考題 for Backend Engineer

Programming

Part 1

Counting

Given a list of urls, print out the top 3 frequent filenames.

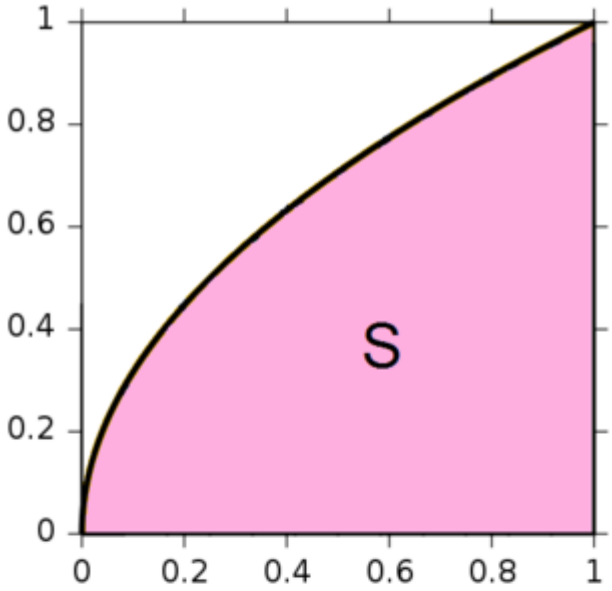
ex.
Given

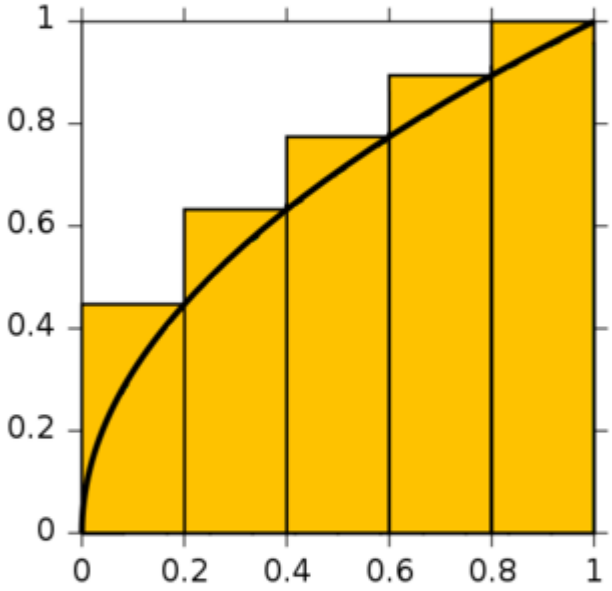
```
urls = [
    "http://www.google.com/a.txt",
    "http://www.google.com.tw/a.txt",
    "http://www.google.com/download/c.jpg",
    "http://www.google.co.jp/a.txt",
    "http://www.google.com/b.txt",
    "https://facebook.com/movie/b.txt",
    "http://yahoo.com/123/000/c.jpg",
    "http://gliacloud.com/haha.png",
]
```

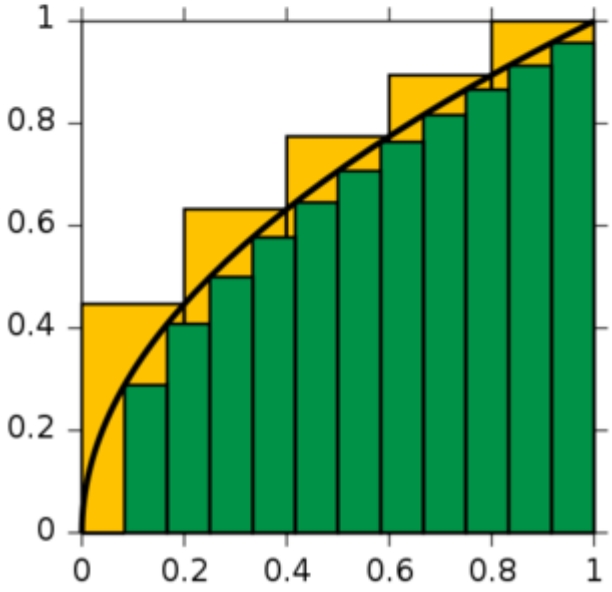
The program should print out

a.txt 3
b.txt 2
c.jpg 2

Integration


1
0.8
0.6
0.4
0.2
0
S
0
0.2
0.4
0.6
0.8
1


1
0.8
0.6
0.4
0.2
0
0
0.2
0.4
0.6
0.8
1


1
0.8
0.6
0.4
0.2
0
0
0.2
0.4
0.6
0.8
1

https://upload.wikimedia.org/wikipedia/commons/thumb/5/54/Integral_approximations-3-steps.png/320px-Integral_approximations-3-steps.png

Please try to add 1~3 line of code to finish the integration

```
def anonymous(x):
    return x**2 + 1

def integrate(fun, start, end):
    step = 0.1
    intercept = start
    area = 0
    while intercept < end:
        intercept += step
        ''' your work here '''
    return area

print(integrate(anonymous, 0, 10))
```

Multiples of 3 and 5.

If we list all the natural numbers below 10 that are multiples of 3 or 5, we get 3, 5, 6 and 9. The sum of these multiples is 23.

- Find the sum of all the multiples of 3 or 5 below 1000.

Part 2

請以下題目擇一

a) 請用 Python 寫出一個可以爬 ptt /reddit 任意看板（https://www.ptt.cc ）的爬蟲程式，可以使用任意 Python 套件

以下欄位為必要

- 日期
- 作者
- 標題
- 內文
- 看板名稱

b) 請用 python 寫出一個簡單的網頁，只需要一個頁面 每次瀏覽時隨機出現 the zen of python 其中一條

http://wiki.python.org.tw/The%20Zen%20Of%20Python