Starting with how to use the colab, I was able to repeat the Python grammar and data structure. There were a lot of things that I knew, but I learned new things about how to embed images and string formatting. It was also found that only unique elements were available in the set. It was also newly learned that the option to give True and False among the functional factors, such as 'loud=False', should be located at the end. The process of setting the conda environment was not easy. It took a while to download anaconda, and the yml file was incorrect, so I was able to set the virtual environment with the command conda create -f. I was able to understand the index structure of a matrix well by learning numpy, and how to slice it. At first, I was confused about the given task, but I was able to fully understand slicing by deriving an appropriate answer through question-and-answer with the professor. In execise time, an unfamiliar image processing task was given. In the problem of turning the image 90 degrees, we tried to manipulate the image matrix in pixel units, but we couldn't change the rgb value, causing the image to come out black. Looking at the answer, it was futile because it ended up with a single line of function without manipulating the matrix in pixel units. In the next task, the desired value could be obtained by changing the axis condition of functions such as min, max, and mean of numpy. The difference between axis=0 and axis=1 could be clearly understood.