QUiZ 1

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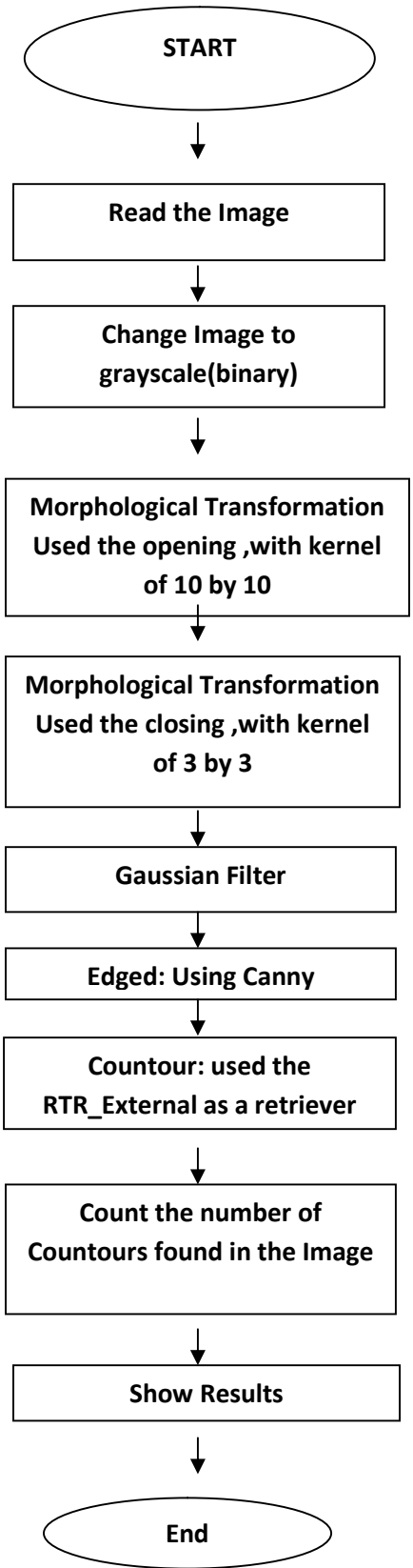
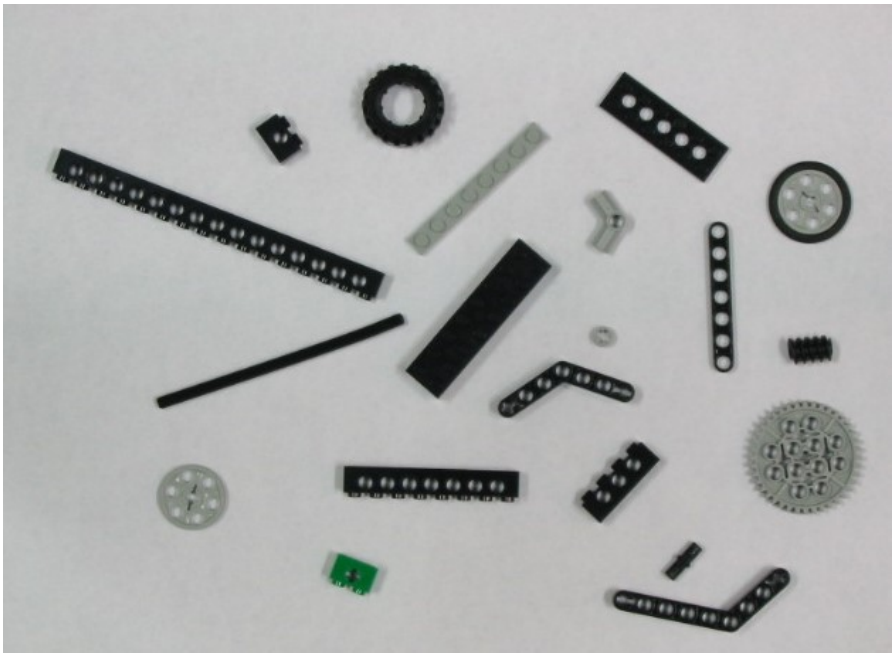
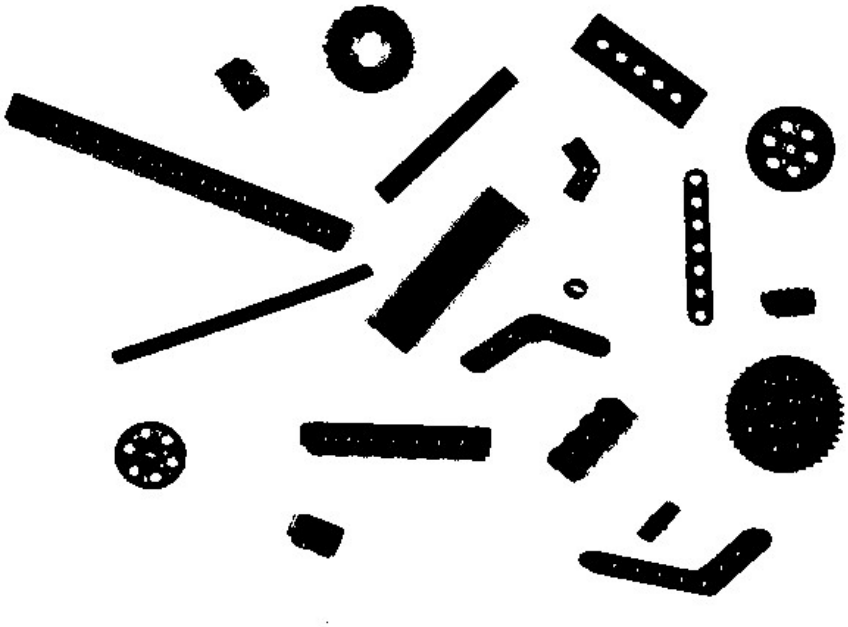
Flow Chart:



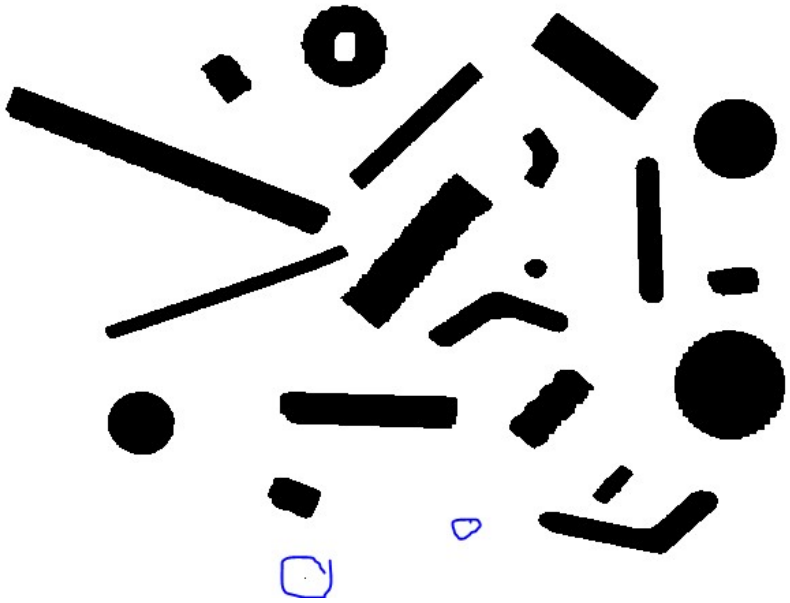
Steps:



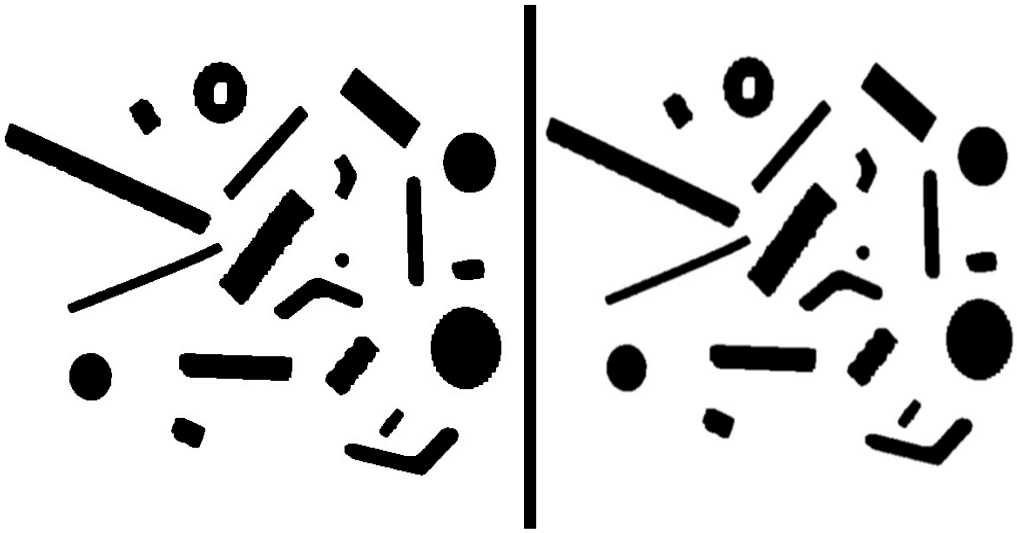
- Firstly after Importing the libraries, we read the image



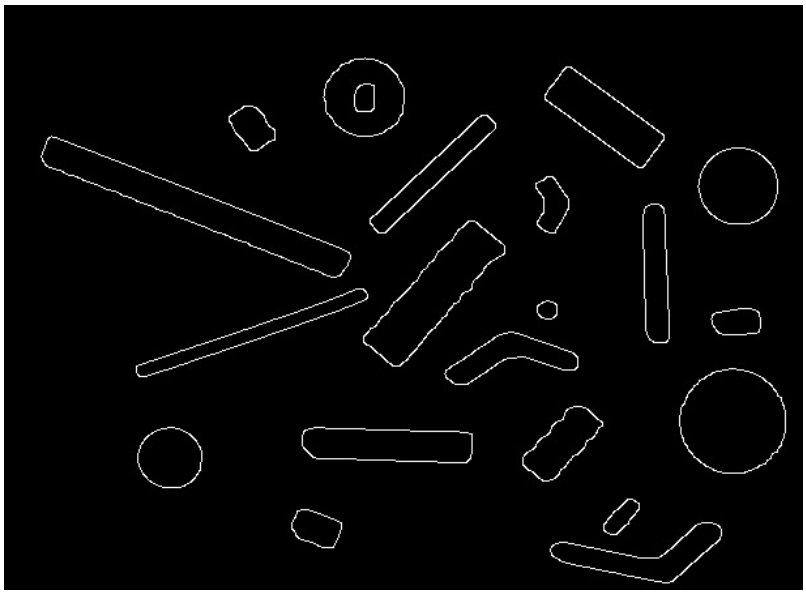
- We convert the image to a binary Image using Threshold of a 150 because there are some objects that are very close to white as the background, with any pixel below 1550 will be zero while any pixel higher the the threshold it will be 255(white)



- we applied the Morphological Transformation , Opening is to carry out Erosion first followed by dilution, this will remove the minor inner dots inside the objects , but to close the dots outside we use Closing which is vice versa of opening , its Dilution followed by erosion. In both kernels used we multiplied 1/9 to minimize the noise by averaging it.



- to make sure that the image is clear from noise I used Gaussian filter with a window of 3 by 3 ,as shown in the above picture the left image is blurred.



- Used Canny as a edge detector as shown in the above Image .
- Used Contour function because it detects border lines and its useful to detect object, there different ways To retrieve the countour out from the image I used RTR_EXTERNAL that allows to returns only extreme outer flags. All child contours are left behind. This will eliminate the Inner Circle in some of the objects to be counted