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

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
item_cost=float(input())
def total_cost(item_cost):
    tax=item_cost*SALES_TAX_RATE
    total=tax+item_cost
    return total


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
import math
lst=list(map(int,input().split()))
sq=lambda x:math.pow(x,2)
cube=lambda s:math.pow(s,3)
e=[]
c=[]
for i in lst:
    i=sq(i)
    e.append(int(i))
```

```
print(e)
for i in lst:
    i=cube(i)
    c.append(int(i))
print(c)
```

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

3. 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
n=int(input())
lst=[]
for i in range(2,n+1):
    if n%i==0:
        lst.append(i)
```

```
m=min(lst)
print("The smallest positive divisor of ",n," is: ",m)
```

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

4. Problem Statement

Implement a program for a retail store that needs to find the highest even price in a list of product prices. Your goal is to efficiently determine the maximum even price from a series of product prices. Utilize the max() inbuilt function in the program.

For example, if the prices are 10 15 24 8 37 16, the even prices are 10 24 8 16. So, the maximum even price is 24.

Input Format

The input consists of a series of product prices separated by a space.

The prices should be entered as a space-separated string of numbers.

Output Format

If there are even prices in the input, the output prints "The maximum even price is: " followed by the maximum even price.

If there are no even prices in the input, the output prints "No even prices were found".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 10 15 24 8 37 16
Output: The maximum even price is: 24

Answer

```
# You are using Python
lst=list(map(int,input().split()))
```

```
e=[]
for i in lst:
    if i%2==0:
        e.append(i)
if(e==[]):
    print("No even prices were found")
else:
    print("The maximum even price is: ",max(e))
```

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