# CS23336-Introduction to Python Programming

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| **State** | Finished |
| **Completed on** | Wednesday, 6 November 2024, 9:29 PM |
| **Time taken** | 41 mins 10 secs |
| **Marks** | 10.00/10.00 |
| **Grade** | **100.00** out of 100.00 |

## Question 1

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

Two string values S1, S2 are passed as the input. The program must print first N characters present in S1 which are also present in S2.

**Input Format:**

The first line contains S1.
The second line contains S2.
The third line contains N.

**Output Format:**

The first line contains the N characters present in S1 which are also present in S2.

**Boundary Conditions:**

2 <= N <= 10
2 <= Length of S1, S2 <= 1000

**Example Input/Output 1:**

Input:

abcbde
cdefghbb
3

Output:

bcd

**Note:**

b occurs twice in common but must be printed only once.

Answer:(penalty regime: 0 %)

```
a=input()
b=input()
c=int(input())
d=""
count=0
for i in a:
    if count>=c:
        break
    if i in b and i not in d:
        d+=i
        count+=1
print(d)
```

**Feedback**

| Input | Expected | Got |
|---|---|---|
| abcbde<br>cdefghbb bcd<br>3 | bcd | |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

## Question 2

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

Given an array `nums` containing `n` distinct numbers in the range `[0, n]`, return *the only number in the range that is missing from the array.*

**Example 1:**

```
Input: nums = [3,0,1]
Output: 2
Explanation: n = 3 since there are 3 numbers, so all numbers are in the range [0,3]. 2 is the missing number in the range since it does not appear in nums.
```

**Example 2:**

```
Input: nums = [0,1]
Output: 2
Explanation: n = 2 since there are 2 numbers, so all numbers are in the range [0,2]. 2 is the missing number in the range since it does not appear in nums.
```

**Example 3:**

```
Input: nums = [9,6,4,2,3,5,7,0,1]
Output: 8
Explanation: n = 9 since there are 9 numbers, so all numbers are in the range [0,9]. 8 is the missing number in the range since it does not appear in nums.
```

For example:

| Test | Result |
|---|---|
| `print(missingNumber([3,0,1]))` | 2 |
| `print(missingNumber([0,1]))` | 2 |

Answer:(penalty regime: 0 %)

Reset answer

```
def missingNumber(n):
    count=0
    flag=0
    p=len(n)-1
    for i in range(p):
        count+=1
        if count not in n:
            flag=1
        if flag==1:
            break
    if flag==1:
        return count
    else:
        return n[p]+1
```

**Feedback**

| Test | Expected | Got |
|---|---|---|
| `print(missingNumber([3,0,1]))` | 2 | 2 |
| `print(missingNumber([0,1]))` | 2 | 2 |

| | | |
|---|---|---|
| `print(missingNumber([9,6,4,2,3,5,7,0,1]))` | `8` | `8` |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

## Question 3

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

String should contain only the words are not palindrome.

**Sample Input 1**

```
Malayalam is my mother tongue
```

**Sample Output 1**

```
is my mother tongue
```

Answer:(penalty regime: 0 %)

```
a=input().split(' ')
c=""
for i in a:
    i=i.lower()
    if i!=i[::-1]:
        c+=i+" "
print(c)
```

**Feedback**

| Input | Expected | Got |
|---|---|---|
| `Malayalam is my mother tongue` | `is my mother tongue` | `is my mother tongue` |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

## Question 4

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

Given an array of integers `nums` which is sorted in ascending order, and an integer `target`, write a function to search `target` in `nums`. If `target` exists, then return its index. Otherwise, return `-1`.

You must write an algorithm with `O(log n)` runtime complexity.

**Example 1:**

```
Input: nums = [-1,0,3,5,9,12], target = 9
Output: 4
Explanation: 9 exists in nums and its index is 4
```

**Example 2:**

**Input:** nums = [-1,0,3,5,9,12], target = 2
**Output:** -1
**Explanation:** 2 does not exist in nums so return -1

**Constraints:**

- 1 <= nums.length <= $10^4$
- $-10^4$ < nums[i], target < $10^4$
- All the integers in nums are **unique**.
- nums is sorted in ascending order.

