

# CAP5415 - COMPUTER VISION

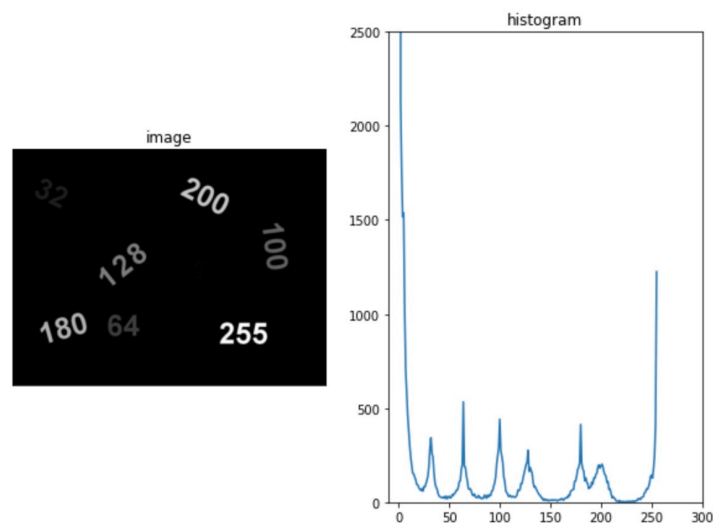
## Programming assignment 4

PRUDVI KAMTAM

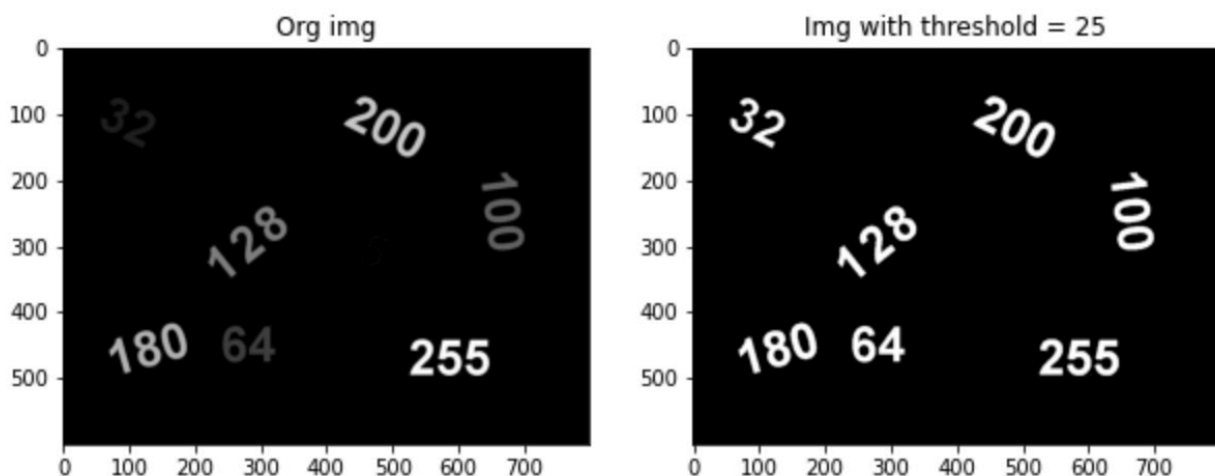
UCFID: 5498416

### Simple thresholding based image binarization algorithm

*Image 1*



- We can see that we can choose multiple threshold values and get different results  
potential threshold values are: 25, 50, 75, 110, 155, 225
- After the binarization using the threshold, we can see that the pixels with lower intensities are completely removed (turned off).
- Example, when a threshold of 110 is applied to the image, all the pixel values less than 110 i.e. 32, 64 and 100 are set to 0 while all the pixel value values greater than 110 i.e. 128, 180, 200 and 255 are set to max.



