

Enhancements:

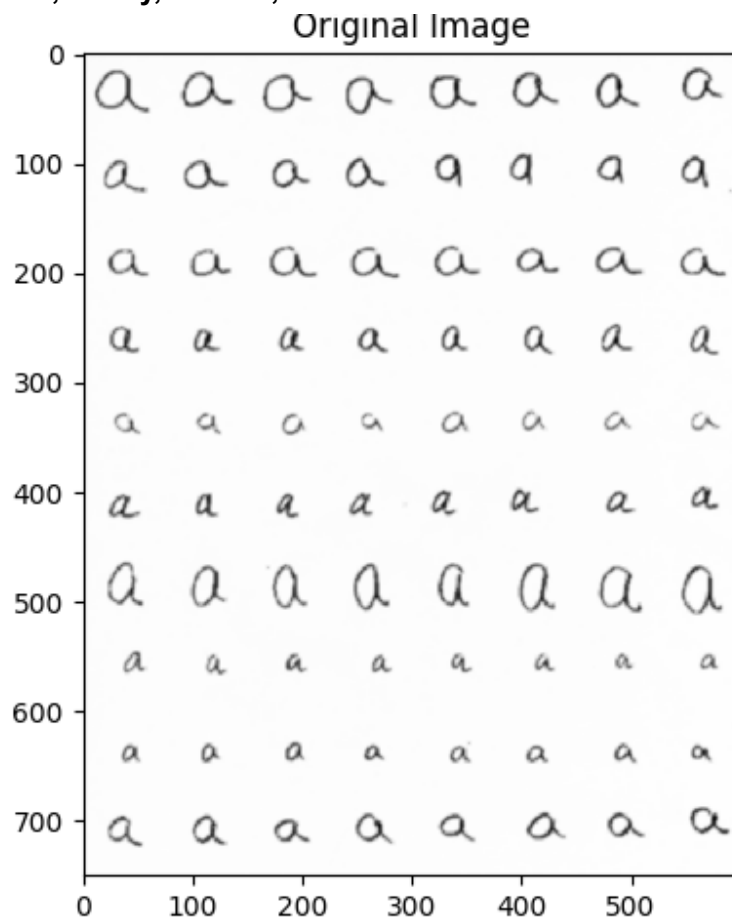
One enhancement I made on the program was making sure that the program would not include characters that are too small, so I had created a size threshold for identifying letters, this allows, this increased the accuracy from 0.12857142857142856 to 0.45714285714285713

Another enhancement I made was changing the threshold from 200 to 225, this changed my accuracy from 0.35714285714285715 to 0.5428571428571428

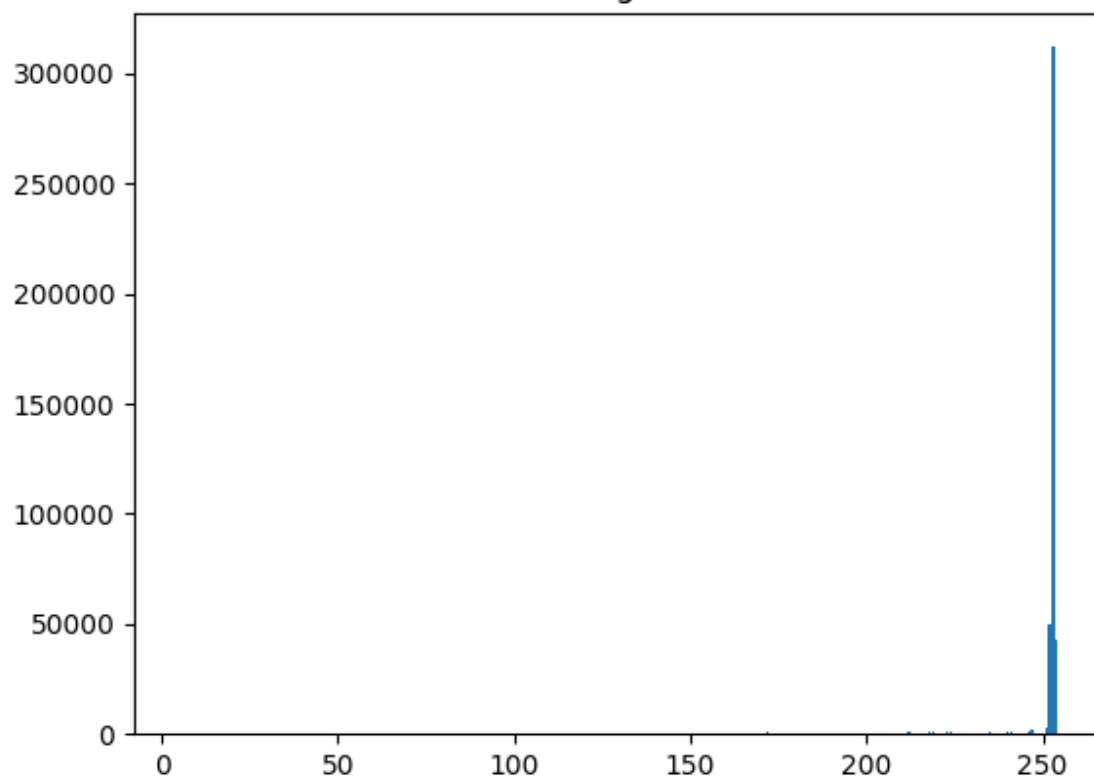
With all of my enhancements my total recognition rate was 54%

Training Images

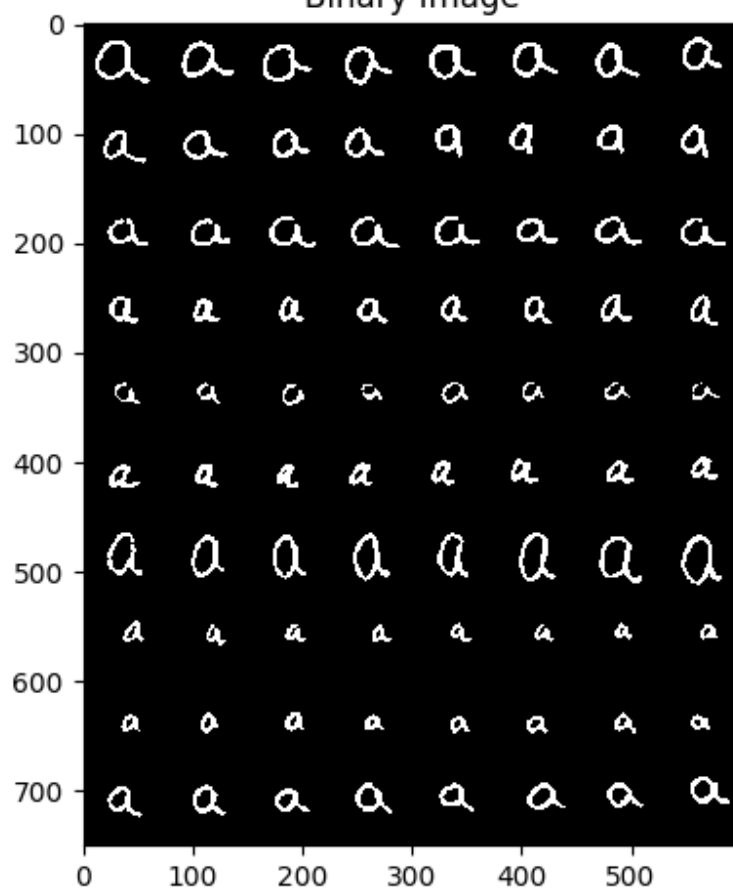
Original, histogram, binary, labeled, bounded:

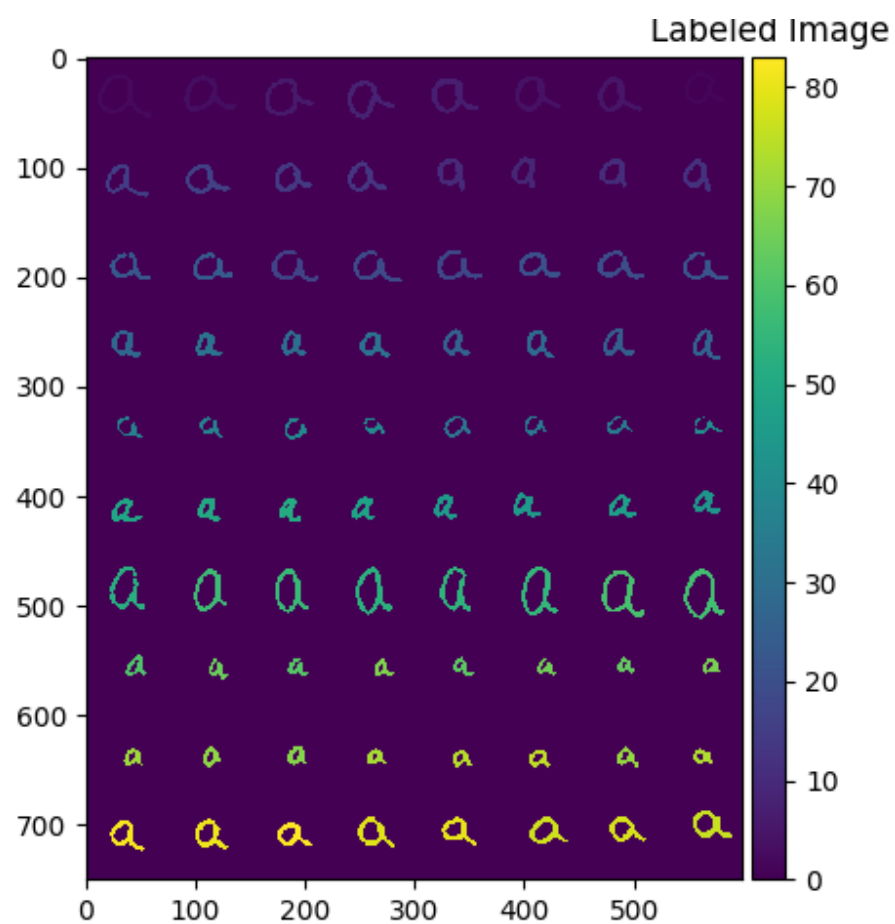


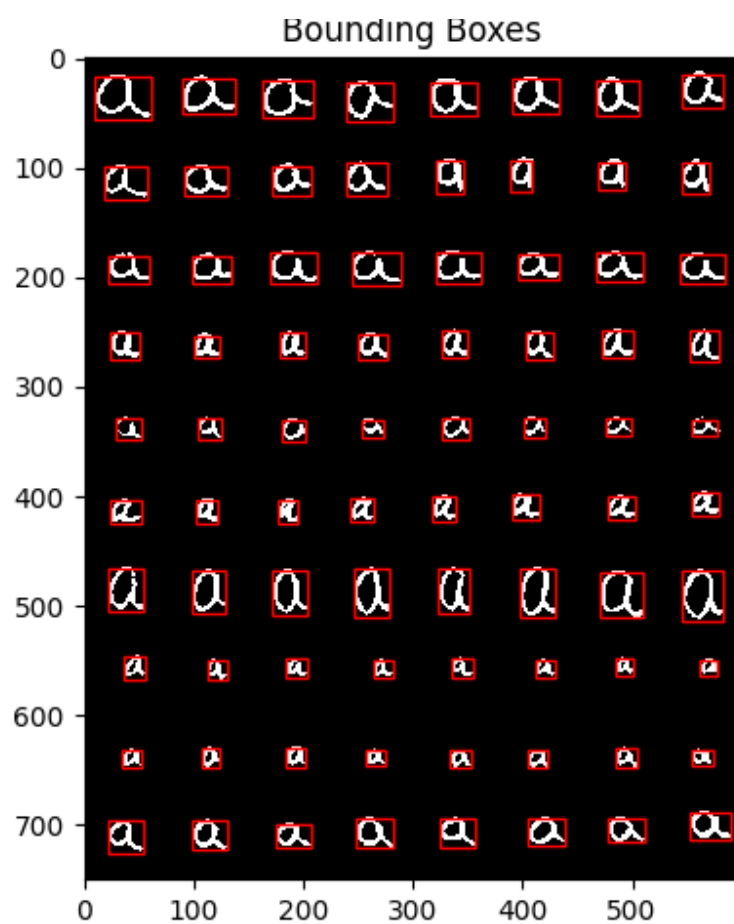
Histogram



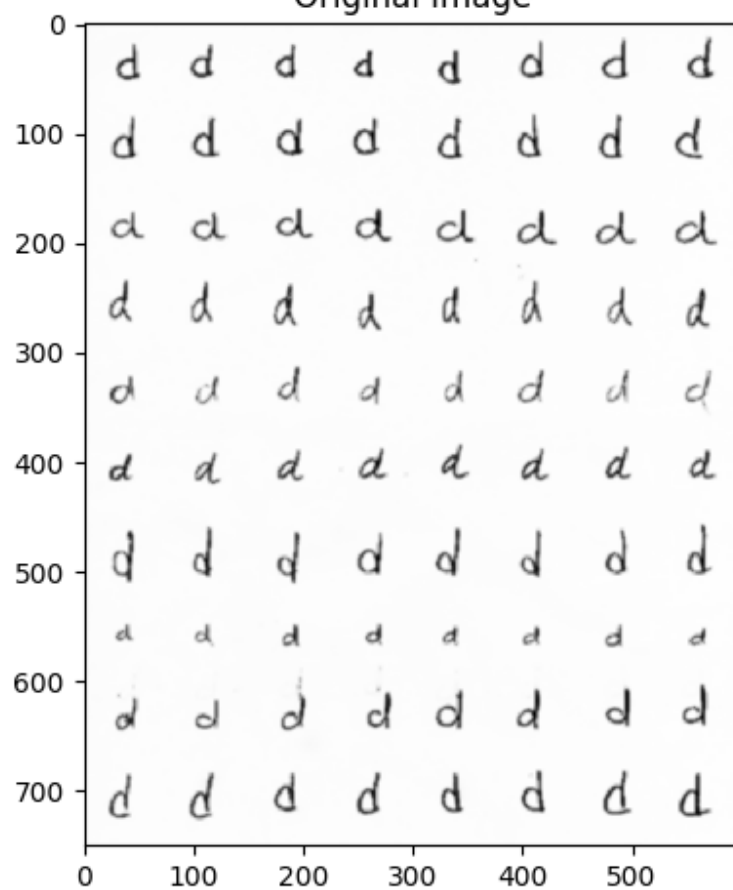
Binary Image



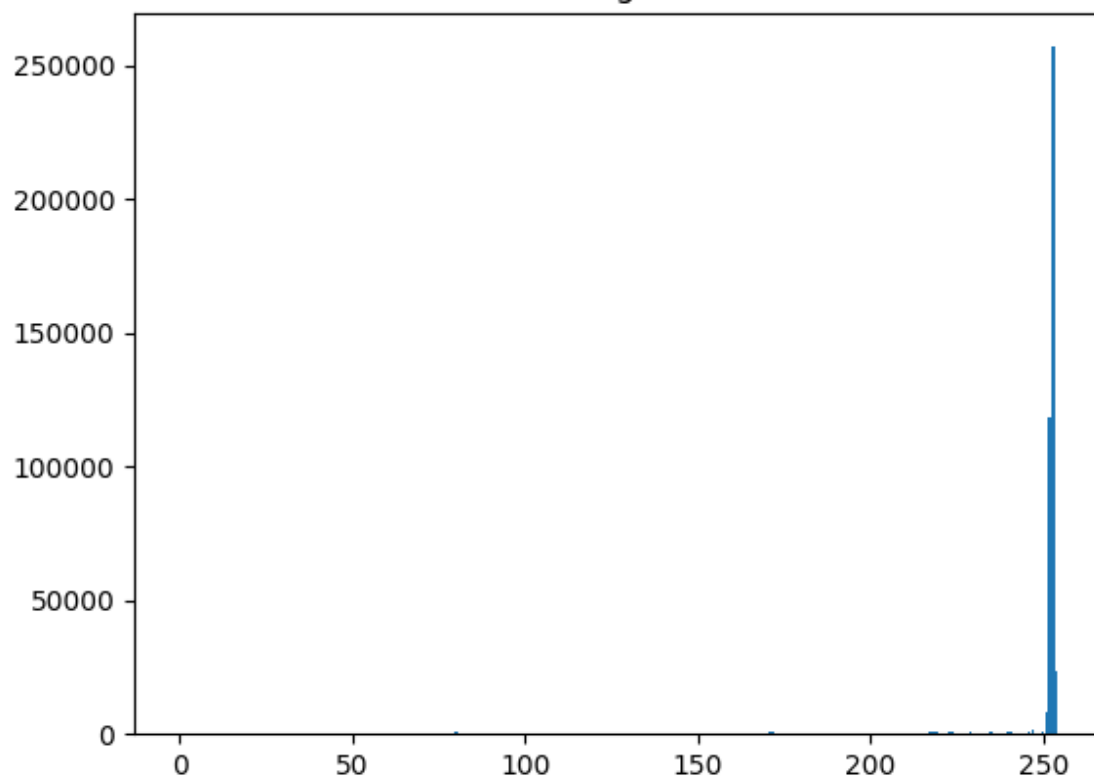




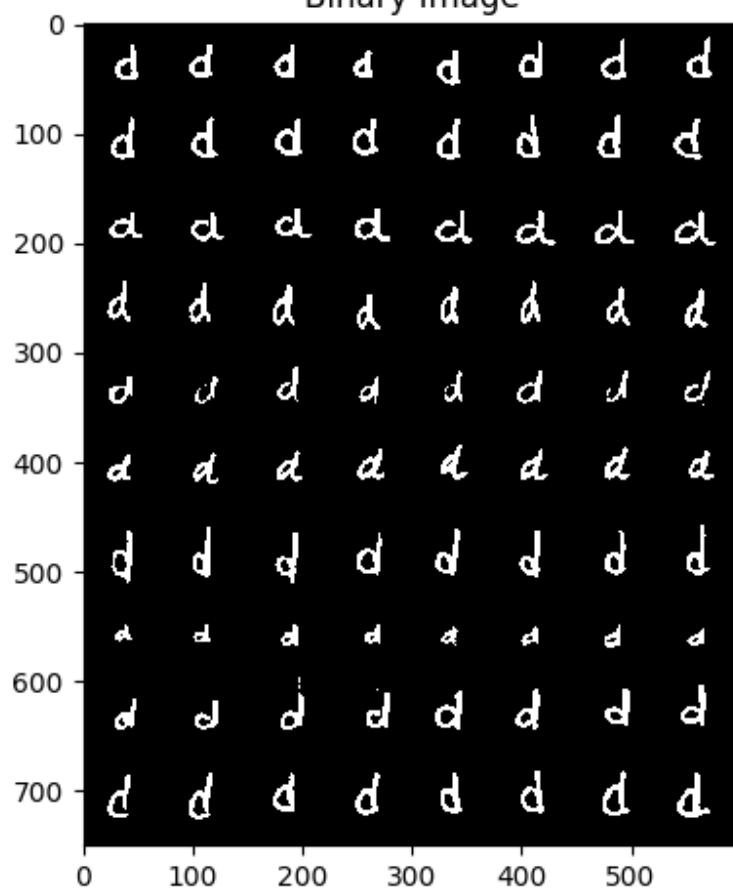
Original Image

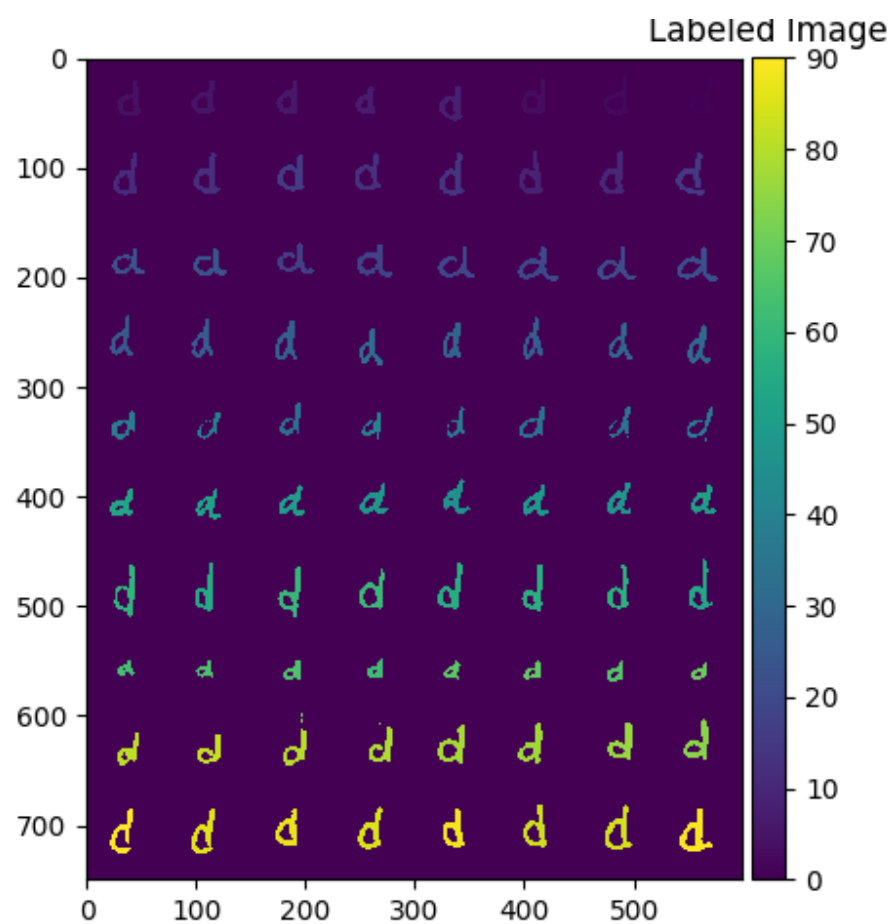


Histogram

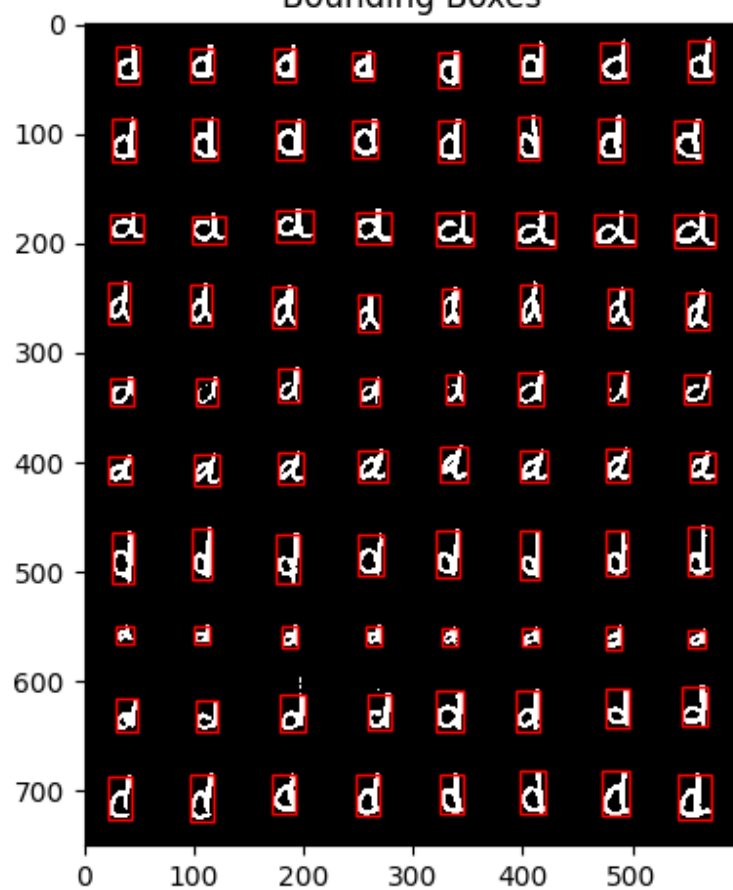


Binary Image

