Week 3 Exception

- Error ：程式中的問題
- Runtime Error：在程式運行時發生
- SyntaxError (語法錯誤)：拼法錯誤 or 語法結構錯誤
- ValueError：傳入不適當的值進入 function
- NameError：使用未定義的 variable or function

1, try ：to test code (一定會做，但可能有問題)
    except (有問題)：handle error
    else (沒問題)：
    finally (不管有沒有問題)：

print(3/0)

```
1  try:  # test errors
2      print(3/0)
3  except ZeroDivisionError:  # has error
4      print('You cannot divide by zero')
5  else:  # has no error
6      print('The division is successfully performed')
7  finally:  # alwas executed
8      print('This message is always printed')
```
```
1  You cannot divide by zero
2  This message is always printed
```

不是 print(3/1)

* except：（後面不寫就是任何 一種 error）

- 單搭配 while True：使用 → 持續 input 直到正確

```
1  while True:
2      try:  # test errors
3          weight = int(input("What's your weight? "))
4      except ValueError:  # handle the error
5          print("!!! input is error. try again !!!")  (pass) 什麼都不做
6      else:
7          break  # weight is ok and break while loop
8  print(f"your weight is {weight}")
```
```
What's your weight? a
!!! input is error. try again !!!
What's your weight? b
!!! input is error. try again !!!
What's your weight? 100
your weight is 100
```

2. raise (自己定義的錯誤)

```
1  def calculate_division(x, y):
2      if y == 0:
3          raise ValueError("Cannot divide by zero.")
4      return x / y
5
6  try:
7      result = calculate_division(10, 0)
8  except ValueError as e:
9      print(e)
```

```
1  def check_age(age):
2      if age < 0:
3          raise ValueError("Age cannot be negative.")
4      elif age < 18:
5          raise ValueError("Age is below 18.")
6      else:
7          print("Age is valid.")
8
9  try:
10     check_age(-5)
11 except ValueError as e:
12     print(e)
```

- 是自行定義 → 錯誤訊息可以是中文