Part 1

Evaluate the following Boolean expressions in **IDLE**:

Note down the response to each. Do they differ from what you would expect?

```
7 and 5
True and True
True and False or True
False or False and True
False or 0
not (False) and True
not (True or not (False and False))
 (10 > 14) and (4 == 5)
True and 5
 (3 * 4)! = (14 - 2) or ('C' >= 'D')
 (12 * 2) == (3 * 8)
 (14 * 2)! = (3 * 8)
```

Part 2

1. Evaluate the following expressions for `num1 = 10` and `num2 = 20`.

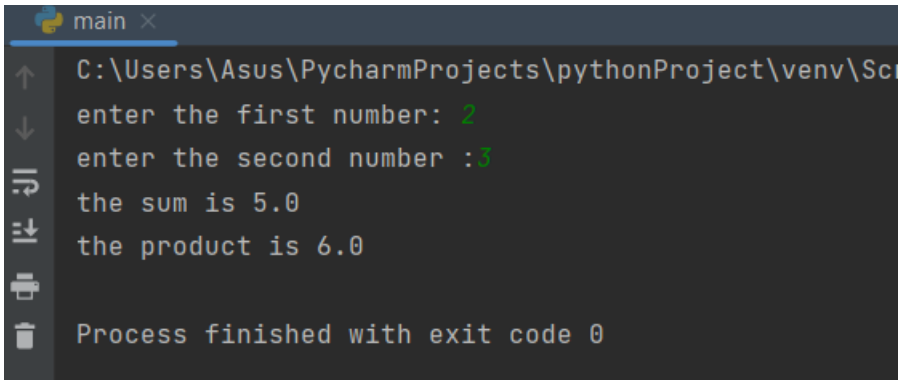
(a) `not (num1 < 1) and num2 < 10`

(b) `not (num1 < 1) and num2 < 10 or num1 + num3 < 100`

(c) `not (num2 > 1) or num1 > num2 - 10`

2. Write a python program to find the sum and product of two numbers.

```
a = input("enter the first number: ")
b = input("enter the second number :")
sum = float(a)+float(b)
product = float(a)*float(b)
print("the sum is "+str(sum))
print("the product is "+str(product))
```



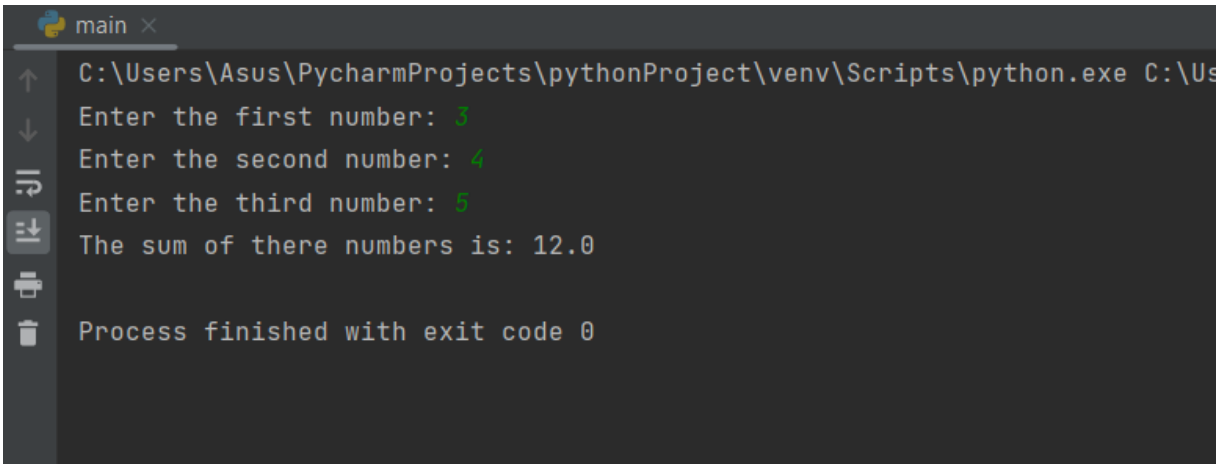
3. Write a python program to input first name, last name, and address. Print them.

```
first_name = input("enter first name? ")
last_name = input("enter last name? ")
address = input("enter address? ")

print("First name:", first_name)
print("Last name:", last_name)
print("Address:", address)
```

```
C:\Users\Asus\PycharmProjects\pythonProject\venv\Scripts\pyt
enter first name? manogya
enter last name? bajracharya
enter address? kupondole
First name: manogya
Last name: bajracharya
Address: kupondole

Process finished with exit code 0
```

