System Programming
CSE 344
Hw5

Mustafa Gurler
171044034

How I solved the problem?

I read the files to an pointer array and creates the threads. Inside of the thread function , I looked up the arrived number of threads. They are reaching the rendezvous point at the same time. After that 2D Discrete Fourier Transform are calculated one by one by each thread. Outputs are recorded to inserted to a pointer array. Array have been written to the output csv file.

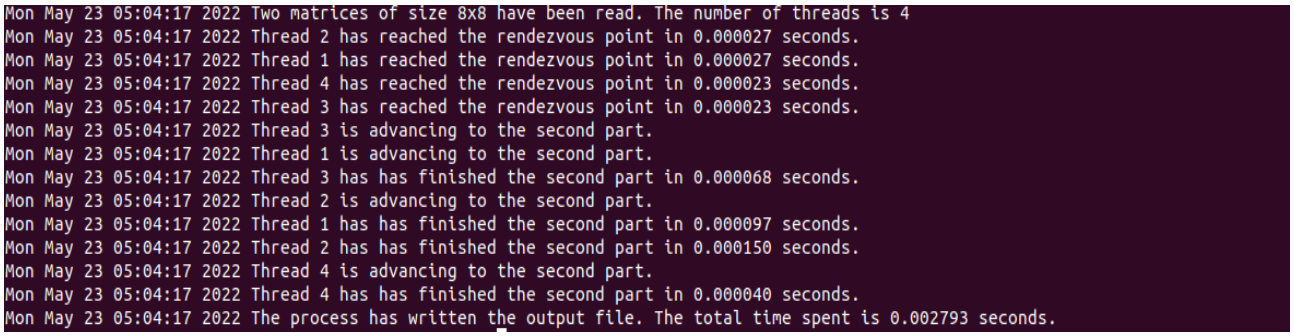
Design Decision?

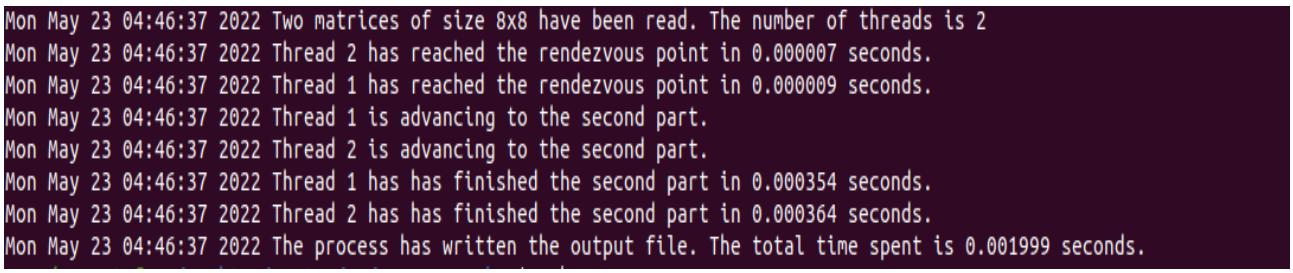
Conditional variables and mutexes are used in this homework. Conditional variables are key of controlling and waiting the all the threads in a place. Mutexes are giving the power of the locked thread to solve problem and unlock it until it finishes its job. Mutex are used in the rendezvous point. Conditional variables are same. They are used in the same place. Threads are waiting each other.

Which Requirements I achieved?

I generally achieved all the tasks. But I do not know calculations are true. But program runs perfectly fine.

Test Picture of some calculations?





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Mon May 23 05:17:12 2022 Two matrices of size 8x8 have been read. The number of threads is 8
Mon May 23 05:17:12 2022 Thread 1 has reached the rendezvous point in 0.000009 seconds.
Mon May 23 05:17:12 2022 Thread 2 has reached the rendezvous point in 0.000015 seconds.
Mon May 23 05:17:12 2022 Thread 3 has reached the rendezvous point in 0.000009 seconds.
Mon May 23 05:17:12 2022 Thread 4 has reached the rendezvous point in 0.000007 seconds.
Mon May 23 05:17:12 2022 Thread 7 has reached the rendezvous point in 0.000008 seconds.
Mon May 23 05:17:12 2022 Thread 6 has reached the rendezvous point in 0.000008 seconds.
Mon May 23 05:17:12 2022 Thread 5 has reached the rendezvous point in 0.000008 seconds.
Mon May 23 05:17:12 2022 Thread 8 has reached the rendezvous point in 0.000008 seconds.
Mon May 23 05:17:12 2022 Thread 6 is advancing to the second part.
Mon May 23 05:17:12 2022 Thread 4 is advancing to the second part.
Mon May 23 05:17:12 2022 Thread 5 is advancing to the second part.
Mon May 23 05:17:12 2022 Thread 6 has has finished the second part in 0.000125 seconds.
Mon May 23 05:17:12 2022 Thread 3 is advancing to the second part.
Mon May 23 05:17:12 2022 Thread 7 is advancing to the second part.
Mon May 23 05:17:12 2022 Thread 7 has has finished the second part in 0.000028 seconds.
Mon May 23 05:17:12 2022 Thread 1 is advancing to the second part.
Mon May 23 05:17:12 2022 Thread 5 has has finished the second part in 0.000140 seconds.
Mon May 23 05:17:12 2022 Thread 1 has has finished the second part in 0.000171 seconds.
Mon May 23 05:17:12 2022 Thread 8 is advancing to the second part.
Mon May 23 05:17:12 2022 Thread 3 has has finished the second part in 0.000034 seconds.
Mon May 23 05:17:12 2022 Thread 8 has has finished the second part in 0.000012 seconds.
Mon May 23 05:17:12 2022 Thread 4 has has finished the second part in 0.000136 seconds.
Mon May 23 05:17:12 2022 Thread 2 is advancing to the second part.
Mon May 23 05:17:12 2022 Thread 2 has has finished the second part in 0.000017 seconds.
Mon May 23 05:17:12 2022 The process has written the output file. The total time spent is 0.003885 seconds.
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