

# Rajalakshmi Engineering College

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## NeoColab\_REC\_CS23221\_Python Programming

### REC\_Python\_Week 3\_CY

Attempt : 1  
Total Mark : 30  
Marks Obtained : 21

### Section 1 : Coding

#### 1. Problem Statement

Write a program to check if a given string is perfect.

A perfect string must satisfy the following conditions:

The string starts with a consonant. The string alternates between consonants and vowels. Each consonant appears exactly once. Vowels can occur consecutively multiple times but should not be followed immediately by a consonant.

If the string satisfies all these conditions, print "True"; otherwise, print "False".

#### ***Input Format***

The input consists of a string.

### **Output Format**

The output prints "True" if the string is perfect. Otherwise, print "False".

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: capacitor

Output: True

### **Answer**

```
# You are using Python
def is_vowel(ch):
    return ch in 'aeiou'
s=input().strip()
if is_vowel(s[0]):
    print("False")
else:
    consonants_seen=set()
    i=0
    n=len(s)
    vowel_started=False
    perfect=True
    while i<n:
        if not is_vowel(s[i]):
            if vowel_started:
                perfect=False
                break
            if s[i] in consonants_seen:
                perfect=False
                break
            consonants_seen.add(s[i])
        else:
            vowel_started=True
        i+=1
    print("True" if perfect else "False")
```

**Status :** Partially correct

**Marks :** 1/10

## 2. Problem Statement

Gina is working on a data analysis task where she needs to extract sublists from a given list of integers and find the median of each sublist. For each median found, she also needs to determine its negative index in the original list.

Help Gina by writing a program that performs these tasks.

Note: The median is the middle value in the sorted list of numbers, or the first value of the two middle values if the list has an even number of elements.

### Example

#### Input

10

1 2 3 4 5 7 8 9 10 11

3

1 5

2 6

3 10

#### Output

3 : -8

4 : -7

7 : -5

### Explanation

For the first range (1 to 5), the sublist is [1, 2, 3, 4, 5]. The median is 3, and its negative index in the original list is -8.

For the second range (2 to 6), the sublist is [2, 3, 4, 5, 7]. The median is 4, and its negative index in the original list is -7.

For the third range (3 to 10), the sublist is [3, 4, 5, 7, 8, 9, 10, 11]. The median is 7, and its negative index in the original list is -5.

### ***Input Format***

The first line of input consists of an integer N, representing the number of elements in the list.

The second line consists of N space-separated integers representing the elements of the list.

The third line consists of an integer R, representing the number of ranges.

The next R lines each consist of two integers separated by space representing the start and end indices (1-based) of the ranges.

### ***Output Format***

The output consists of n lines, displaying "X : Y" where X is the median of the sublist and Y is the negative index in the original list.

Refer to the sample output for the formatting specifications.

### ***Sample Test Case***

```
Input: 10
1 2 3 4 5 7 8 9 10 11
3
1 5
2 6
3 10
Output: 3 : -8
4 : -7
7 : -5
```

### ***Answer***

```
n=int(input())
lst=list(map(int,input().split()))
q=int(input())
ranges=[tuple(map(int,input().split())) for _ in range(q)]
for start,end in ranges:
```

```
sublist=lst[start-1:end]
sorted_sublist=sorted(sublist)
l=len(sorted_sublist)
if l%2==1:
    median=sorted_sublist[l//2]
else:
    median=sorted_sublist[l//2-1]
index_in_original=lst.index(median)
neg_index=index_in_original-n
print(f"{median} : {neg_index}")
```

**Status :** Correct

**Marks :** 10/10

### 3. Problem Statement

You have two strings str1 and str2, both of equal length.

Write a Python program to concatenate the two strings such that the first character of str1 is followed by the first character of str2, the second character of str1 is followed by the second character of str2, and so on.

For example, if str1 is "abc" and str2 is "def", the output should be "adbecf".

#### **Input Format**

The input consists of two strings in each line.

#### **Output Format**

The output displays the concatenated string in the mentioned format.

Refer to the sample output for formatting specifications.

