# Computer Vision and Image Processing

Project 1

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1. Enrollment: To get the features of the template image we used zoning. The function takes characters list as input. The extra white pixels around the template characters is cropped out(crop_character()). Then we get the zoning matrix with count values of white pixels(255) in each zones. White pixels correspond to the intensity inside a character. The enrollment function return the zoning matrix corresponding to each template image

2. Detection: We had to detect all characters in the test image using CCL. In the first pass of CCL we perform a raster scan and get the label image. We used 4 connectivity CCL. Give a new label number to the pixel location where 255 intensity is there(white) and the north and west pixel are zero. If north and west label is greater than zero, then take the minimum value.
   In the second pass we check if the north or west pixel is greater than current label than current pixel value then we have found two labels which are connected. This relationship is stored using a dictionary
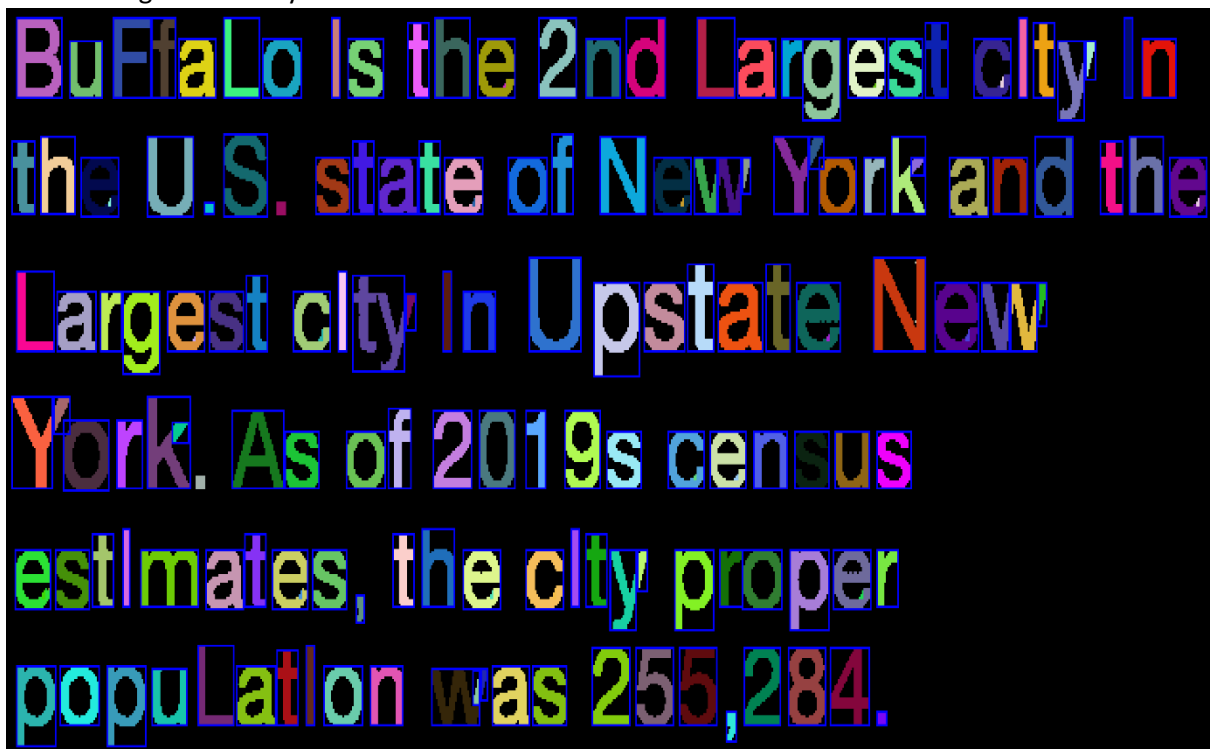
3. Recognition: We used the bboxes detected in test image and calculated the SSD between the template image and the detected character. We used a threshold for the min SSD