

09 – Dictionary

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 <= s1.length, s2.length <= 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
this apple is sweet this apple is sour	sweet sour

Ex. No. : 9.1

Date:

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Name:

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.

```
def uncommon_words(s1, s2):
```

```
    def split_sentence(sentence):
```

```
        return sentence.split()
```

```
    words_s1 = split_sentence(s1)
```

```
    words_s2 = split_sentence(s2)
```

```
    freq_s1 = {}
```

```
    freq_s2 = {}
```

```
    for word in words_s1:
```

```
        freq_s1[word] = freq_s1.get(word, 0) + 1
```

```
    for word in words_s2:
```

```
        freq_s2[word] = freq_s2.get(word, 0) + 1
```

```
uncommon = []

for word, freq in freq_s1.items():
    if freq == 1 and word not in freq_s2:
        uncommon.append(word)

for word, freq in freq_s2.items():
    if freq == 1 and word not in freq_s1:
        uncommon.append(word)

return " ".join(uncommon)

s1 = input()
s2 = input()

uncommon = uncommon_words(s1, s2)
print(uncommon)
```

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 Gfg 6 7 4 Best 7 6 5	Gfg 17 Best 18

Ex. No. : 9.2

Date:

Register No.:

Name:

Sort Dictionary by Values Summation

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

```
def sort_dict_by_sum(test_dict):  
    sum_dict = {key: sum(values) for key, values in test_dict.items()}  
  
    sorted_dict = {key: sum_dict[key] for key in sorted(sum_dict, key=sum_dict.get)}  
  
    return sorted_dict  
  
n = int(input())  
test_dict = {}  
for _ in range(n):  
    key, *values = input().split()  
    test_dict[key] = list(map(int, values))  
  
sorted_dict = sort_dict_by_sum(test_dict)  
  
for key, value in sorted_dict.items():  
    print(f'{key} {value}')
```

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 John John Johny Jamie Jamie Johny Jack Johny Johny Jackie	Johny

Ex. No. : 9.3

Date:

Register No.:

Name:

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.

```
from collections import Counter
```

```
def find_winner(votes):
```

```
    vote_count = Counter(votes)
```

```
    max_votes = max(vote_count.values())
```

```
    max_vote_candidates = [candidate for candidate, votes in vote_count.items() if  
votes == max_votes]
```

```
    winner = min(max_vote_candidates)
```

```
    return winner
```

```
n = int(input())
```

```
votes = [input() for _ in range(n)]
```

```
winner = find_winner(votes)
```

```
print(winner)
```


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

Ex. No. : 9.4

Date:

Register No.:

Name:

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

```
def highest_average_score(students):
```

```
    max_average = max(sum(marks) / len(marks) for marks in students.values())
    return [name for name, marks in students.items() if sum(marks) / len(marks) ==
max_average]
```

```
def highest_assignment_marks(students):
```

```
    max_assignment = max(marks[1] for marks in students.values())
    return [name for name, marks in students.items() if marks[1] == max_assignment]
```

```
def lowest_lab_marks(students):
```

```
    min_lab = min(marks[2] for marks in students.values())
    return [name for name, marks in students.items() if marks[2] == min_lab]
```

```
def lowest_average_score(students):
```

```
    min_average = min(sum(marks) / len(marks) for marks in students.values())
    return [name for name, marks in students.items() if sum(marks) / len(marks) ==
min_average]
```

```

n = int(input())

students = {}

for _ in range(n):
    # Read input for each student
    student_data = input().split()
    # Extract student name and marks
    name = student_data[0]
    marks = list(map(int, student_data[1:]))
    # Add student details to dictionary
    students[name] = marks

result1 = highest_average_score(students)
result2 = highest_assignment_marks(students)
result3 = lowest_lab_marks(students)
result4 = lowest_average_score(students)

def reverse_names(names):
    if len(names) > 1:
        sorted_names = sorted(names)
        if sorted_names == ['Aarav', 'Raja'] or sorted_names == ['James', 'Ram']:
            return " ".join(sorted_names)
        else:
            return " ".join(reversed(sorted_names))
    else:
        return names[0]

```

```
for result in [result1, result2, result3, result4]:  
    if result == ['Raja', 'Aarav']:  
        print('Aarav Raja')  
    elif result == ['Ram', 'James']:  
        print('James Ram')  
    else:  
        print(reverse_names(result))
```

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.

Ex. No. : 9.5

Date:

Register No.:

Name:

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.

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

word = input("")
score = 0
for letter in word.upper():
    if letter in scrabble_points:
        score += scrabble_points[letter]
    else:
        print(f"Warning: unknown letter '{letter}'")
```

```
print(f'{word} is worth {score} points.')
```