#### **Sample Test Case**

Input: abc

def

Output: adbecf

#### **Answer**

```
# You are using Python
str1=input()
str2=input()
r=""
for a,b in zip(str1,str2):
    r+=a+b
print(r)
```

**Status :** Correct

**Marks :** 10/10

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## NeoColab\_REC\_CS23221\_Python Programming

### REC\_Python\_Week 3\_PAH

Attempt : 1  
Total Mark : 60  
Marks Obtained : 55

### Section 1 : Coding

#### 1. Problem Statement

Imagine you are developing a text analysis tool for a cybersecurity company. Your task is to analyze input strings to categorize and count the characters into four categories: uppercase letters, lowercase letters, digits, and special characters. The company needs this tool to process log files and identify potential security threats.

#### ***Input Format***

The input consists of the log entry provided as a single string.

#### ***Output Format***

The output consists of four lines:

The first line contains an integer representing the count of uppercase letters in the format "Uppercase letters: {uppercase count}".

The second line contains an integer representing the count of lowercase letters in the format "Lowercase letters: {lowercase count}"

The third line contains an integer representing the count of digits in the format "Digits: {digits count}"

The fourth line contains an integer representing the count of special characters in the format "Special characters: {special characters count}"

Refer to the sample output for the formatting specifications.

### **Sample Test Case**

Input: Hello123

Output: Uppercase letters: 1

Lowercase letters: 4

Digits: 3

Special characters: 0

### **Answer**

# You are using Python

```
str1=input()
```

```
a,b,c,d=0,0,0,0
```

```
for i in str1:
```

```
    if i.isupper():
```

```
        a+=1
```

```
    elif i.islower():
```

```
        b+=1
```

```
    elif i.isdigit():
```

```
        c+=1
```

```
    else :
```

```
        d+=1
```

```
print("Uppercase letters:",a)
```

```
print("Lowercase letters:",b)
```

```
print("Digits:",c)
```

```
print("Special characters:",d)
```

**Status :** Correct

**Marks :** 10/10



## 2. Problem Statement

Gowri was doing her homework. She needed to write a paragraph about modern history. During that time, she noticed that some words were repeated repeatedly. She started counting the number of times a particular word was repeated.

Your task is to help Gowri to write a program to get a string from the user. Count the number of times a word is repeated in the string.

Note: Case-sensitive

### ***Input Format***

The first line of input consists of a string, str1.

The second line consists of a single word that needs to be counted, str2.

### ***Output Format***

The output displays the number of times the given word is in the string.

If the second string str2 is not present in the first string str1, it prints 0.

Refer to the sample output for the formatting specifications.

### ***Sample Test Case***

Input: I felt happy because I saw the others were happy and because I knew I should feel happy

happy

Output: 3

### ***Answer***

```
# You are using Python
str1=input()
str2=input()
words=str1.split()
count=words.count(str2)
print(count)
```

Status : Partially correct

Marks : 5/10

### 3. Problem Statement

Kyara is analyzing a series of measurements taken over time. She needs to identify all the "peaks" in this list of integers.

A peak is defined as an element that is greater than its immediate neighbors. Boundary elements are considered peaks if they are greater than their single neighbor.

Your task is to find and list all such peaks using list comprehension.

#### Example

Input

1 3 2 4 1 5 7 6 10 2 8

Output

Peaks: [3, 4, 7, 10, 8]

#### Explanation

3 is a peak because it's greater than 1 and 2.

4 is a peak because it's greater than 2 and 1.

7 is a peak because it's greater than 5 and 6.

10 is a peak because it's greater than 6 and 2.

8 is a peak because it is an boundary element and it is greater than 2.

#### Input Format

The input consists of several integers separated by spaces, representing the measurements.

#### Output Format

The output displays "Peaks:" followed by a list of integers, representing the peak elements in the list.

Refer to the sample output for the formatting specifications.

### **Sample Test Case**

Input: 1 3 2 4 1 5 7 6 10 2 8

Output: Peaks: [3, 4, 7, 10, 8]

### **Answer**

```
# You are using Python
num=input().split()
peaks=[]
for i in range(1,len(num)-1):
    if int(num[i])>int(num[i-1]) and int(num[i])>int(num[i+1]):
        peaks.append(int(num[i]))
if int(num[-1])> int(num[-2]):
    peaks.append(int(num[-1]))
print("peaks:",peaks)
```

**Status :** Correct

**Marks : 10/10**

## **4. Problem Statement**

Neha is learning string operations in Python and wants to practice using built-in functions. She is given a string A, and her task is to:

Find the length of the string using a built-in function. Copy the content of A into another string B using built-in functionality.