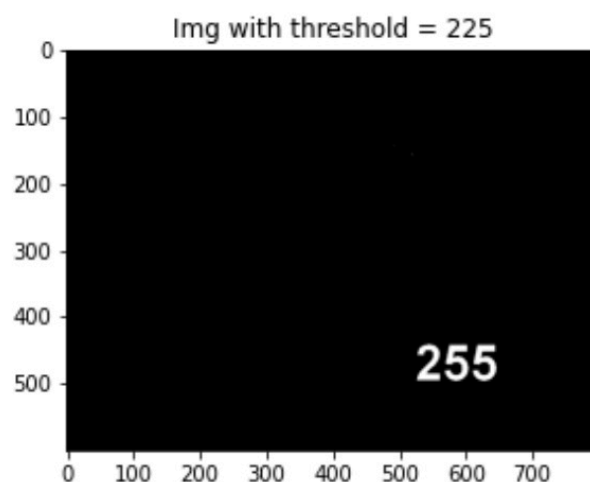
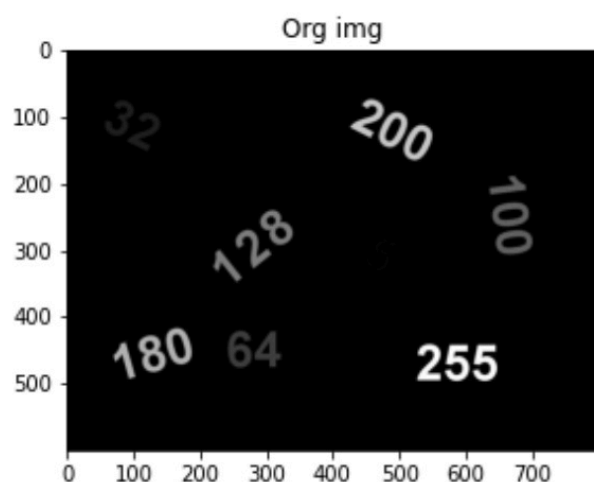
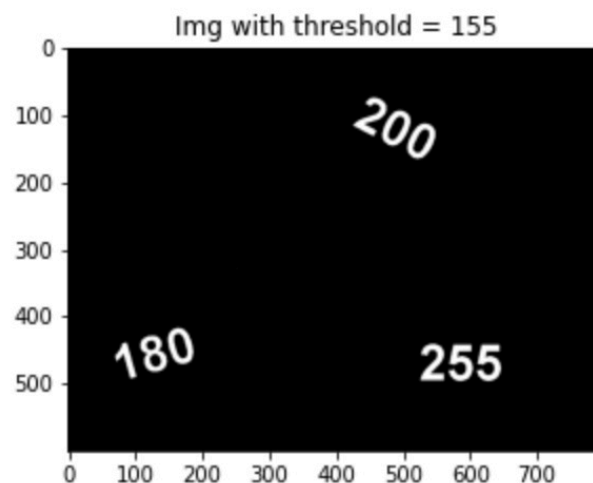
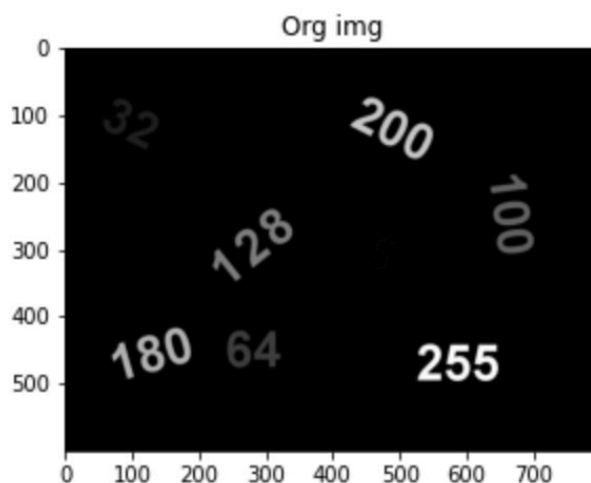
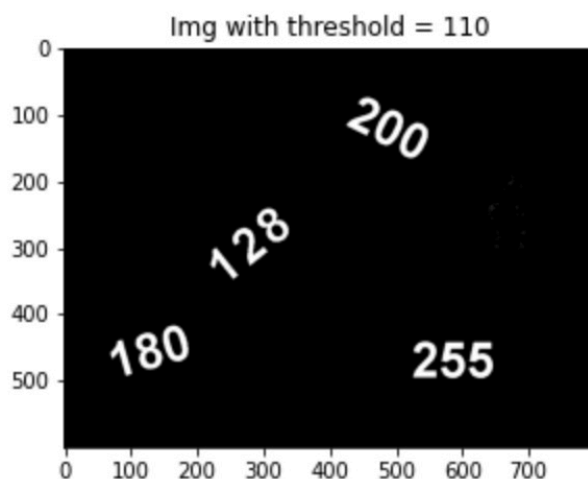