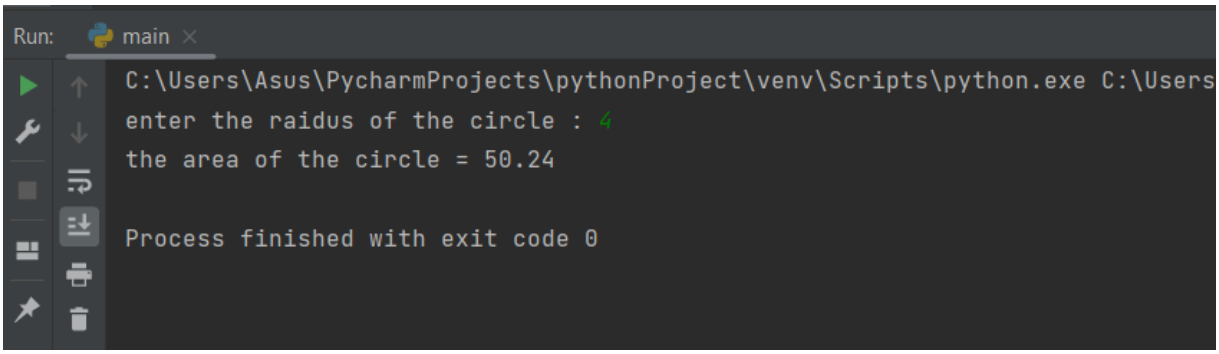
4. Write a python program to input three numbers and find their sum.

```
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))
num3 = float(input("Enter the third number: "))
sum = num1 + num2 + num3
print("The sum of there numbers is:", sum)
```



5. Write a python program to print the area of circle. Take radius of circle as an input form the user.

```
pi = 3.14
r = float(input("enter the radius of the circle : "))
a = pi *r*r
print("the area of the circle = %.2f" %a)
```



Part 3

1. Write a program that:

(a) Asks to input the user's weight in kilograms

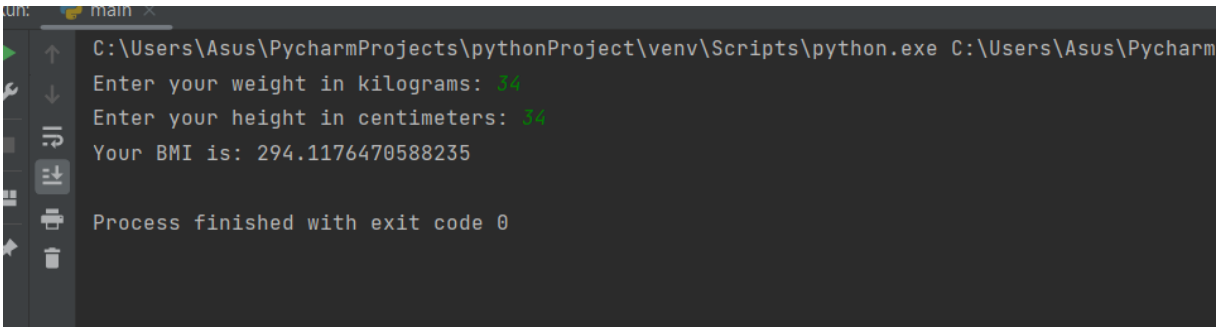
(b) Asks to input the user's height in centimeters.

(c) Calculates the BMI (Body Mass Index).

[BMI=weight in kilograms / square of height in centimeters]

(d) Prints the user's BMI.

```
weight = float(input("Enter your weight in kilograms: "))
height = float(input("Enter your height in centimeters: "))
height_in_meters = height / 100
bmi = weight / (height_in_meters ** 2)
print("Your BMI is:", bmi)
```



2. An observer sees the shadow of a bird at mid-day.

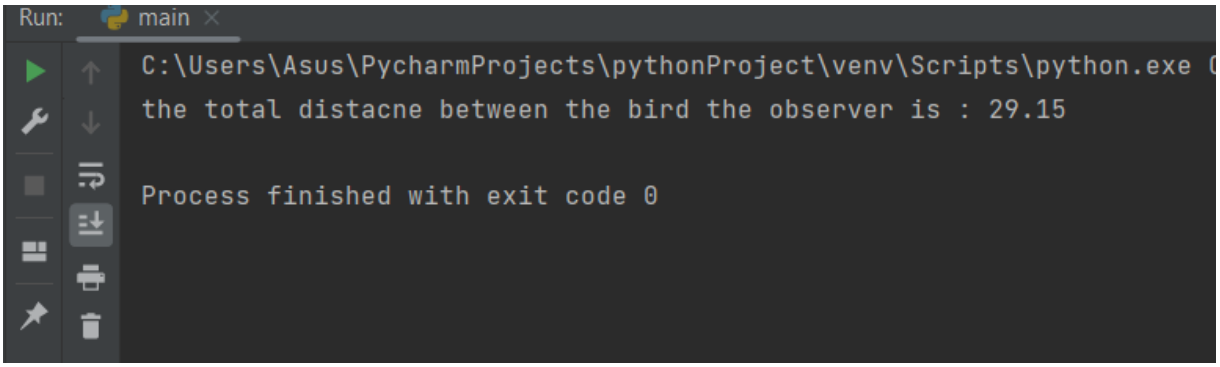
(a) The distance between the observer and the shadow is 15 meters.

(b) The perpendicular distance between the bird and its shadow is 25 meters.

