

## 08 – Dictionary

Ex. No. : 8.1

Date: 25.05.24

Register No.:231901046

Name: SARAVANA M D

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### Sort Dictionary by Values Summation

Give a dictionary with value lists, sort the keys by summation of values in value list.

**Input** : test\_dict = {'Gfg' : [6, 7, 4], 'best' : [7, 6, 5]}

**Output** : {'Gfg': 17, 'best': 18}

**Explanation** : Sorted by sum, and replaced.

**Input** : test\_dict = {'Gfg' : [8,8], 'best' : [5,5]}

**Output** : {'best': 10, 'Gfg': 16}

**Explanation** : Sorted by sum, and replaced.

Sample Input:

2

Gfg 6 7 4

Best 7 6 5

Sample Output

Gfg 17

Best 18

**For example:**

| Input                        | Result            |
|------------------------------|-------------------|
| 2<br>Gfg 6 7 4<br>Best 7 6 5 | Gfg 17<br>Best 18 |

**Program:**

```
n = int(input()) d = {} for i in range(n):    s =  
input().split()    d[s[0]] = list(map(int, s[1:])) d1 = {k:  
sum(v) for k, v in d.items()} sorted_d =  
dict(sorted(d1.items(), key=lambda x: x[1])) for k, v in  
sorted_d.items():  
    print(k, v)
```

|   | Input                        | Expected          | Got               |   |
|---|------------------------------|-------------------|-------------------|---|
| ✓ | 2<br>Gfg 6 7 4<br>Best 7 6 5 | Gfg 17<br>Best 18 | Gfg 17<br>Best 18 | ✓ |
| ✓ | 2<br>Gfg 6 6<br>Best 5 5     | Best 10<br>Gfg 12 | Best 10<br>Gfg 12 | ✓ |

**Ex. No. : 8.2**

**Date: 25.05.24**

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### **Student Record**

Create a student dictionary for n students with the student name as key and their test mark assignment mark and lab mark as values. Do the following computations and display the result.

1. Identify the student with the highest average score
2. Identify the student who has the highest Assignment marks
3. Identify the student with the Lowest lab marks
4. Identify the student with the lowest average score

Note: If more than one student has the same score display all the student names

Sample input:

4

James 67 89 56

Lalith 89 45 45

Ram 89 89 89

Sita 70 70 70

Sample Output:

Ram

James Ram

Lalith

Lalith

**For example:**

| Input           | Result    |
|-----------------|-----------|
| 4               | Ram       |
| James 67 89 56  | James Ram |
| Lalith 89 45 45 | Lalith    |
| Ram 89 89 89    | Lalith    |
| Sita 70 70 70   |           |

**Program:**

```
n=int(input()) d={} for i in range(n):
```

```
na=input().split()
```

```
d[na[0]]=int(na[1]),int(na[2]),int(na[3])
```

```
l=int(na[3])
```

```
h=0 for i in d:
```

```
if h< sum(d[i]):
```

```
h=sum(d[i])
```

```
    j=i
```

```
    h1=sum(d[i])
```

```
print(j) h=0
```

```
for i in d:
```

```
if(h<d[i][1]):
```

```
h=d[i][1]    j=i
```

```
for i in d:
```

```
if(h==d[i][1]):
```

```

print(i,end=" ")
l1=[] k=[] print()
for i in d:
    if(l>d[i][2]):
        l=d[i][2]      j=i
for i in d:
    if(l==d[i][2]):
        l1.append(i) for i in
range(-1,-len(l1)-1,-
1):
    print(l1[i],end=" ") print()

```

```

for i in d:
    if h1> sum(d[i]):
h1=sum(d[i])
    j=i print(j)

```

|   | Input   | Expected                                   | Got  |   |
|---|---|--|--|---|
| ✓ | 4<br>James 67 89 56<br>Lalith 89 45 45<br>Ram 89 89 89<br>Sita 70 70 70 | Ram<br>James Ram<br>Lalith<br>Lalith       | Ram<br>James Ram<br>Lalith<br>Lalith       | ✓ |
| ✓ | 3<br>Raja 95 67 90<br>Aarav 89 90 90<br>Shadhana 95 95 91               | Shadhana<br>Shadhana<br>Aarav Raja<br>Raja | Shadhana<br>Shadhana<br>Aarav Raja<br>Raja | ✓ |



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Ex. No. : 8.3

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## Scramble Score

In the game of Scrabble™, each letter has points associated with it. The total score of a word is the sum of the scores of its letters. More common letters are worth fewer points while less common letters are worth more points.

Write a program that computes and displays the Scrabble™ score for a word. Create a dictionary that maps from letters to point values. Then use the dictionary to compute the score.

A Scrabble™ board includes some squares that multiply the value of a letter or the value of an entire word. We will ignore these squares in this exercise. The points associated with each letter are shown below:

Points Letters

1 A, E, I, L, N, O, R, S, T and U

2 D and G

3 B, C, M and P

4 F, H, V, W and Y

5 K

8 J and X

10 Q and Z

Sample Input

REC

Sample Output

REC is worth 5 points.