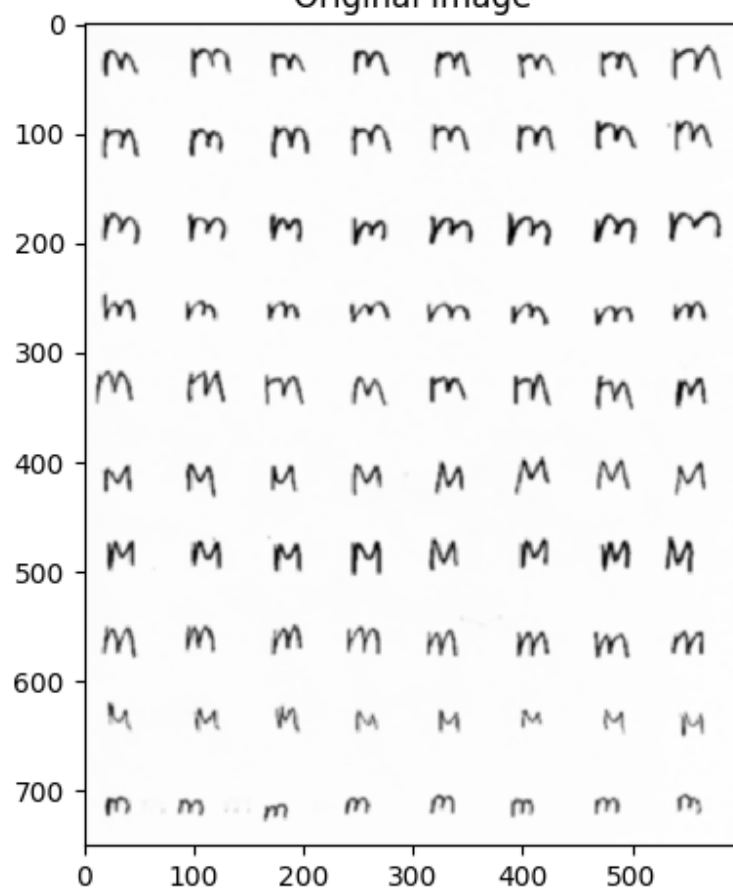


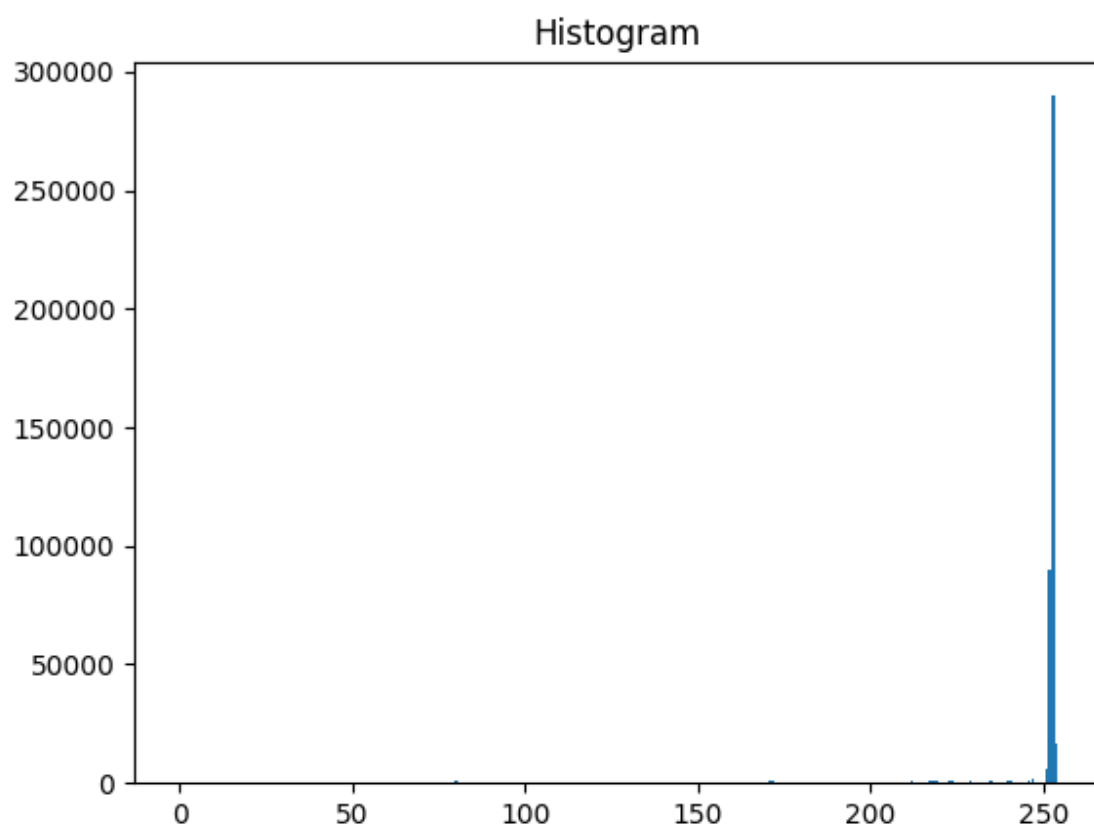


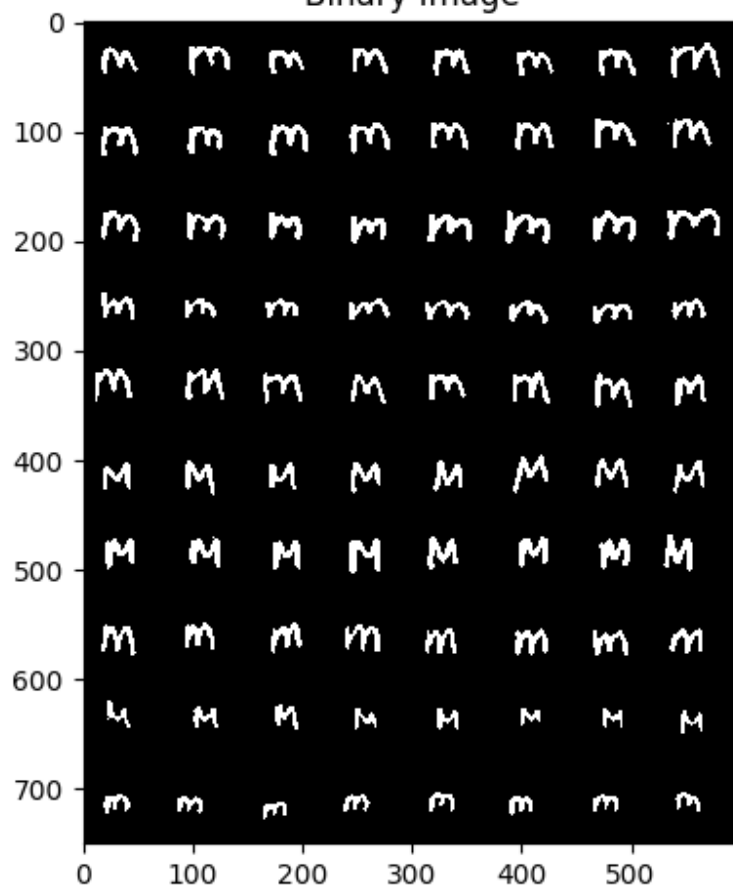
Bounding Boxes

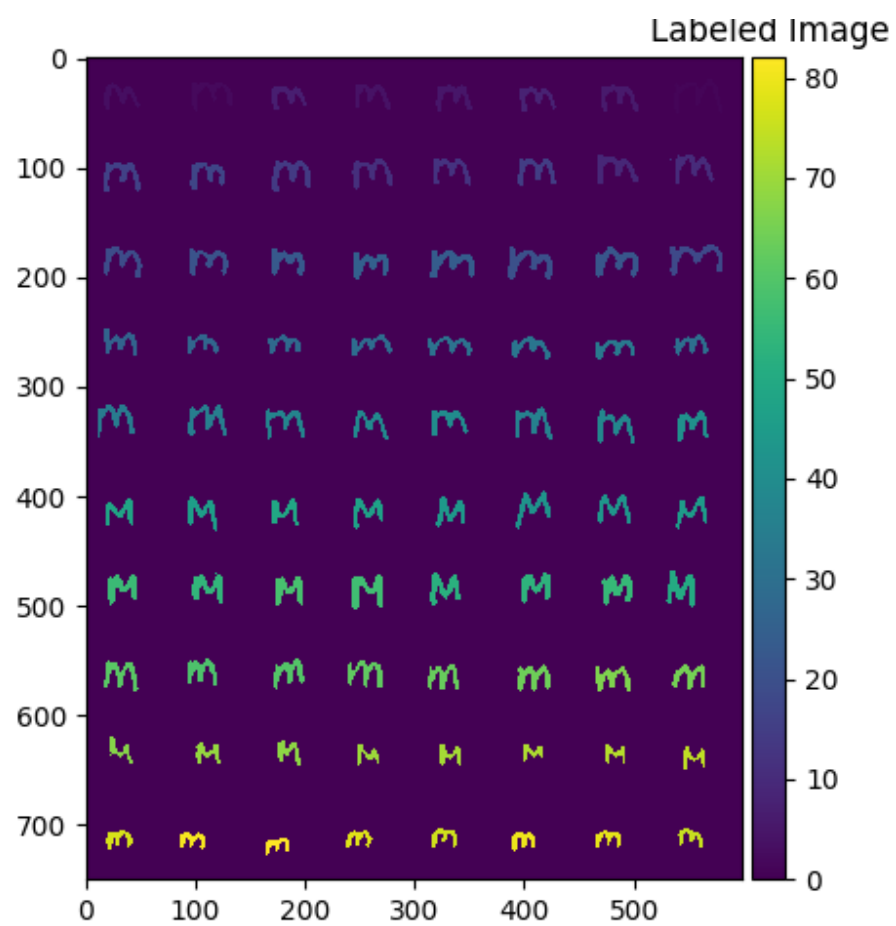


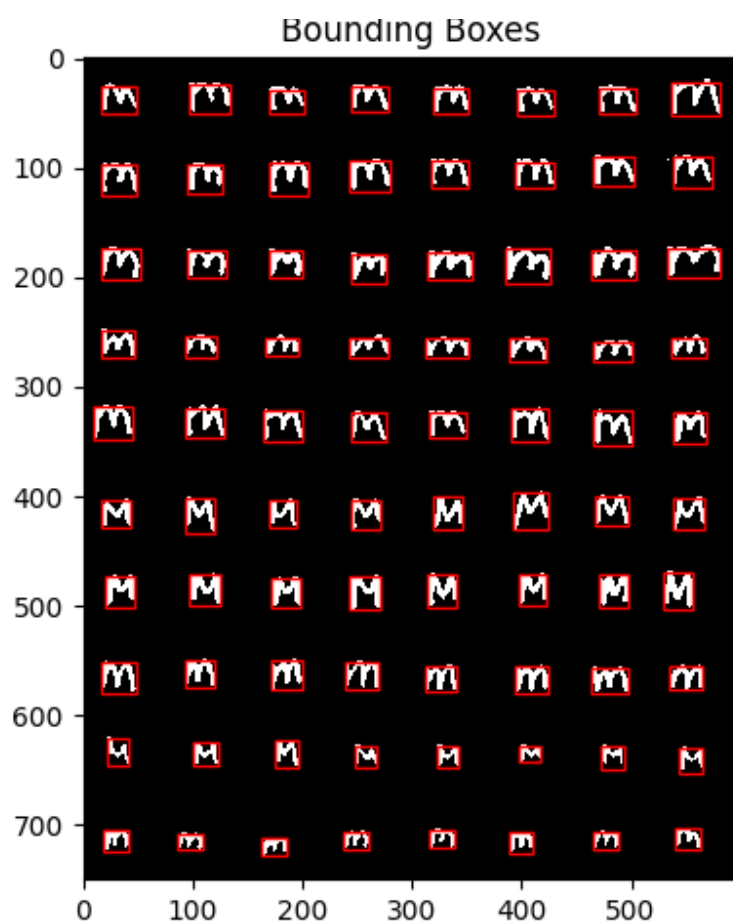
Original Image



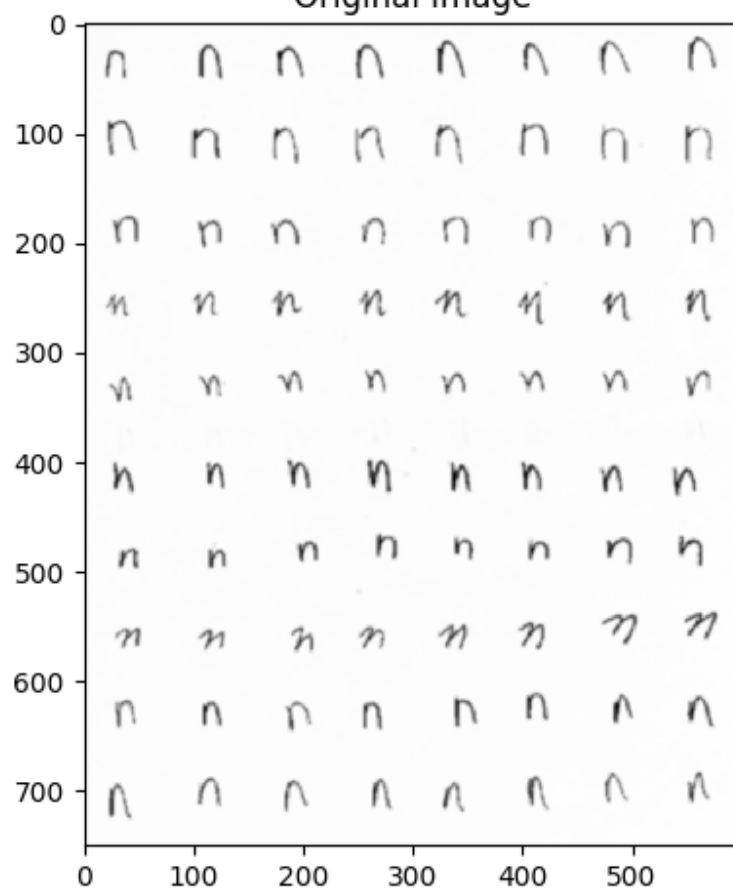




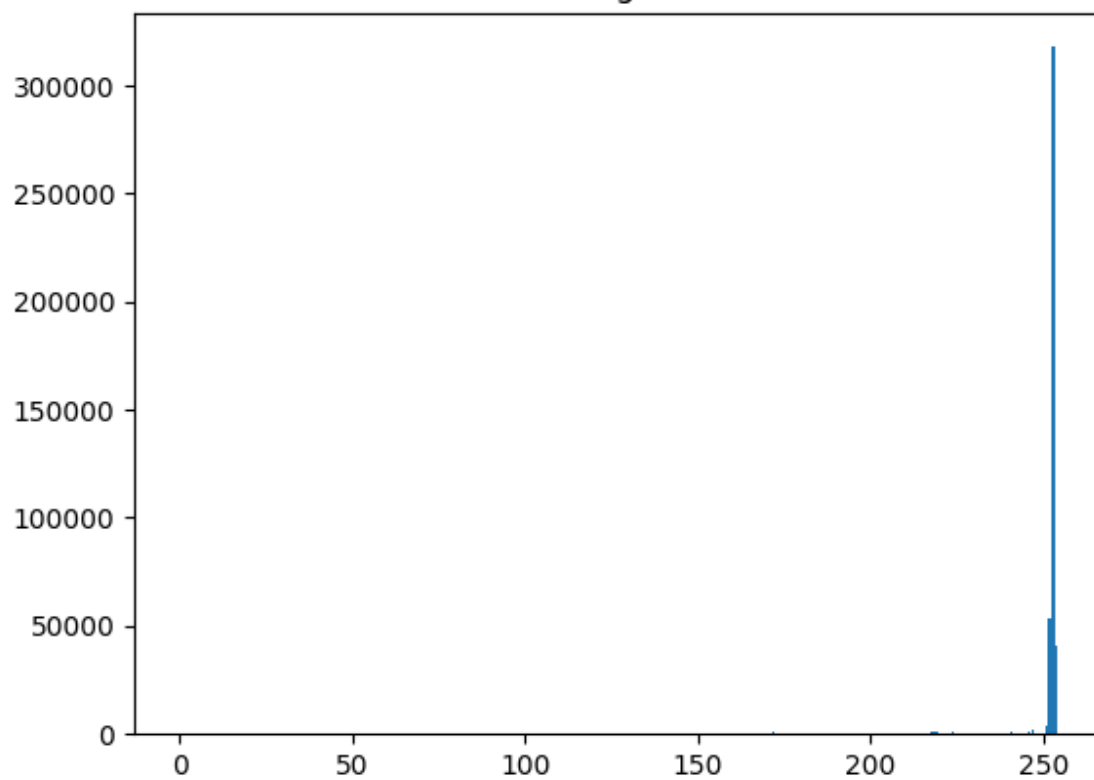




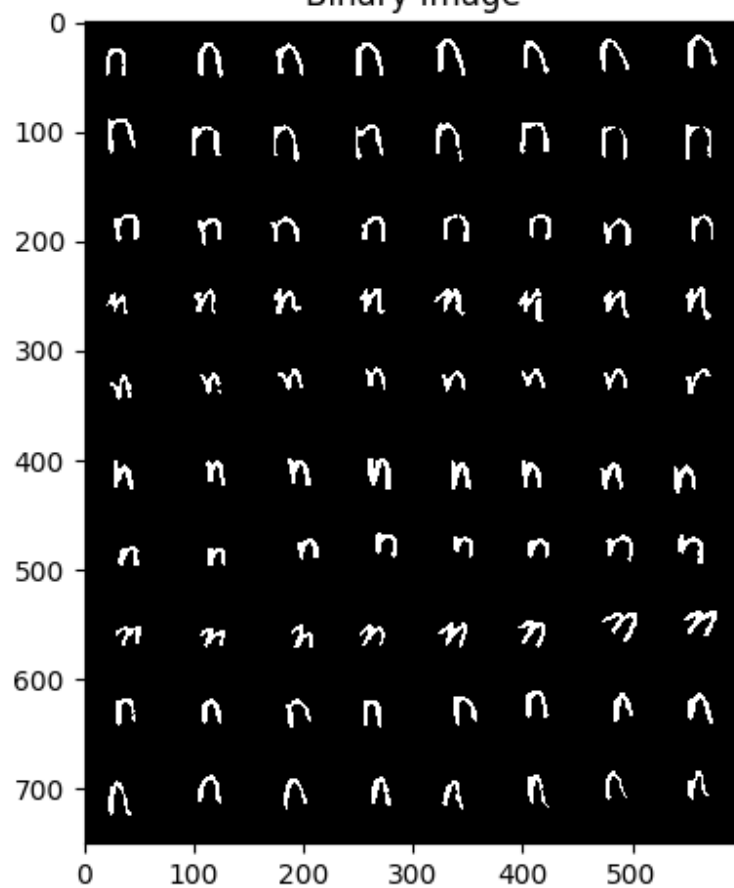
Original Image

