Task-1: Running Python script and various expression in an interactive interpreter key terms covered Introduction to Python, commands, script.

1.1 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.

Result: Thus, the Python Program that calculates the total amount is successfully executed..

Python Program:

```
# Program to calculate total expenses 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)
```

Sample input:

(values are already assigned in the program - no manual input required.)

Books = ₹ 150
Groceries = ₹220
Transport = ₹90.

Sample output:

Total expenses incurred by karan : ₹460.

Python 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.

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 kilograms) and height (in meters).

Algorithm:

1. start the Program.
2. Prompt the user to input their weight in kilograms.
3. Prompt the user to input their height in meters.
4. calculate BMI using the formula:

$$BMI = \frac{weight}{height^2}$$

5. Display the calculated BMI
6. End the Program

Result: The Python Program that calculates BMI is successfully executed.

Python Program:

```
import math
# step1 : Assign side lengths.
a = 8
b = 6
c = 4
# step 2 : calculate Semi-Perimeter.
s = (a+b+c) /2
# step 3 : Apply Heron's formula:
area = 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 = 8 cm
side b = 6 cm
side c = 4 cm

(values are already assigned)

Sample output:

The area of the triangle is : 11.62 sq cm.

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

Aim: To write a Python Program to find the area of a triangle when the lengths 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.

NO.	(20)
RFORMANCE (5)	5
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ORD (5)	
AL (20)	25

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Result: Thus, the Program was successfully executed and the area was calculated and displayed.