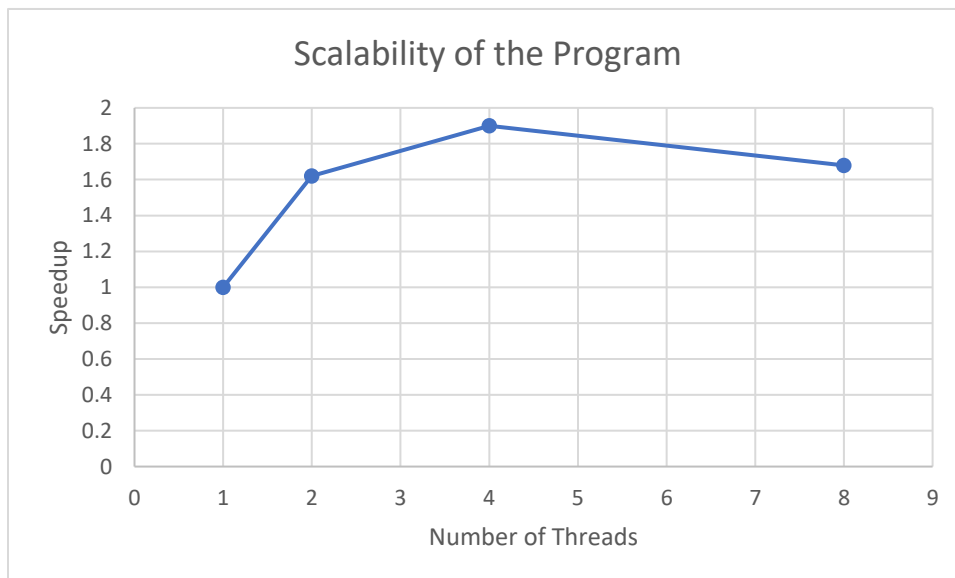


Homework 3 – Averaging Image

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1. Object of the project:
 - a. The object of this assignment is to blur/average a color picture then parallel the code by using OpenMP.
2. Details:
 - a. To start, I created a disk with a fixed radius of 3 to constitute the neighborhood in which we'd take the average color to replace each pixel with. Then, as per the assignment's notes, I added weights chosen from a Gaussian function based on the pixel's distance from the zero pixel of the disk to average the colors. Before applying this transformation to the entire image, I had to consider the edge pixels, which I did by checking the row against the radius or height of the image. Once that was finished, I looped over each pixel and applied the blur.
3. Results:
 - a. There was a speedup the first two times, but then a slowdown
 - i. Threads: [1, 2, 4, 8]
 - ii. Time (s): [44.23, 27.37, 23.30, 26.33]
 - iii. Speedup: [1, 1.62, 1.90, 1.68]



4. Performance improvements:
 - a. While there were many for loops in my code, I only parallelized the main converting part in an *omp parallel for* as that should be where the bulk of the calculations were occurring. The slowdown on 8 threads is something to investigate, but the strong speedup on the initial parallelization is good.
5. Bugs encountered:
 - a. I encountered no bugs on this assignment.