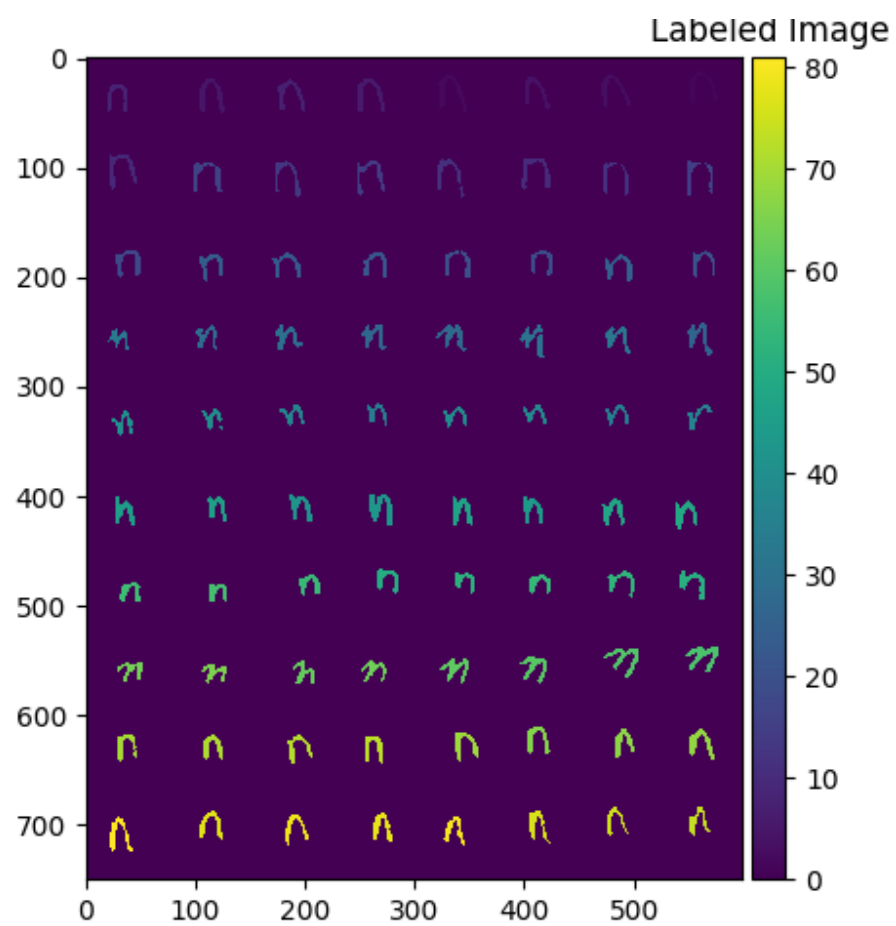


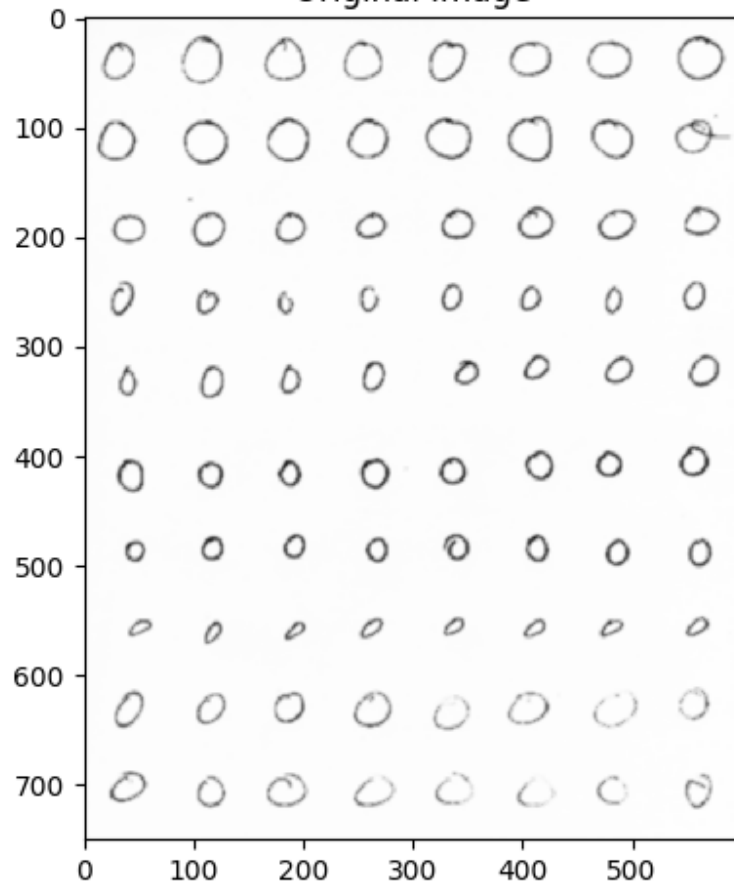
Histogram



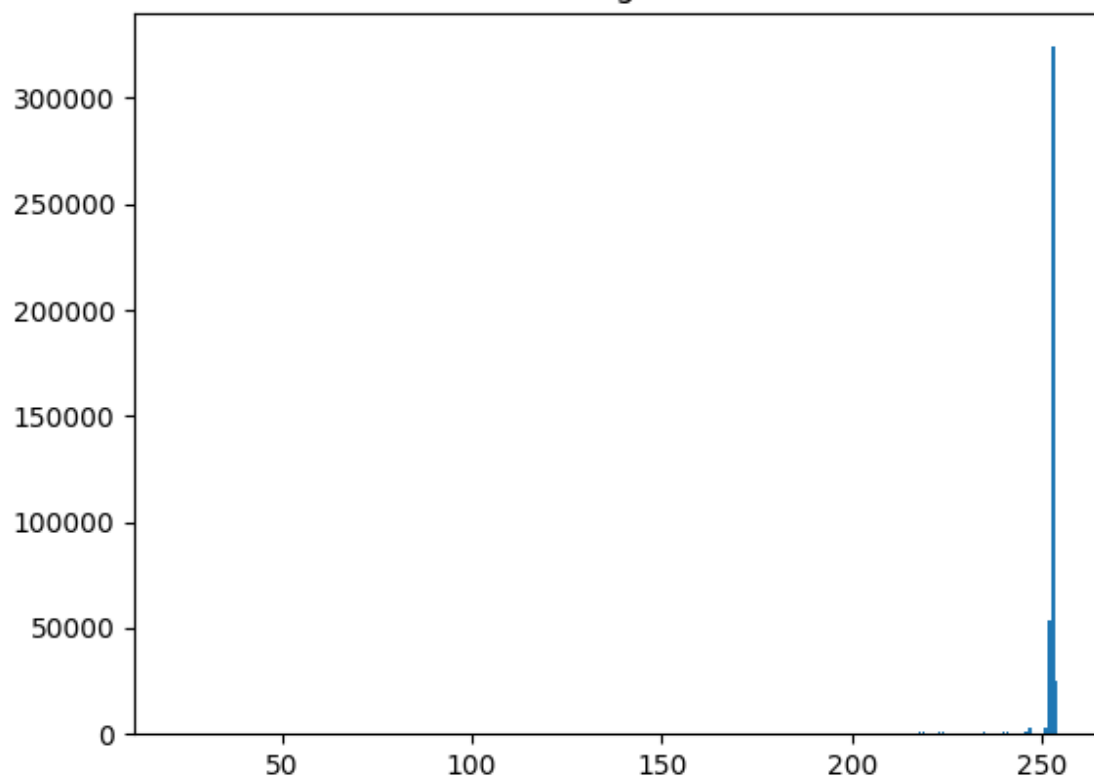
Binary Image



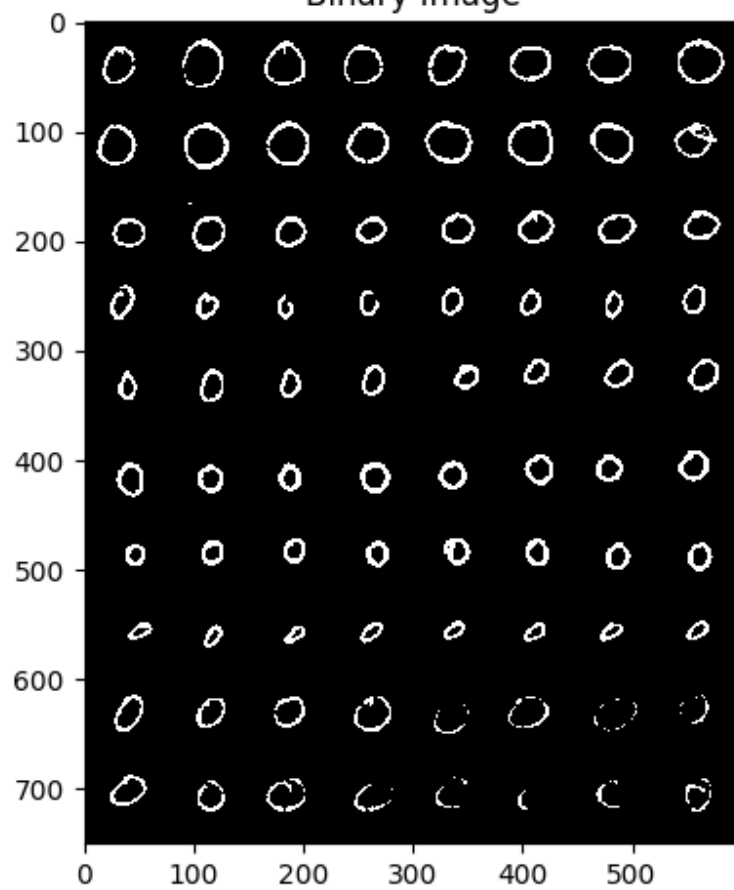


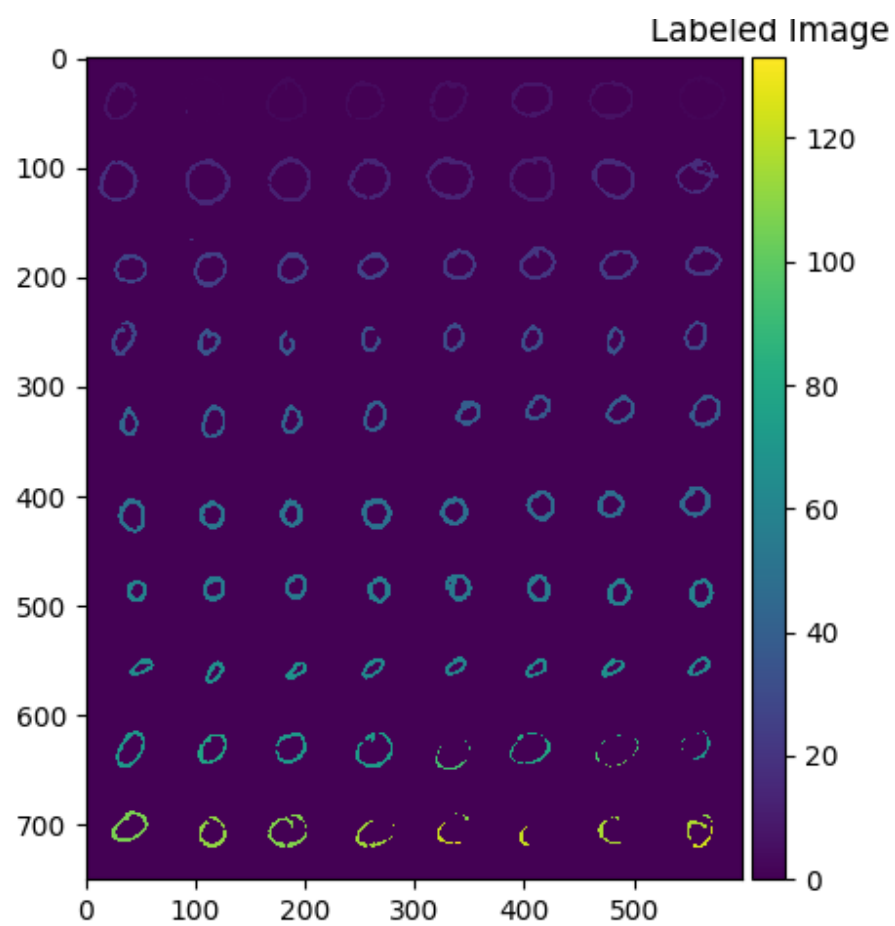


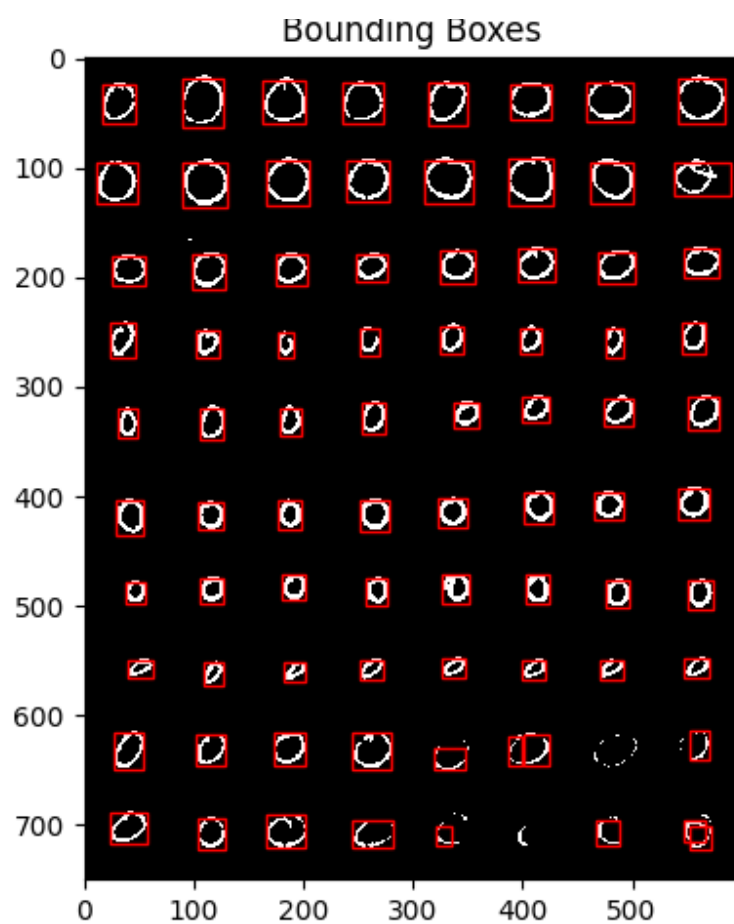
Histogram



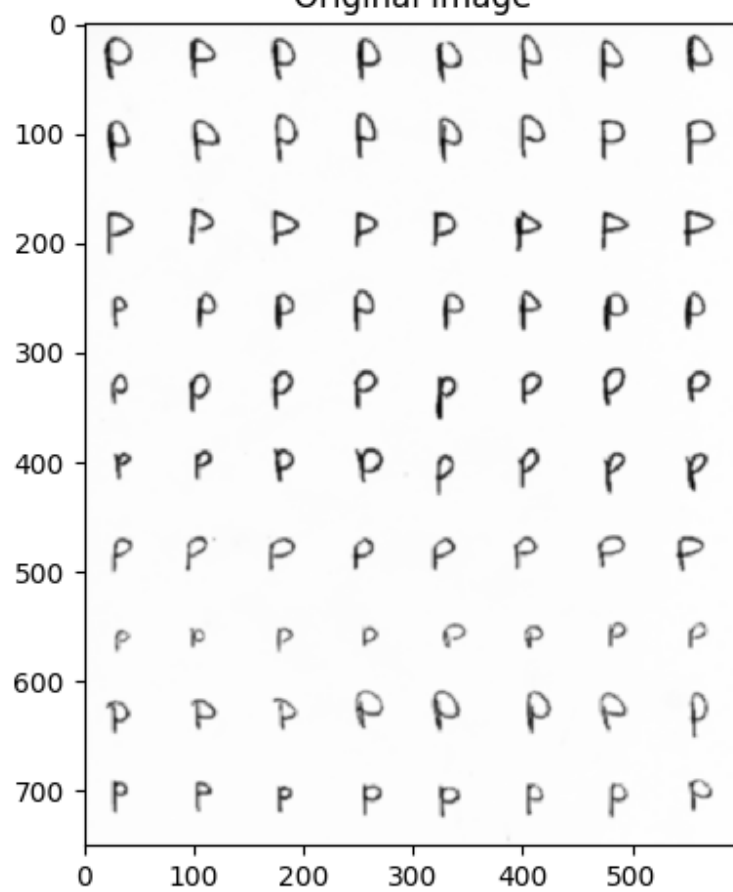
Binary Image