**For example:**

| Input | Result                 |
|-------|------------------------|
| REC   | REC is worth 5 points. |

**Program:** def

```
calculate_scrabble_score(word):  #
```

Dictionary mapping letters to points

```
letter_points = {  
    'A': 1, 'B': 3, 'C': 3, 'D': 2, 'E': 1, 'F': 4, 'G': 2, 'H': 4,  
    'I': 1, 'J': 8, 'K': 5, 'L': 1, 'M': 3, 'N': 1, 'O': 1, 'P': 3,  
    'Q': 10, 'R': 1, 'S': 1, 'T': 1, 'U': 1, 'V': 4, 'W': 4, 'X': 8,  
    'Y': 4, 'Z': 10  
}
```

```
    score = 0    for
```

```
    letter in word:
```

```
        letter = letter.upper()
```

```
        score += letter_points.get(letter, 0) # Add the points for each letter, defaulting to 0 if not  
found
```

```
    return score
```

```
word=input()
```

```
score = calculate_scrabble_score(word) print(f'{word}
```

```
is worth {score} points.")
```

|   | Input | Expected               | Got                    |   |
|---|-------|------------------------|------------------------|---|
| ✓ | GOD   | GOD is worth 5 points. | GOD is worth 5 points. | ✓ |
| ✓ | REC   | REC is worth 5 points. | REC is worth 5 points. | ✓ |

**Ex. No. : 8.4**



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## Uncommon words

A sentence is a string of single-space separated words where each word consists only of lowercase letters. A word is uncommon if it appears exactly once in one of the sentences, and does not appear in the other sentence.

Given two sentences  $s_1$  and  $s_2$ , return a list of all the uncommon words. You may return the answer in any order.

Example 1:

Input:  $s_1$  = "this apple is sweet",  $s_2$  = "this apple is sour"

Output: ["sweet","sour"] Example

2:

Input:  $s_1$  = "apple apple",  $s_2$  = "banana"

Output: ["banana"]

Constraints:

$1 \leq s_1.length, s_2.length \leq 200$   $s_1$  and  $s_2$  consist of lowercase English letters and spaces.

$s_1$  and  $s_2$  do not have leading or trailing spaces.

All the words in  $s_1$  and  $s_2$  are separated by a single space.

Note:

Use dictionary to solve the problem **For example:**

| Input                                     | Result     |
|---|------------|
| this apple is sweet<br>this apple is sour | sweet sour |

**Program:**

```

s1 = input().split()
s2 = input().split()
d = {}
for i in s1:
    if i not in d:
        d[i] = 1
    else:
        d[i] += 1
for i in s2:
    if i not in d:
        d[i] = 1
    else:
        d[i] += 1
for i in d:
    if d[i] == 1:
        print(i, end=" ")

```

|   | Input                                     | Expected   | Got        |   |
|---|---|------------|------------|---|
| ✓ | this apple is sweet<br>this apple is sour | sweet sour | sweet sour | ✓ |
| ✓ | apple apple<br>banana                     | banana     | banana     | ✓ |

**Ex. No. : 8.5**

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## Winner of Election

Given an array of names of candidates in an election. A candidate name in the array represents a vote cast to the candidate. Print the name of candidates received Max vote. If there is tie, print a lexicographically smaller name.

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**Examples:**

Input : votes[] = {"john", "johnny", "jackie",  
                   "johnny", "john", "jackie",  
                   "jamie", "jamie", "john",  
                   "johnny", "jamie", "johnny",  
                   "john"};

Output : John

We have four Candidates with name as 'John', 'Johnny', 'jamie', 'jackie'. The candidates John and Johnny get maximum votes. Since John is alphabetically smaller, we print it. Use dictionary to solve the above problem

**Sample Input:**

10  
 John  
 John  
 Johny  
 Jamie  
 Jamie  
 Johny  
 Jack  
 Johny  
 Johny  
 Jackie

**Sample Output:**

Johny

**For example:**

| Input      | Result |
|------------|--------|
| 10<br>John | Johny  |
| Input      | Result |

|        |  |
|--------|--|
| John   |  |
| Johnny |  |
| Jamie  |  |
| Jamie  |  |
| Johnny |  |
| Jack   |  |
| Johnny |  |
| Johnny |  |
| Jackie |  |

### Program:

```
n=int(input()) d={}
```

```
for i in range(n):
```

```
    s=input()    if s
```

```
    not in d:
```

```
        d[s]=1    else:
```

```
        d[s]+=1
```

```
h=0
```

```
for i in d:
```

```
    if h<d[i]:
```

```
        h=d[i]
```

```
j=i print(j)
```

|   | Input  | Expected | Got    |   |
|---|--|----------|--------|---|
| ✓ | 10<br>John<br>John<br>Johnny<br>Jamie<br>Jamie<br>Johnny<br>Jack<br>Johnny<br>Johnny<br>Jackie | Johnny   | Johnny | ✓ |
| ✓ | 6<br>Ida<br>Ida<br>Ida<br>Kiruba<br>Kiruba<br>Kiruba   | Ida      | Ida    | ✓ |