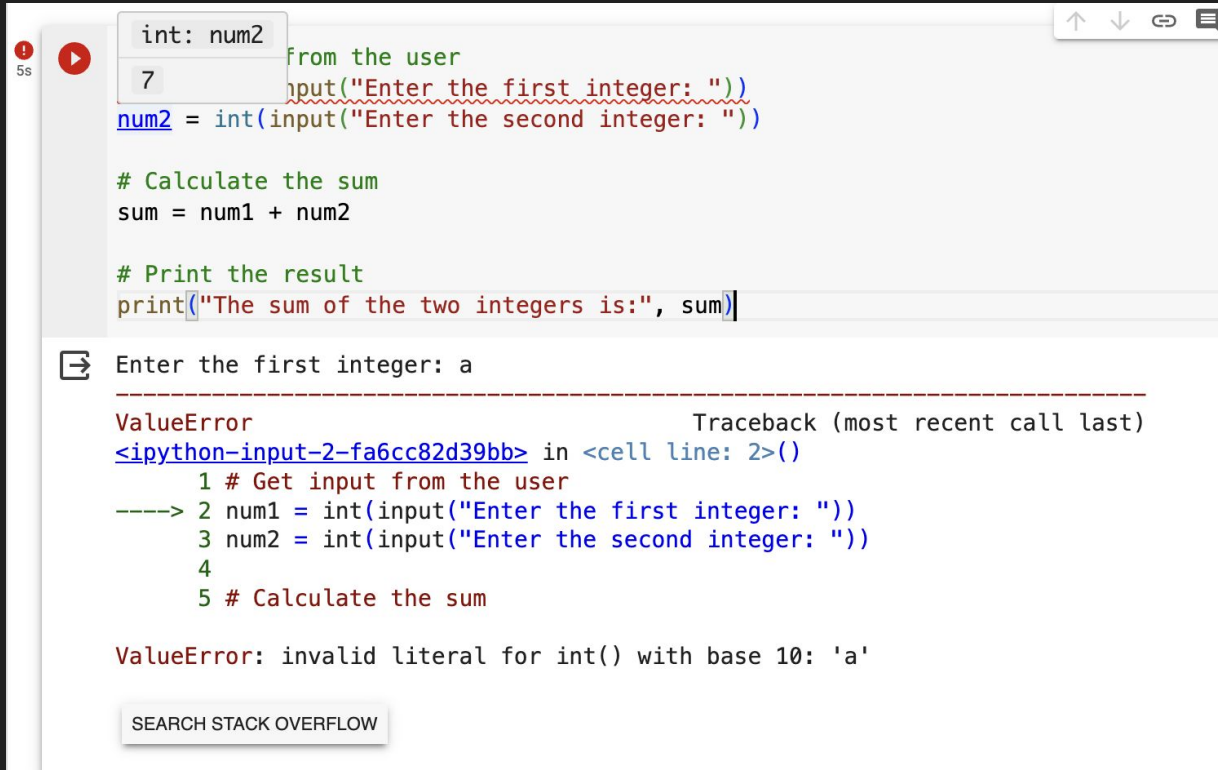
```
# Get input from the user
num1 = int(input("Enter the first integer: "))
num2 = int(input("Enter the second integer: "))

# Calculate the sum
sum = num1 + num2

# Print the result
print("The sum of the two integers is:", sum)
```

```
Enter the first integer: 8
Enter the second integer: 7
The sum of the two integers is: 15
```

Error??



The screenshot shows a Jupyter Notebook interface. At the top, there's a code cell with the following Python code:

```
int: num2
7
# Get input from the user
num1 = int(input("Enter the first integer: "))
num2 = int(input("Enter the second integer: "))

# Calculate the sum
sum = num1 + num2

# Print the result
print("The sum of the two integers is:", sum)
```

Below the code cell, there's an input field with the text "Enter the first integer: a".

Below the input field, there's a traceback for a `ValueError`:

```
ValueError                                Traceback (most recent call last)
<ipython-input-2-fa6cc82d39bb> in <cell line: 2>()
      1 # Get input from the user
----> 2 num1 = int(input("Enter the first integer: "))
      3 num2 = int(input("Enter the second integer: "))
      4
      5 # Calculate the sum

ValueError: invalid literal for int() with base 10: 'a'
```

At the bottom of the notebook, there's a button labeled "SEARCH STACK OVERFLOW".

Try...except

input non-numeric values have error



ChatGPT

Poe



To handle the case when non-numeric values are entered as input, you can use exception handling in Python. Here's an updated version of the program that includes error handling:

python



Copy

```
try:
    # Get input from the user
    num1 = int(input("Enter the first integer: "))
    num2 = int(input("Enter the second integer: "))

    # Calculate the sum
    sum = num1 + num2

    # Print the result
    print("The sum of the two integers is:", sum)

except ValueError:
    print("Error: Invalid input. Please enter valid integers.")
```

Try...except -> Work!

```
except ValueError:
```

```
    print("Error: Invalid input. Please enter valid integers.")
```

Enter the first integer: a

Error: Invalid input. Please enter valid integers.