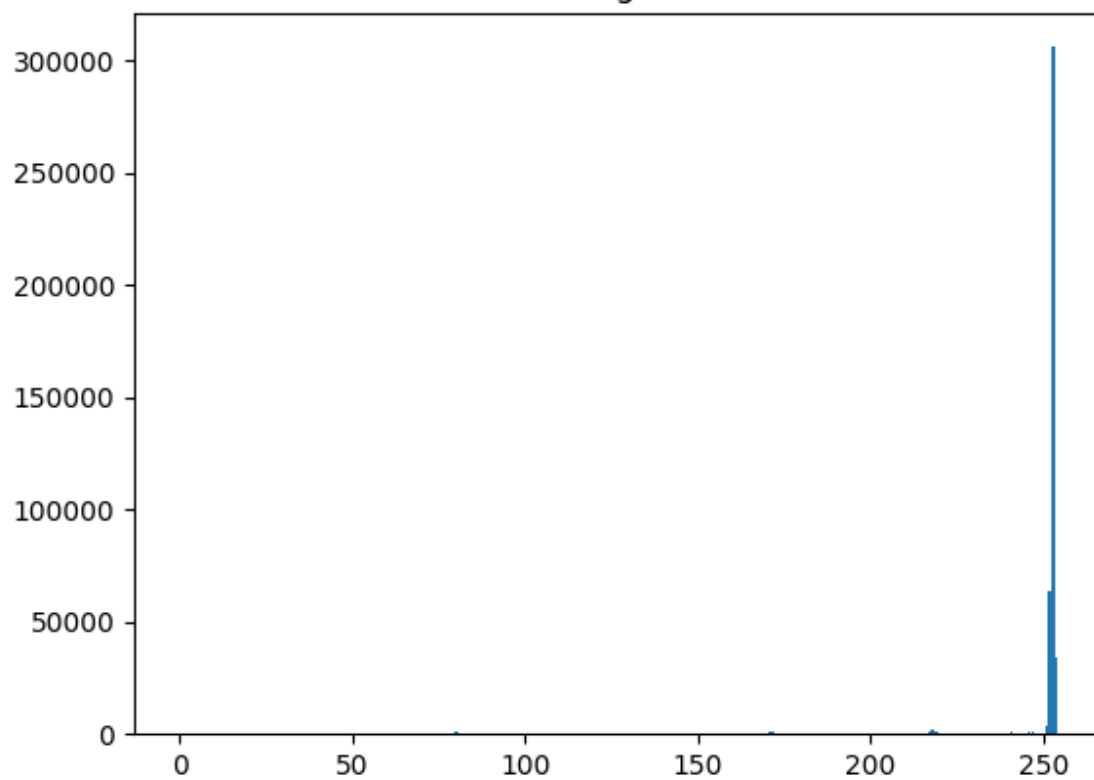


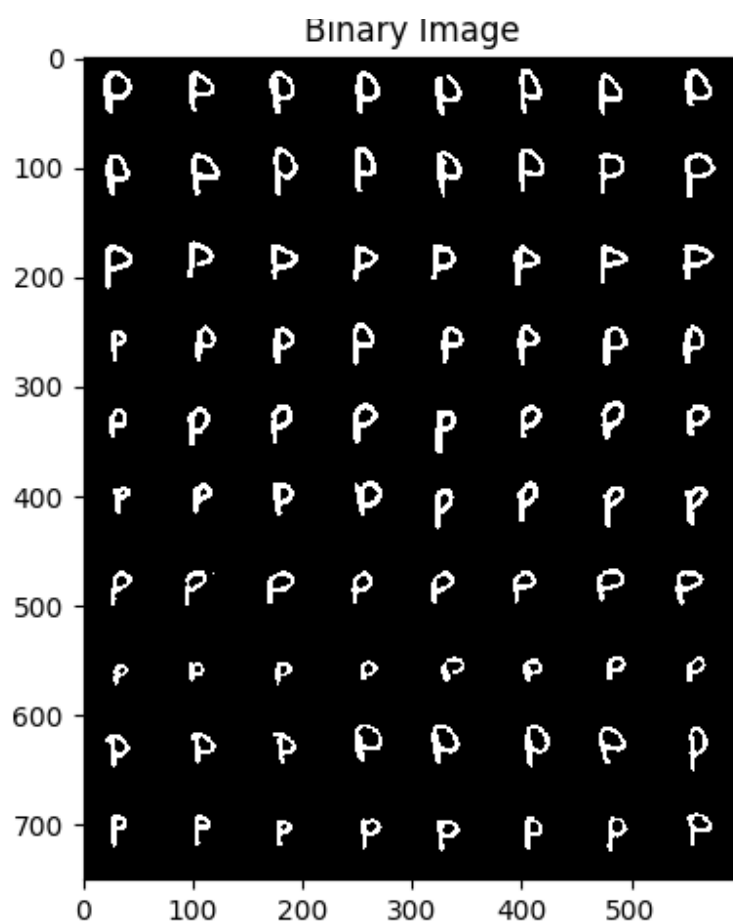


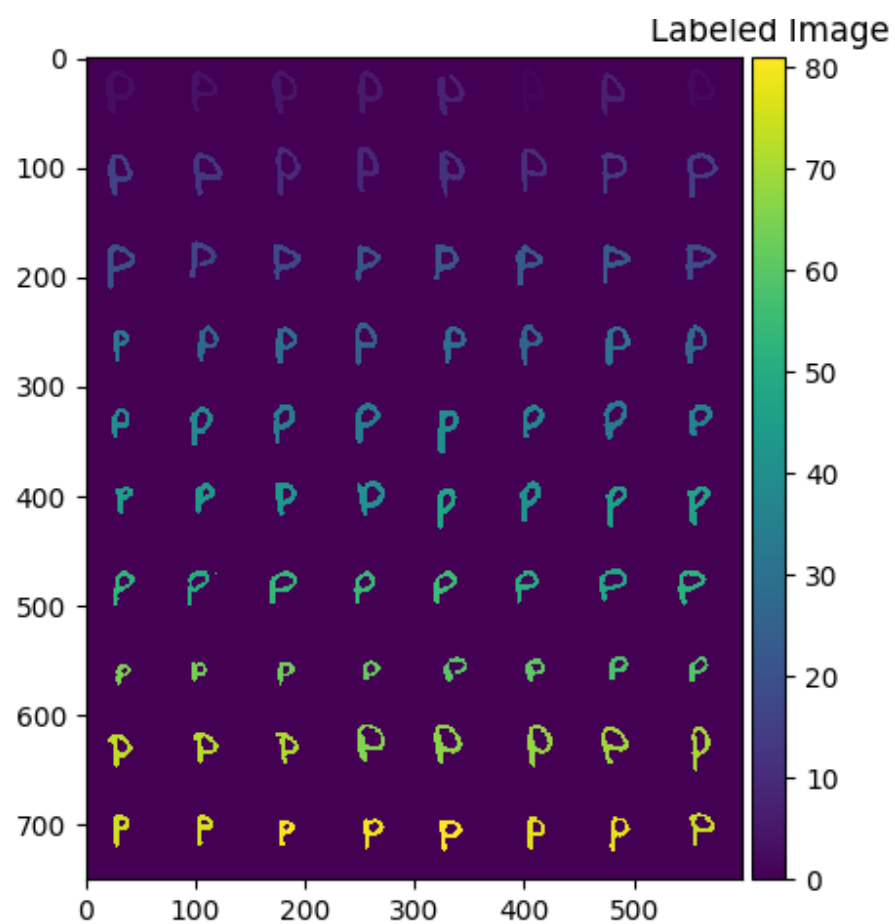
Original Image



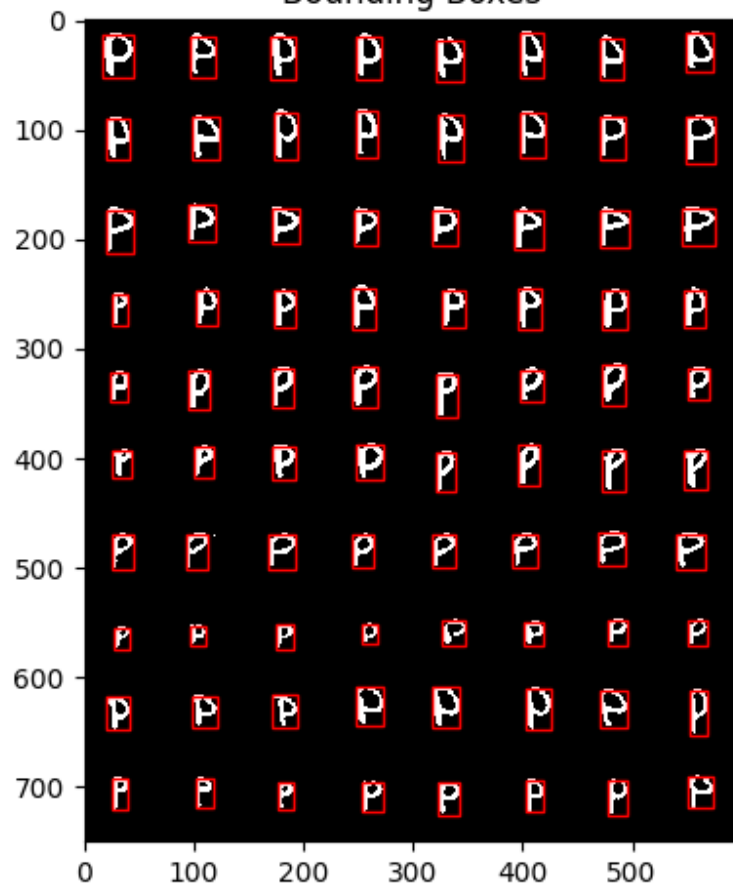
Histogram



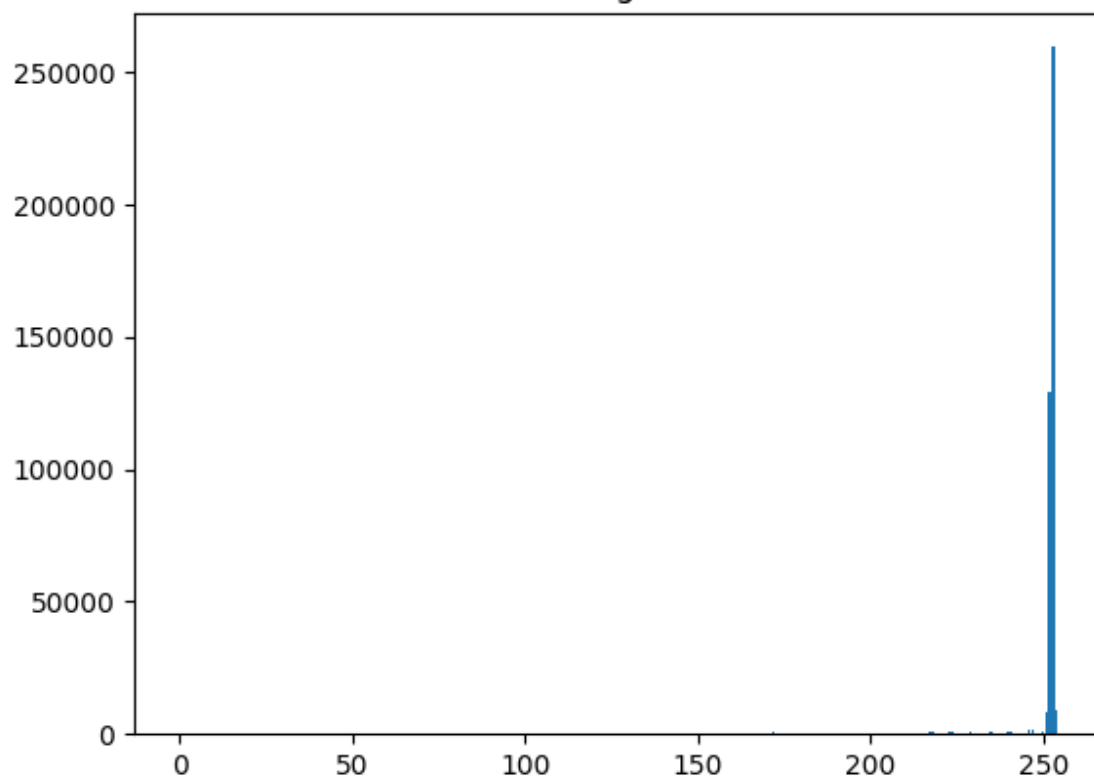




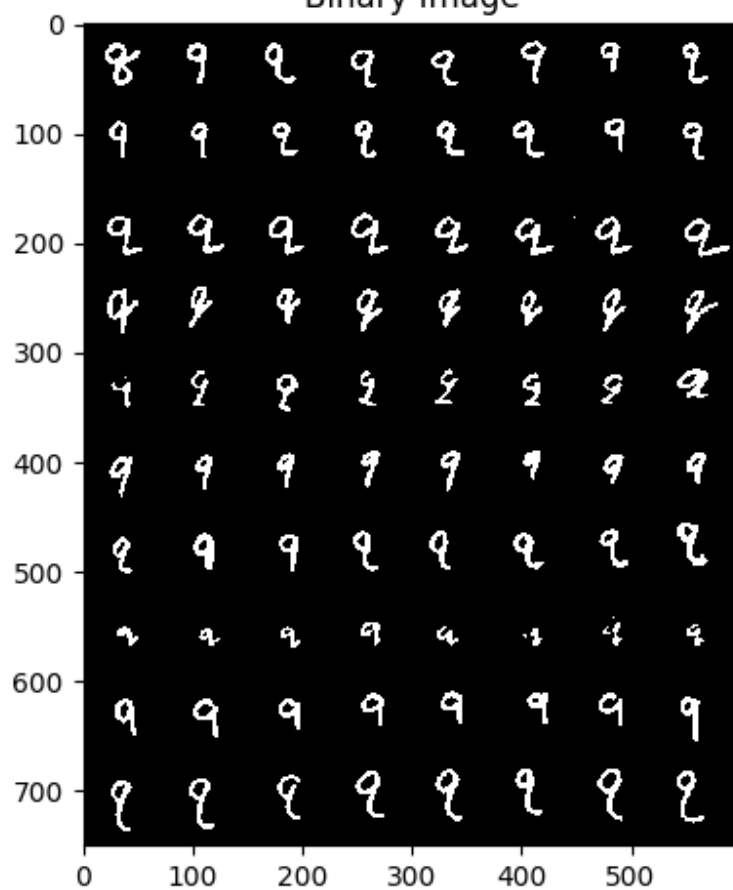
Bounding Boxes

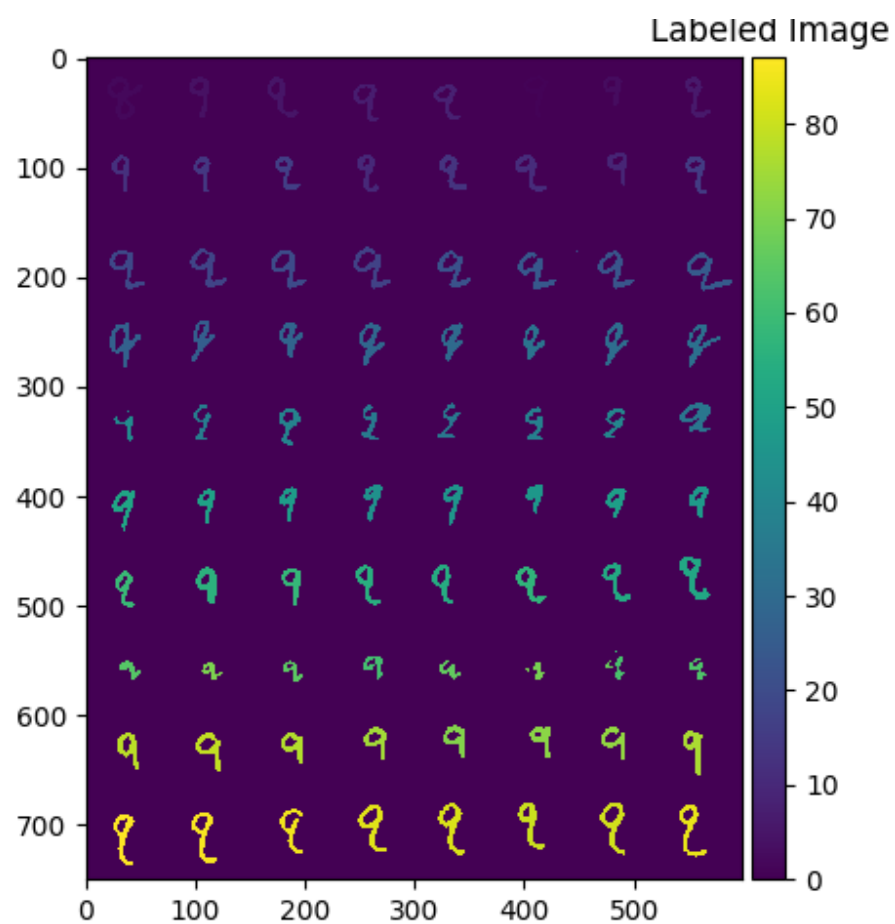


Histogram

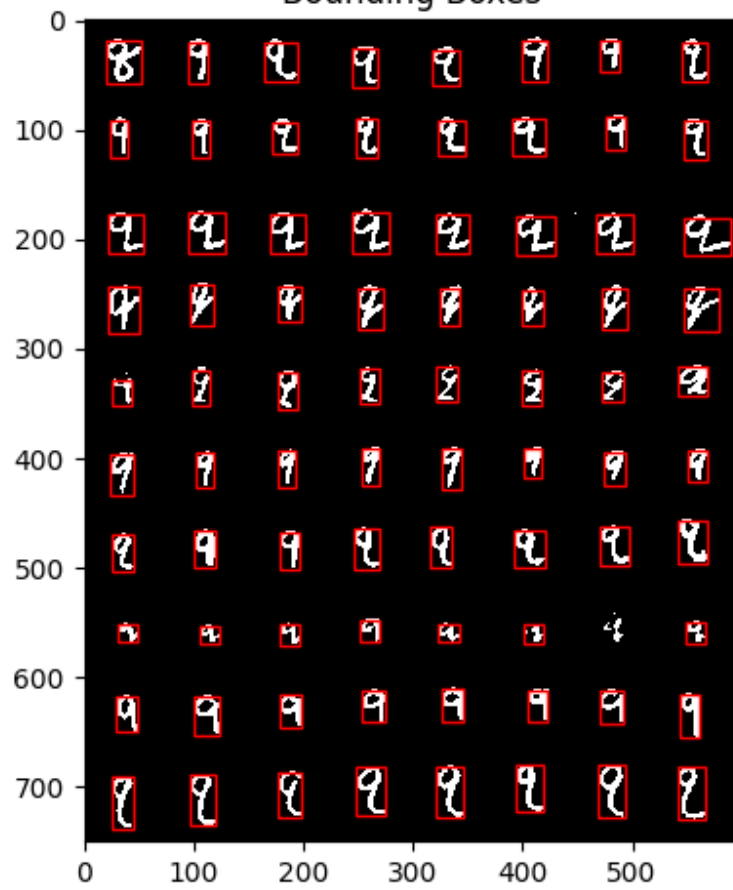