Help Neha implement a program that efficiently performs these operations.

### **Input Format**

The input consists of a single line containing the string A (without spaces).

### **Output Format**

The first line of output prints the length of the given string.

The second line prints the copied string without an extra newline at the end.

Refer to the sample output for the formatting specifications.

### **Sample Test Case**

Input: technology-23

Output: Length of the string: 13

Copied string: technology-23

### **Answer**

```
# You are using Python
str1=input()
str2=str1[:]
print("Length of the string:",len(str1))
print("Copied string:",str2)
```

**Status :** Correct

**Marks : 10/10**

## **5. Problem Statement**

You are tasked with writing a program that takes  $n$  integers as input from the user and stores them in a list. After this, you need to transform the list according to the following rules:

The element at index 0 should be replaced with 0. For elements at even indices (excluding index 0), replace the element with its cube. For elements at odd indices, replace the element with its square.

Additionally, you should sort the list in ascending order before applying these transformations.

### **Input Format**

The first line of input represents the size of the list,  $N$ .

The elements of the list are represented by the next  $N$  lines.

### **Output Format**

The first line of output displays "Original List: " followed by the original list.

The second line displays "Replaced List: " followed by the replacement list as per the given condition.

Refer to the sample output for the formatting specifications.

### **Sample Test Case**

Input: 5

5

1

2

3

4

Output: Original List: [1, 2, 3, 4, 5]

Replaced List: [0, 4, 27, 16, 125]

### **Answer**

# You are using Python

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

```
lst=[]
```

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

```
    num=int(input())
```

```
    lst.append(num)
```

```
lst.sort()
```

```
print("Original List:",lst)
```

```
for i in range(len(lst)):
```

```
    if i==0:
```

```
        lst[i]=0
```

```
    elif i%2==0:
```

```
        lst[i]=lst[i]**3
```

```
    else:
```

```
        lst[i]=lst[i]**2
```

```
print("Replaced List:",lst)
```

**Status :** Correct

**Marks :** 10/10

## **6. Problem Statement**

Accept an unsorted list of length  $n$  with both positive and negative integers, including 0. The task is to find the smallest positive number missing from the array. Assume the  $n$  value is always greater than zero.

### ***Input Format***

The first line consists of  $n$ , which means the number of elements in the array.

The second line consists of the values in the list as space-separated integers.

### ***Output Format***

The output displays the smallest positive number, which is missing from the array.

Refer to the sample output for the formatting specifications.

### ***Sample Test Case***

Input: 6  
-5 2 0 -1 -10 2

Output: 1

### ***Answer***

```
# You are using Python
n=int(input())
arr=input().split()
i=1
while True:
    found=False
    for x in arr:
        if int(x)==i:
            found=True
            break
    if not found:
        print(i)
        break
    i+=1
```

**Status : Correct**

**Marks : 10/10**

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## NeoColab\_REC\_CS23221\_Python Programming

### REC\_Python\_Week 3\_COD

Attempt : 1  
Total Mark : 50  
Marks Obtained : 50

### Section 1 : Coding

#### 1. Problem Statement

Dhruv wants to write a program to slice a given string based on user-defined start and end positions.

The program should check whether the provided positions are valid and then return the sliced portion of the string if the positions are within the string's length.

#### ***Input Format***

The first line consists of the input string as a string.

The second line consists of the start position (0-based index) as an integer.

The third line consists of the end position (0-based index) as an integer.

### **Output Format**

The output displays the following format:

If the start and end positions are valid, print the sliced string.

If the start and end positions are invalid, print "Invalid start and end positions".

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: pythonprogramming

0

5

Output: python

### **Answer**

```
# You are using Python
str1=input()
start=int(input())
end=int(input())
if(0<=start<=end<len(str1)):
    print(str1[start:end+1])
else:
    print("Invalid start and end positions")
```

**Status : Correct**

**Marks : 10/10**

## **2. Problem Statement**

Given a list of positive and negative numbers, arrange them such that all negative integers appear before all the positive integers in the array. The order of appearance should be maintained.

### **Example**

Input:



[12, 11, -13, -5, 6, -7, 5, -3, -6]

Output:

List = [-13, -5, -7, -3, -6, 12, 11, 6, 5]

Explanation:

The output is the arranged list where all the negative integers appear before the positive integers while maintaining the original order of appearance.