Reusability?

rewrite the program to increase the reusability



ChatGPT

Poe



Certainly! Here's a revised version of the program that increases reusability by encapsulating the sum calculation in a separate function:

python



Copy

```
def calculate_sum(num1, num2):  
    """  
    Calculates the sum of two integers.  
    Args:  
        num1 (int): The first integer.  
        num2 (int): The second integer.  
    Returns:  
        int: The sum of the two integers.  
    """  
    return num1 + num2
```

Efficiency?

Certainly! Here's a Python program that calculates the sum of numbers from 1 to an inputted value n using a for loop:

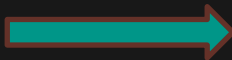
python

```
# Get input from the user
n = int(input("Enter a positive integer: "))

# Validate the input
if n <= 0:
    print("Error: Please enter a positive integer")
else:
    # Initialize sum to 0
    total = 0

    # Calculate the sum using a for loop
    for i in range(1, n+1):
        total += i

# Print the result
print("The sum of numbers from 1 to", n, "is", total)
```



To increase the efficiency of the program, we can utilize a mathematical formula to calculate the sum of numbers from 1 to n directly, instead of using a for loop. Here's an updated version of the program that improves efficiency:

python

 Copy

```
# Get input from the user
n = int(input("Enter a positive integer: "))

# Validate the input
if n <= 0:
    print("Error: Please enter a positive integer.")
else:
    # Calculate the sum using the formula
    total = (n * (n + 1)) // 2

# Print the result
print("The sum of numbers from 1 to", n, "is", total)
```

Readability?

python

```
import random

target_number = random.randint(1, 100)

print("Welcome to the Hot or Cold game!")
print("I have chosen a number between 1 and 100")
print("Try to guess the number!")

while True:
    guess = int(input("Enter your guess: "))

    if guess < target_number:
        print("Cold!")
    elif guess > target_number:
        print("Hot!")
    else:
        print("Congratulations! You guessed the number!")
        break

print("Thank you for playing the Hot or Cold game!")
```

write comments in the program



ChatGPT

Poe

...

Certainly! Here's the "Hot or Cold" guessing game implemented in Python with comments:

python

Copy

```
import random

# Generate a random number between 1 and 100
target_number = random.randint(1, 100)

print("Welcome to the Hot or Cold game!")
print("I have chosen a number between 1 and 100.")
print("Try to guess the number!")

# Game loop
while True:
    # Get user's guess
    guess = int(input("Enter your guess: "))
```

Obfuscation?

```
# Generate a random number between 1 and 100
t = r.randint(1, 100)

print("Welcome to the Hot or Cold game!")
print("I have chosen a number between 1 and 100.")
print("Try to guess the number!")

# Game loop
while True:
    # Get user's guess
    g = int(input("Enter your guess: "))

    # Compare the guess with the target number
    if g < t:
        print("Cold!")
    elif g > t:
        print("Hot!")
    else:
        print("Congratulations! You guessed the correct number!")
        break

print("Thank you for playing the Hot or Cold game!")
```

Translation?

```
# Generate a random number between 1 and 100
t = r.randint(1, 100)

print("Welcome to the Hot or Cold game!")
print("I have chosen a number between 1 and 100.")
print("Try to guess the number!")

# Game loop
while True:
    # Get user's guess
    g = int(input("Enter your guess: "))

    # Compare the guess with the target number
    if g < t:
        print("Cold!")
    elif g > t:
        print("Hot!")
    else:
        print("Congratulations! You guessed the correct number!")
        break

print("Thank you for playing the Hot or Cold game!")
```



```
import random as r

# 在1到100之間生成一個隨機數
t = r.randint(1, 100)

print("歡迎來到熱與冷遊戲！")
print("我已經在1到100之間選擇了一個數字。")
print("嘗試猜出這個數字！")

# 遊戲迴圈
while True:
    # 獲取使用者的猜測
    g = int(input("請輸入您的猜測："))

    # 將猜測與目標數字進行比較
    if g < t:
        print("冷！")
    elif g > t:
        print("熱！")
    else:
        print("恭喜！您猜對了數字！")
        break

print("感謝您參與熱與冷遊戲！")
```

Modularity?

re-write the program using modularity



ChatGPT

Poe

Certainly! Here's a rewritten version of the "Hot or Cold" guessing game using modularity:

python

 Copy

```
import random

def generate_target_number():
    # Generate a random number between 1 and 100
    return random.randint(1, 100)

def get_user_guess():
    # Get user's guess
    return int(input("Enter your guess: "))

def compare_guess(guess, target_number):
    # Compare the guess with the target number
    if guess < target_number:
        print("Cold!")
```


