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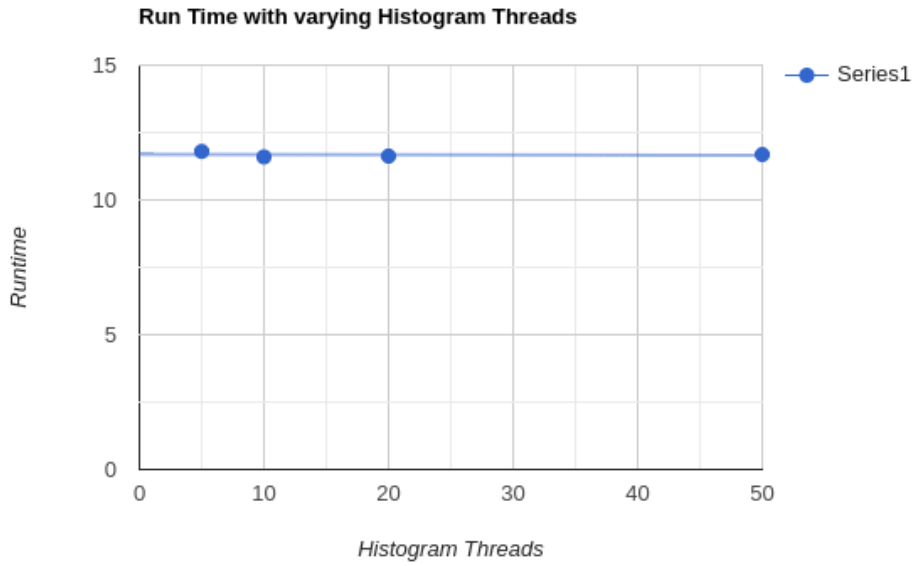
4/8/21

PA4: Threads and Synchronization

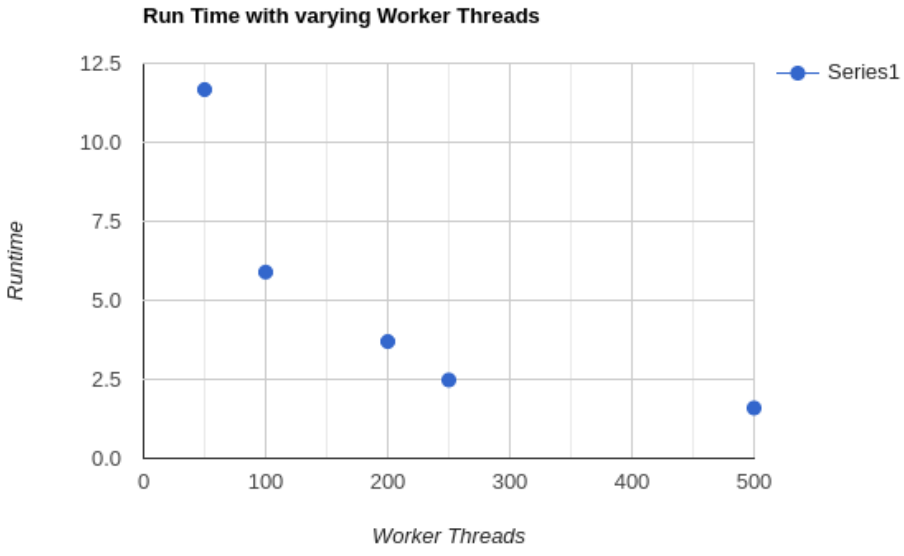
YOUTUBE LINKS: https://www.youtube.com/watch?v=mjC0oHI-Nvg

Timings:

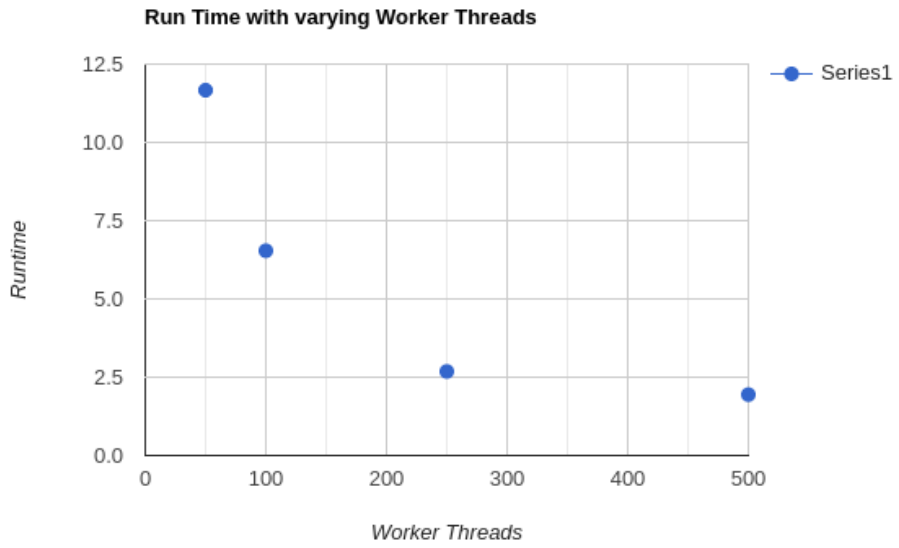
Varying only Histogram Threads @ -p 15 -n 15K -b 1024 -w 50



Varying only Worker Threads @ -p 15 -n 15K -b 1024 -h 5

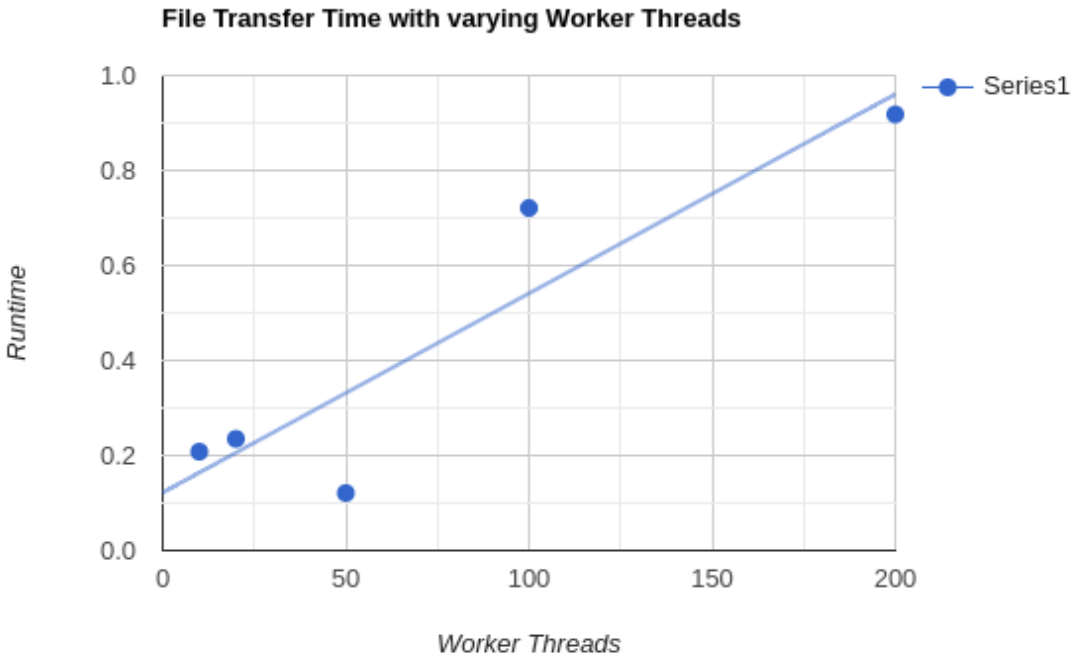


Varying both Worker Threads and Histogram Threads (5, 50) -> (50, 500)



In the case of worker threads, the more the better, this is because the operation of file transfers really depends on the worker threads for the actual speedup, otherwise we wouldnt have even used worker threads, this freed us from sticking to the max limit of 15 patient threads and once at 500 worker threads our file transfers were taking 20% of the time they did with 50 worker threads. Histogram Threads made barely any difference, if at all. This is because increasing the number of histogram threads probably wouldnt do much after increasing from 1 to 10. The threads preforms a pop of the data to a buffer and then updates a histogram this process is not workload heavy so the increase in threads offers no speedup compared to the heavy lifting the worker threads do

FILE TRANSFER
./client -f 10.csv -w (varying 10-200)



Although there is no benefit to increasing the worker thread size in file transfer, when I did a file transfer with 50 threads I achieved a result of around .12 seconds which was faster than even 10 worker threads, this may have been because the entire file was already loaded in dram because I had called the function immediately after the second test.