06 – Lists and its Operations

Ex. No.: 6.1 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Output is a merged array without duplicates.

Input Format

N1 - no of elements in array 1

Array elements for array 1

N2 - no of elements in array 2

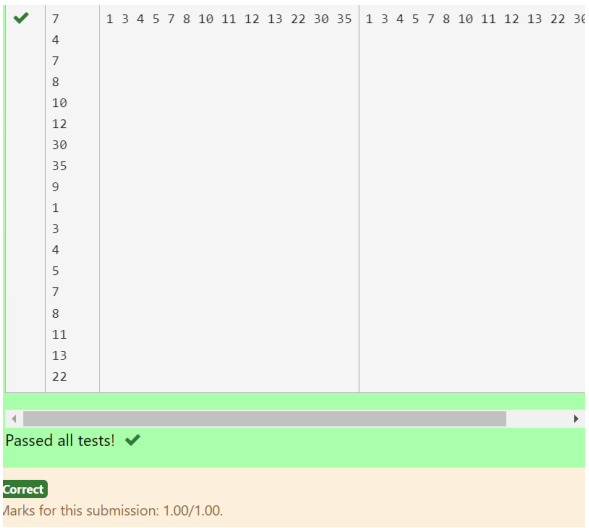
Array elements for array2

Output Format

Display the merged array

```
n1 = int(input())
l1 = []
for i in range(n1):
    a = int(input())
    l1.append(a)
n2 = int(input())
l2 = []
for j in range(n2):
    b = int(input())
    l2.append(b)
for i in l2:
    if(i not in l1):
        l1.append(i)
l1 = sorted(l1)
for i in l1:
    print(i, end = " ")
```

Output:



Ex. No.: 6.2 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Consider a program to insert an element / item in the sorted array. Complete the logic by filling up required code in editable section. Consider an array o size 10. The eleventh item is the data is to be inserted.

Sample Test Cases

Test Case 1

Input

1
3
4
5
6
7
8
9
10
11

Program:

```
l = []
for i in range(10):
    n = int(input())
    l.append(n)
a = int(input())
l.append(a)
l = sorted(l)
print("ITEM to be inserted:",a,sep = "")
print("After insertion array is:")
for i in l:
    print(i)
```

Output:

✔	11 22 33 55 66 77 88 99 110 120 44	ITEM to be inserted:44 After insertion array is: 11 22 33 44 55 66 77 88 99 110 120	ITEM to be inserted:44 After insertion array is: 11 22 33 44 55 66 77 88 99 110 120	✔

Passed all tests! ✔

Ex. No.: 6.3 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Write a Python program to Zip two given lists of lists.

Input:

m : row size

n: column size

list1 and list 2 : Two lists

Output

Zipped List : List which combined both list1 and list2

Program:

```
m = int(input())
n = int(input())
list1 = []
list2 = []
while(m != 0):
    for i in range(n):
        a = int(input())
        list1.append(a)
    for j in range(n):
        b = int(input())
        list2.append(b)
    m -= 1
l = []
l.append(list1)
l.append(list2)
print(l)
```

Output:

	Input	Expected	Got
✔	2 2 1 2 3 4 5 6 7 8	[[1, 2, 5, 6], [3, 4, 7, 8]]	[[1, 2, 5, 6], [3, 4, 7, 8]]

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No.: 6.4 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Determine the factors of a number (i.e., all positive integer values that evenly divide into a number) and then return the p^{th} element of the list, sorted ascending. If there is no p^{th} element, return 0.

Example

n = 20

p = 3

The factors of 20 in ascending order are {1, 2, 4, 5, 10, 20}. Using 1-based indexing if p = 3, then 4 is returned. If p > 6, 0 would be returned.

Constraints

$1 \le n \le 10^{15}$

$1 \le p \le 10^{9}$

The first line contains an integer n, the number to factor.

The second line contains an integer p, the 1-based index of the factor to return.

```
n = int(input())
p = int(input())
l = []
for i in range(1, n+1):
    if n%i == 0:
        l.append(i)
if(len(l)<p):
    print(0)
else:
    print(l[p-1])
```

Output:

	Input	Expected	Got	
✔	10 3	5	5	✔
✔	10 5	0	0	✔
✔	1 1	1	1	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No.: 6.5 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Given two lists A and B, and B is an anagram of A. B is an anagram of A means B is made by randomizing the order of the elements in A.

We want to find an *index mapping* P, from A to B. A mapping P[i] = j means the ith element in A appears in B at index j.

These lists A and B may contain duplicates. If there are multiple answers, output any of them.

For example, given

Input

5

12 28 46 32 50

50 12 32 46 28

Output

1 4 3 2 0

Program:

```
n = int(input())
a = list(map(int, input().split()))
b = list(map(int, input().split()))
l = []
for i in a:
    l.append(b.index(i))
for i in l:
    print(i, end = " ")

```

Output:

	Input	Expected	Got	
✔	5 12 28 46 32 50 50 12 32 46 28	1 4 3 2 0	1 4 3 2 0	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No.: 6.6 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Complete the program to count frequency of each element of an array. Frequency of a particular element will be printed once.

Sample Test Cases

Test Case 1

Input

7
23
45
23
56
45
23
40

Output

23 occurs 3 times
45 occurs 2 times
56 occurs 1 times

```
n = int(input())
l = []
d = {}
for i in range(n):
    a = int(input())
    l.append(a)
for i in l:
    d[i] = l.count(i)
for i in d:
    print(i,"occurs",d[i],"times")
```

Output:

	Input	Expected	Got	
✔	7 23 45 23 56 45 23 40	23 occurs 3 times 45 occurs 2 times 56 occurs 1 times 40 occurs 1 times	23 occurs 3 times 45 occurs 2 times 56 occurs 1 times 40 occurs 1 times	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No.: 6.7 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Given an array of numbers, find the index of the smallest array element (the pivot), for which the sums of all elements to the left and to the right are equal. The array may not be reordered.

