

Python 101 - Week 4 - Advanced Collection

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Review

- 記住在 Python 的世界，最基本的變數 文字 以及 數字
- Data collection
 - List
 - Dictionary














Homework Review

master ▾

> [python_hw](#) / +

Name	Last Update	Last Commit > c13d3c165bb – temp: add except rule into number of department
 hw00	4 days ago	 ethan temp: Homework
 hw01	4 days ago	 ethan temp: Homework
 hw02	4 days ago	 ethan temp: Homework
 hw03	about 22 hours ago	 ethan temp: add except rule into number of department

Homework Review

Name	Last Update	Last Commit > c13d3c165bb – temp: add except rule into number of department	
 ..			
 03_vvtk_family_name_static.py	4 days ago	 ethan	temp: Homework
 03_vvtk_how_old_i_am.py	4 days ago	 ethan	temp: Homework
 03_vvtk_members_drawer.py	4 days ago	 ethan	temp: Homework
 03_vvtk_numbers_of_depart...	about 22 hours ago	 ethan	temp: add except rule into number of department
 data_transformer.py	4 days ago	 ethan	temp: Homework
 data_transformer.pyc	4 days ago	 ethan	temp: Homework

偷幹 Ethan 的作業來觀摩

- `git clone git@dqa-dev:ethan/python_hw.git`
- 如果 ssh 不行，請記得選 http

SSH

HTTP

`git@dqa-dev:ethan/python_hw.git`



Version control our files

- `git add <FILES>`
- `git commit -m "<MESSAGE>"`
- `git push origin master`

03vvtkmembers_drawer.py

```
#!/usr/bin/python
```

```
# -*- coding: utf-8 -*-
```

```
from data_transformer import Data as data
```

```
# 把 staff list 包成一個 class import 進來
```

```
# 這個步驟先跳過別理他。按照原本的方式即可
```

```
drawer = {"中獎者:" : []}
```

```
winner_count = 10
```

```
for item in xrange(winner_count):
```

```
    winner = random.choice(data.vvtk_name_list)
```

```
    drawer["中獎者:"].append(winner)
```

```
    data.vvtk_name_list.remove(winner)
```


What is a list

vivotek
Apple
Samsung
Acer

What is a list

Index	Value
0	vivotek
1	Apple
2	Samsung
3	Acer

What is a list

Index		Value
0		[Apple, vivotek]
1		[Windows, vivotek]
2		[Apple, google]

What is a list

- 基本上你不會知道第幾個 index 放著什麼 value
- 只是很單純的把資料，很整齊的放在一個地方，那個地方叫做 list
- 擺放資料的順序由你自己決定

What is a list

- 基本上你不會知道第幾個 index 放著什麼 value ?
- eg. 假設全公司名單通通塞入一個 list,
 - 試問 該list index 100 為誰 ?

Who knows 🤔

Understand dictionary

- 拿出紙筆，畫出兩欄式表格
- 左欄放 **key**
- 右欄放 **value**

Before entering loop

Key	Value
中獎者	[]

Loop 1

Key	Value
中獎者	[['嵌入式應用一組', 'A00868', '毛普臻'],]

Loop 2

Key	Value
中獎者	[['嵌入式應用一組', 'A00868', '毛普臻'], ['驗證二組', 'A00817', '廖芷婕'],]

Uniq

- Please refer to `uniq.py`

```
uniq_lst_by_looping = []  
for name in raw_name_list:  
    if name not in uniq_lst_by_looping:  
        uniq_lst_by_looping.append(name)
```

Length of List

```
raw_name_list = [  
    "poc",  
    "jimmy",  
    "ethan",  
]  
  
print len(raw_name_list)
```

Sort of List

- `sorted()`: return a new sorted list
- `sort()`: modify the list in-place

Sort of List

```
students = [  
    ['bryant', 'C', 15],  
    ['zebra', 'Z', 6],  
    ['adam', 'B', 10],  
]
```

Sort of List

- How to sort by column 0 ?
- How to sort by column 1 ?

```
sorted(students, key = lambda x : x[0])
```

```
sorted(students, key = lambda x : x[1])
```

- `x = ['bryant', 'C', 15]`

Reverse of List

- `L[::-1]`
- `reversed(L)`
- `L.reverse()`

Length of Dictionary

```
names = {  
    "good_guys": ["danny"],  
    "bad_guys": ["poc", "ethan", "victor"]  
}
```

```
print len(names)  
print len(names.keys())  
print len(names["bad_guys"])
```

List to Dictionary

- Hold your pen and write down it on paper
- What is a list
- What is a dictionary

List to Dictionary

- Please see `list_to_dict.py`

More in dictionary

- `iteritems()`
 - Fetch key, value for each iteration

Key	value
Taiwan	112
Japan	123
China	241

More in dictionary

- `keys()`

Key
Taiwan
Japan
China

讓我們持續關注扁案 Ethan 的Code

Homework:family name

Raw data

```
[ "財務部", "A00485", "洪秀棻", ],  
[ "會計部", "A00084", "邱秀滿", ],
```


Initial thought

["財務部", "A00485", "洪秀棻"]
"洪秀棻"
"洪"

- key: "洪"
- ~~value: ["財務部", "A00485", "洪秀棻"]~~
- value: [["財務部", "A00485", "洪秀棻"]]

Data Structure in your mind

Key	value

Homework family name

- 從List找到了批歐西

```
if family_name not in employee :  
    employee[family_name] = [item]
```

Key

批

Homework family name

- Every thing in Python is **unicode**
- decode : ANYCODE to **unicode**
- encode : **unicode** to ANYCODE

```
name.decode('utf-8') # from utf8 to unicode
```

```
name.decode('utf-8').encode('utf-8') # from unicode to utf8
```

```
family_name = name.decode('utf-8')[0:1].encode('utf-8')
```

Homework family name

```
if family_name not in employee :  
    employee[family_name] = [item]  
else :  
    employee[family_name].append(item)
```

Print result

```
for item in employee :  
    print '姓 ',str(item), ' 的總共有 ', str(len(employee[item])), '人'
```

Follow the discussion

- <http://cloud-test/forum/>



2樓 ethan.kuo [Reply](#) [Unlike this](#) 1 people like this

— To 1樓: # 聽聽他人的抱怨 - 關於Windows 對中文的支援 :".encode('cp950')))
```

# Assignments - 尾牙抽獎機

- 建議檔名 `03_vvtk_members_drawer.py`
- 從公司隨機抽樣出 10 個員工出來



# Assignments - 各部門人數統計 (dictionary)

- 檔名 03\_vvtk\_numbers\_of\_department.py
- 統計出公司各單位的人數, 直接輸出下面格式即可
  - 進階的同學可以提供使用者輸入介面，讓使用者輸入"組別"，然後查詢結果
- Output(輸出範例)
  - 驗證五組: 10 人
  - 製造組: 30 人

# Assignments - VIVOTEK 百家姓 (dictionary)

- 作業檔名 03\_vvtek\_family\_name\_static.py
- 統計出公司裡面每個姓氏的數量個有多少
- Output
  - 許: 20
  - 林: 58

# Assignments - How old Are you

- 檔名 03\_vvtk\_how\_old\_i\_am.py
- 統計出全公司每個人的年資排名
- 進階：提供讓使用者輸入介面
- Output(輸出範例)
  - 1 陳文昌
  - 2 藍志忠
  - ...

# Referece

- <http://larc.ee.nthu.edu.tw/~jcyeh/python/cdoc/tut/tut.html>
- <http://dowell.colorado.edu/education-python.html>