(c) Find the total distance between the bird and the observer.

[Use height and distance formula: $h^2=p^2+b^2$]

```
import math
p = 25
b = 15
h = math.sqrt(p**2+ b**2)
print("the total distacne between the bird the observer is : %.2f" %h)
```



3. A costumer walks in a flower shop and finds the following menu:

Particulars	White Roses	Lilies	Poppies	Marigold	Red Roses
Per piece	50	50	40	20	100

Per bouquet	300	300	250	200	1000

If the user bought a bouquet of lilies and four red roses, find the total money the user spent in the flower shop.

```
lilies = 300
roses = 400
money_spent = lilies +roses
print("sum is ",money_spent)
```

4. Take user's name, age and address as input and generate a formatted output using python scripting. [Use %d and %s to generate the output]

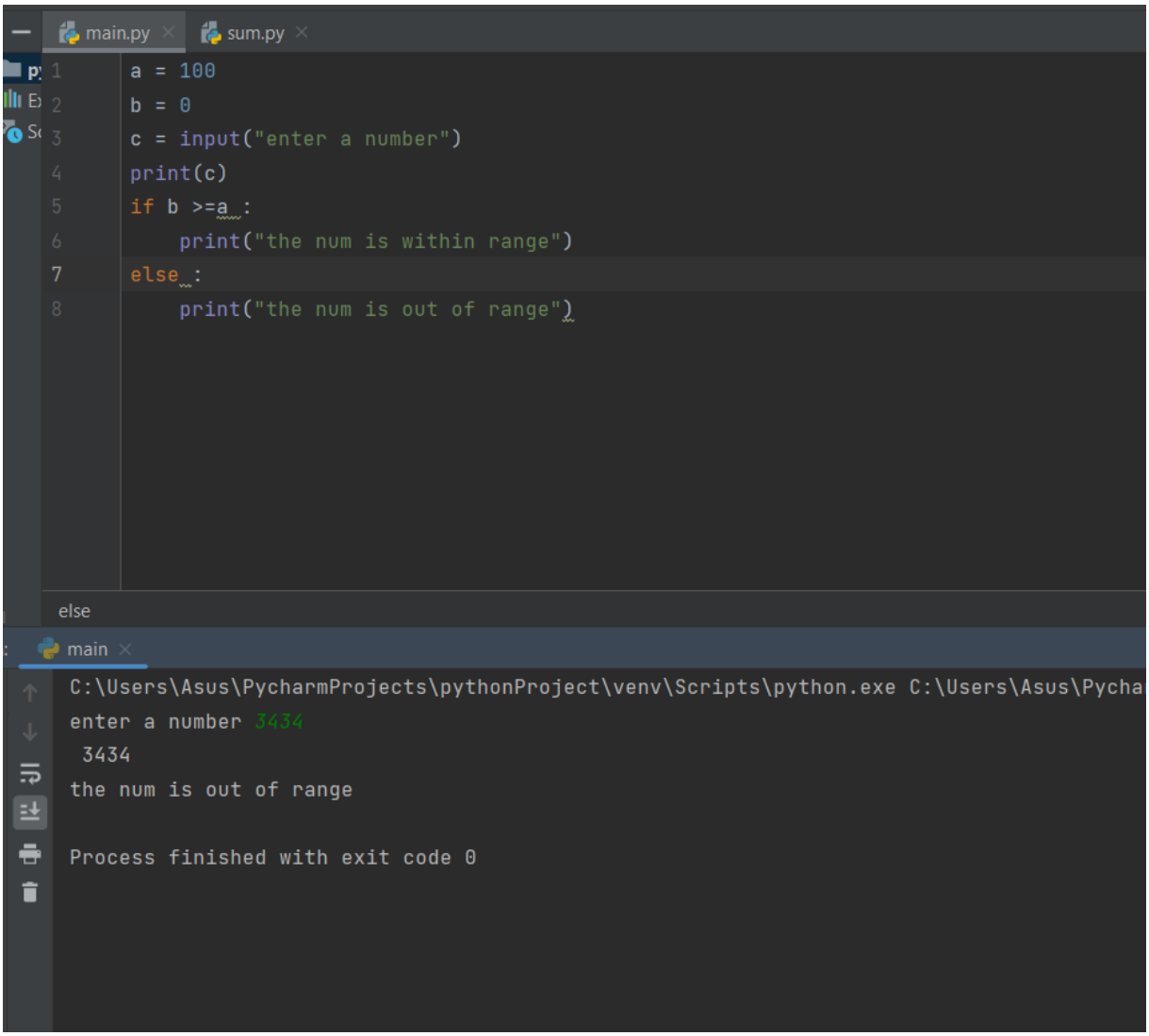
5. Calculate the VAT amount of a gadget the user bought using the built in python format function within two decimal digits. Input the cost price from the user. [VAT =13%]

Part 4 (Home Task)

1. Give an appropriate if statement for each of the following
(The value of `num` is not important):

(a) Displays `'within range'` if `num` is between 0 and 100, inclusive.