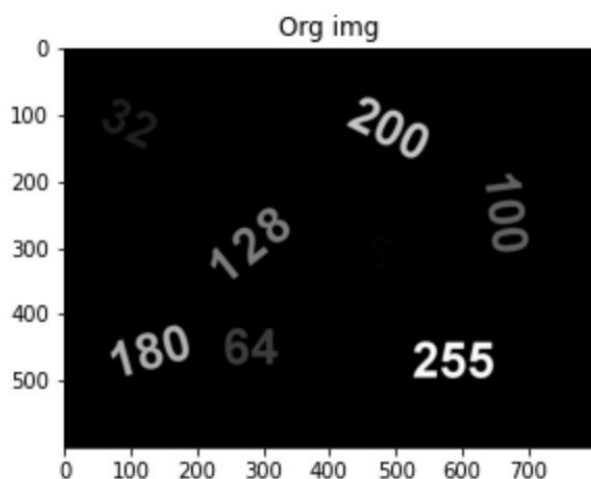
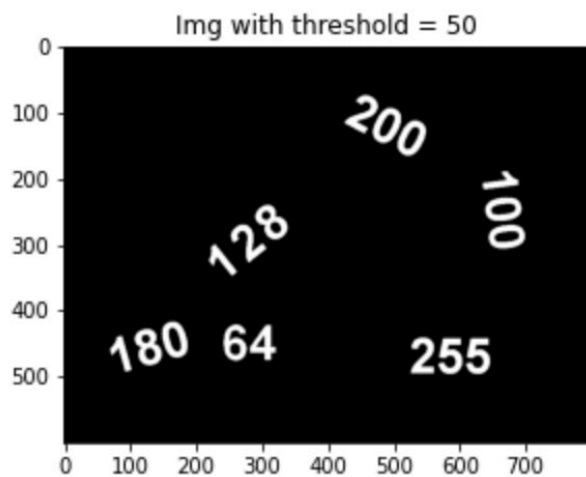
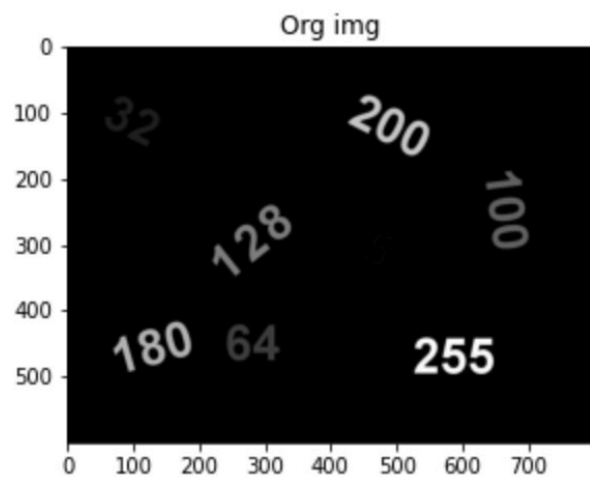
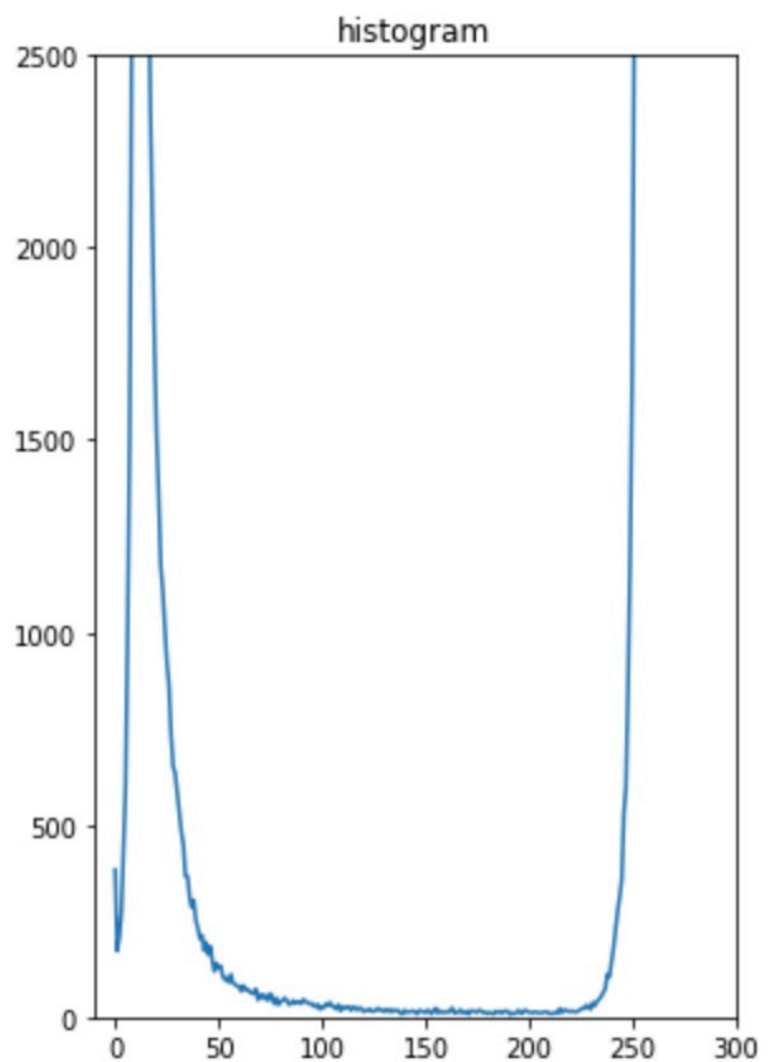
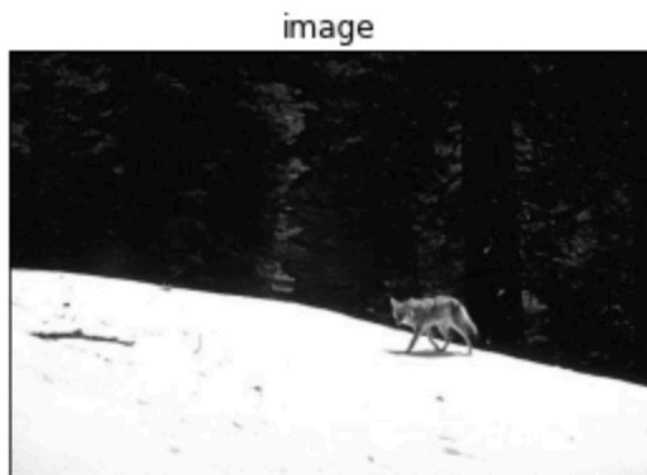