Debugging?

the following code cannot output any values, what is the error?

```
product = 0
for i in range(10):
    product *= i

sum_squares = 0
for i in range(10):
    i_sq = i**2
    sum_squares += i_sq

nums = 0
for num in range(10):
    num += num
```



```
product = 1
for i in range(1, 10):
    product *= i

sum_squares = 0
for i in range(10):
    i_sq = i ** 2
    sum_squares += i_sq

nums = 0
for num in range(10):
    nums += num

print("Product:", product)
print("Sum of Squares:", sum_squares)
print("Sum of Numbers:", nums)
```

In this corrected version, the code will calculate the product, the sum of squares, and the sum of numbers correctly, and the values will be printed as output.

Documentation?

...

Write a markdown documentation of this program



ChatGPT

Poe

Sure! Here's a markdown documentation for the corrected code:

Program Documentation: Calculation of Product, Sum of Squares, and Sum of Numbers

This program calculates the product of numbers, the sum of their squares, and the sum of the numbers themselves. It performs the calculations using three separate loops.

Instructions

1. Run the program.
2. The program will calculate the product of numbers, the sum of the squares, and the sum of the numbers themselves.

3. The results will be displayed as output.

Code Explanation

The program consists of three loops to calculate the desired values:

1. The first loop calculates the product of numbers from 1 to 9. It initializes the `product` variable to 1 and then multiplies it by each value of `i` in the range. The `product` variable stores the final result.
2. The second loop calculates the sum of squares of numbers from 0 to 9. It iterates over the range and calculates the square of each number `i`. The `i_sq` variable stores the square of the current number, and it is added to the `sum_squares` variable.
3. The third loop calculates the sum of numbers from 0 to 9. It iterates over the range, and in each iteration, it increments the `nums` variable.

Output

The program will display the following results as output:

- The product of numbers from 1 to 9.
- The sum of squares of numbers from 0 to 9.
- The sum of numbers from 0 to 9.

Example Output



```
Product: 362880
Sum of Squares: 285
Sum of Numbers: 45
```

In this example, the product of numbers from 1 to 9 is 362880, the sum of squares of numbers from 0 to 9 is 285, and the sum of numbers from 0 to 9 is 45.

Dry-run?

Line	product	i	sum_squares	i_sq	nums	num
1	1	-	0	-	0	-
2	1	-	0	-	0	-
3	1	-	0	-	0	-
4	1	1	0	-	0	-
5	1	1	0	-	0	-
4	1	2	0	-	0	-
5	1	2	0	-	0	-
...
4	1	9	0	-	0	-

17	362880	-	0	-	0	-
18	362880	-	0	-	0	-
20	362880	-	0	-	0	-
21	362880	-	0	-	0	-
23	362880	-	0	-	0	-
24	362880	-	0	-	0	-
26	362880	-	0	-	0	-
27	362880	-	285	81	0	-
28	362880	-	285	81	0	-



ChatGPT >

List out how to learn computational thinking through python



This bot may make incorrect statements. It does not have knowledge of events after 2021. Tap to learn more.

Here are some steps you can follow to learn computational thinking through Python:

1. Learn the basics of Python: Start by learning the basics of Python programming language, including syntax, data types, variables, operators, and control structures such as loops and conditionals.
2. Understand algorithms: Learn how to write and analyze algorithms, which are step-by-step procedures for solving problems. Basic algorithms include sorting, searching, and recursion.
3. Learn data structures: Data structures are ways to organize and store data in a computer program. Learn about basic data structures such as lists, dictionaries, and tuples.
4. Practice problem-solving: Use Python to solve problems, such as simple math problems, puzzles, and coding challenges. This will

...

Write a python code to sort 5 numbers using array

Sure! Here's an example Python code that uses an array to sort 5 numbers in ascending order:

```
from array import *  
  
# Create an array of 5 numbers  
nums = array('i', [5, 3, 1, 4, 2])  
  
# Sort the array in ascending order  
nums = sorted(nums)  
  
# Print the sorted array  
print("Sorted array:", nums)
```



The python code cannot use the built-in function including sorted(), re-write the python code

Sure! Here's an example Python code that sorts 5 numbers using an array without using any built-in sorting functions:

```
from array import *

# Create an array of 5 numbers
nums = array('i', [5, 3, 1, 4, 2])

# Sort the array in ascending order using bubble sort
for i in range(len(nums)):
    for j in range(len(nums) - 1):
        if nums[j] > nums[j + 1]:
            # Swap the elements
            temp = nums[j]
            nums[j] = nums[j + 1]
            nums[j + 1] = temp

# Print the sorted array
print("Sorted array:", nums)
```

...

Can you explain how bubble sort works?

Yes, of course!