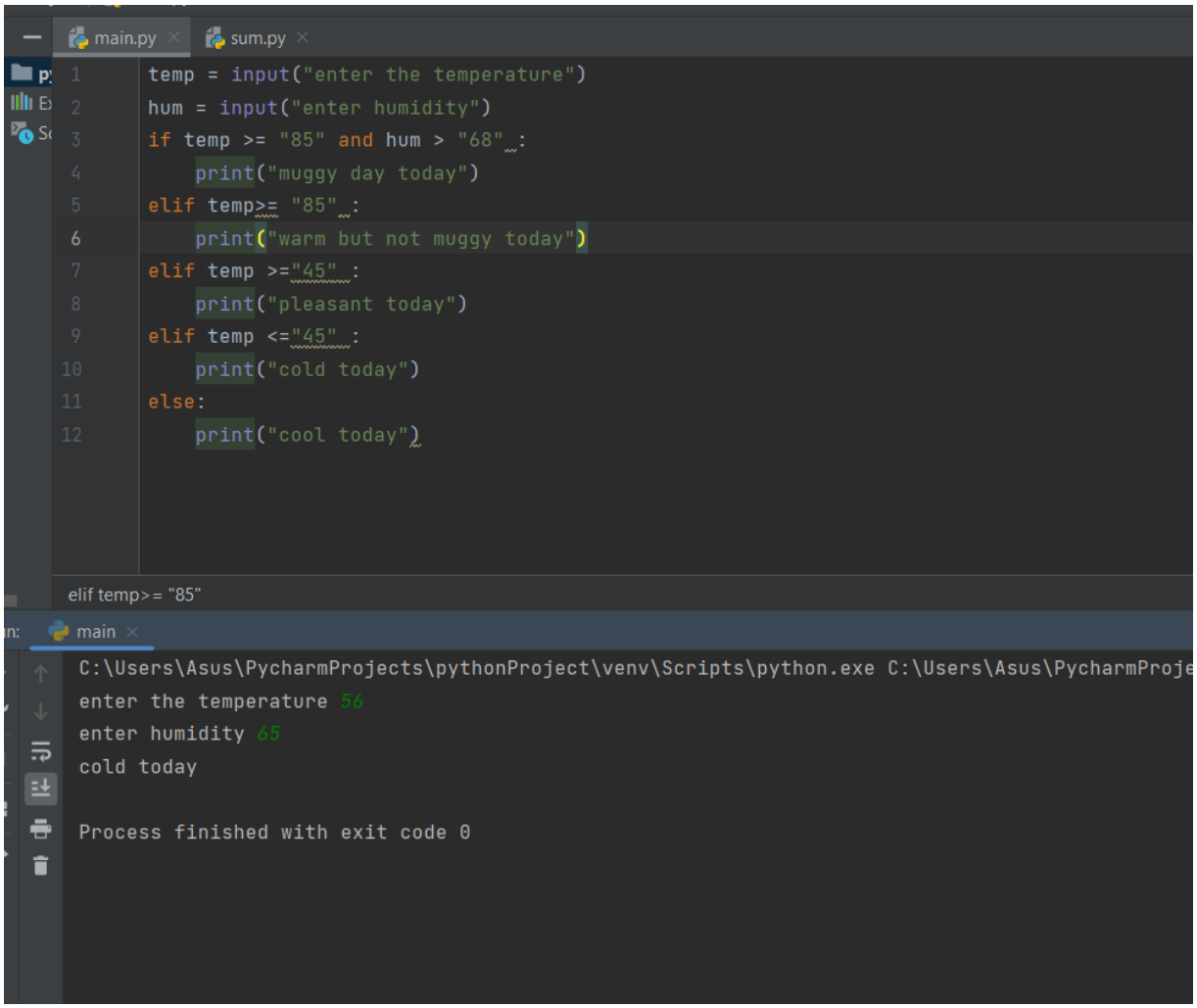
(b) Displays `'within range'` if `num` is between 0 and 100, inclusive, and displays `'out of range'` otherwise.