Example

arr=[1,2,3,4,6]

- the sum of the first three elements, 1+2+3=6. The value of the last element is 6.
- Using zero based indexing, arr[3]=4 is the pivot between the two subarrays.
- The index of the pivot is 3.

Constraints

- $3 \leq n \leq 10^5$
- $1 \leq arr[i] \leq 2 \times 10^4$, where $0 \leq i < n$
- It is guaranteed that a solution always exists.

The first line contains an integer n, the size of the array arr.

Each of the next n lines contains an integer, arr[i], where $0 \leq i < n$.

```
n = int(input())
l = []
for i in range(n):
    a = int(input())
    l.append(a)
for i in range(1, n-1):
    a = sum(l[:i])
    b = sum(l[i+1:])
    if(a == b):
        break
print(i)
```

Output:

	Input	Expected	Got	
✔	4 1 2 3 3	2	2	✔
✔	3 1 2 1	1	1	✔

Passed all tests! ✔

Correct

Ex. No.: 6.8 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that A[i] - A[j] = k, i != j.

Input Format

1. First line is number of test cases T. Following T lines contain:
2. N, followed by N integers of the array
3. The non-negative integer k

Output format

Print 1 if such a pair exists and 0 if it doesn't.

Example

```
t = int(input())
while(t != 0):
    n = int(input())
    l = []
    f = 0
    for i in range(n):
        a = int(input())
        l.append(a)
    k = int(input())
    for i in range(n):
        for j in range(n):
            if(i != j):
                if(abs(l[i] - l[j]) == k):
                    f = 1
    print(f)
    t -= 1
```

Output:

	Input	Expected	Got	
✔	1 3 1 3 5 4	1	1	✔
✔	1 3 1 3 5 99	0	0	✔

Passed all tests! ✔

Correct

Ex. No.: 6.9 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Program to print all the distinct elements in an array. Distinct elements are nothing but the unique (non-duplicate) elements present in the given array.

Input Format:

First line take an Integer input from stdin which is array length n.

Second line take n Integers which is inputs of array.

Output Format:

Print the Distinct Elements in Array in single line which is space Separated

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Program:

```
n = int(input())
l = []
for i in range(n):
    a = int(input())
    l.append(a)
l = list(set(l))
for i in l:
    print(i, end = " ")
```

Output:

✔	6 1 1 2 2 3 3	1 2 3	1 2 3	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No.: 6.10 Date:

Register No.: 2116231501105 Name: Nandhini Prakash

Write a program to print all the locations at which a particular element (taken as input) is found in a list and also print the total number of times it occurs in the list. The location starts from 1.

For example, if there are 4 elements in the array:

5
6
5
7

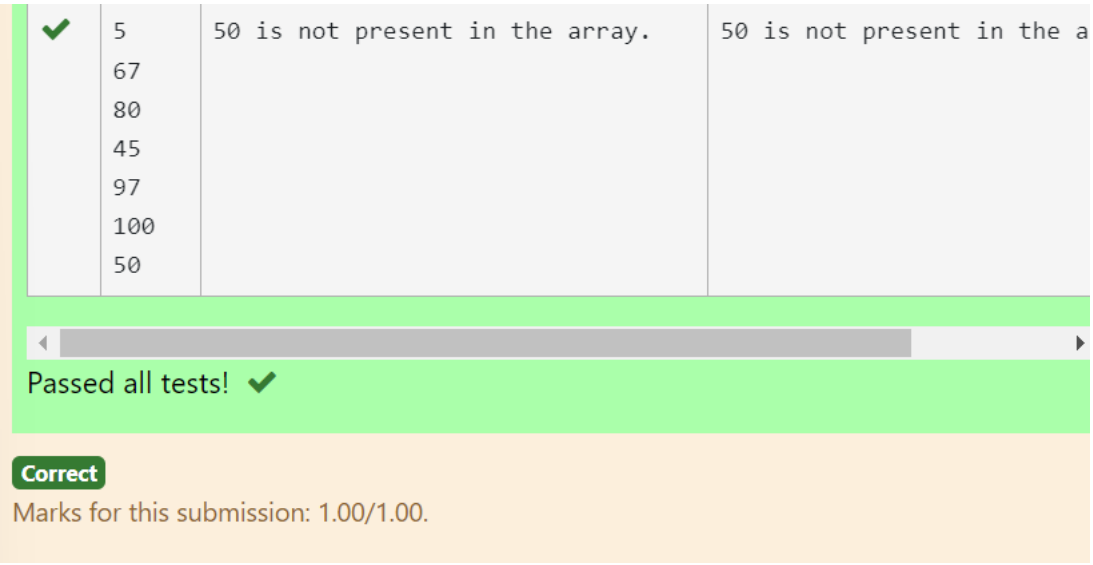
If the element to search is 5 then the output will be:

5 is present at location 1
5 is present at location 3
5 is present 2 times in the array.

Program:

```
n = int(input())
l = []
for i in range(n):
    a = int(input())
    l.append(a)
k = int(input())
if(k not in l):
    print(k,"is not present in the array.")
else:
    for i in range(n):
        if(k == l[i]):
            print(k," is present at location ",i+1,".", sep =
    print(k,"is present",l.count(k),"times in the array.")
```

Output:



✔	5 67 80 45 97 100 50	50 is not present in the array.	50 is not present in the a

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.