

## 08 – Dictionary

Ex. No. : 8.1

Date: 25.05.24

Register No.:231801118

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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
<i>2</i> <i>Gfg 6 7 4</i> <i>Best 7 6 5</i>	<i>Gfg 17</i> <i>Best 18</i>

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 Gfg 6 7 4 Best 7 6 5	Gfg 17 Best 18	Gfg 17 Best 18	✓
✓	2 Gfg 6 6 Best 5 5	Best 10 Gfg 12	Best 10 Gfg 12	✓

Ex. No. : 8.2

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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 James 67 89 56 Lalith 89 45 45 Ram 89 89 89 Sita 70 70 70	Ram James Ram Lalith Lalith	Ram James Ram Lalith Lalith	✓
✓	3 Raja 95 67 90 Aarav 89 90 90 Shadhana 95 95 91	Shadhana Shadhana Aarav Raja Raja	Shadhana Shadhana Aarav Raja Raja	✓

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
<i>REC</i>	<i>REC is worth 5 points.</i>

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  $s1$  and  $s2$ , return a list of all the uncommon words. You may return the answer in any order.*

*Example 1:*

*Input:  $s1$  = "this apple is sweet",  $s2$  = "this apple is sour"*

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

*Example 2:*

*Input:  $s1$  = "apple apple",  $s2$  = "banana"*

*Output: ["banana"]*

*Constraints:*

*$1 \leq s1.length, s2.length \leq 200$*

*$s1$  and  $s2$  consist of lowercase English letters and spaces.*

*$s1$  and  $s2$  do not have leading or trailing spaces.*

*All the words in  $s1$  and  $s2$  are separated by a single space.*

*Note:*

*Use dictionary to solve the problem*

For example:

Input	Result
<i>this apple is sweet this apple is sour</i>	<i>sweet sour</i>

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 this apple is sour	sweet sour	sweet sour	✓
✓	apple apple 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.*

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 Johny 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 <i>John</i> <i>John</i> <i>Johny</i> <i>Jamie</i> <i>Jamie</i> <i>Johny</i> <i>Jack</i> <i>Johny</i> <i>Johny</i> <i>Jackie</i>	<i>Johny</i>

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 John John Johny Jamie Jamie Johny Jack Johny Johny Jackie	Johny	Johny	✓
✓	6 Ida Ida Ida Kiruba Kiruba Kiruba	Ida	Ida	✓