2. Rewrite the following if-else statements using a single if statement and elif:

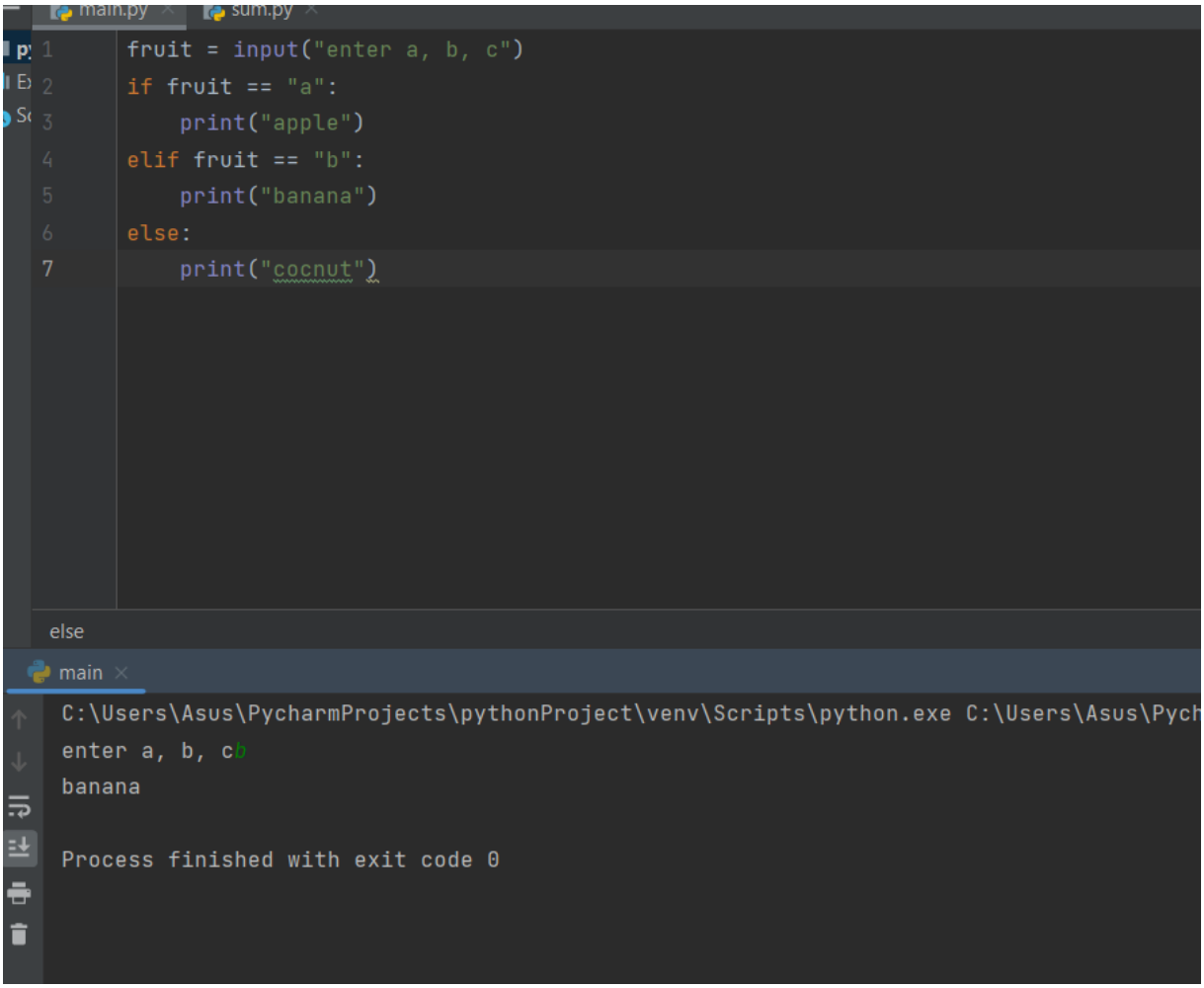
```
if temperature >= 85 and humidity > 60:
    print ('muggy day today')
else:
    if temperature >= 85:
        print ('warm, but not muggy today')
    else:
        if temperature >= 65:
            print ('pleasant today')
        else:
            if temperature <= 45:
                print ('cold today')
            else:
```

```
print ('cool today')
```