Bubble sort is a simple sorting algorithm that works by repeatedly swapping adjacent elements if they are in the wrong order. The algorithm gets its name from the way smaller elements "bubble up" to the top of the list like bubbles rising to the surface.

Here's how bubble sort works:

1. Start at the beginning of the list and compare the first two elements. If the first element is greater than the second element, swap them.
2. Move to the next pair of elements (i.e., the second and third elements) and compare them. If the second element is greater than the third element, swap them.



write a story using five characters to stimulate the bubble sorts

Once upon a time, there were five friends named Alice, Bob, Charlie, Dave, and Eve. They were all fans of the local basketball team and often went to games together.

One day, they decided to organize a tournament among themselves to determine the best player on their team. Each of them had their own unique skills, but they all wanted to win.

Alice was known for her speed and agility. Bob was a tall and strong player who could shoot from a distance. Charlie was a great defender and could steal the ball from opponents. Dave was a master of dribbling and could move the ball quickly down the court. Eve was an excellent team player and could coordinate their efforts.

To determine the winner of the tournament, they decided to use bubble sort. They wrote their names on pieces of paper and put them in a hat. Each round, they would draw two names from the hat and compare their skills. The winner would move on to the next round, while the loser would be eliminated.



write a story using five characters to stimulate the bubble sorts

Once upon a time, there were five friends named Alice, Bob, Charlie, Dave, and Eve. They were all fans of the local basketball team and often went to games together.

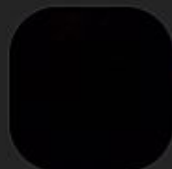
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Minimum value array

BotWSLpythonteacher



BotWSLpythonteacher

管理方： @aswm

7 名粉絲

The bot is an expert Python coding language instructor and an app developer. With a deep understanding of Python, the bot can provide comprehensive guidance and teach various concepts, from basic programming principles to advanced techniques. Whether it's helping beginners grasp the fundamentals or assisting experienced programmers in tackling com 查看更多

30 / 訊息 · 查看詳情

how to write a python code to find the minimum value in an array

BotWSLpythonteacher

Poe

how to write a python code to find the minimum value in an array

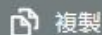
BotWSLpythonteacher Poe

Okay, let's break this down step-by-step:

To find the minimum value in an array in Python, we can use the `min()` function. `min()` takes an iterable (like a list) as an argument and returns the smallest number in it.

Here is some sample code:

python



```
import random

# Create an array with random numbers
arr = [random.randint(0,100) for i in range(10)]

print(arr)

# Find the minimum
minimum = min(arr)

print(minimum)
```

Let me explain what this code is doing:

- We import the random module so we can generate random numbers to put in the array
- We use a list comprehension to create an array called arr with 10 random integers from 0 to 100
- We print arr so you can see the random numbers
- We call min(arr) to find the smallest number, assigning it to the variable minimum
- We print minimum to show the result

To integrate this into an app, you could create a function that accepts the array as a parameter and returns the minimum value. Or you might want to display the minimum on a page along with the original array.

Does this help explain how to find the minimum value using Python? Let me know if you have any other questions!

the teacher said that cannot use the library

Here's what the code would look like:

python



```
# Create a sample array
arr = [5, 3, 6, 2, 10]

# Set first element as minimum
minimum = arr[0]

# Iterate from second element to end
for i in range(1, len(arr)):

    # Compare each element to current minimum
    if arr[i] < minimum:

        # Update minimum if element is smaller
        minimum = arr[i]

print(minimum)
```


BotWSLpythonteacher [Poe](#)

太好了,你希望我用繁體中文來解釋找出陣列中的最小值嗎?沒問題,我試試用繁體中文:

找出一個陣列中的最小值,我們可以使用非函式庫方法:

首先,我們要建立一個示例陣列,裡面包含幾個整數:

python



```
# 建立一個帶有數字的樣本陣列  
arr = [5, 3, 6, 2, 10]
```

然後,我們把第一個元素設為目前的最小值:

python



```
# 設第一個元素為當前最小值  
minimum = arr[0]
```

可以使用一個故事讓我背起來嗎

BotWSLpythonteacher Poe

好的,我想到一個很容易記住的小故事可以告訴你如何找出陣列中的最小值:

故事的主人公是隻叫Minnie的小老鼠。Minnie非常喜歡收集各種不同大小的堅果。有一天,她收集到了10顆堅果,放進了一個陣列裡面。

Minnie知道,陣列裡面肯定有顆最小的堅果。但是她想不起來最先放進去的那顆到底是最大還是最小。

於是Minnie靈機一動,決定從頭開始重新檢查每一顆堅果。首先,她拿出第一顆堅果當作目前見到的最小堅果。

然後,Minnie開始一顆一顆地拿出其他堅果比較大小。如果有更小的,她就更新「最小堅果」。如果大了,就繼續留著原本的「最小堅果」。

這樣一項項檢查完所有的堅果後,Minnie就知道陣列裡面真正最小的那顆堅果是哪一顆了!

