

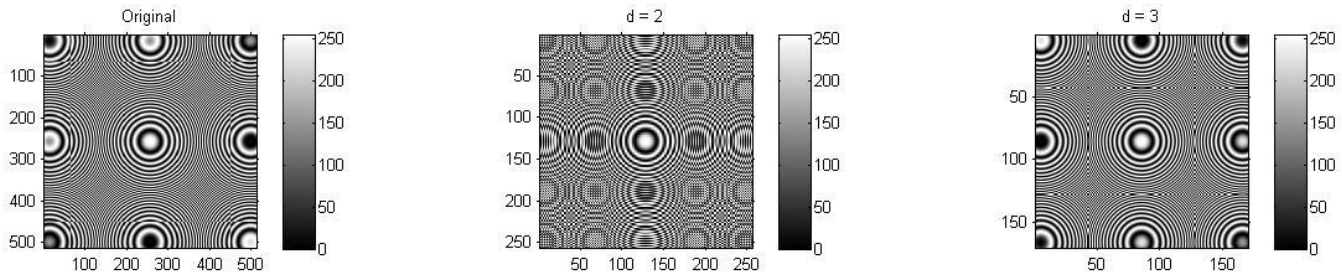
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Q1)a) Image shrinking

Result:

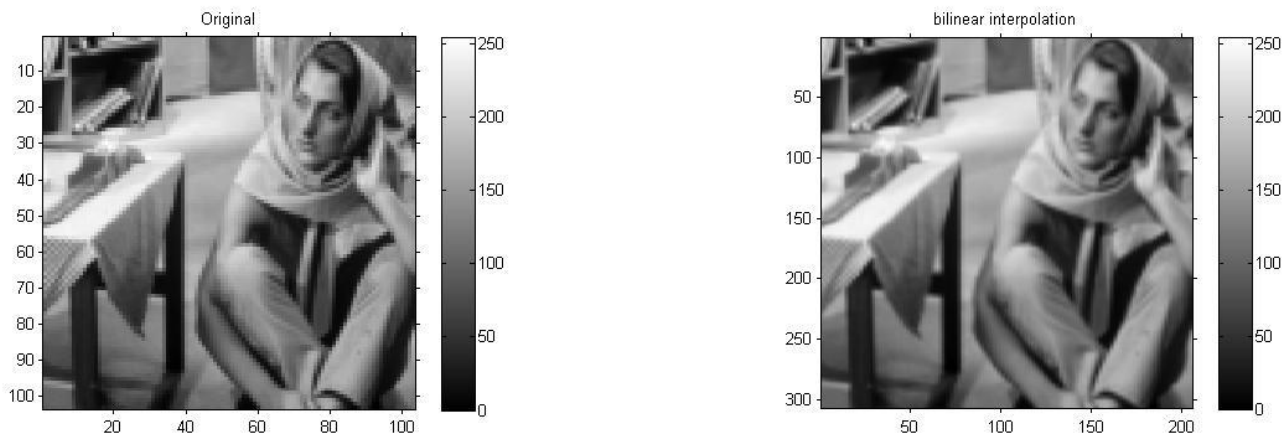


Brief explanation and Findings:

Shrinking is done by undersampling in each axis by factor d (2,3 respectively). Moire effect can be observed as a result of undersampling in “concentric_circles.png”. Circles not existing in the original image start appearing as a result of undersampling. It is observed from the axis indices of resulting image that the number of pixels have reduced corresponding to value of d used for shrinking image.

Q1)b) Image Enlargement using Bilinear Interpolation

Result:



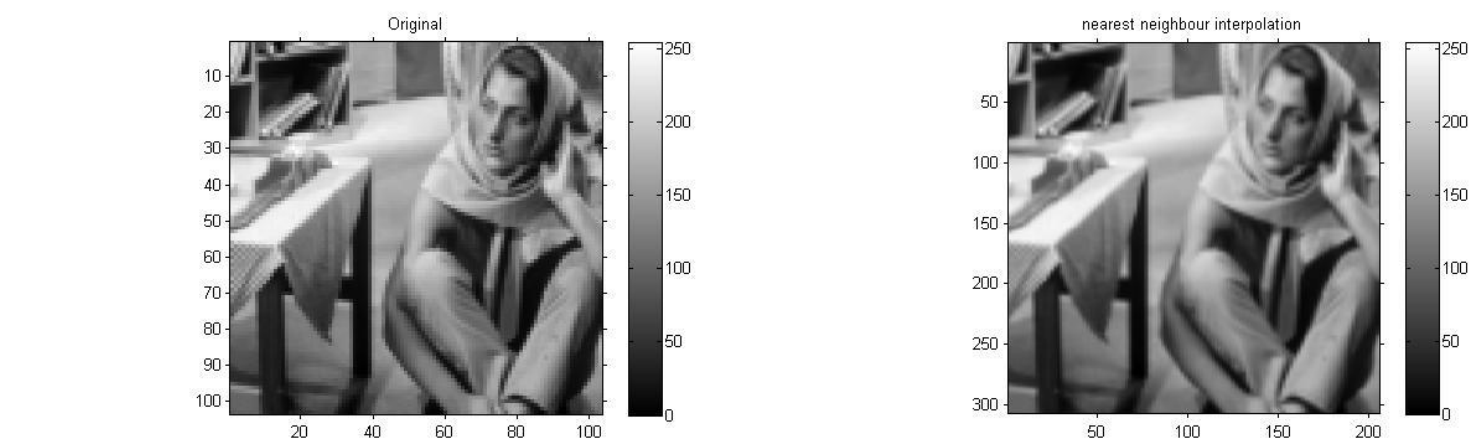
Pixel info: (33, 32) 218

Brief Explanation:

Intensity values of the pixels on the enlarged image were assigned using weighted mean of neighbouring pixels. For the interior pixels weights were assigned depending upon the area of the corresponding square for that vertex. For pixel on the edges weights were assigned using the corresponding distance of vertex.

Q1)C) Image Enlargement using Nearest-Neighbour Interpolation

Result:



Pixel info: (X, Y) Pixel Value

Brief explanation:

Intensity values of the pixels on the enlarged image were assigned based on nearest intensity value known from the original image. When more than one neighbours are at the same distance, average of the intensity values is taken to assign intensity value for the new pixel intensity.

Comparison Between part-B, Part-C

Bilinear Interpolation gives better result than nearest neighbor interpolation