

1.10 流程控制 if

你將學習到

1. If 用法
2. elif 用法
3. else 用法

if 定義

if 的動作只會在條件為 True 時執行，
如果條件為 False，動作會被跳過不執行。

if 條件:

動作1

動作2

... 更多動作

if 用法

當 if 條件是 True 時, if 動作才會執行。

```
price = 20
if price > 10:
    print( "Sell 1" )
    print( "Sell 2" )
print( "Continue" )
```

注意 if 裡面的動作要加上 Tab 或空格 (Indentation)
一般用 1 個 Tab 或 4 個空格。

price = 20	price = 5
Sell 1	Continue
Sell 2	
Continue	

常見錯誤一

初學者最常見的錯誤是寫漏了句尾的冒號。

```
price = 20
```

```
if price > 10
```

錯誤，條件後面寫漏了冒號：

```
    print( "Sell" )
```

常見錯誤二

另一常見錯誤是 if 內動作 tab 的數量不一致。
這個錯誤稱為 Indentation Error。

```
price = 20
if price > 10:
    print( "Sell 1" )
    print( "Sell 2" )
    print( "Sell 3" )           # 錯誤, 這句多了一個空格
```

else 用法

當 if 條件是 False 時, else 子句才會執行。

```
price = 5
if price > 10:
    print( "Sell" )
else:
    print( "Buy" )
print( "Continue" )
```

price = 5	price = 20
Buy	Sell
Continue	Continue

elif 用法

當 if 條件是 False 時，會再檢查 elif 條件。

```
price = 50
if price < 10:
    print( "Buy" )
elif price > 40: # 意思是 else if
    print( "Sell" )
print( "Continue" )
```

price = 50	price = 5	price = 30
Sell Continue	Buy Continue	Continue

elif 可以有多於一個

```
if price <= 50:  
    print( "smaller than or equals to 50" )  
elif price <= 100:  
    print( "Between 50 and 100" )  
elif price <= 200:  
    print( "Between 100 and 200" )  
elif price <= 300:  
    print( "Between 200 and 300" )  
else:  
    print( "Larger than 300" )
```

price = 40	price = 250	price = 500
smaller than or equals to 50	Between 200 and 300	Larger than 300

elif 可以有多於一個

```
if price <= 50:
    print( "smaller than or equals to 50" )
elif price <= 100:
    print( "Between 50 and 100" )
elif price <= 200:
    print( "Between 100 and 200" )
elif price <= 300:
    print( "Between 200 and 300" )
else:
    print( "Larger than 300" )
```

注意:

如果同一時間多個 if/elif 條件都成立, 程式只會執行第一個成立的條件, 然後就會離開。

設 price 等於 40, 雖然左方代碼中所有 if 和 elif 條件都成立, 但程式只會執行 if price <= 50, 然後就會離開 if-block, 不會執行其他 elif 代碼。

pass 語法

如果你想某個條件下不做任何動作，可使用 pass。

```
if price <= 50:
    print( "less than 50" )
elif price <= 100:
    pass          # 不做任何動作
else:
    print( "More than 100" )
```

if 可以嵌套 (nested)

```
if price <= 50:
    if price <= 25:
        print( "小於 25" )
    else:
        print( "26 至 50" )
    print( "Continue" )
else:
    print( "大於 50" )
```

嵌套 if 例子

```
if price <= 50:  
    print( "Action 1" )  
  
    if price <= 25:  
        print( "less than 25" )  
    else:  
        print( "Between 26 and 50" )  
  
    print( "Action 2" )  
else:  
    print( "More than 50" )  
  
print( "Action 3" )
```

price = 10	price = 40	price = 80
Action 1	Action 1	More than 50
Less than 25	Between 26 and 50	Action 3
Action 2 Action 3	Action 2 Action 3	

完整 if 例子

```
price = float( input( "請輸入貨品價錢:\n" ) )      # 接收用戶輸入, 並轉換成浮點數
```

```
if price <= 100:
```

```
    print( "很便宜, 我會買 !" )
```

```
elif price <= 200:
```

```
    print( "有點貴, 我再考慮 !" )
```

```
else:
```

```
    print( "太貴, 不會買 !" )
```

```
# 如用戶輸入 50, 程式輸出 "很便宜, 我會買 !"
```

```
# 如用戶輸入 150, 程式輸出 "有點貴, 我再考慮 !"
```

```
# 如用戶輸入 250, 程式輸出 "太貴, 不會買 !"
```

練習

試實現右方流程圖:

程式已定義了2個變數可供使用:

weather = "sunny" 或 "gloomy"

forecast = "sunny" 或 "rainy"

根據以上變數, 程式應

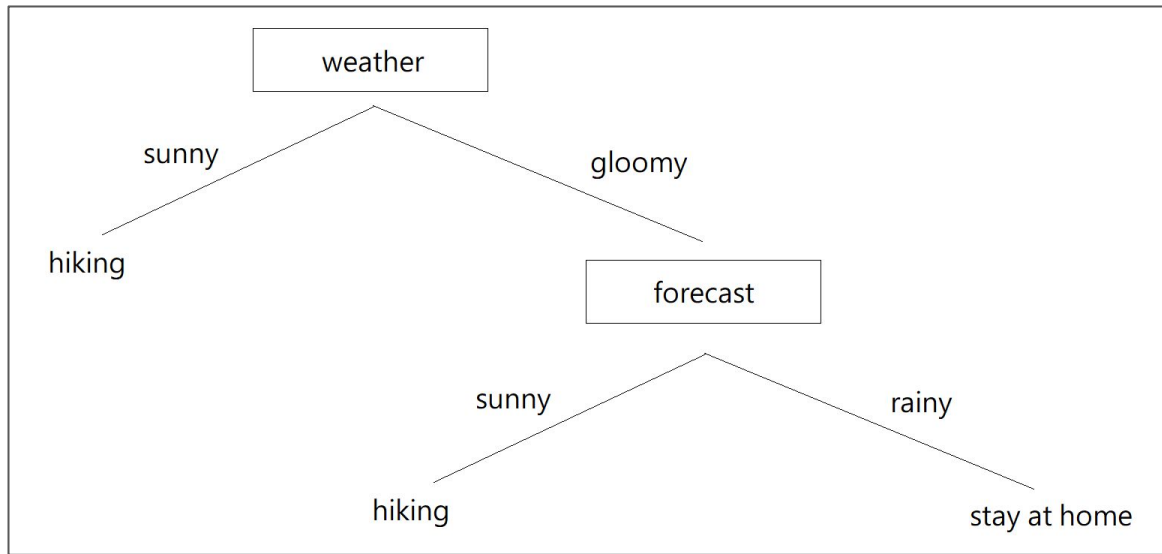
print("hiking") 或

print("stay at home")

小提示, 程式的首兩句是:

```
if weather == "sunny":
```

```
    print("hiking")
```



答案

```
if weather == "sunny":  
    print("hiking")  
elif weather == "gloomy":  
    if forecast == "sunny":  
        print("hiking")  
    elif forecast == "rainy":  
        print("stay at home")
```

或

```
if weather == "sunny":  
    print("hiking")  
elif forecast == "sunny":  
    print("hiking")  
else:  
    print("stay at home")
```


學習回顧

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