Binary Image

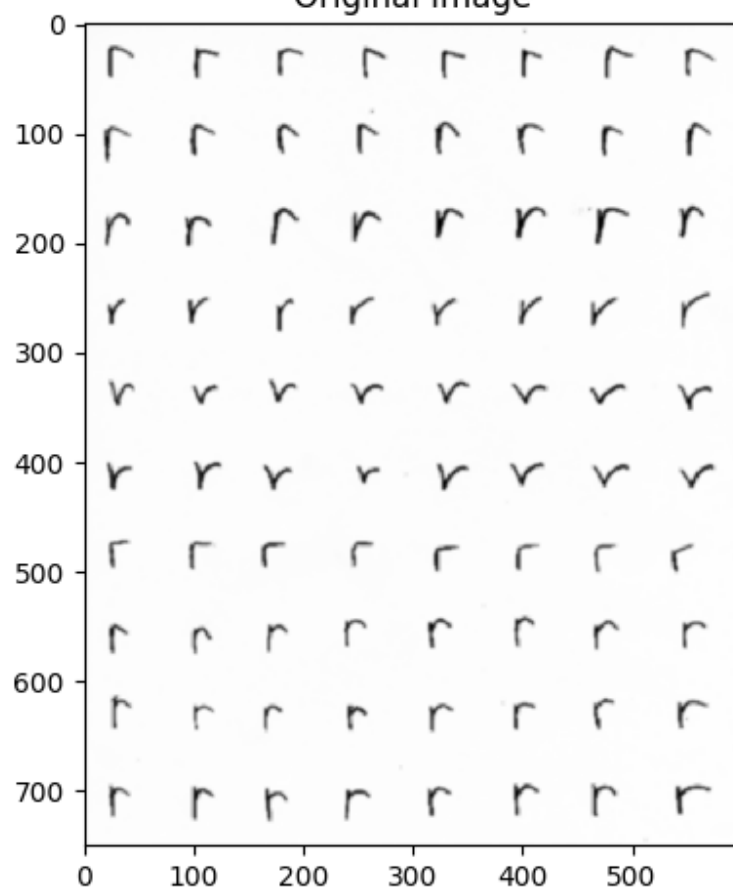




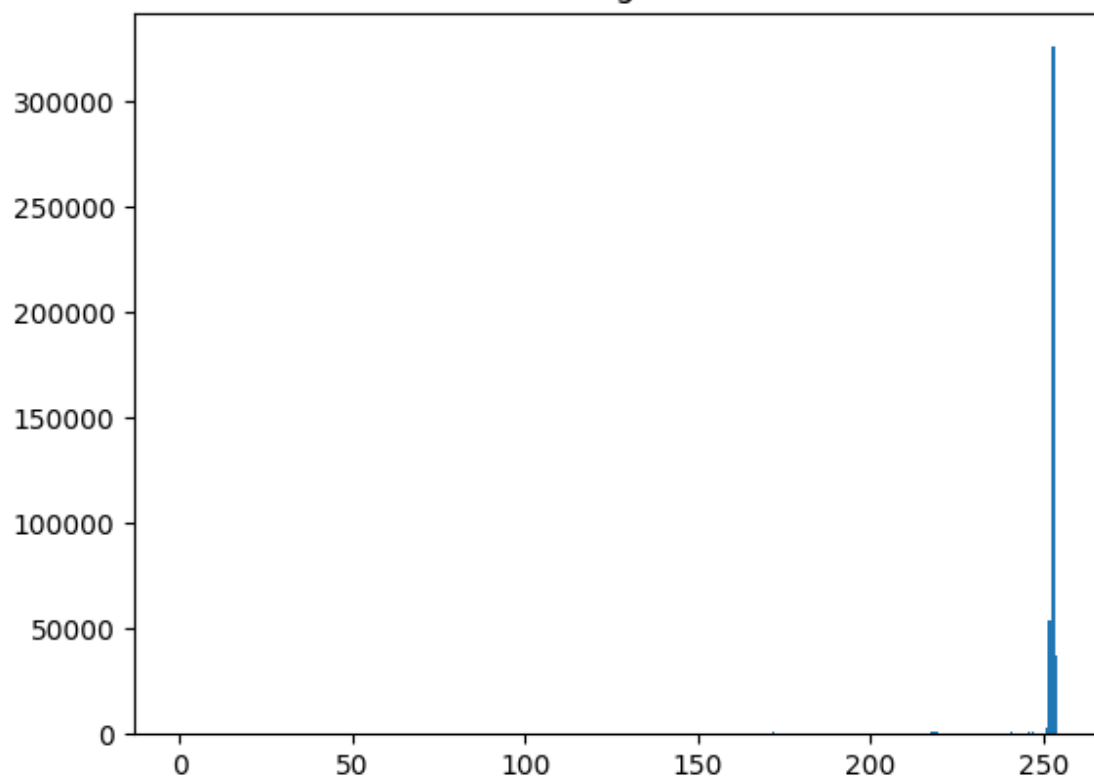
Bounding Boxes



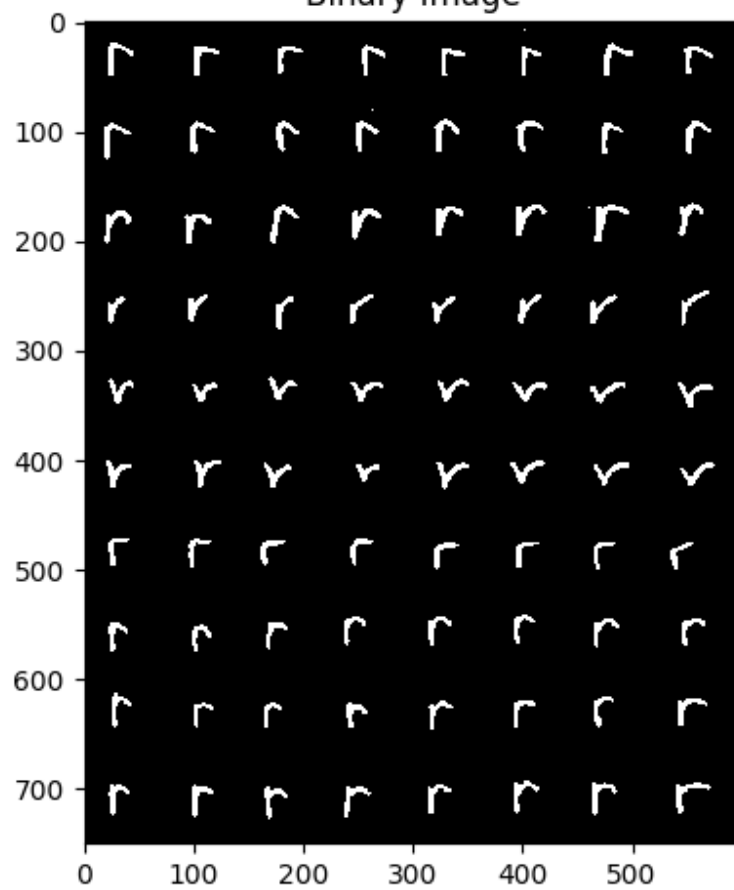
Original Image

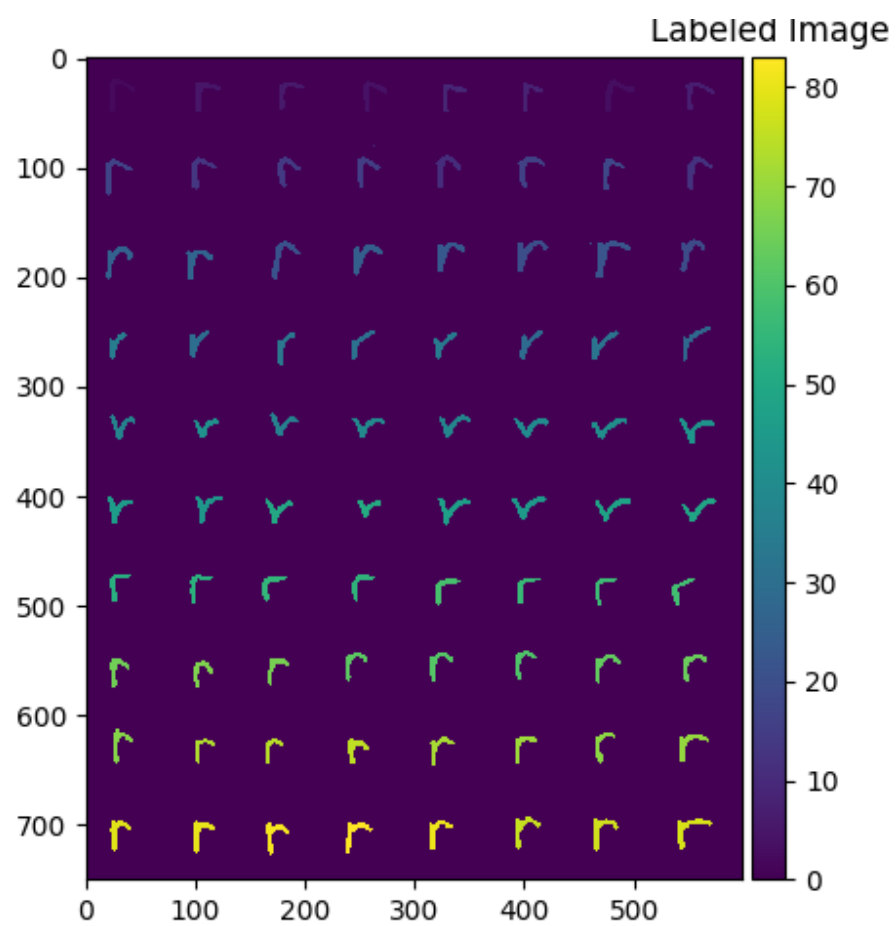


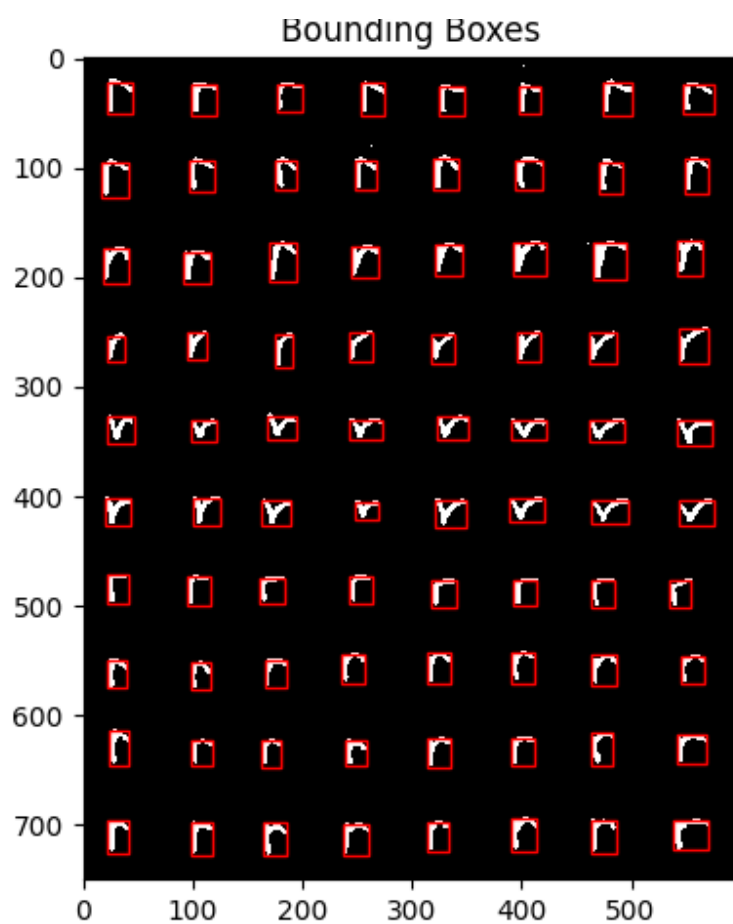
Histogram



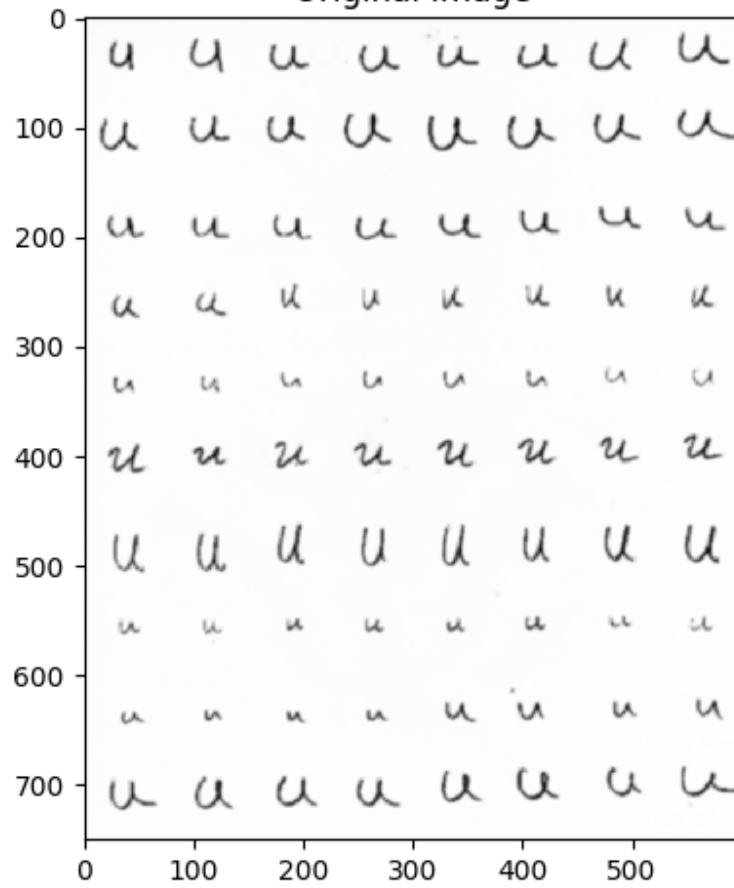
Binary Image

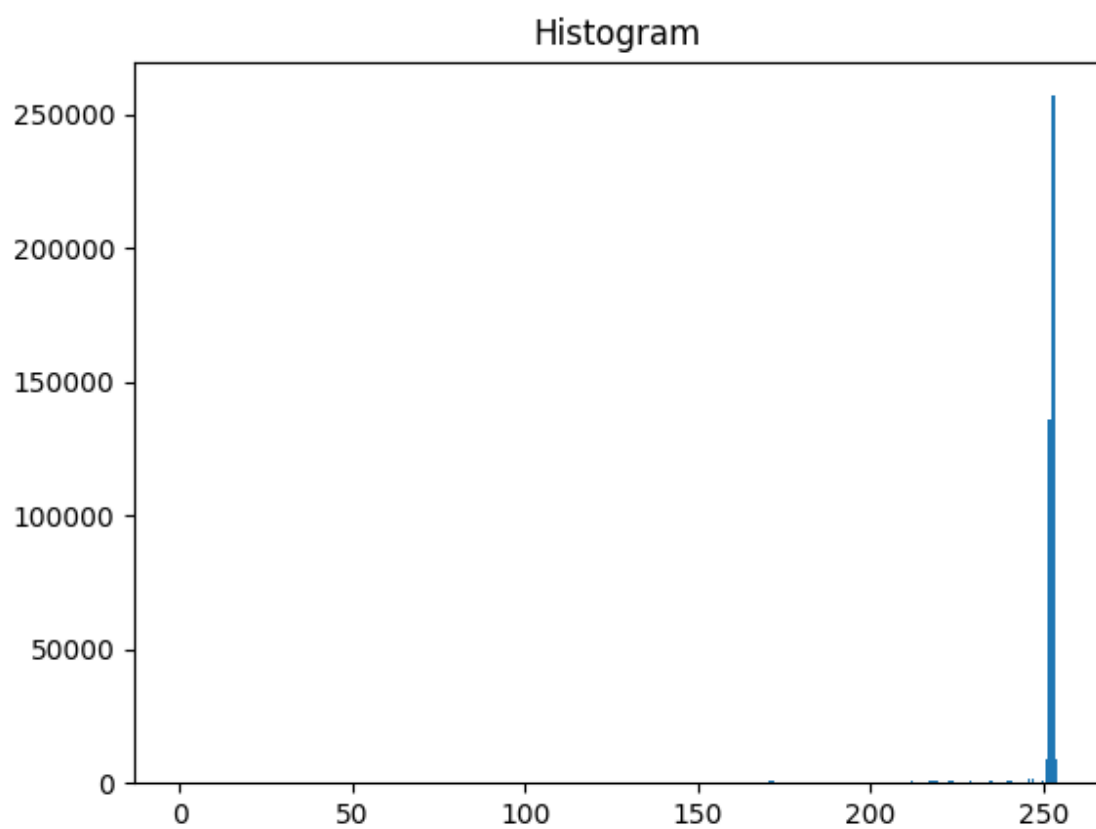




