

Dt: 06/08/25 Task 1: Running python Script and various expressions in an interactive interpreter key terms covered: Introduction to Python , commands , script.

Ques 1. Karan spent ₹150 on books, ₹220 on groceries, and ₹90 on transport. Help him calculate the total expenses.

Aim:

To write a python program that calculates the total amount spent by karan on books, groceries and transport.

Algorithm :

1. Start the program
2. Accept the amount spent on books, groceries and transport.
3. calculate the total expenses by summing all three amounts
4. Display the total amount spent
5. End the Program.

Python Program :-

```
# program to calculate total expense of karan  
# step 1 : Assign expenses  
books = 150  
groceries = 220  
transport = 90  
  
# step 2 : calculate total  
total_expense = books + groceries + transport  
  
# step 3 : Display the result  
print ("Total expenses incurred by karan : ₹", total_expense)
```

Input : Books = ₹ 150
Groceries = ₹ 220
Transport = ₹ 70

Books = ₹ 150

Groceries = ₹ 220

Transport = ₹ 70

Output :

Total expenses incurred by Karan : ₹ 460

Result :

The program was successfully executed and the total amount spent by Karan was calculated and displayed as expected.

1.2 Write a BMI calculator. Ask the user for weight (kg) and height (m), then calculate and display their BMI

Aim: To write a python program that calculates and displays the Body Mass Index (BMI) of a person using their weight (in kilogram) and height (in meters).

Algorithm:

- Start the program
- Prompt the user to input their weight in kilograms.
- Prompt the user to input their height in meters.
- Calculate the BMI using the formula :
$$\text{BMI} = \frac{\text{weight}}{\text{height}^2}$$
- Display the calculated BMI
- End the program.

Program :-

```
# BMI calculator  
# Step 1 : Get input from the user  
weight = float(input('Enter your weight in kilograms:'))  
height = float(input('Enter your height in meters:'))  
# Step 2 : Calculate BMI  
bmi = weight / (height ** 2)  
# Step 3 : Display result  
print('Your Body Mass Index (BMI) is: ', round(bmi, 2))
```

Sample Input :

Enter your weight in kilograms : 70

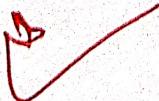
Enter your height in meters : 1.75

Sample output :

Your Body Mass Index (BMI) is : 22.86

Result :

The program was successfully executed and the total Body mass Index of a person was calculated and displayed as expected.



1.3 Layla wants to calculate the area of a triangle with sides of length 8cm, 6cm, and 4cm. Help her write Python program that computes the area using Heron's formula

Aim: To write python program to find the area of triangle when the length of all three sides are given, using Heron's formula

Algorithm :-

1. Start the program

2. Accept or assign the lengths of the three sides : a, b and c

3. Calculate the semi-perimeter

$$s = \frac{a+b+c}{2}$$

4. Use heron's formula to calculate the area:

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

5. Display the area of the triangle

6. End the program.

Program :

```
import math
```

```
# Step 1: Assign side lengths
```

$$a = 8$$

$$b = 6$$

$$c = 4$$

```
# Step 2: Calculate semiperimeter
```

$$s = (a+b+c)/2$$

```
# Step 3: Apply Heron's formula
```

$$\text{area} = \text{math.sqrt}(s * (s-a) * (s-b) * (s-c))$$

```
# Step 4: Display result
```

```
print("The area of the triangle is:", round(area, 2), "square cm")
```

Sample Input:-

Side a = 8cm

Side b = 6cm

Side c = 4cm

Sample output:

The area of the triangle is: 11.62 sq cm

160 ft. above base and P1 = 5 seconds
("d" at 100 ft. = 3.91 ft)
160 ft. above base P2 = 2 seconds
("d" at 100 ft. = 3.91 ft)
160 ft. above base P3 = 1 second
("d" at 100 ft. = 3.91 ft)

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PERFORMANCE (5)	5
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VIVA VOCE (3)	3
RECORD (4)	4
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Result: The program was successfully created and the area of the triangle using Heron's formula was calculated and displayed as executed.