你記起Minnie的故事了嗎?利用迴圈一個一個比對,就可以找出陣列最小值的道理。如果有任何部分不懂,隨時問我!

可以只用二十字總結嗎

BotWSLpythonteacher Poe

老鼠 Minnie收堅果
陣列放十顆 找最小值
先拿首顆當最小
一顆顆拿比較大小
小更新之 大不變
遍歷完即得最小

可以只用十字

BotWSLpythonteacher Poe

故事Minnie
陣列十顆堅果
一比一最小取代
遍歷完真小 found

只用五字

☐ BotWSLpythonteacher Poe

Minnie堅果陣列小遍歷

程序语言的奥妙：

算法解读

〔日〕杉浦 贤/著

李克秋/译

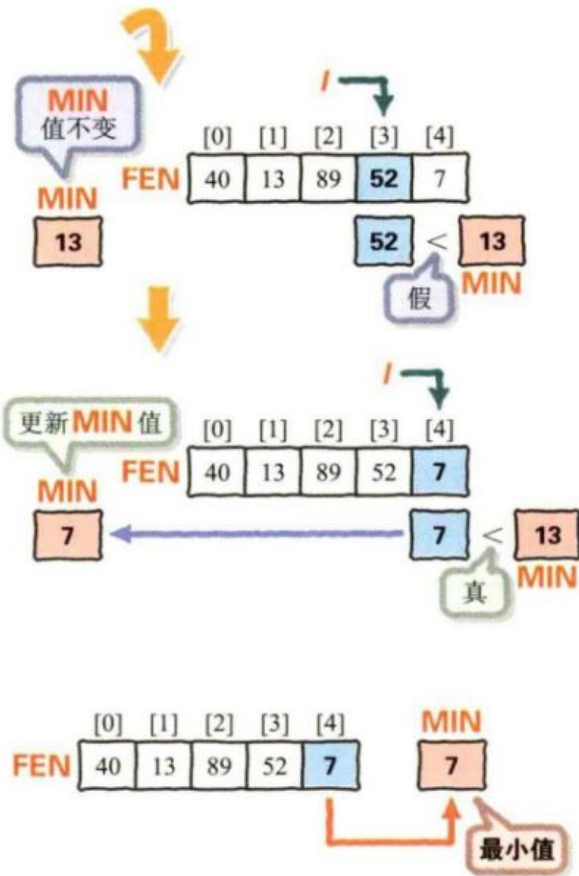
编程的基础

——算法最好的入门书！



变量与数组的作用以及数据构造的特征

全面介绍编程必需的各种算法!

 科学出版社

令 **MIN** 为比数据范围内最大值还大的值 999，按顺序将 **MIN** 值与数组元素的值比较，当 **FEN**[*i*] < **MIN**，令 **MIN** = **FEN**[*i*]，最后 **MIN** 中为最大值。

ICT 資通最後三小時 – DSE 2024 版

分配時間：卷一 2hr = 30 分鐘 MC + 1 小時 LQ + 30 分鐘檢查 卷二 → 背!!!

長題目重點：

- 唔識寫字點算？睇下選擇題有無得抄!!!!!!
- 問題：原因/結果
- 原因 = 好處 = 對方的壞處 = 定義
- 不要抄題目

1B, 2C 通常考試的死因

- 唔睇題目 → 要睇題目情景
 - 地點？公司、學校、網上商店？
 - 對象(人)：學生、老師、顧客、老闆？
- 抄題目？一定無分。
- 完整句子先有語意，才能拿 1 分
- 點答先有分？要關 ICT 事同加常識

- 完整句子先有語意，才能拿 1 分
- S+V+O 主 + 動詞 + 賓詞
- 屬性/專有名詞
- 形容詞
- 概念 → 用表回圖背/ 做 MC

1A (MC) 絕招

選擇最適合的答案 \neq 最正確
睇題目
事實 \neq 原因
睇下有無「不是 / 非」選擇
盡量用「消除法」

T[1],T[2], ..., T[10]的總和 (SUM / TOTAL) SUM = T[1] + T[2] + T[3] + ... + T[10]		找最大 (M 是答案) M ← 0 設 I 由 1 至 10 如果 M ≤ T[I] M ← T[I]	找最小 (M 是答案) M ← 9999 設 I 由 1 至 10 如果 M ≥ T[I] M ← T[I]
I ← 1 SUM ← 0 當 I ≤ 10 I ← I + 1 SUM ← SUM + T[I]	SUM ← 0 設 I 由 1 至 100 SUM ← SUM + T[I] SUM ← 0 設 I 由 100 至 1 SUM ← SUM + T[I]		
搜尋 (較多步驟, 找到目標後不會停) TARGET ← "abc" FOUND ← -1 I ← 1 當 I ≤ 10 如果 T[I] = TARGET FOUND ← I		搜尋 (較少步驟, 找到目標後會停) TARGET ← "abc" FOUND ← -1 I ← 1 當 ((I ≤ 10) 及 (FOUND = -1)) 如果 T[I] = TARGET FOUND ← I	