Image 2



- The clear threshold seems to be around 150
- The image is clearly divided into two regions where all the dark pixels are located in 1 area and the light pixels are located in another.
- From the histogram we can see that these two intensities are located at the either end of the intensity spectrum.
- Images in next page

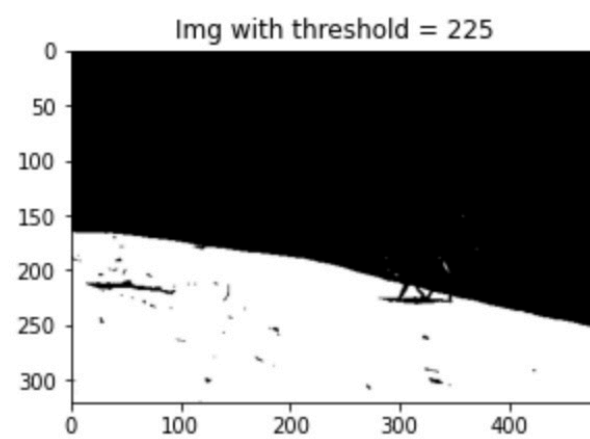
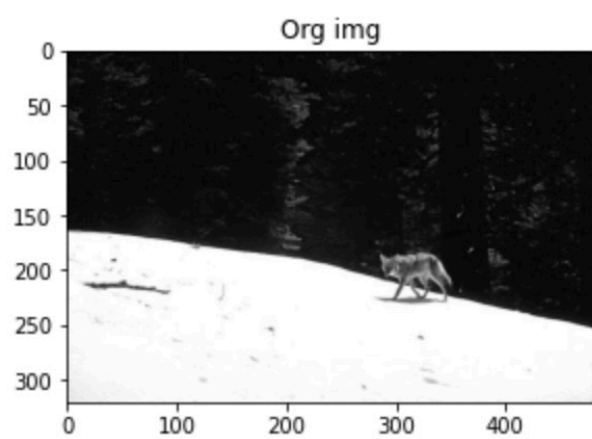
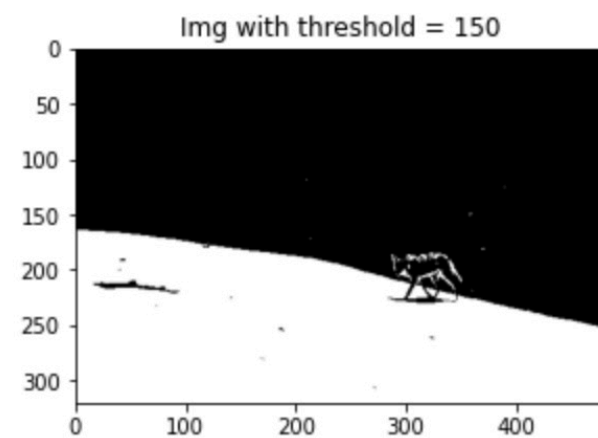
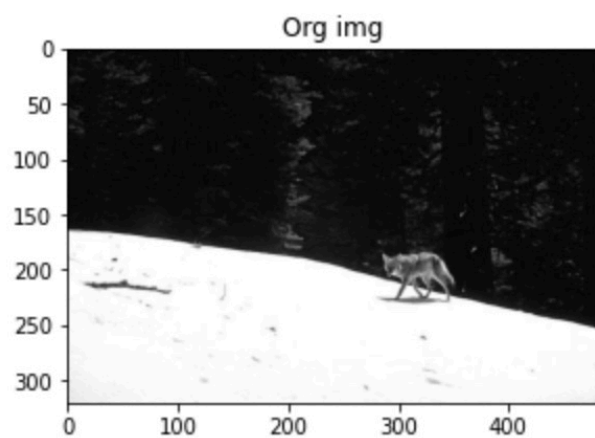
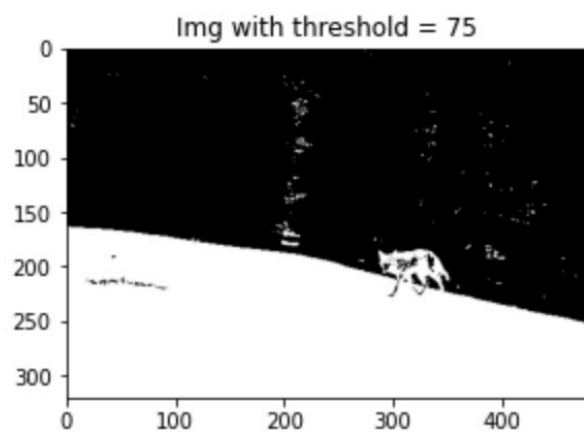
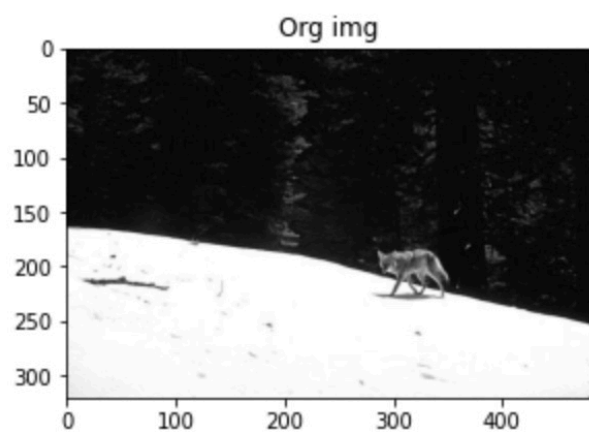
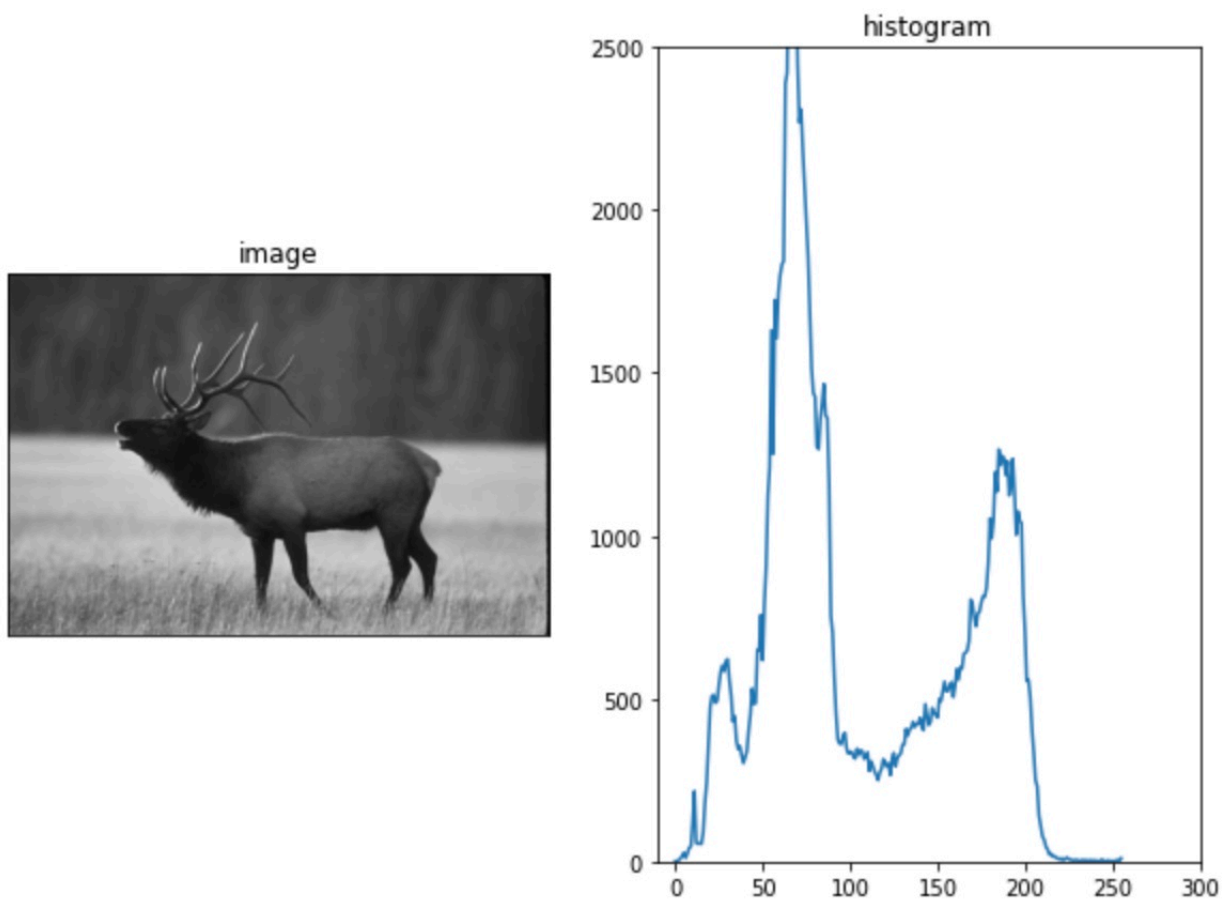
