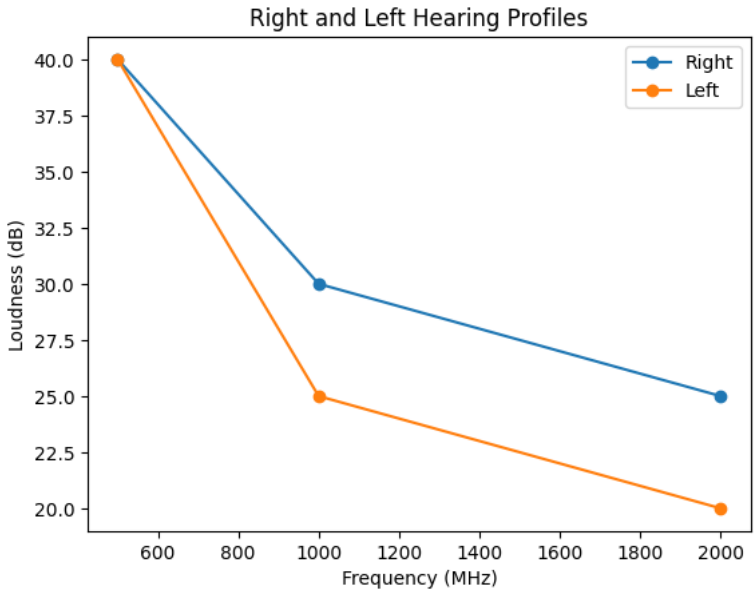
LAB 6/7- Sensory Physiology

Purpose: The purpose of lab 6/7 is how our sensation interacts with three of the basic components of the nervous system. Which are receptors, sensory neurons, and interpretation centers.

Procedures: In a quiet room, the instructor will demonstrate the proper method of operating the audiometer. Audiometry tests will be conducted in pairs. Each student will take his/her partners audiogram. Record your results. Analyze the audiograms in the following way: Average the values obtained for each ear for the frequencies of 500 Hz, 1000 Hz,and 2000 Hz. Subtract 26 dB from each average. If the difference is greater than 26, multiply this number by 1.5%. This equals the percent impairment of each ear

Results: I analye the audiograms as shown on graph below

```
import matplotlib.pyplot as plt


#Define your numbers below here

RIGHT_500 = 40
RIGHT_1000 = 30
RIGHT_2000 = 25

LEFT_500 = 40
LEFT_1000 = 25
LEFT_2000 = 20


#DO NOT CHANGE ANYTHING BELOW HERE - Just run it ----------------------------------------------------------

Right_x = 500,1000,2000
Right_y = RIGHT_500, RIGHT_1000, RIGHT_2000

Left_x = Right_x
Left_y = LEFT_500, LEFT_1000, LEFT_2000


#DO NOT CHANGE ANYTHING BELOW HERE - Just run it ----------------------------------------------------------
plt.plot(Right_x, Right_y, '-o', label = "Right" )
plt.plot(Left_x, Left_y, '-o', label = "Left" )
plt.ylabel('Loudness (dB)')
plt.xlabel("Frequency (MHz)")
plt.title('Right and Left Hearing Profiles')
plt.legend()
plt.show()
```



#DO NOT CHANGE ANYTHING BELOW HERE - Just run it

```
#DO NOT CHANGE ANYTHING BELOW HERE - Just run it ------------------------------------------------------------
# Calculate the average for the right side
average_right = sum(Right_y) / len(Right_y)

# Calculate the average for the left side
average_left = sum(Left_y) / len(Left_y)

# Subtract 26 from each average
average_right -= 26
average_left -= 26

# Calculate percent impairment for the right side
if average_right > 0:
    percent_impairment_right = average_right * 1.5
else:
    percent_impairment_right = "Not impaired"

# Calculate percent impairment for the left side
if average_left > 0:
    percent_impairment_left = average_left * 1.5
else:
    percent_impairment_left = "Not impaired"

print("Average Right after subtraction:", average_right)
print("Percent Impairment Right:", percent_impairment_right, "%")

print("Average Left after subtraction:", average_left)
print("Percent Impairment Left:", percent_impairment_left, "%")
```

```
Average Right after subtraction: 5.666666666666668
Percent Impairment Right: 8.500000000000002 %
Average Left after subtraction: 2.333333333333332
Percent Impairment Left: 3.4999999999999982 %
```

Discussion: After the procedure I did see I am able to hear better on my left ear than my right ear.

Conclusion: The audiogram determines individual hearing acuity compared to normal values. For me my right ear has a impairment of 6% and for my left it has a impairment of 2%. My right would be my bad impairment and my left good impairment