Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 4_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 40

Section 1 : Coding

1. Problem Statement

Develop a text analysis tool that needs to count the occurrences of a specific substring within a given text string.

Write a function count_substrings(text, substring) that takes two inputs: the text string and the substring to be counted. The function should count how many times the substring appears in the text string and return the count.

Function Signature: count_substrings(text, substring)

Input Format

The first line of the input consists of a string representing the text.

The second line consists of a string representing the substring.

Output Format

The output should display a single line of output containing the count of occurrences of the substring in the text string.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: programming is fun and programming is cool
programming
Output: The substring 'programming' appears 2 times in the text.

Answer

```
# You are using Python
def count_substrings(a,b):
    return a.count(b)
a=input()
b=input()
print("The substring '",b,"' appears ",count_substrings(a,b), " times in the text.",sep="")
```

Status : Correct ***Marks : 10/10***

2. Problem Statement

Create a program for a mathematics competition where participants need to find the smallest positive divisor of a given integer n. Your program should efficiently determine this divisor using the min() function and display the result.

Input Format

The input consists of a single positive integer n, representing the number for which the smallest positive divisor needs to be found.

Output Format

The output prints the smallest positive divisor of the input integer in the format: "The smallest positive divisor of [n] is: [smallest divisor]".

Refer to the sample output for the exact format.

Sample Test Case

Input: 24

Output: The smallest positive divisor of 24 is: 2

Answer

```
# You are using Python
a=int(input())
lst=list()
for i in range(2,a+1):
    if a%i==0:
        lst.append(i)
print("The smallest positive divisor of",a,"is:",min(lst))
```

Status : Correct ***Marks : 10/10***

3. Problem Statement

Amrita is developing a password strength checker for her website. She wants the checker to consider the length and the diversity of characters used in the password. A strong password should be long and include a mix of character types: uppercase, lowercase, digits, and special symbols.

She also wants the feedback to be user-friendly, so she wants to include the actual password in the output. Help Amrita finish this password checker using Python's built-in string methods.

Character Types Considered:

Lowercase letters (a-z)Uppercase letters (A-Z)Digits (0-9)Special characters (from string.punctuation, e.g. @, !, #, $)

Input Format

The input consists of a single string representing the user's password.

Output Format

The program prints the strength of the password in this format:

If the password length < 6 characters or fewer than 2 of the 4 character types, the output prints "<password> is Weak"

If password length ≥ 6 and at least 2 different character types, the output prints "<password> is Moderate"

If Password length ≥ 10 and all 4 character types present, the output prints "<password> is Strong"

Refer to the sample output for formatting specifications.

Sample Test Case

Input: password123

Output: password123 is Moderate

Answer

```
# You are using Python
import string

password = input()
has_lower = any(char.islower() for char in password)
has_upper = any(char.isupper() for char in password)
has_digit = any(char.isdigit() for char in password)
has_special = any(char in string.punctuation for char in password)
char_types = sum([has_lower, has_upper, has_digit, has_special])

if len(password) < 6 or char_types < 2:
    strength = "Weak"
elif len(password) >= 10 and char_types == 4:
    strength = "Strong"
else:
    strength = "Moderate"

print(f"{password} is {strength}")
```

Status : Correct ***Marks : 10/10***

4. Problem Statement

Meena is analyzing a list of integers and needs to count how many numbers in the list are even and how many are odd. She decides to use lambda functions to filter the even and odd numbers from the list.

Write a program that takes a list of integers, counts the number of even and odd numbers using lambda functions, and prints the results.

Input Format

The first line contains an integer n, representing the number of integers in the list.

The second line contains n space-separated integers.

Output Format

The first line of output prints an integer representing the count of even numbers.

The second line of output prints an integer representing the count of odd numbers.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 7
12 34 56 78 98 65 23
Output: 5
2

Answer

```
# You are using Python
n=int(input())
a=input().split()
l=[]
```

```
c=[]
result=lambda a:l.append(a) if(a%2==0) else c.append(a)

for i in range(n):
    result(int(a[i]))

print(len(l))
print(len(c))
```

Status : Correct ***Marks : 10/10***