Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 1_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 40

Section 1 : Coding

1. Problem Statement

Liam and his friends are sharing the cost of a group purchase. The total cost of the purchase is subject to a 10% discount. One of the friends receives a 35% bonus, which means they will pay a larger portion of the discounted cost. The remaining cost is then divided equally among the other friends.

Write a program to:

Calculate the total cost after applying a 10% discount.Determine the amount paid by the friend who receives a 35% bonus.Calculate the amount each of the other friends will pay.

Input Format

The first line of input consists of a float value f, representing the total cost.

The second line contains an integer value n, representing the total number of friends.

Output Format

The first line of output displays "Cost after a 10% discount: " followed by the discounted cost of the ticket package as a float value formatted to two decimal places.

The second line displays "Friend with a 35% bonus pays: " followed by the amount paid by the friend with the bonus as a float value formatted to two decimal places.

The third line displays "Each of the other friends pays: " followed by the individual share of the remaining cost as a float value formatted to two decimal places.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 10000.0
5
Output: Cost after a 10% discount: 9000.00
Friend with a 35% bonus pays: 3150.00
Each of the other friends pays: 1462.50

Answer

```
# You are using Python
f=float(input())
n=int(input())
discounted_cost=f*0.9
bonus_friend_pays=discounted_cost*0.35
remaining_cost=discounted_cost-bonus_friend_pays
each_other_friend_pays=remaining_cost/(n-1)
print(f"Cost after a 10% discount:{discounted_cost:.2f}")
print(f"Friend with a 35% bonus pays:{bonus_friend_pays:.2f}")
print(f"Each of the other friends pays:{each_other_friend_pays:.2f}")
```

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

2. Problem Statement

Shawn is planning for his younger sister's college education and wants to ensure she has enough funds when the time comes. He starts with an initial principal amount and plans to make regular monthly contributions to a savings account that offers a fixed annual interest rate.

Shawn needs to calculate the total amount that will accumulate by the time his sister is ready for college. Your task is to write a program that calculates the final amount in the savings account based on the initial principal, monthly contributions, annual interest rate, and the number of months the money is invested.

Formula:

$A = P \times (1 + r/n)^{(n \times t)} + C \times [((1 + r/n)^{(n \times t)} - 1) / (r/n)]$

Where:

A = Final amount after the specified time

P = Initial principal amount

C = Monthly contribution

r = Annual interest rate (as a decimal, e.g., 5% = 0.05)

n = Number of compounding periods per year (12 for monthly compounding)

t = Total time in years (months / 12)

Input Format

The first line of input consists of a float P, representing the initial principal amount.

The second line of input consists of a float R, representing the annual interest rate (in percentage).

The third line of input consists of a float C, representing the monthly contribution.

The fourth line of input consists of an integer M, representing the number of

months.

Output Format

The output displays "Final amount after X months: Rs." followed by the total accumulated amount, formatted to two decimal places, where X is the number of months.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 10000.0
5.0
2000.0
12
Output: Final amount after 12 months: Rs.35069.33

Answer

```
# You are using Python
p=float(input())
r=float(input())
c=float(input())
m=int(input())
n=r/100/12
a=p*((1+n)**m)+c*(((1+n)**m-1)/n)
print(f"Final amount after {m}months:Rs.{a:.2f}")
```

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

3. Problem Statement

Alex is an air traffic controller who needs to record and manage flight delays efficiently. Given a flight number, the delay in minutes (as a string), and the coordinates of the flight's current position (as a complex number),

Help Alex convert and store this information in a structured format.

Input Format

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

The second line consists of a string representing the delay in minutes.

The third line consists of two floats separated by a space, representing the real and imaginary parts of the complex number for the flight's position.

Output Format

The first line of output displays the complex number.

The second line displays a string with the flight number, delay, and the real and imaginary parts of the complex number, separated by commas.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 12345
30.5
12.3 45.6
Output: (12.3+45.6j)
12345, 30.5, 12.3, 45.6

Answer

```
# You are using Python
flight_number=int(input())
delay=input().strip()
real,imag=map(float,input().split())
position=complex(real,imag)
print(position)
print(f"{flight_number},{delay},{real},{imag}")
```

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

4. Problem Statement

Olivia is creating a wellness dashboard for her new fitness app, FitTrack. She needs a program that can capture and display key details about a

user's workout. The program should read the user's full name, the total steps they ran, the energy they expended in kilojoules, and the duration of their workout in hours. After collecting this information, the program will generate a detailed summary of the user's fitness activity.

Your task is to guide Olivia through the program.

Input Format

The first line of input consists of a string, representing the user's name.

The second line consists of an integer, representing the total steps taken.

The third line consists of a float value, representing the calories burned.

The fourth line consists of a float value, representing the workout duration in hours.

Output Format

The first line of output prints "User Name: " followed by the user's name.

The second line prints "Total Steps: " followed by the total steps.

The third line prints "Calories Burned: " followed by the calories burned, rounded off to one decimal place.

The fourth line prints "Workout Duration: X hours" where X is the workout duration, rounded off to one decimal place.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: Alex
10000
350.5
1.5
Output: User Name: Alex
Total Steps: 10000
Calories Burned: 350.5

Workout Duration: 1.5 hours

Answer

```
# You are using Python
user_name=input()
total_steps=int(input())
calories_burned=float(input())
workout_duration=float(input())
print(f"User Name: {user_name}")
print(f"Total Steps: {total_steps}")
print(f"Calories Burned: {calories_burned:.1f}")
print(f"Workout Duration: {workout_duration:.1f} hours")
```

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