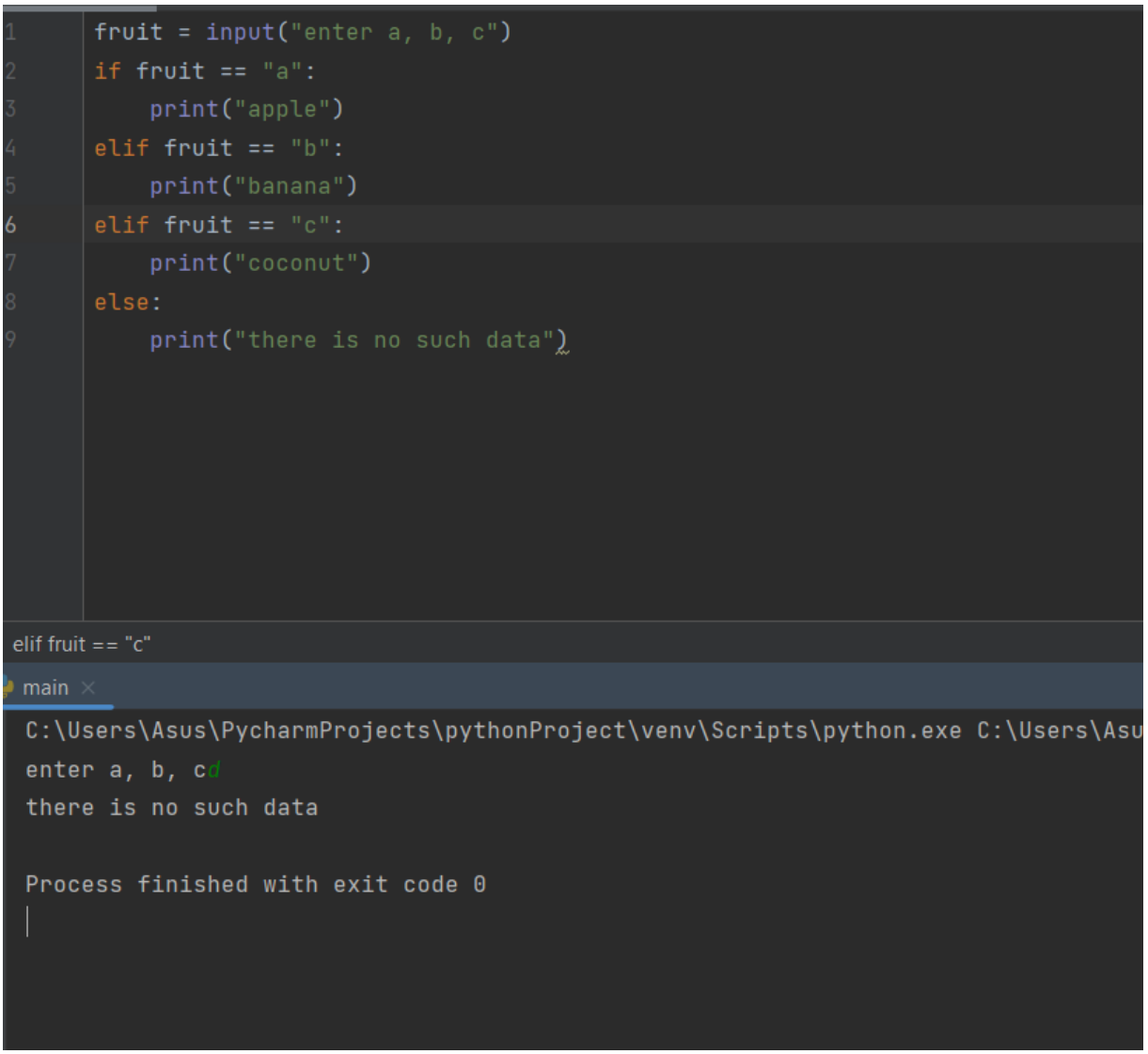


3. Write a Python program in which:

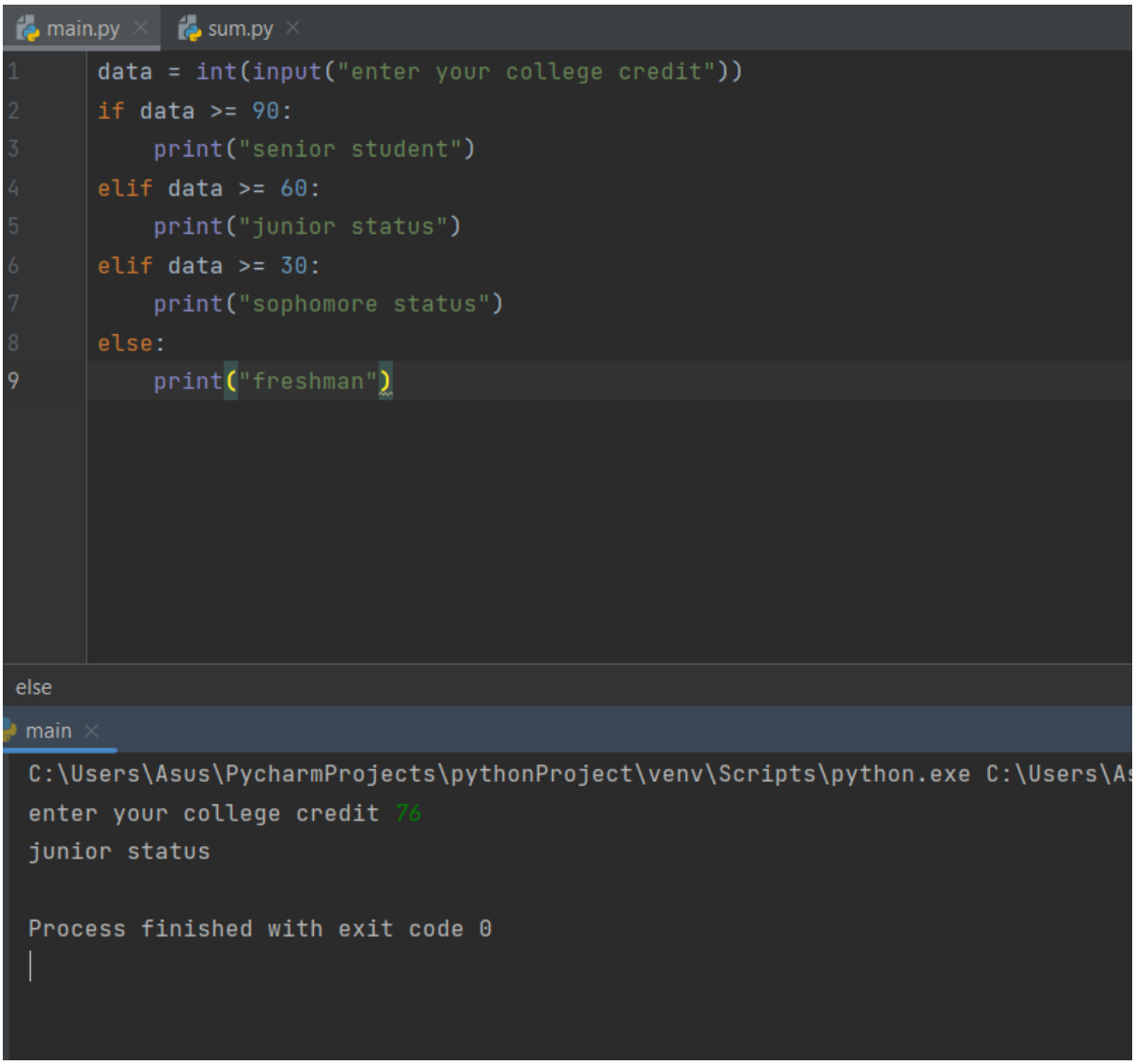
(a) The user enters either `'A', 'B', or 'C'`. If `'A'` is entered, the program should display the word `'Apple'`; if `'B'` is entered, it displays `'Banana'`; and if 'C' is entered, it displays `'Coconut'`. Use nested if statements for this.



