Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 40

Section 1 : Coding

1. Problem Statement

A shopkeeper is recording the daily sales of an item for N days, where the price of the item remains the same for all days. Write a program to calculate the total sales for each day and save them in a file named sales.txt that can store the data for a maximum of 30 days. Then, read the file and display the total earnings for each day.

Note: Total Earnings for each day = Number of Items sold in that day × Price of the item.

Input Format

The first line of input consists of an integer N, representing the number of days.

The second line of input consists of N space-separated integers representing the

number of items sold each day.

The third line of input consists of an integer M, representing the price of the item that is common for all N days.

Output Format

If the number of days entered exceeds 30 (N > 30), the output prints "Exceeding limit!" and terminates.

Otherwise, the code reads the contents of the file and displays the total earnings for each day on separate lines.

Contents of the file: The total earnings for N days, with each day's earnings appearing on a separate line.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 4
5 10 5 0
20
Output: 100
200
100
0

Answer

```
def calculate_sales():
    N = int(input())
    if N > 30:
        print("Exceeding limit!")
        return

    items_sold = list(map(int, input().split()))
    M = int(input())
```

```
    earnings = []
    for items in items_sold:
        earnings.append(items * M)

    with open('sales.txt', 'w') as file:
        for earning in earnings:
            file.write(f"{earning}\n")

    with open('sales.txt', 'r') as file:
        for line in file:
            print(line.strip())

calculate_sales()
```

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

2. Problem Statement

In the enchanted realm of Academia, you, the Academic Alchemist, are bestowed with a magical quill and a parchment to weave the grades of aspiring students into a tapestry of academic brilliance.

The mission is to craft a Python program that empowers faculty members to enter student grades for any two subjects, stores these magical grades in a mystical file, and then, with a wave of your virtual wand, calculates the GPA to unveil the true essence of academic achievement.

Input Format

The input format is a string representing the student's name, any two subjects, and corresponding grades.

After entering grades, they can type 'done' when prompted for the student's name.

Output Format

The output should display the (average of grades) calculated GPA with a precision of two decimal places.

The magical grades will be saved in a mystical file named "magical_grades.txt".

Refer to the sample output for format specifications.

Sample Test Case

Input: Alice
Math
95
English
88
done

Output: 91.50

Answer

```
flag =True
str1=[]
num=[]
while flag:
    s=input().strip()
    if s=="done":
        flag=False
    str1.append(s)
for i in str1:
    if i.isdigit():
        num.append(float(i))
avg=sum(num)/len(num)
print(f"{avg:.2f}")
```

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

3. Problem Statement

Alex is creating an account and needs to set up a password. The program prompts Alex to enter their name, mobile number, chosen username, and desired password. Password validation criteria include:

Length between 10 and 20 characters.At least one digit.At least one special character from !@#$%^&* set. Display "Valid Password" if criteria are met; otherwise, raise an exception with an appropriate error

message.

Input Format

The first line of the input consists of the name as a string.

The second line of the input consists of the mobile number as a string.

The third line of the input consists of the username as a string.

The fourth line of the input consists of the password as a string.

Output Format

If the password is valid (meets all the criteria), it will print "Valid Password"

If the password is weak (fails any one or more criteria), it will print an error message accordingly.

Refer to the sample outputs for the formatting specifications.

Sample Test Case

Input: John
9874563210
john
john1#nhoj
Output: Valid Password

Answer

```
import re

def validate_password():
    name = input().strip()
    mobile = input().strip()
    username = input().strip()
    password = input().strip()

    if len(password) < 10 or len(password) > 20:
        print("Should be a minimum of 10 characters and a maximum of 20 characters")
        return
```

```
    if not any(char.isdigit() for char in password):
        print("Should contain at least one digit")
        return

    if not any(char in '!@#$%^&*' for char in password):
        print("It should contain at least one special character")
        return

    print("Valid Password")

validate_password()
```

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

4. Problem Statement

Bob, a data analyst, requires a program to automate the process of analyzing character frequency in a given text. This program should allow the user to input a string, calculate the frequency of each character within the text, save these character frequencies to a file named "char_frequency.txt," and display the results.

Input Format

The input consists of the string.

Output Format

The first line prints "Character Frequencies:".

The following lines print the character frequency in the format: "X: Y" where X is the character and Y is the count.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: aaabbbccc
Output: Character Frequencies:

a: 3
b: 3
c: 3

Answer

```
from collections import Counter

def calculate_char_frequency():
    text = input().strip()
    frequency = Counter(text)
    with open("char_frequency.txt", "w") as file:
        file.write("Character Frequencies:\n")
        for char, count in frequency.items():
            file.write(f"{char}: {count}\n")
    print("Character Frequencies:")
    for char, count in frequency.items():
        print(f"{char}: {count}")

calculate_char_frequency()
```

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