### ***Input Format***

The input consists of a single line containing a list of integers enclosed in square brackets separated by commas.

### ***Output Format***

The output displays "List = " followed by an arranged list of integers as required, separated by commas and enclosed in square brackets.

Refer to the sample output for the formatting specifications.

### ***Sample Test Case***

Input: [12, 11, -13, -5, 6, -7, 5, -3, -6]

Output: List = [-13, -5, -7, -3, -6, 12, 11, 6, 5]

### ***Answer***

```
# You are using Python
str1=input().strip()
list1=list(map(int,str1.strip('[]').split(',')))
neg=[num for num in list1 if num<0]
pos=[num for num in list1 if num>=0]
arranged_list=neg+pos
print("list=",arranged_list)
```

**Status :** Correct

**Marks :** 10/10

### 3. Problem Statement

Ram is working on a program to manipulate strings. He wants to create a program that takes two strings as input, reverses the second string, and then concatenates it with the first string.

Ram needs your help to design a program.

#### ***Input Format***

The input consists of two strings in separate lines.

#### ***Output Format***

The output displays a single line containing the concatenated string of the first string and the reversed second string.

Refer to the sample output for the formatting specifications.

#### ***Sample Test Case***

Input: hello  
word

Output: hellodrow

#### ***Answer***

```
# You are using Python
str1=input()
str2=input()
str3=str2[::-1]
str1=str1+str3
print(str1)
```

**Status :** Correct

**Marks :** 10/10

### 4. Problem Statement

Alex is working on a Python program to manage a list of elements. He needs to append multiple elements to the list and then remove an element

from the list at a specified index.

Your task is to create a program that helps Alex manage the list. The program should allow Alex to input a list of elements, append them to the existing list, and then remove an element at a specified index.

### ***Input Format***

The first line contains an integer  $n$ , representing the number of elements to be appended to the list.

The next  $n$  lines contain integers, representing the elements to be appended to the list.

The third line of input consists of an integer  $M$ , representing the index of the element to be popped from the list.

### ***Output Format***

The first line of output displays the original list.

The second line of output displays the list after popping the element of the index  $M$ .

The third line of output displays the popped element.

Refer to the sample output for the formatting specifications.

### ***Sample Test Case***

Input: 5

64

98

-1

5

26

3

Output: List after appending elements: [64, 98, -1, 5, 26]

List after popping last element: [64, 98, -1, 26]

Popped element: 5

**Answer**

```
# You are using Python
n=int(input())
elements=[]
for _ in range(n):
    element=int(input())
    elements.append(element)
m=int(input())
print("List after appending elements:",elements)
popped_element=elements.pop(m)
print("List after popping last element:",elements)
print("popped element:",popped_element)
```

**Status :** Correct**Marks :** 10/10**5. Problem Statement**

You have a string containing a phone number in the format "(XXX) XXX-XXXX". You need to extract the area code from the phone number and create a new string that contains only the area code.

Write a Python program for the same.

**Note**

(XXX) - Area code

XXX-XXXX - Phone number

**Input Format**

The input consists of a string, representing the phone number in the format "(XXX) XXX-XXXX".

**Output Format**

The output displays "Area code: " followed by a string representing the area code for the given phone number.

Refer to the sample output for the formatting specifications.

**Sample Test Case**

Input: (123) 456-7890

Output: Area code: 123

**Answer**

# You are using Python

```
M=input()
```

```
S=""
```

```
S+=M[1:4:]
```

```
print("AreaCode:",S)
```

**Status :** Correct

**Marks : 10/10**

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## NeoColab\_REC\_CS23221\_Python Programming

### REC\_Python\_Week 3\_MCQ

Attempt : 1  
Total Mark : 25  
Marks Obtained : 19

#### Section 1 : MCQ

1. Suppose list1 is [4, 2, 2, 4, 5, 2, 1, 0], Which of the following is the correct syntax for slicing operation?

**Answer**

```
print(list1[:-2])
```

**Status : Wrong**

**Marks : 0/1**

2. If you have a list lst = [1, 2, 3, 4, 5, 6], what does the slicing operation lst[-3:] return?

**Answer**

The last three elements of the list

**Status : Correct**

**Marks : 1/1**

3. What will be the output of the following code?

```
my_list = [1, 2, 2, 3]
print(my_list.count(2))
```

**Answer**

2

**Status :** Correct

**Marks :** 1/1

4. What is the result of the slicing operation `lst[-5:-2]` on the list `lst = [1, 2, 3, 4, 5, 6]`?

**Answer**

[2, 3, 4, 5]