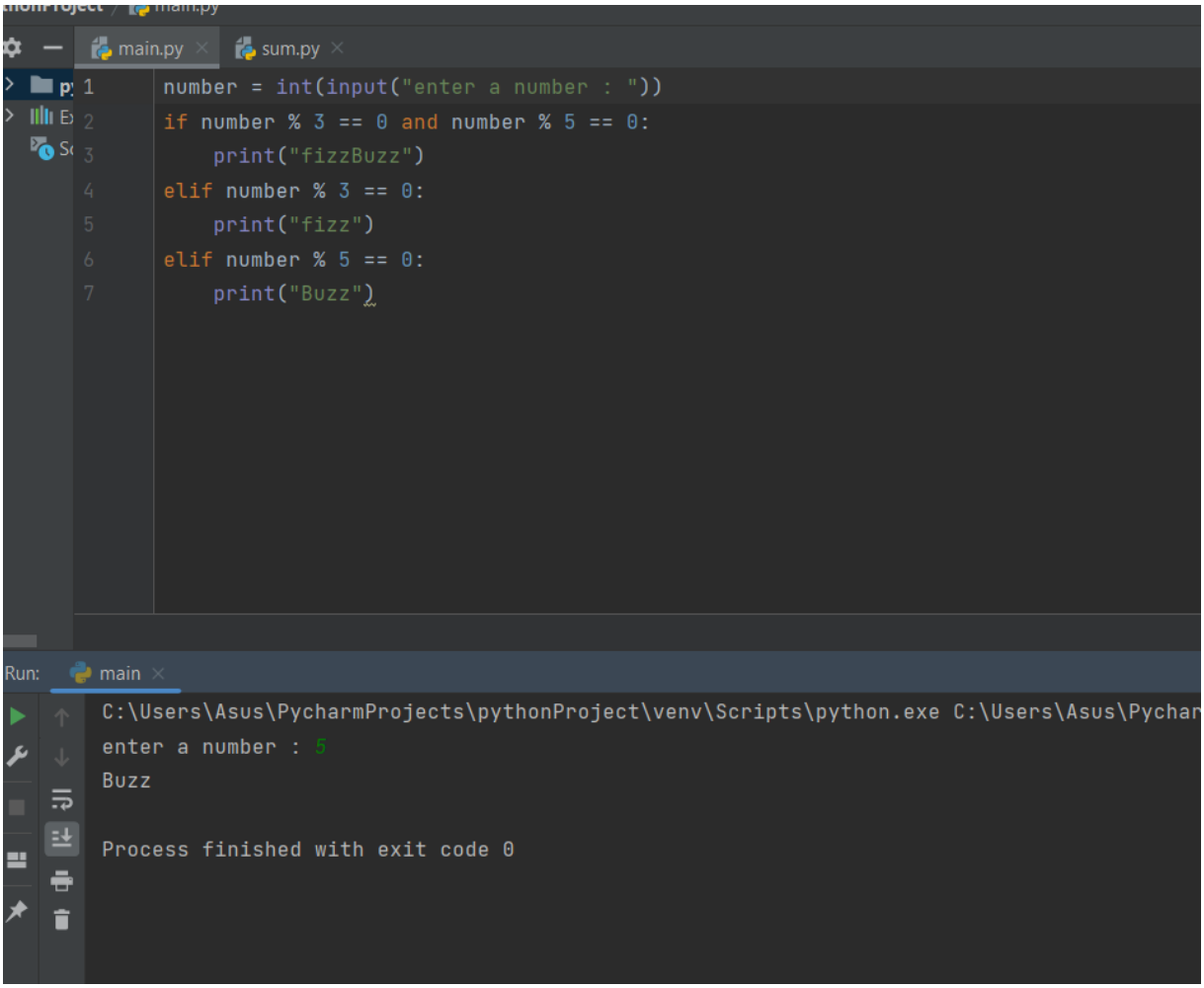
(b) Repeat question **(a)** using an if statement with `elif` headers instead.