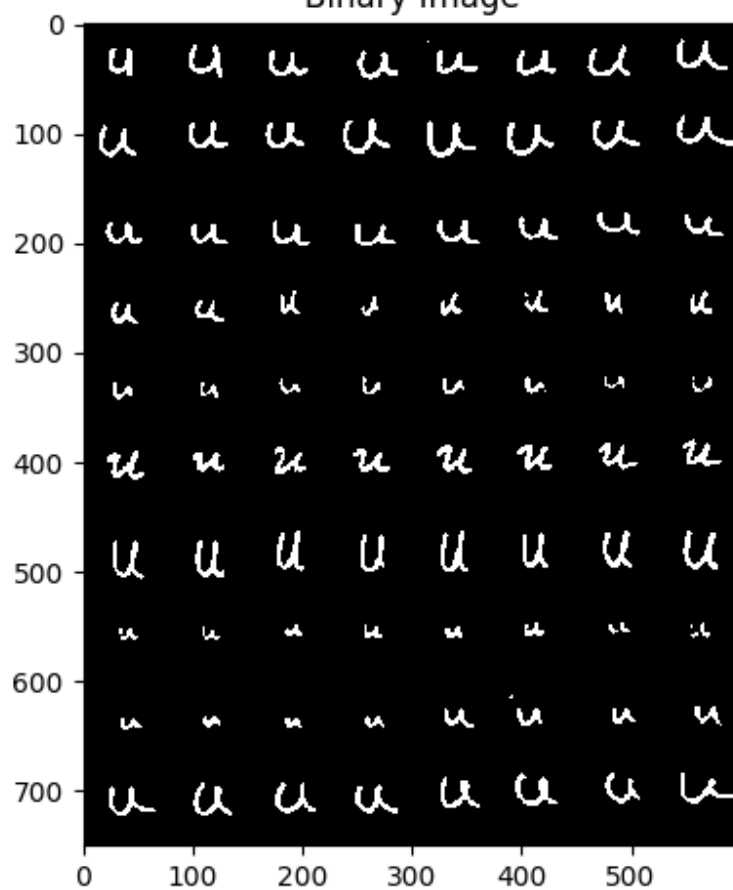


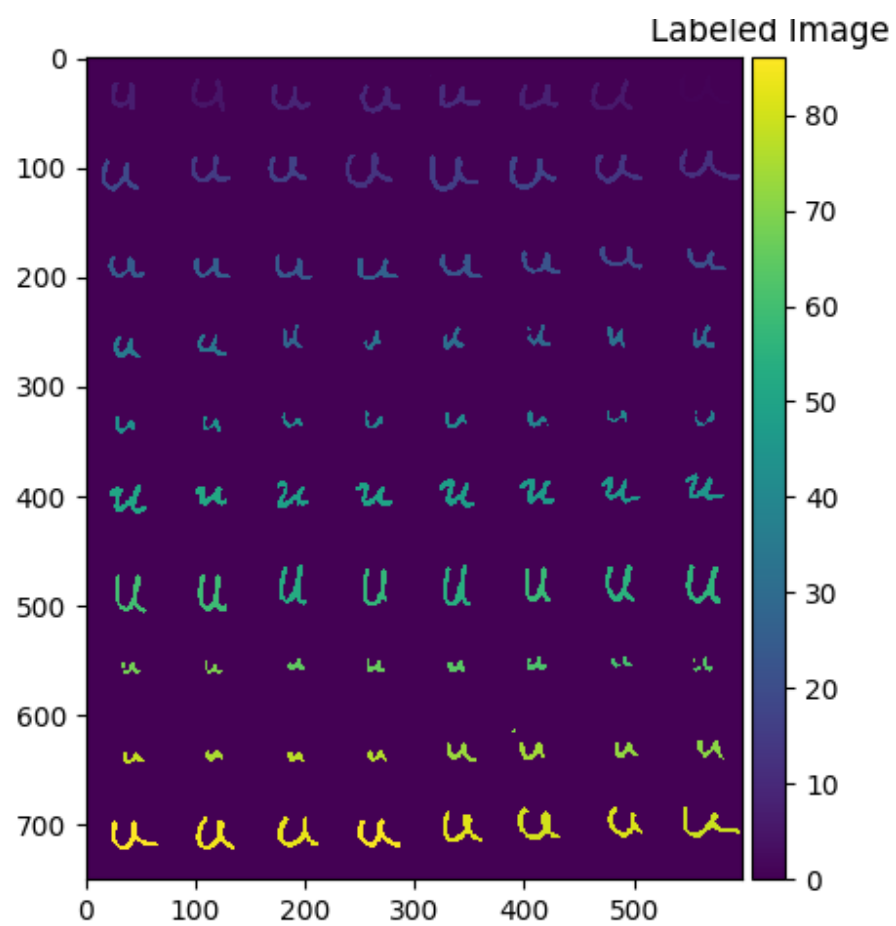
A 10x10 grid of handwritten digits from the MNIST dataset. The grid contains 100 individual digit images. The digits are primarily '0' and '1', written in various styles and orientations. The grid is labeled with row indices (0 to 9) on the left and column indices (0 to 9) at the bottom.