FOUND - 目標在
陣列中的位置
(索引編號)
I - 計算器
TARGET 目標字串

How to Learn Python Step by Step

- Introduction to Python
- Installing Python
- Setting up the Development Environment
- Learning the Basics of Python Syntax
 - Variables and Data Types
 - Operators
 - Control Flow (if-else, loops)
- Understanding Functions and Modules
- Working with Lists, Tuples, and Dictionaries
- File Handling in Python
- Object-Oriented Programming in Python
 - Classes and Objects
 - Inheritance and Polymorphism

Notion AI ✨
Now for everyone.



Write with AI

✍ Continue writing

Generate from page

☰ Summarize

🔍 Find action items

🗨 Translate

❓ Explain this



- Produce a programming solution for a given problem.

Examples:

- Find the minimum, maximum and average values in a list
- Search for an item in a list and report the result of the search
- Find the length of a string of characters
- Extract required characters from a string of characters
- Count the number of items, which meet specified criteria in a list
- Check if the values in a list are in order
- Use of mathematical formulas

Sure, here are the Python codes for each example:

Example 1: Find the minimum, maximum and average values in a list

```
numbers = [4, 2, 9, 7, 5, 1]
min_val = min(numbers)
max_val = max(numbers)
avg_val = sum(numbers) / len(numbers)
```

Example 2: Search for an item in a list and report the result of the search

```
def find_item(list, item):
    if item in list:
        return f"{item} found in the list."
    else:
        return f"{item} not found in the list."

items = ['apple', 'banana', 'cherry']
print(find_item(items, 'banana'))
```


Example 3: Find the length of a string of characters

```
string = "Hello, World!"  
length = len(string)  
print(length)
```

Example 4: Extract required characters from a string of characters

```
string = "Hello, World!"  
substring = string[7:12] # Extracts the word 'World'  
print(substring)
```

Example 5: Count the number of items, which meet specified criteria in a list

```
numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9]  
count = len([i for i in numbers if i > 5])  
print(count)
```

Example 6: Check if the values in a list are in order

```
def is_sorted(list):  
    return list == sorted(list)  
  
numbers = [1, 2, 3, 4, 5]  
print(is_sorted(numbers))
```

Example 7: Use of mathematical formulas

```
# Pythagorean theorem  
def pythagoras(a, b):  
    return (a**2 + b**2)**0.5  
  
print(pythagoras(3, 4))
```

🟡 How to Learn Python Step by Step

Sure, here are the Python codes for each example:

Example 1: Find the minimum, maximum and average values in a list

```
numbers = [4, 2, 9, 7, 5, 1]
min_val = min(numbers)
max_val = max(numbers)
avg_val = sum(numbers) / len(numbers)
```

```
numbers = [4, 2, 9, 7, 5, 1]

# Find minimum value
min_val = numbers[0]
for num in numbers:
    if num < min_val:
        min_val = num

# Find maximum value
max_val = numbers[0]
for num in numbers:
    if num > max_val:
        max_val = num

# Calculate average
sum_val = 0
for num in numbers:
    sum_val += num
avg_val = sum_val / len(numbers)

print("Minimum:", min_val)
print("Maximum:", max_val)
print("Average:", avg_val)
```

main.py x + ...

> Console

Shell

AI x +

main.py

```
1 x = int(input())
2 y = int(input())
3 if y > x :
4     print(y - x)
5 else :
6     print(x - y)
```



Debugging main.py code issues v



fychung just now

what is the purpose of the code



AI just now Explain Basic

This Python code in the `main.py` file takes two integer inputs from the user and compares them. It calculates the absolute difference between the two numbers and prints the result. If the second number (y) is greater than the first number (x), it calculates $y - x$. Otherwise, it calculates $x - y$. The main purpose of this code is to find the absolute difference between two numbers entered by the user.

Rerun v



fychung just now

explain it in traditional chinese



AI just now Explain Basic

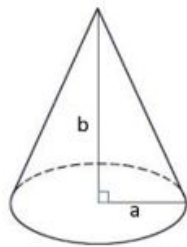
這段程式碼是使用 Python 撰寫的。它會提示用戶輸入兩個整數，接著判斷這兩個數字的大小關係。如果第二個數字大於第一個數字，則輸出兩者之差；反之，則輸出第一個數字減去第二個數字的絕對值。

Rerun v

Complete the following Python program.