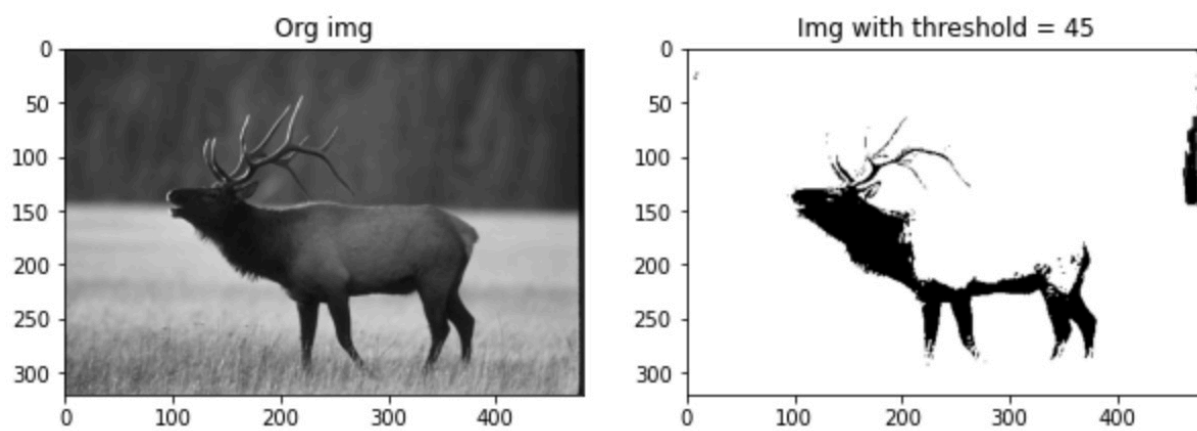
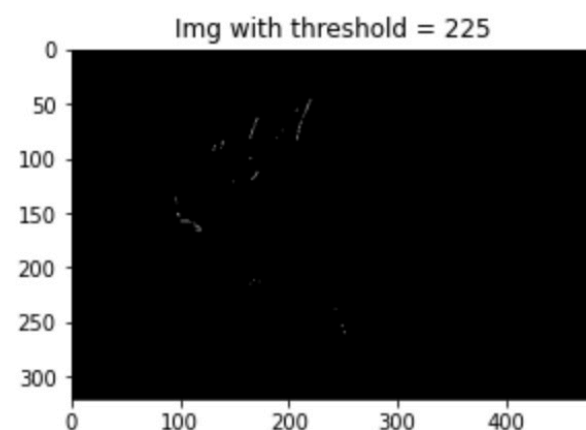
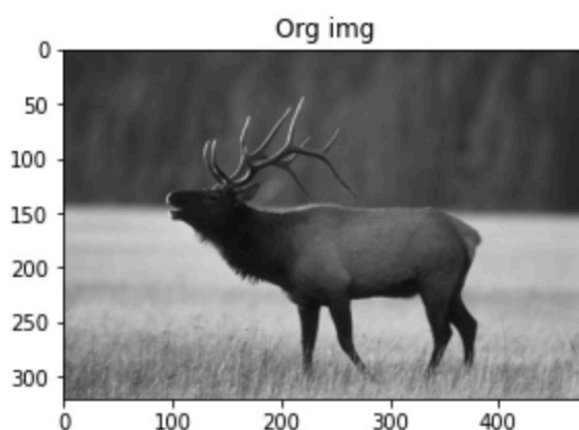
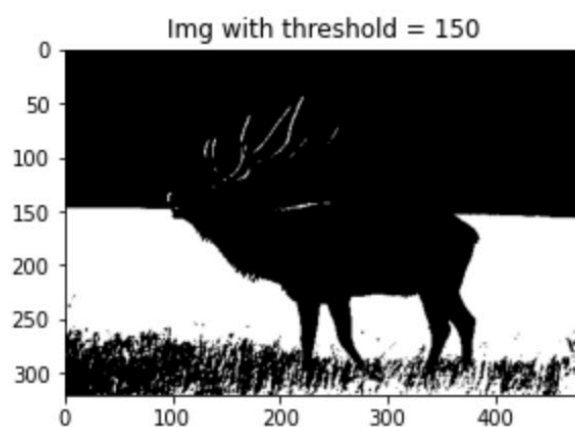
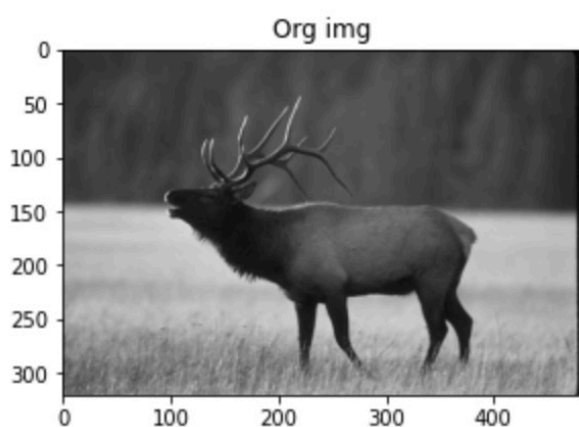
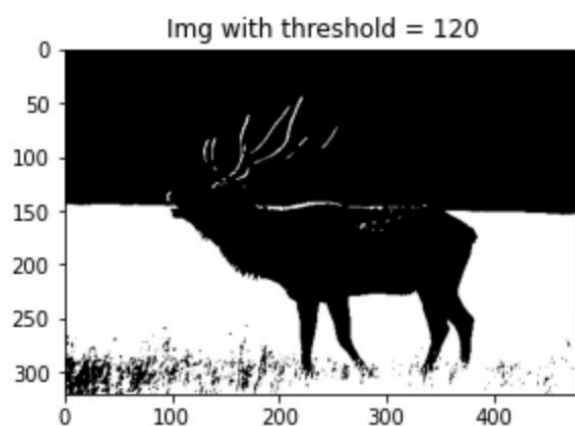
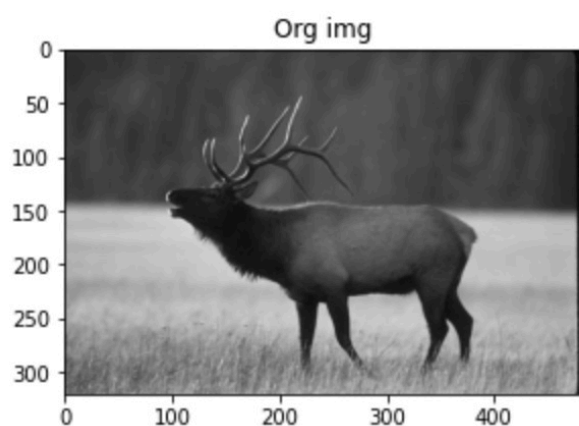


