

**a. What have you learned?**

**Answer:**

First of all, from this task I have learned about different libraries such as bm3d, PIL and use them for image processing. In addition, I have also learned about denoise images using NLMean and BM3D algorithms.

**b. What have you thought?**

**Answer:**

My understanding about this task was to enhance my applied knowledge about image processing and understanding as well as learn different libraries that helps to solve the problem efficiently.

**c. What challenged did you face?**

**Answer:**

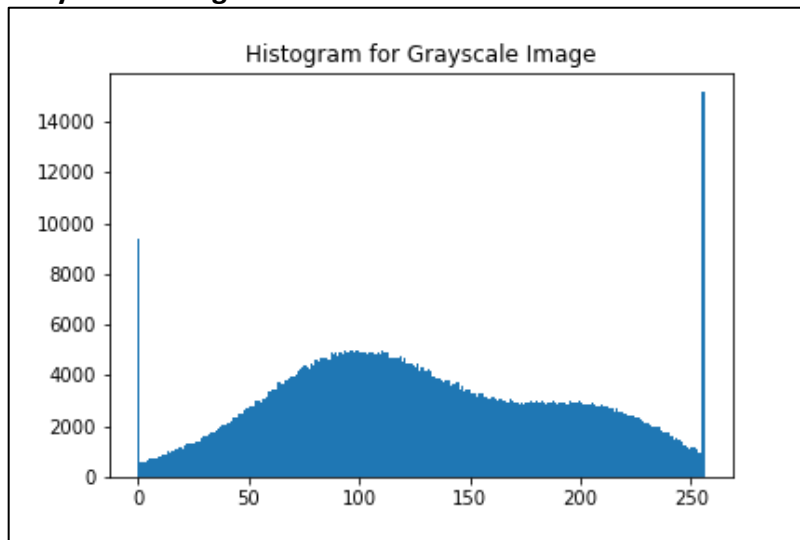
One of the significant challenges was to use bm3d algorithms specially using sigma\_psd in bm3d as I have learned about this algorithm throughout this task.

**d. Results:**

**Grayscale:**



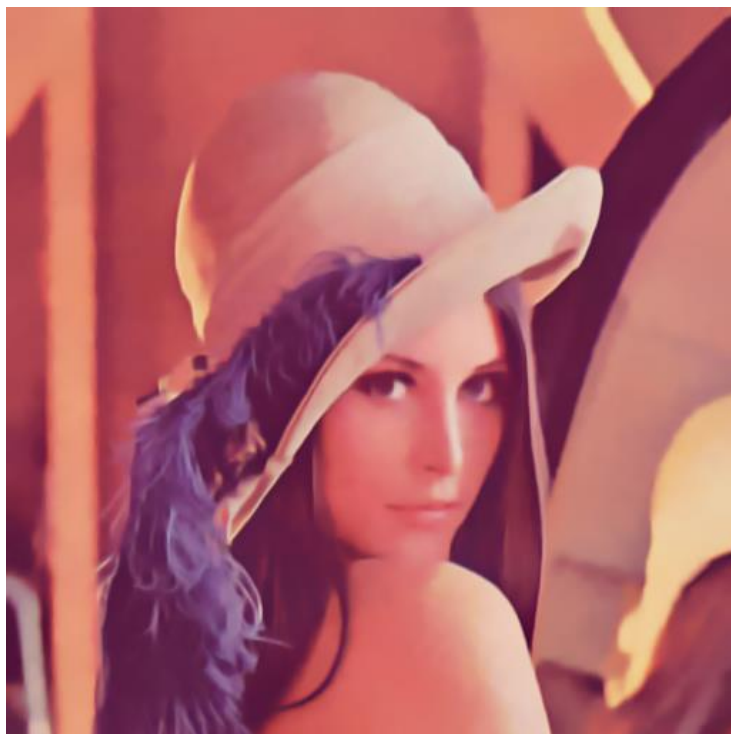
### Grayscale Histogram Plot:



### Denoise-NLMean:



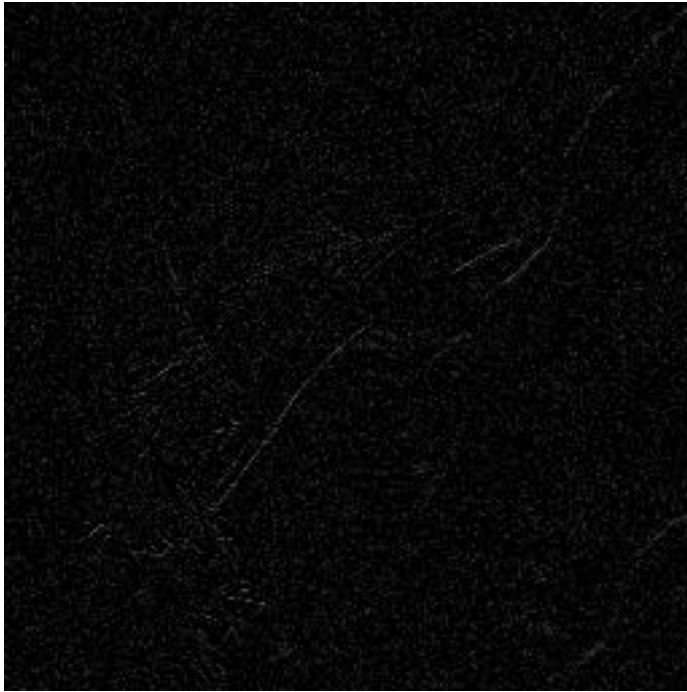
### Denoise-BM3D:



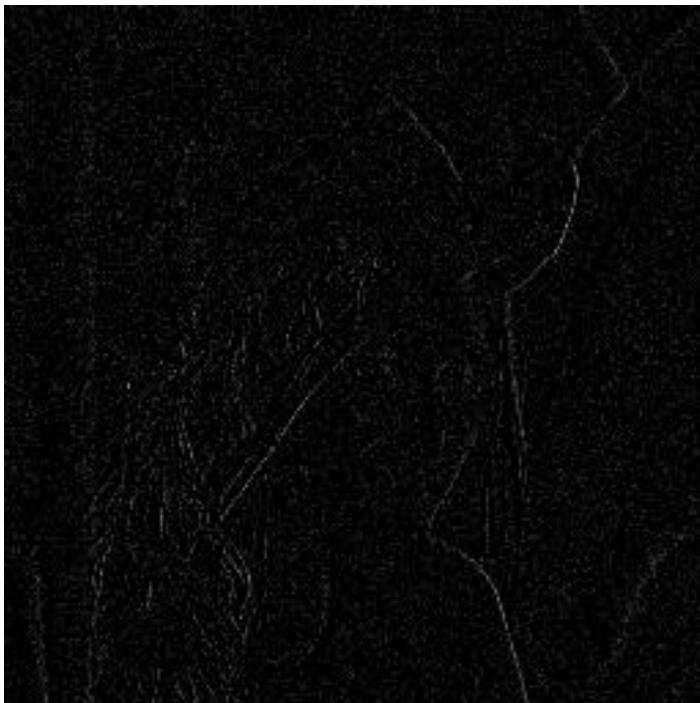
**Approximation using haar decomposition:**



**Horizontal using haar decomposition:**



**Vertical using haar decomposition:**



**Diagonal using haar decomposition:**