(c) A student enters the number of college credits earned. If the number of credits is greater than or equal to 90, 'Senior Status' is displayed; if greater than or equal to 60, 'Junior Status' is displayed; if greater than or equal to 30, 'Sophomore Status' is displayed; else, 'Freshman Status' is displayed.

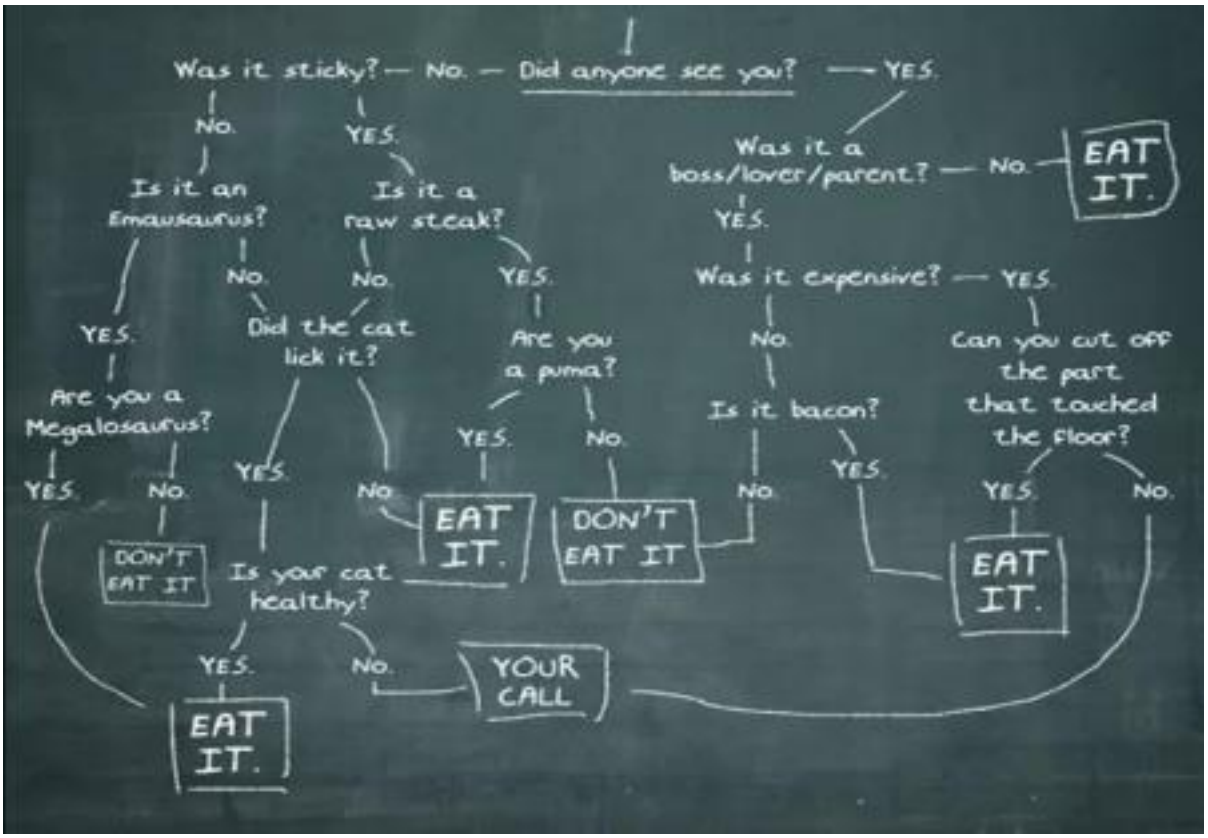


(e) The user enters a number. If the number is divisible by 3, the word 'Fizz' should be displayed; if the number is divisible by 5 the word 'Buzz' should be displayed and if the number is divisible by both 'FizzBuzz' should be displayed.



5. Create a program using the schematic below to help you decide whether it is okay to eat something that you dropped on the floor…

Note: this is not genuine advice on health and hygiene ;)


Was it sticky?
No.
Did anyone see you?
YES.
No.
YES.
Was it a boss/lover/parent?
No.
EAT IT.
Is it an Emausaurus?
Is it a raw steak?
YES.
Was it expensive?
YES.
No.
No.
YES.
No.
YES.
Did the cat lick it?
Are you a puma?
Can you cut off the part that touched the floor?
Are you a Megalosaurus?
Is it bacon?
YES.
No.
YES.
No.
YES.
No.
YES.
No.
EAT IT.
DON'T EAT IT
DON'T EAT IT
EAT IT.
Is your cat healthy?
YES.
No.
YOUR CALL
EAT IT.