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

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

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

2. 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
prices = list(map(int,input().split()))
even=[price for price in prices if price % 2 ==0]
if even:
    print(f'The maximum even price is: {max(even)}')
else:
    print("No even prices were found")
```

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
password=input()
lower=any(c.islower() for c in password)
upper=any(c.isupper() for c in password)
digit=any(c.isdigit() for c in password)
special=any(not(c.islower() or c.isupper() or c.isdigit()) for c in password)
count=lower+upper+digit+special
len1=len(password)
if len1>=10 and count==4:
    print(f'{password} is strong')
elif len1>=6 and count >=2:
```

```
    print(f'{password} is Moderate')
else:
    print(f'{password} is weak')
```

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

#

```
# You are using Python
DOMESTIC_RATE=5.0
INTERNATIONAL_RATE=10.0
REMOTE_RATE=15.0
weight=float(input())
destination=input()
shipping_cost=None
if weight <=0:
   print("Invalid weight. Weight must be greater than 0.")
elif destination == "Domestic":
   shipping_cost=weight*DOMESTIC_RATE
elif destination == "International":
   shipping_cost=weight* INTERNATIONAL_RATE
elif destination == "Remote":
   shipping_cost=weight*REMOTE_RATE
else:
   print("Invalid 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***