For example:

| Test | Result |
|---|---|
| print(search([-1,0,3,5,9,12],9)) | 4 |

Answer:(penalty regime: 0 %)

Reset answer

```
def search(n: list[int], t: int) -> int:
    count=0
    flag=0
    for i in range(len(n)):
        if n[i]==t:
            count=i
            flag=1
            break
    if flag==1:
        return count
    else:
        return -1
```

**Feedback**

| Test | Expected | Got |
|---|---|---|
| print(search([-1,0,3,5,9,12],9)) | 4 | 4 |
| print(search([-1,0,3,5,9,12],2)) | -1 | -1 |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

## Question 5

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

Balanced strings are those that have an equal quantity of 'L' and 'R' characters.

Given a balanced string s, split it in the maximum amount of balanced strings.

Return the maximum amount of split balanced strings.

Example 1:

Input:

RLRRLLRLRL

Output:

4

Explanation: s can be split into "RL", "RRLL", "RL", "RL", each substring contains same number of 'L' and 'R'.

Example 2:

Input:

RLLLLRRRLR

Output:

3

Explanation: s can be split into "RL", "LLLRRR", "LR", each substring contains same number of 'L' and 'R'.

Example 3:

Input:

LLLLRRRR

Output:

1

Explanation: s can be split into "LLLLRRRR".

Constraints:

1 <= s.length <= 1000

s[i] is either 'L' or 'R'.

s is a balanced string.

For example:

| Test | Result |
|---|---|
| `print(BalancedStrings('RLRRLLRLRL'))` | 4 |
| `print(BalancedStrings('RLLLLRRRLR'))` | 3 |

Answer:(penalty regime: 0 %)

Reset answer

```
def BalancedStrings(s,l=0,r=0,count=0):
    for i in s:
        if i=='L':
            l+=1
        elif i=='R':
            r+=1
        if l==r:
            count+=1
    return count
```

**Feedback**

| Test | Expected | Got |
|---|---|---|
| `print(BalancedStrings('RLRRLLRLRL'))` | 4 | 4 |
| `print(BalancedStrings('RLLLLRRRLR'))` | 3 | 3 |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

## Question 6

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

Given an list, find peak element in it. A peak element is an element that is greater than its neighbors.

An element a[i] is a peak element if

A[i-1] <= A[i] >=a[i+1] for middle elements. [0<i<n-1]

A[i-1] <= A[i] for last element [i=n-1]

A[i]>=A[i+1] for first element [i=0]

**Input Format**

The first line contains a single integer n , the length of A .

The second line contains n space-separated integers,A[i].

**Output Format**

**Print** peak numbers separated by space.

**Sample Input**

5

8 9 10 2 6

**Sample Output**

```
10 6
```

For example:

| Input | Result |
|---|---|
| 4<br>12 3 6 8 | 12 8 |

Answer:(penalty regime: 0 %)

```
a=int(input())
b=list(map(int,input().split()))
c=[]
d=len(b)-1
if a>1:
    if b[0]>b[1]:
        c.append(b[0])
    if b[d]>b[d-1]:
        c.append(b[d])
for i in range(1,d-1):
    m=i-1
    n=i+1
    if b[i]>b[m] and b[i]>b[n]:
        c.append(b[i])
c.sort(reverse=True)
print(*c)
```

**Feedback**

| Input | Expected | Got |
|---|---|---|
| 7<br>15 7 10 8 9 4 6 | 15 10 9 6 | 15 10 9 6 |
| 4<br>12 3 6 8 | 12 8 | 12 8 |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

## Question 7

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

Write a Python program for binary search.