Image 3

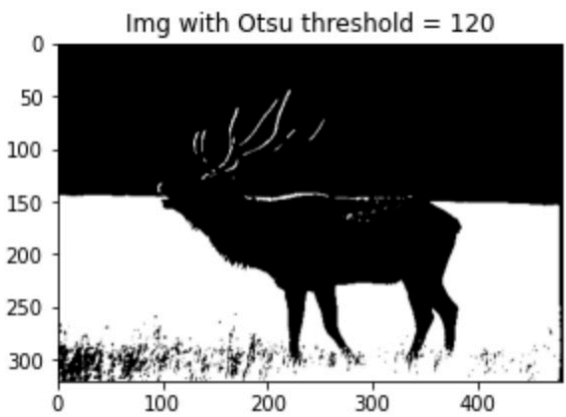
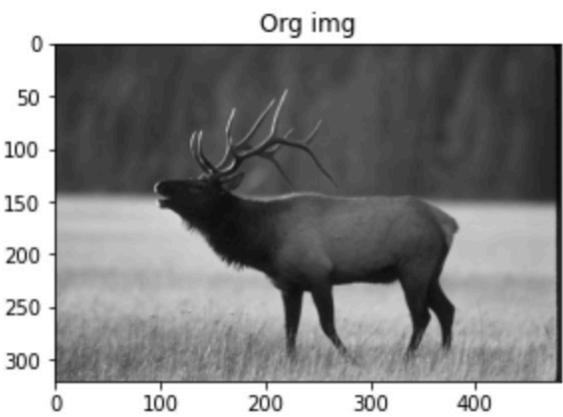
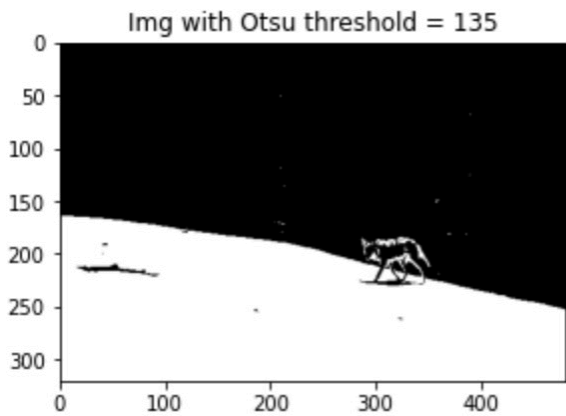
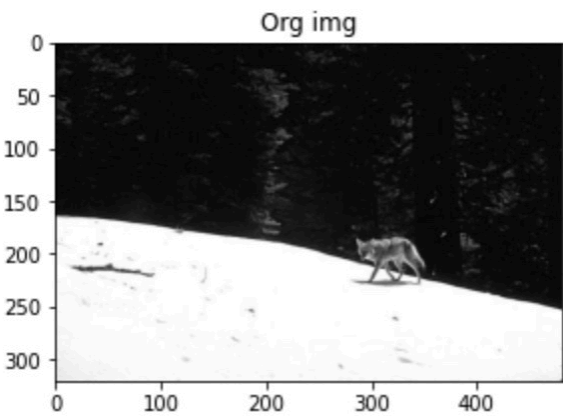
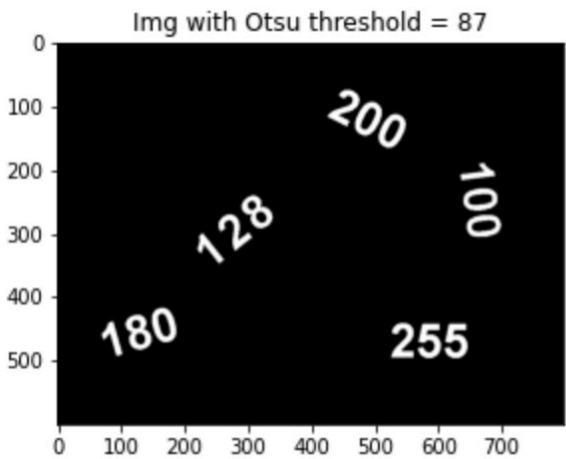
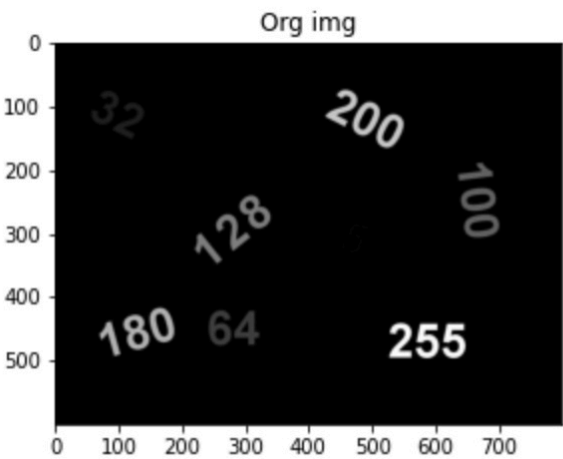