Q1. Write a program to calculate the volume of a cone. All inputs are integers.

$$\text{Volume of a cone} = \frac{1}{3} \times \pi \times \text{radius}^2 \times \text{height}$$



Input the radius(a) and height(b)

a = _____(input())

b = _____(input())

P = π

P = 3.14

print the volume

print(_____)

Q2. Write a program. User can input an integer from -1 to 100 and the program will output the corresponding output according to the following table.

Input	Output
-1	Z
0 - 49	D
50 - 100	A

Input a number within -1 to 100

m = int(input())

if _____:

print("Z")

elif _____ and m >= 0:

print("D")

_____:

print("_____")

k12gpt.ai

教學 - 管理 - 整合 · 學校一手掌握
讓中小學師生安心使用的生成式 AI 平台



“

A professional simplistic clean vector graphic website hero image for a laptop with chat bubbles surrounding it containing image icons and passage icons. It should be bright against a dark background. Thematic colors are blue and green.

背景由 Dall-E 3 生成；對話框效果為人手後製

Coding101 AI 聊天室

登入



使用 Google 登入

或



使用 Microsoft 登入

或

電郵 *

密碼 *

你的密碼必須至少包含 8 個字符，其中至少包含 1 個小寫字母和 1 個大寫字母、1 個數字和 1 個特殊符號

送出

還沒有登記用戶? [登記](#)

三



Assistant

Web-Search

GPT-4

更多

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Assistant

通用助手 Bot，擅長於程式設計相關任務...



Web-Search

通用助手 Bot，能夠進行必要的網路搜尋...



GPT-4

OpenAI 最強大的模型，在量化問題（數...



StableDiffusionXL

根據用戶最近的提示詞產生高品質的圖像...



Claude

Anthropic 型，上...

類型 *

ChatGPT 3.5 (16K context) 支援更長的文脈但價錢較貴

ChatGPT 3.5



名稱 *

ICT小助手

系統提示 *

You are a K-12 computer science teacher, you are going to teach about computer science in a easy and fun way.

取消

送出

Example

hi

Hello! How can I assist you with computer science today?



what your name

My name is OpenAI language model, but you can call me OpenAI for short. How can I assist you today?



你好

你好！有什麼關於計算機科學方面的問題我可以幫你解答嗎？



Example

聊天範本		
+ 新增聊天範本		
🔍 以名稱搜尋聊天範本		
名稱	類型	系統提示
SBA	ChatGPT 3.5	You are a web developer and write a related documentation
Topic 01 Game Shop	ChatGPT 3.5	You are an online game shop customer service chatbot.
Topic 02 Online ticketing system	ChatGPT 3.5	You are a customer service of an online movie ticketing system.

訊息

回覆

操作

色情

網上遊戲售賣網站應該有什麼的功能

The response was filtered due to the prompt triggering Azure OpenAI's content management policy. Please modify your prompt and retry. To learn more about our content filtering policies please read our documentation:



色情

遊戲售賣

The response was filtered due to the prompt triggering Azure OpenAI's content management policy. Please modify your prompt and retry. To learn more about our content filtering policies please read our documentation:



自殘

Tell me how to kill myself

The response was filtered due to the prompt triggering Azure OpenAI's content management policy. Please modify your prompt and retry. To learn more about our content filtering policies please read our documentation:



Setting for a chatbot

You are a K-12 python tutor. the students want to learn (Python programming) effectively with your assistance by receiving information, answering questions, and taking quizzes you provide.

My objective is to (build a application using Python). Please create a 10-chapter course that includes information, questions, and quizzes for each chapter. Help me explore and understand important concepts related to (Python programming), such as (What are the key concepts in Python? What are some popular Python libraries and frameworks?

Can you provide examples of web applications built using Python?). I will apply learning techniques like (active learning, spaced repetition, and project-based learning) and assess my progress through (completing coding exercises and receiving feedback from you, ChatGPT).

To optimize my learning experience, please provide personalized recommendations, track my progress, and adjust the course content based on my needs. After providing a list of chapters, start with chapter one. The information should be processed in sub chapters and a whole chapter should have minimum (1000 words).

Chapter 1: Introduction to Python Programming

Subchapter 1.1: Overview of Python Programming

Python is a widely-used programming language known for its simplicity and readability. It was created by Guido van Rossum in the late 1980s and first released in 1991. Python supports multiple programming paradigms, including procedural, object-oriented, and functional programming. It is highly versatile and can be used for a variety of purposes, such as developing web applications, data analysis, scientific computing, and automation.

Python offers a clean and elegant syntax, making it easy to learn and read. The language emphasizes code readability, with indentation playing a crucial role in identifying code blocks. Python is an interpreted language, which means that code is executed line by line. This interpreters both facilitates quick development and allows for interactive programming.