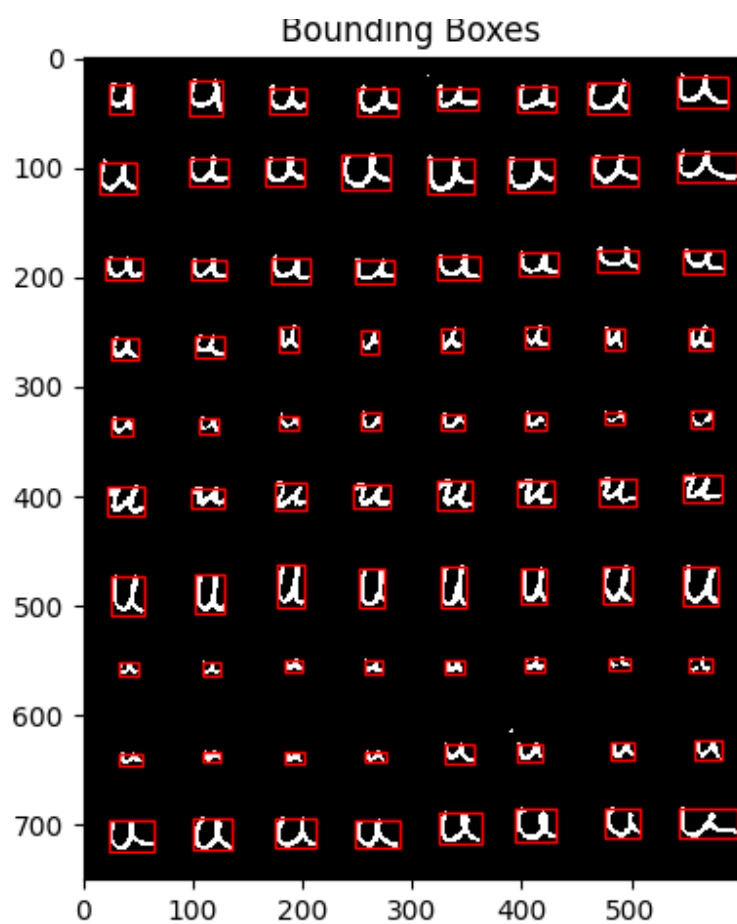




Binary Image

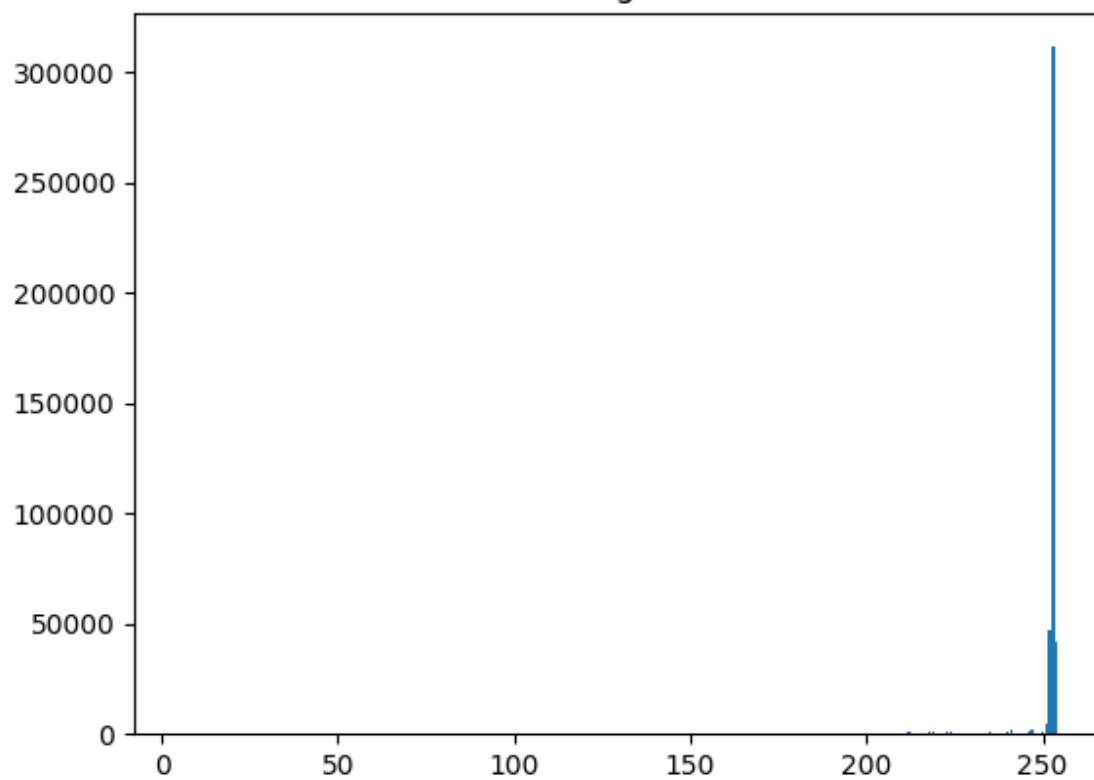


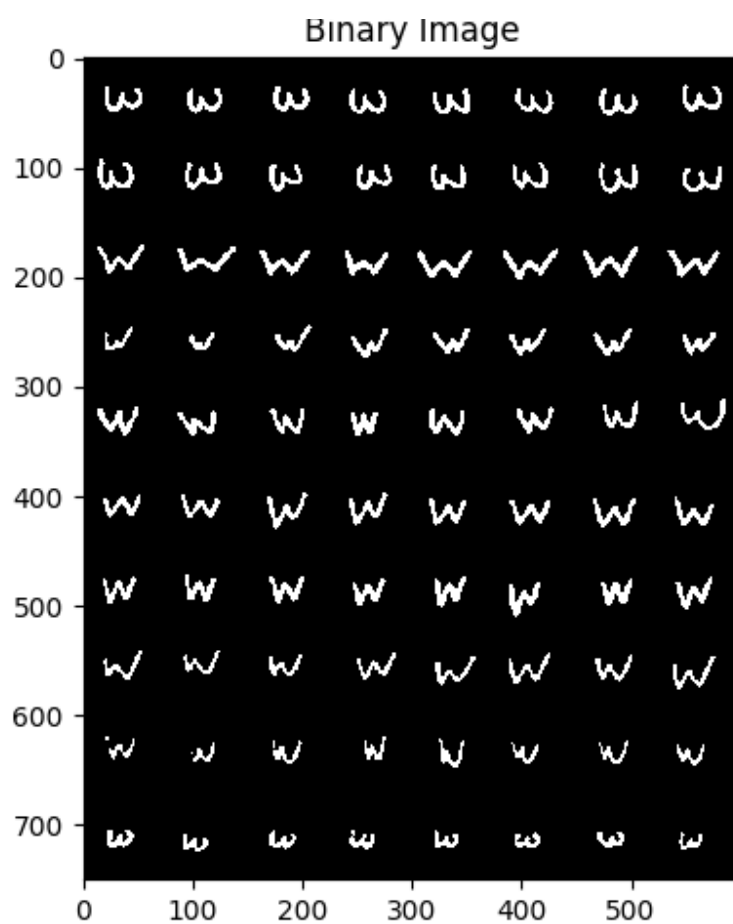


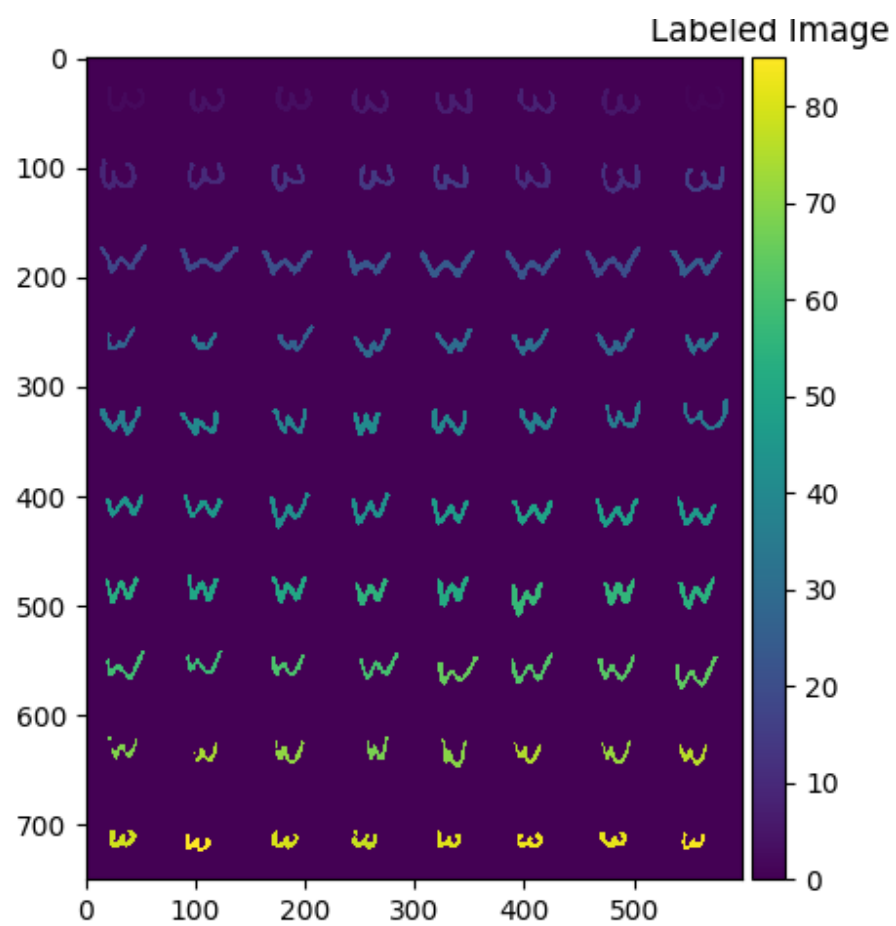


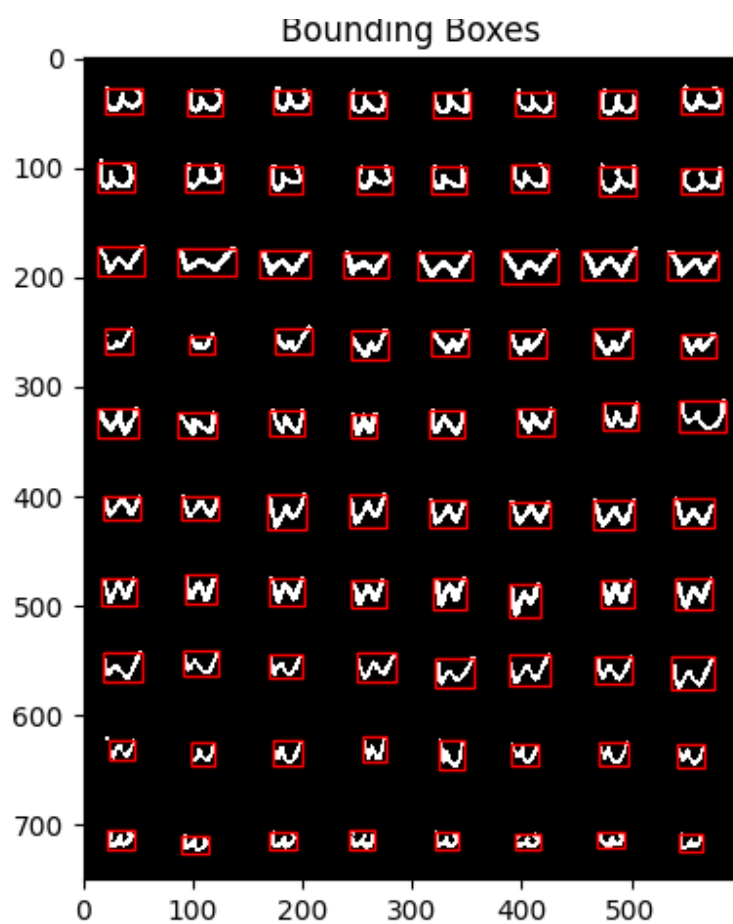
A 10x10 grid of handwritten 'w' characters. The rows are indexed from 0 to 9 on the left, and the columns are indexed from 0 to 9 at the bottom. The characters exhibit a wide range of styles, including different slants, heights, and the presence of loops or multiple strokes, illustrating the variability in human handwriting.

Histogram









The Features Array is of size (800,7)