For example:

| Input | Result |
|---|---|
| 1,2,3,5,8<br>6 | False |
| 3,5,9,45,42<br>42 | True |

Answer:(penalty regime: 0 %)

```
a=list(map(int,input().split(',')))
b=int(input())
c=0
flag=0
d=len(a)
a.sort()
```

```
while c<=d:
    p=(c+d)//2
    if a[p]==b:
        print("True")
        flag=1
        break
    elif b<a[p]:
        d=p
    else:
        c=p+1
if flag==0:
    print("False")
```

**Feedback**

| Input | Expected | Got |
|---|---|---|
| 1,2,3,5,8<br>6 | False | False |
| 3,5,9,45,42<br>42 | True | True |
| 52,45,89,43,11<br>11 | True | True |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

## Question 8

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

Given two Strings s1 and s2, remove all the characters from s1 which is present in s2.

**Constraints**

1<= string length <= 200

**Sample Input 1**

experience

enc

**Sample Output 1**

xpri
Answer:(penalty regime: 0 %)

```
a=input()
b=input()
c=""
for i in a:
    if i not in b:
        c+=i
print(c)
```

**Feedback**

| Input | Expected | Got |
|---|---|---|
| experience<br>enc | xpri | xpri |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

## Question 9

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

You are given an `m x n` integer matrix `matrix` with the following two properties:

- Each row is sorted in non-decreasing order.
- The first integer of each row is greater than the last integer of the previous row.

Given an integer `target`, return `True` *if* `target` *is in* `matrix` *or* `False` *otherwise*.

You must write a solution in `O(log(m * n))` time complexity.

**Example 1:**

```
Input: matrix = [[1,3,5,7],[10,11,16,20],[23,30,34,60]], target = 3
Output: True
```

**Example 2:**

```
Input: matrix = [[1,3,5,7],[10,11,16,20],[23,30,34,60]], target = 13
Output: False
```

For example:

| Test | Result |
|---|---|
| `print(searchMatrix([[1,3,5,7],[10,11,16,20],[23,30,34,60]], 13))` | `False` |
| `print(searchMatrix([[1,3,5,7],[10,11,16,20],[23,30,34,60]], 3))` | `True` |

Answer:(penalty regime: 0 %)

Reset answer

```
def searchMatrix(m: list[list[int]], target: int) -> bool:
    for i in range(len(m)):
        for j in range(len(m)):
            if m[i][j]==target:
                return True
    return False
```

**Feedback**

| Test | Expected | Got |
|---|---|---|
| `print(searchMatrix([[1,3,5,7],[10,11,16,20],[23,30,34,60]], 13))` | `False` | `False` |
| `print(searchMatrix([[1,3,5,7],[10,11,16,20],[23,30,34,60]], 3))` | `True` | `True` |

Passed all tests!

Correct

Marks for this submission: 1.00/1.00.

## Question 10

Correct
Mark 1.00 out of 1.00
Flag question

**Question text**

An list contains N numbers and you want to determine whether two of the numbers sum to a given number K. For example, if the input is 8, 4, 1, 6 and K is 10, the answer is yes (4 and 6). A number may be used twice.

**Input Format**

The first line contains a single integer n , the length of list

The second line contains n space-separated integers, list[i].

The third line contains integer k.

**Output Format**

Print Yes or No.

**Sample Input**

7

0 1 2 4 6 5 3

1

**Sample Output**

Yes

For example:

| Input | Result |
|---|---|
| 5<br>8 9 12 15 3<br>11 | Yes |
| 6<br>2 9 21 32 43 43 1<br>4 | No |

Answer:(penalty regime: 0 %)

```
a=int(input())
p=input()
b=list(map(int,p.split()))
count=0
c=int(input())
for i in range(len(b)):
    for j in range(i+1,len(b)):
        if (b[i]+b[j])==c:
            print("Yes")
            count=1
            break
    if count==1:
        break
if count==0:
    print("No")
```

**Feedback**

| Input | Expected | Got |
|---|---|---|
| 5<br>8 9 12 15 3<br>11 | Yes | Yes |
| 6<br>2 9 21 32 43 43 1<br>4 | No | No |
| 6<br>13 42 31 4 8 9 | Yes | Yes |

Passed all tests!

Correct
Marks for this submission: 1.00/1.00.

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