

# Rajalakshmi Engineering College

Name: Raghul M  
Email: 240701409@rajalakshmi.edu.in  
Roll no: 240701409  
Phone: 9150457149  
Branch: REC  
Department: I CSE FD  
Batch: 2028  
Degree: B.E - CSE

Scan to verify results



## NeoColab\_REC\_CS23221\_Python Programming

### REC\_Python\_Week 4\_CY

Attempt : 1  
Total Mark : 40  
Marks Obtained : 40

### Section 1 : Coding

#### 1. 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***

#

# You are using Python

DOMESTIC\_RATE = 5.0

INTERNATIONAL\_RATE = 10.0

REMOTE\_RATE = 15.0

```
def calculate_shipping(weight, destination):  
    if weight <= 0:
```

```

    print( "Invalid weight. Weight must be greater than 0.")
    return None

    rates = {"Domestic": DOMESTIC_RATE, "International": INTERNATIONAL_RATE,
"Remote": REMOTE_RATE}

    if destination in rates:
        cost = weight * rates[destination]
        return cost
    else:

        print( "Invalid destination.")
        return None

weight = float(input())
destination = input()

shipping_cost = calculate_shipping(weight, destination)

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

```

**Status :** Correct

**Marks :** 10/10

## 2. 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 = text.count(substring)  
    return f"The substring '{substring}' appears {count} times in the text."
```

```
text = input()
```

```
substring = input()
```

```
print(count_substrings(text, substring))
```

**Status : Correct**

**Marks : 10/10**

## **3. 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

#### 4. 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
numbers = list(map(int, input().split()))

squares = list(map(lambda x: x ** 2, numbers))
cubes = list(map(lambda x: x ** 3, numbers))

print(squares)
print(cubes)
```

**Status :** Correct

**Marks :** 10/10