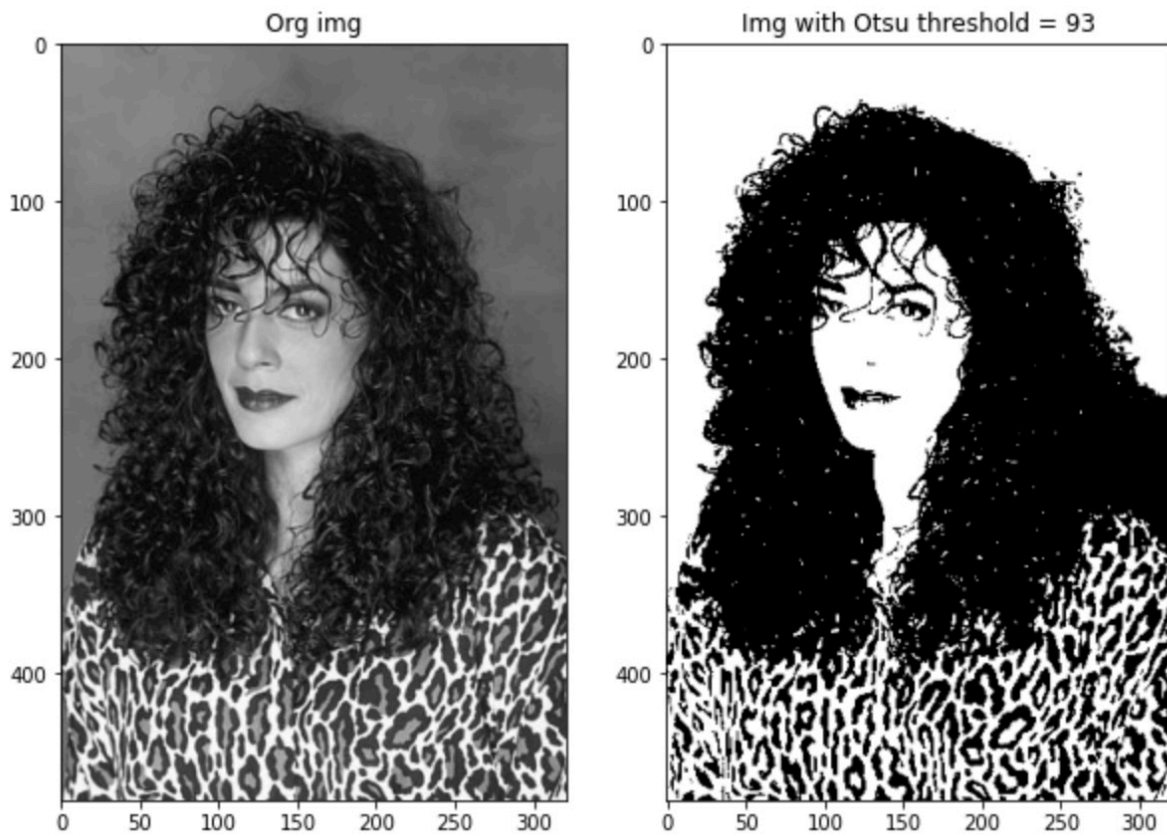
A good threshold seem to be around 120





*Otsu Thresholding*





- Otsu thresholding has found the best threshold each image.
- These threshold values are closer to what I have manually selected after visual inspection of the respective histograms.



