

PA4 Report

Demo link: <https://youtu.be/pQHgKGV3-pU>

Shown below are the plots for the varying b , w , and h as instructed to do so by the grading instructions. As you can see that at a certain point for the number of worker threads, the time doesn't decrease anymore. (This is seen at around 100 worker threads as shown in figure 1). This occurs because we have hit a point of diminishing return. You would think that as you increase the number of worker threads, the runtime would decrease, however that is not what happens because the thread context switch overhead becomes more noticeable, so time does not start to decrease anymore.

Worker Threads vs Runtime

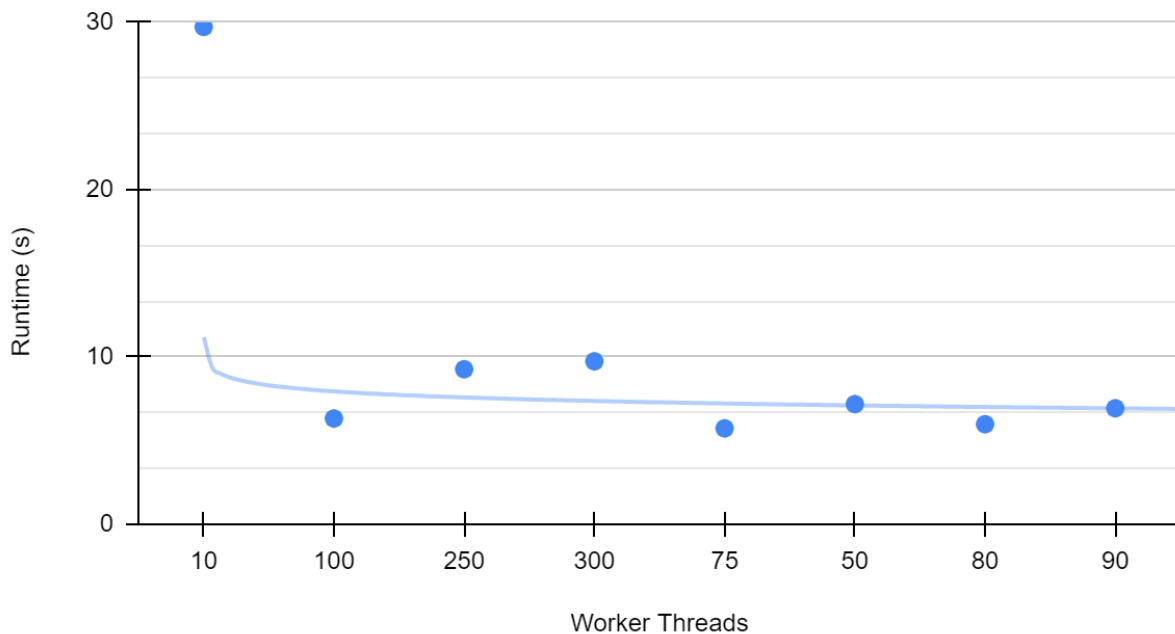


Figure 1

Histograms vs Runtime

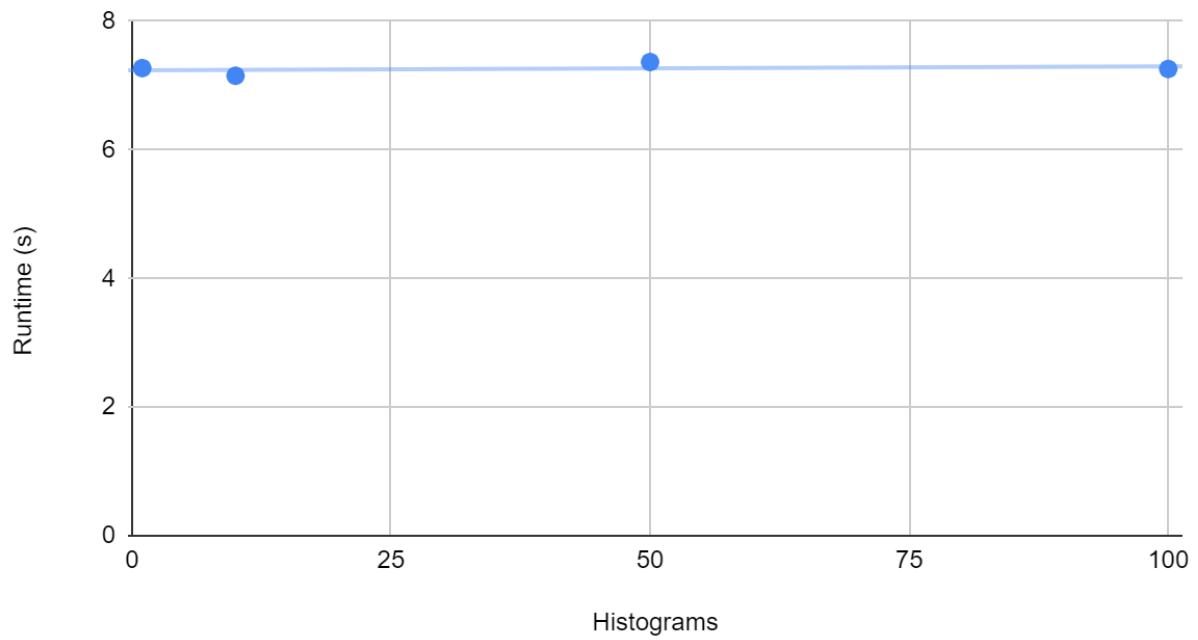


Figure 2

Bounded Buffer Size vs Runtime

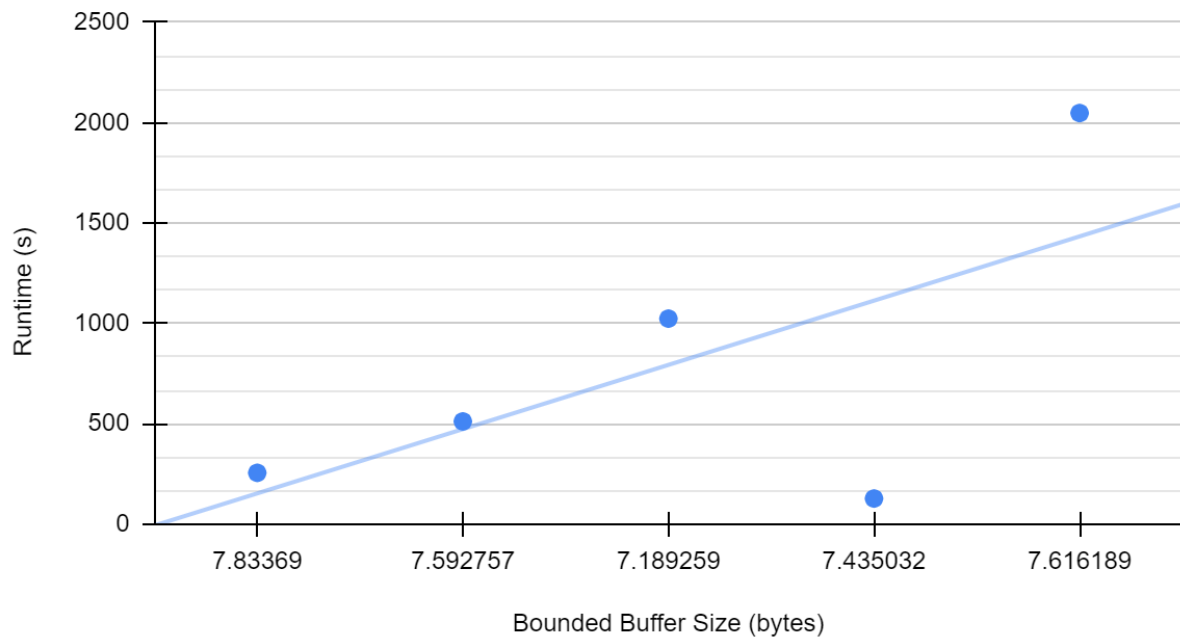


Figure 3

Shown below in figures 4 and 5, is the output to me running 500 worker threads. I accidentally left it out of the demo video, so I took a screenshot of the output.

[illegible]

Figure 4

[illegible]

Figure 5