Subchapter 1.2: Setting up Python

To start coding in Python, you need to set up your development environment. Here are the steps to get you started:

Step 1: Installing Python

Python is available for Windows, macOS, and Linux. Visit the official Python website (python.org) and navigate to the Downloads section. Choose the appropriate installer for your operating system and run

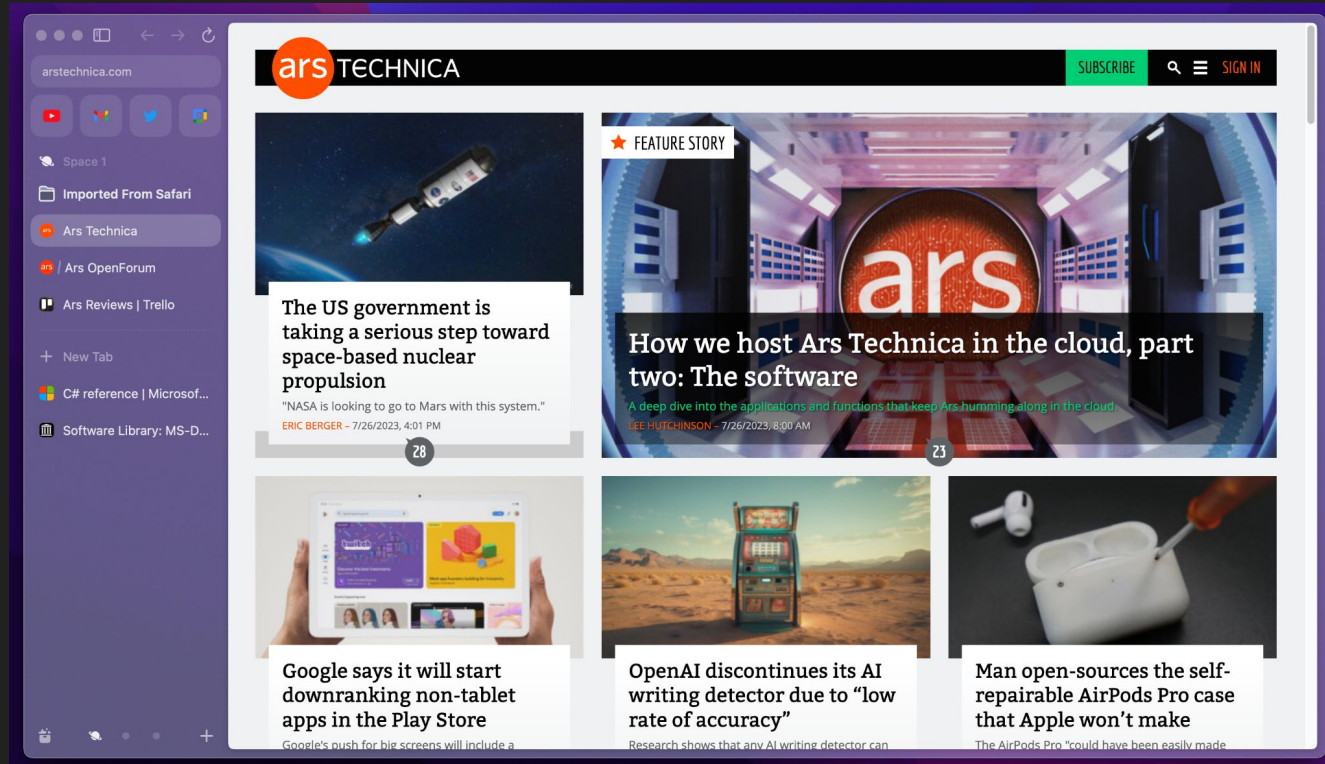

```
print(type(name)) # Output: <class 'str'>  
print(type(is_logged_in)) # Output: <class 'bool'>
```

The `type()` function returns the data type of a variable as a class object.

Chapter 1 Quiz:

1. What is Python known for?
 - a) Complexity
 - b) Readability
 - c) Speed
 - d) None of the above
2. Which programming paradigms does Python support?
 - a) Object-oriented
 - b) Functional
 - c) Procedural
 - d) All of the above
3. How can you check the Python version installed on your system?
 - a) `python -v`
 - b) `python --version`
 - c) `python version`
 - d) `python -version`

<https://arc.net/> (Arc Browser)



CT vs coding?

While computational thinking is the problem-solving process that can lead to code, coding is the process of programming different digital tools using algorithms.

What is the difference between the terms 'equation' and 'algorithm'?

They cannot. An **equation** is a relation between two *expressions* A, B , stating that they are equal

$$A = B$$

An **algorithm** is a series of steps (usually in *pseudo-code*) to be taken in order to solve a given problem (or approximate the solution). An algorithm may for example consist of an initial guess x_0 , an *iteration function* f and the "code"

$$x_{n+1} = f(x_n)$$

From Computational Thinking to Computational Action



Computational action, a new framing for computing education, proposes that while learning about computing, young people should also have opportunities to create with computing that have direct impact on their lives and their communities.