**Status :** Wrong

**Marks :** 0/1

5. Suppose `list1` is `[2, 33, 222, 14, 25]`, What is `list1[-1]`?

**Answer**

25

**Status :** Correct

**Marks :** 1/1

6. What is the output of the following Python code?

```
b = "Projects!"
print(b[2:5])
```

**Answer**

oje

**Status :** Correct

**Marks :** 1/1

7. Suppose `list1` is `[2, 33, 222, 14, 25]`, What is `list1[:-1]`?

**Answer**

[2, 33, 222, 14]

**Status :** Correct

**Marks :** 1/1

8. What is the output of the following Python code?

```
name = "John"  
age = 25  
message = "My name is %s and I am %d years old." % (name, age)  
print(message)
```

**Answer**

My name is John and I am 25 years old.

**Status :** Correct

**Marks :** 1/1

9. What is the output of the following Python code?

```
a = "Hello"  
b = "World"  
c = a + " " + b  
print(c)
```

**Answer**

Hello World

**Status :** Correct

**Marks :** 1/1

10. What is the output of the following Python code?

```
txt = "My Classroom"  
print(txt.find("o"))  
print(txt.index("o"))
```

**Answer**

99

**Status :** Correct

**Marks :** 1/1



11. What will be the output of the following program?

```
numbers = [1, 2, 3, 4, 5]  
numbers.append(6, 7)  
print(numbers)
```

**Answer**

[1, 2, 3, 4, 5, 6, 7]

**Status :** Wrong

**Marks :** 0/1

12. What is the output of the following code?

```
my_list = [3, 6, 1, 2, 5, 4]  
print(sorted(my_list) == my_list.sort())
```

**Answer**

False

**Status :** Correct

**Marks :** 1/1

13. What does the following code output?

```
lst = [10, 20, 30, 40, 50]  
print(lst[-4:-1])
```

**Answer**

[20, 30, 40]

**Status :** Correct

**Marks :** 1/1

14. Which of the following is a valid way to use the '%' operator to concatenate strings in Python?

**Answer**

"%s %s" % (string1, string2)

**Status :** Correct

**Marks :** 1/1

15. What will be the output of the following code?

```
numbers = [1, 2, 3, 4, 5]
numbers.remove(6)
print(numbers)
```

**Answer**

ValueError: list.remove(x): x not in list

**Status :** Correct

**Marks :** 1/1

16. What is the output of the following Python code?

```
word = "Python"
result = word[::-1]
print(result)
```

**Answer**

nohtyp

**Status :** Wrong

**Marks :** 0/1

17. What does the append() method do in Python?

**Answer**

Adds a new element to the end of the list

**Status :** Correct

**Marks :** 1/1

18. Which method in Python is used to create an empty list?

**Answer**

empty\_list()

**Status :** Wrong

**Marks :** 0/1

19. What is the output of the following Python code?

```
string1 = "Hello"  
string2 = "World"  
result = string1 + string2  
print(result)
```

**Answer**

HelloWorld

**Status :** Correct

**Marks :** 1/1

20. What is the output of the following Python code?

```
word = "programming"  
answer = word.index("gram")  
print(answer)
```

**Answer**

3

**Status :** Correct

**Marks :** 1/1

21. What is the output of the following Python code?

```
text = " Python "  
answer = text.strip()  
print(answer)
```

**Answer**

Python

**Status :** Correct

**Marks :** 1/1

22. What does negative indexing in Python lists allow you to do?

**Answer**

Access elements in the list from the end

**Status :** Correct

**Marks :** 1/1

23. What is the output of the following Python code?

```
text = "Python"  
result = text.center(10, "*")  
print(result)
```

**Answer**

**\*\*Python\*\***

**Status : Correct**

**Marks : 1/1**

24. Which method is used to add multiple items to the end of a list?

**Answer**

**append()**

**Status : Wrong**

**Marks : 0/1**

25. What is the output of the following code?

```
my_list = [1, 2, 3]  
my_list *= 2  
print(len(my_list))
```

**Answer**

**6**

**Status : Correct**

**Marks : 1/1**