Lab 1 Task 4 Questions - Katarina Martinez

1. From my experience, HSV is typically better. It tracked the object much better than RGB. I used the following code to find the HSV value of blue. I chose the color blue to find the HSV value of. The range I used is lower_blue=np.array([90,50,70]) and upper_blue=np.array[(128,255,255)].

2. There is definitely a difference in the tracking ability of the object when the lighting changes. When the flashlight is on, there is too much exposure which affects the tracking of the object. Also, when the lights are off, it makes the tracking more difficult since it is harder to see the object. All in all, the lighting plays a significant role in the tracking of an object.

3. When it comes to the phone brightness, depending on the level of brightness it is on affects the tracking of the object. A good happy-medium brightness was the way to go when I was tracking blue objects. The color blue is also a very stand out color, so I could still track the objects when I changed the brightness, Whereas for other colors that are not as bold or stand out, the brightness would probably have a bigger effect on the tracking. The goal for me was too make sure the object was visible enough to track.

   Below, I attached a picture of me tracking one of the blue objects.
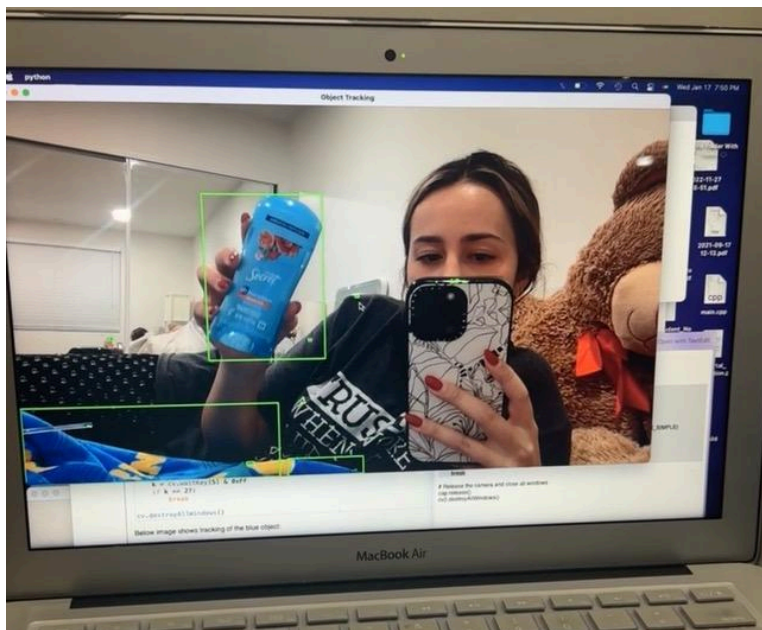
4. Using K-means, it determined the dominant color in my video feed. I used a purple phone case to show the most dominant color, the picture is shown below. In the upright left corner, it illustrates the most dominant color, being the color of the phone case. After changing the brightness, the dominant color also changed. When the room became darker, the dominant color appeared darker. With the brighter light, the color also became lighter. The flashlight on my phone caused the biggest difference in color change. The brightness of the room did not affect the dominant color as much as the flashlight. I attached the code in the dominantcolor.py file.