**Task 1. Classify Temperatures:**

1. Create empty lists for temperature classifications:

(a) Cold: temperatures below 10°C.

(b) Mild: temperatures between 10°C and 15°C.

(c) Comfortable: temperatures between 15°C and 20°C.

2. Iterate over the temperatures list and add each temperature to the appropriate cate-

gory.

3. Print the lists to verify the classifications.

temperatures = [8.2, 17.4, 14.1, 7.9, 18.0, 13.5, 9.0, 17.8, 13.0, 8.5,

16.5, 12.9, 7.7, 17.2, 13.3, 8.4, 16.7, 14.0, 9.5, 18.3, 13.4, 8.1,

17.9, 14.2, 7.6, 17.0, 12.8, 8.0, 16.8, 13.7, 7.8, 17.5, 13.6, 8.7,

17.1, 13.8, 9.2, 18.1, 13.9, 8.3, 16.4, 12.7, 8.9, 18.2, 13.1, 7.8,

16.6, 12.5]

n=len(temperatures)

Cold=[]

Mild=[]

Comfortable=[]

for i in range(n):

    if(temperatures[i]<10):

        Cold.append(temperatures[i])

    elif(temperatures[i]>=10 and temperatures[i]<=15):

        Mild.append(temperatures[i])

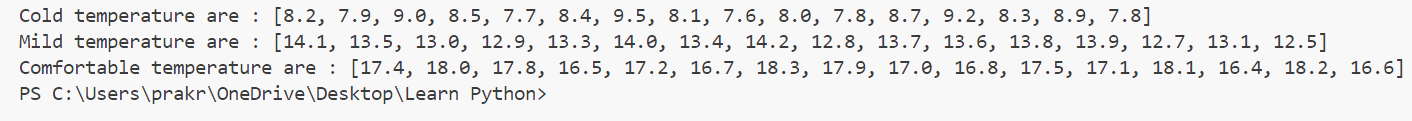
    elif(temperatures[i]>=15 and temperatures[i]<=20):

        Comfortable.append(temperatures[i])

print("Cold temperature are :",Cold)

print("Mild temperature are :",Mild)

print("Comfortable temperature are :",Comfortable)



**Task 2. Based on Data - Answer all the Questions:**

1. How many times was it mild?

(a) Hint: Count the number of items in the mild list and print the result.

2. How many times was it comfortable?

3. How many times was it cold?

temperatures = [8.2, 17.4, 14.1, 7.9, 18.0, 13.5, 9.0, 17.8, 13.0, 8.5,

16.5, 12.9, 7.7, 17.2, 13.3, 8.4, 16.7, 14.0, 9.5, 18.3, 13.4, 8.1,

17.9, 14.2, 7.6, 17.0, 12.8, 8.0, 16.8, 13.7, 7.8, 17.5, 13.6, 8.7,

17.1, 13.8, 9.2, 18.1, 13.9, 8.3, 16.4, 12.7, 8.9, 18.2, 13.1, 7.8,

16.6, 12.5]

n=len(temperatures)

Cold=[]

Mild=[]

Comfortable=[]

for i in range(n):

    if(temperatures[i]<10):

        Cold.append(temperatures[i])

    elif(temperatures[i]>=10 and temperatures[i]<=15):

        Mild.append(temperatures[i])

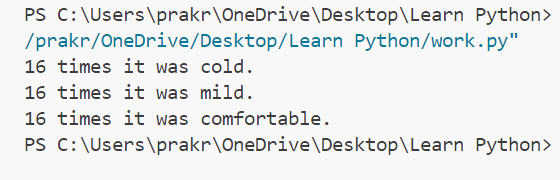
    elif(temperatures[i]>=15 and temperatures[i]<=20):

        Comfortable.append(temperatures[i])

print(len(Cold),"times it was cold.")

print(len(Mild),"times it was mild.")

print(len(Comfortable),"times it was comfortable.")



**Task 3. Convert Temperatures from Celsius to Fahrenheit**

Using the formula for temperature conversion, convert each reading from Celsius to Fahren-

heit and store it in a new list called temperatures\_fahrenheit.

1. Iterate over the temperatures list and apply the formula to convert each temperature.

2. Store the results in the new list.

3. Print the converted Fahrenheit values.

temperatures = [8.2, 17.4, 14.1, 7.9, 18.0, 13.5, 9.0, 17.8, 13.0, 8.5,

16.5, 12.9, 7.7, 17.2, 13.3, 8.4, 16.7, 14.0, 9.5, 18.3, 13.4, 8.1,

17.9, 14.2, 7.6, 17.0, 12.8, 8.0, 16.8, 13.7, 7.8, 17.5, 13.6, 8.7,

17.1, 13.8, 9.2, 18.1, 13.9, 8.3, 16.4, 12.7, 8.9, 18.2, 13.1, 7.8,

16.6, 12.5]

n=len(temperatures)

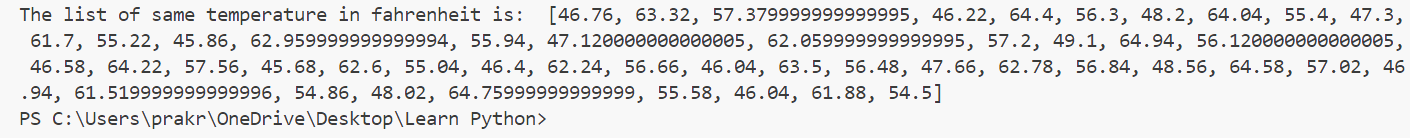
Fahrenheit\_temp=[]

for i in range(n):

    Fahrenheit = (temperatures[i] \* 9/5) + 32

    Fahrenheit\_temp.append(Fahrenheit)

print("The list of same temperature in fahrenheit is: ", Fahrenheit\_temp)



**Task 4. Analyze Temperature Patterns by Time of Day:**

Scenario: Each day’s readings are grouped as:

• Night (00-08),

• Evening (08-16),

• Day (16-24).

1. Create empty lists for night, day, and evening temperatures.

2. Iterate over the temperatures list, assigning values to each time-of-day list based on

their position.

3. Calculate and print the average day-time temperature.

temperatures = [8.2, 17.4, 14.1, 7.9, 18.0, 13.5, 9.0, 17.8, 13.0, 8.5,

16.5, 12.9, 7.7, 17.2, 13.3, 8.4, 16.7, 14.0, 9.5, 18.3, 13.4, 8.1,

17.9, 14.2, 7.6, 17.0, 12.8, 8.0, 16.8, 13.7, 7.8, 17.5, 13.6, 8.7,

17.1, 13.8, 9.2, 18.1, 13.9, 8.3, 16.4, 12.7, 8.9, 18.2, 13.1, 7.8,

16.6, 12.5]

n=len(temperatures)

Night=[]

Evening=[]

Day=[]

for i, temp in enumerate(temperatures):

    if i % 24 < 8:

        Night.append(temp)

    elif i % 24 < 16:

        Evening.append(temp)

    else:

        Day.append(temp)

if Day:

    avg\_day\_temp = sum(Day) / len(Day)

else:

    avg\_day\_temp = 0

print("Night temperatures:", Night)

print("Evening temperatures:", Evening)

print("Day temperatures:", Day)

print(f"Average daytime temperature: {avg\_day\_temp:.2f}°C")

