Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 4_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 30

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

#

```
item_cost=float(input())
SALES_TAX_RATE=0.08
def total_cost(ic):
    t=SALES_TAX_RATE*ic
    return ic+t

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

```
numbers = list(map(int, input().split()))
square = list(map(lambda x: x ** 2, numbers))
cube = list(map(lambda x: x ** 3, numbers))
print(square)
print(cube)
```

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

3. 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

```
n = int(input())
numbers = list(map(int, input().split()))
even_numbers = list(filter(lambda x: x % 2 == 0, numbers))
odd_numbers = list(filter(lambda x: x % 2 != 0, numbers))
print(len(even_numbers))
print(len(odd_numbers))
```

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

4. Problem Statement

You are tasked with designing a shipping cost calculator program that calculates the shipping cost for packages based on their weight and destination. The program utilizes different shipping rates for domestic, international, and remote destinations. The rates for each destination type are provided as global constants.

Constant Values:

DOMESTIC_RATE = 5.0

INTERNATIONAL_RATE = 10.0

REMOTE_RATE = 15.0

Function Signature: calculate_shipping(weight, destination)

Formula: shipping cost = weight * destination rate

Input Format

The first line of the input consists of a float representing the weight of the package.

The second line consists of a string representing the destinations(Domestic or International or Remote).

Output Format

The program outputs any one of the following:

1. If the input is valid and the destination is recognized, the output should consist of a single line stating the calculated shipping cost for the given weight and destination in the format: "Shipping cost to [destination] for a [weight] kg package: $[calculated cost]" with two decimal places.
2. If the input weight is not a positive float, print "Invalid weight. Weight must be greater than 0."
3. If the input destination is not one of the valid options, print "Invalid destination."

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 5.5
Domestic
Output: Shipping cost to Domestic for a 5.5 kg package: $27.50

Answer

#

```
DOMESTIC_RATE = 5.0
INTERNATIONAL_RATE = 10.0
REMOTE_RATE = 15.0

def shipping_cost(weight, destination):

    if weight <= 0:
        return "Invalid weight. Weight must be greater than 0."

    if destination == "Domestic":
        rate = DOMESTIC_RATE
    elif destination == "International":
        rate = INTERNATIONAL_RATE
    elif destination == "Remote":
        rate = REMOTE_RATE
    else:
        return "Invalid destination."


    cost = weight * rate
    return f"Shipping cost to {destination} for a {weight} kg package: ${cost:.2f}"

weight = float(input())
destination = input().strip()

print(shipping_cost(weight, destination))

if shipping_cost is not None:
    print(f"Shipping cost to {destination} for a {weight} kg package:
${shipping_cost:.2f}")
```

Status : Wrong ***Marks : 0/10***