

Python 程式設計: Test 02, 2023-12-07

1. 除了公共電腦之外，不可使用手機、平板或智慧手錶等裝置。
2. 在電腦上可使用 email 繳交檔案，但不可使用其他通訊軟體。
3. Open Books, USB Ok
4. You may use web search, **web-based** Bing chat (or Copilot with Bing chat) or Google Bard.
5. **ChatGPT and GitHub Copilot are not allowed.**
6. 學校規定需隔離或自主防疫者可遠端考試。需登入 [Teams 考試頻道](#)，並開啟麥克風。
7. 需按題目指定檔名存檔。
8. 違反規定者，以零分計算。

目錄結構：建立一個工作目錄，把考題與相關檔案置入其中, 例如

工作目錄

```
| -- example01.py
| -- test02_Q1.py
| -- test02_Q2.py
| -- Test02_Questions.docx
| -- data (資料夾)
| -- advanced (資料夾)
```

繳交：把你工作目錄中 **所有檔案（含子資料夾）壓縮成一個 zip or rar 檔

檔名：你的學號-test02.zip (例如: s1091234-test02.zip)

寄送：yzu.python@gmail.com

主旨：你的學號-test02 files (例如: s1091234-test02 files)

同時 CC (副本) 給你 自己

Q1. 請用程式檢查下列 twids list 中， 哪些字串是符合台灣身份證(含居留證)編碼格式。
(20%)

Please write code to check which strings in the following twids list conform to the Taiwan ID card (including Resident certificate) encoding format.

reference: <https://zh.wikipedia.org/wiki/中華民國國民身分證#阿拉伯數字（第二碼至第十碼）>

Note:

- (1) Check format only, 不檢查最後一個驗證碼是否正確。
- (2) 評分時， 我們會改用另一組資料做檢測。

```
twids = ['B342232223', '0123456789', 'A21234567', 'A212345678', 'O212345678',  
'J122356789', 'a212345678', 'A11234567a', 'N1205667899', 'N820566789',  
'F928567899']
```

輸出範例：

```
J122356789  
...  
...
```

存檔： **Test02_Q1.py**

Q2. Json and csv: 在 data 目錄下的 grades.json 是 n 位學生修課成績， credits_all.txt 定義所有課程的學分數。檔案 grades.json 的內容至少有兩個問題 (1) 它未按照學生 ID 排序 (2) 每個學生成績 dict 裡的 keys 都有些差異。參照 Figure 1. 請按照所有課程的字母 (遞增) 排序，重新調整 Json 檔，需求如下：

1. 按學生 ID 遞增排序
2. 學生成績 dict 會包含所有課程，依課程的字母 (遞增) 排序, 沒有修的課程分數 以 “” 表示，(參照圖 2 Figure 2)
3. 儲存 新的 json as **grades_new.json** in the **data** folder
4. 另外，把新的 json 也存成 **grades_new.csv** in the **data** folder, 格式參照圖 3.

▼ s1171222:	
Management:	80
Independent Study:	90
Accounting:	70
Python:	90
Algorithms:	70
中文:	70
▼ s1171101:	
Data Structures:	50
Biology:	60
Calculus:	60
Discrete Math:	50
中文:	70
Chemistry:	60

Figure 1

▼ s1171101:	
Accounting:	70
Algorithms:	70
Biology:	60
Calculus:	60
Chemistry:	60
Data Base:	70
Data Networks:	70
Data Structures:	50
Discrete Math:	50
Economics:	70
English:	70
Independent Study:	70
Management:	70
Physics:	70
Python:	70
中文:	70

Figure 2

```
StudentID,Accounting,Algorithms,Biology,Calculus,Chemistry,
Data Base,Data Networks,Data Structures,Discrete Math,
Economics,English,Independent Study,Management,Physics,Python,
中文
s1171101,,60,60,60,,50,50,,,,,70
s1171102,,80,,90,,80,,80,,90,,80,
s1171104,,90,80,90,,,,90,,90,80,,
s1171105,60,,,,,60,,50,,60,60,,60,
s1171106,50,,50,,,,,55,50,60,,50,,
s1171109,80,,90,90,90,,80,,90,,,,
s1171112,80,80,90,,80,,90,,90,,
s1171117,80,80,,,,90,90,80,85,,,,
s1171119,,50,60,60,,60,,,,50,50,
s1171121,90,70,,50,,60,,70,,50,
```

Figure 3

存檔: Test02_Q2.py

Grading:

- (1) Have grades_new.json in the data subfolder (10%)
- (2) Correct data and format for each item (10%)
- (3) Have grades.csv in the data folder (10%)
- (4) Correct data and csv format (10%)

Q3 (30%) 請在目前工作資料夾下

- (1) 找出最近 2 weeks 有改變過的 python related 檔案 (包含子資料夾)
- (2) python file extensions: 'py' , 'ipynb'
- (3) 排除 any subfolders with name 'backup' and files starts with 'backup'
- (4) 以程式將上述檔案壓縮成一個.zip 或 .rar, 儲存到 backup 子資料夾,
壓縮檔的檔名為 *test02_Q3_yyyymmdd_hhmmss.zip* (or .rar), 例如
test02_Q3_20231207_110326.zip, 其中 yyyymmdd_hhmmss 是程式執行當下時間

Note: zip or winRAR 只會保存相對路徑

輸出範例

```
N_Days_Before: 2023-11-22 10:46:28.231073
Current Time: 2023-12-06 10:46:28.231073

Test02_Q1_twids_re.py          -> archive succeeds.
Test02_Q2_grade_json_csv.py    -> archive succeeds.
...
2023_1S_Test02\Test02_Q3_count_words.py -> archive succeeds.
advanced\somefile.py           -> archive succeeds.
...

==> compressed file saved as .\backup\test02_Q3_20231206_104628.zip

...
```

存檔: test02_Q3.py

Grading:

1. Compressed file created by Python in the backup folder (10%)
2. Correct python files (with correct path) found (20%)

Q4 (10%) Given a shared link list, for example,

```
shared_urls = ['https://yzu365-my.sharepoint.com/:w:/g/personal/s1106xxx_mail_yzu_edu_tw/Efzqn0qQXklGuvK69HoarQsBIWCGX8NlW1Uaf14GpTeP9A', 'https://yzu365-my.sharepoint.com/:w:/g/personal/imxyz_saturn_yzu_edu_tw/EYFn9y8Z3UBFsTgR4jFYmxkBb7XtEejPCqYELTlnTHz0tQ']
```

write python code to extract email information from a shared link like

'https://yzu365-my.sharepoint.com/:w:/g/personal/s1106xxx_mail_yzu_edu_tw/Efzqn0qQXklGuvK69HoarQsBIWCGX8NlW1Uaf14GpTeP9A', and convert it into a valid email format, like s1106xxx@mail.yzu.edu.tw

Output example (based on the shared_urls)

s1106xxx@mail.yzu.edu.tw

imxyz@saturn.yzu.edu.tw

Save file as **Test02_Q4.py**