Rajalakshmi Engineering College

Name: swetha veeramani
Email: 241501261@rajalakshmi.edu.in
Roll no: 241501261
Phone: 9790907713
Branch: REC
Department: I AI & ML FC
Batch: 2028
Degree: B.E - AI & ML

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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

Imagine you are tasked with developing a function for calculating the total cost of an item after applying a sales tax. The sales tax rate is equal to 0.08 and it is defined as a global variable.

The function should accept the cost of the item as a parameter, calculate the tax amount, and return the total cost.

Additionally, the program should display the item cost, sales tax rate, and total cost to the user.

Function Signature: total_cost(item_cost)

Input Format

The input consists of a single line containing a positive floating-point number representing the cost of the item.

Output Format

The output consists of three lines:

"Item Cost:" followed by the cost of the item formatted to two decimal places.

"Sales Tax Rate:" followed by the sales tax rate in percentage.

"Total Cost:" followed by the calculated total cost after applying the sales tax, formatted to two decimal places.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 50.00

Output: Item Cost: $50.00
Sales Tax Rate: 8.0%
Total Cost: $54.00

Answer

#

```
# You are using Python
SALES_TAX_RATE=0.08
def total_cost(item_cost):
    tax_amount=item_cost*SALES_TAX_RATE
    total=item_cost+tax_amount
    return total
item_cost=float(input())

total_cost = total_cost(item_cost)
print(f"Item Cost: ${item_cost:.2f}")
print(f"Sales Tax Rate: {SALES_TAX_RATE * 100}%")
print(f"Total Cost: ${total_cost:.2f}")
```

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

2. Problem Statement

Arjun is working on a mathematical tool to manipulate lists of numbers. He needs a program that reads a list of integers and generates two lists: one containing the squares of the input numbers, and another containing the cubes. Arjun wants to use lambda functions for both tasks.

Write a program that computes the square and cube of each number in the input list using lambda functions.

Input Format

The input consists of a single line of space-separated integers representing the list of input numbers.

Output Format

The first line contains a list of the squared values of the input numbers.

The second line contains a list of the cubed values of the input numbers.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 1 2 3
Output: [1, 4, 9]
[1, 8, 27]

Answer

```
# You are using Python
nums=list(map(int,input().split()))
squares=list(map(lambda x:x**2,nums))
cubes=list(map(lambda x:x**3,nums))
print(squares)
print(cubes)
```

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

3. 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(text,substring):
    count=0
    for i in range(len(text)-len(substring)+1):
        if text[i:i+len(substring)]==substring:
            count +=1
    return count
text=input()
```

```
substring=input()
print(f"The substring '{substring}' appears {count_substrings(text,substring)}
times in the text.")
```

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
def count_even_odd(num):
    even_count=len(list(filter(lambda x:x%2==0,num)))
    odd_count=len(list(filter(lambda x:x%2!=0,num)))
    return even_count,odd_count
n=int(input())
nums_str=input().split()
num=[int(x)for x in nums_str]
even,odd=count_even_odd(num)
print(even)
print(odd)
```

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