

# Digital image processing

## Assignment 1

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### Question 2

The time taken for the implementation using the between class variance is less than the one taken by the implementation using the one where within class variance is computed. This is because the within class variance method involved computing a second order statistic whereas the between class method only requires the computation of a first order statistic.

### Question 6

In this binarization task Otsu's method was only able to extract 5 connected components corresponding to 5 characters of a particular intensity whereas the MSER method was able to extract all 10 connected components (characters) across both the relevant intensities. In this particular image the intensity of the background is in between the intensity values of the two sets of components. So Otsu's algorithm or any other global thresholding algorithm will not be able to extract all the characters as wherever you place the threshold one set of characters will belong to the same class as the background. So we need to use an adaptive local thresholding algorithm like the MSER based implementation and set thresholds on a component by component basis.