

Tasks and Analysis for Gay Lussac's Law Experiment

Before or after the experiment you will be required to add or remove some pieces of python code to a python script (gaylussac1.py) that uses the temperature and pressure sensors to record the changing temperature and pressure in the jar. The tasks are as follows:

1. Conditionals (IF else statements)

Inside the loop, add a block of code that checks the temperature value:

If the temperature is greater than or equal to 28; set all the LED lights to red

If the temperature is less than 28; set all the LED lights to green

Hint: To set all the LEDs to a specific color, use `sense.set_pixels(pixel_list)` depending on the color of choice. Such as `green_list` or `red_list`.

2. For loop

Change the while loop above to a For loop that will loop only 3 times instead of endlessly.

3. While loop

Change the for loop in the program to a while loop and make it loop only 5 times.

Hint: use a counter such as `(i=0)`

4. Functions

Write a function in the beginning of the script called `pressure_monitor(pressure)` which will take the pressure value as a parameter. If the pressure value is greater than 1000 milibars, the sense hat shows a message on the LED screen.

Hint: To show message on the LED screen, use `sense.show_message(" ")`

5. Graph your recorded temperature and pressure values

Create a new python script to graph you recorded values

Here's a simplified example of how matplotlib could be used to graph:

#imports the necessary modules to run the script

Import matplotlib

matplotlib.use("TKAgg")

Import matplotlib.pyplot as plt

initilazing the data values to be plotted

time_values = [0.12,0.32,0.47,0.60,0.71]

accel_values = [4,7,3,4,5]

use the plot function to plot accel values against time values

plt.plot (time_values, accel_values) # x,y axis respectively

#labels the axis respectively

plt.xlabel('time (s)')

plt.ylabel('acceleration (Gs)')

plt.title('About as simple as it gets') #gives the title of the graph

plt.show() # shows the plotted graph n screen

