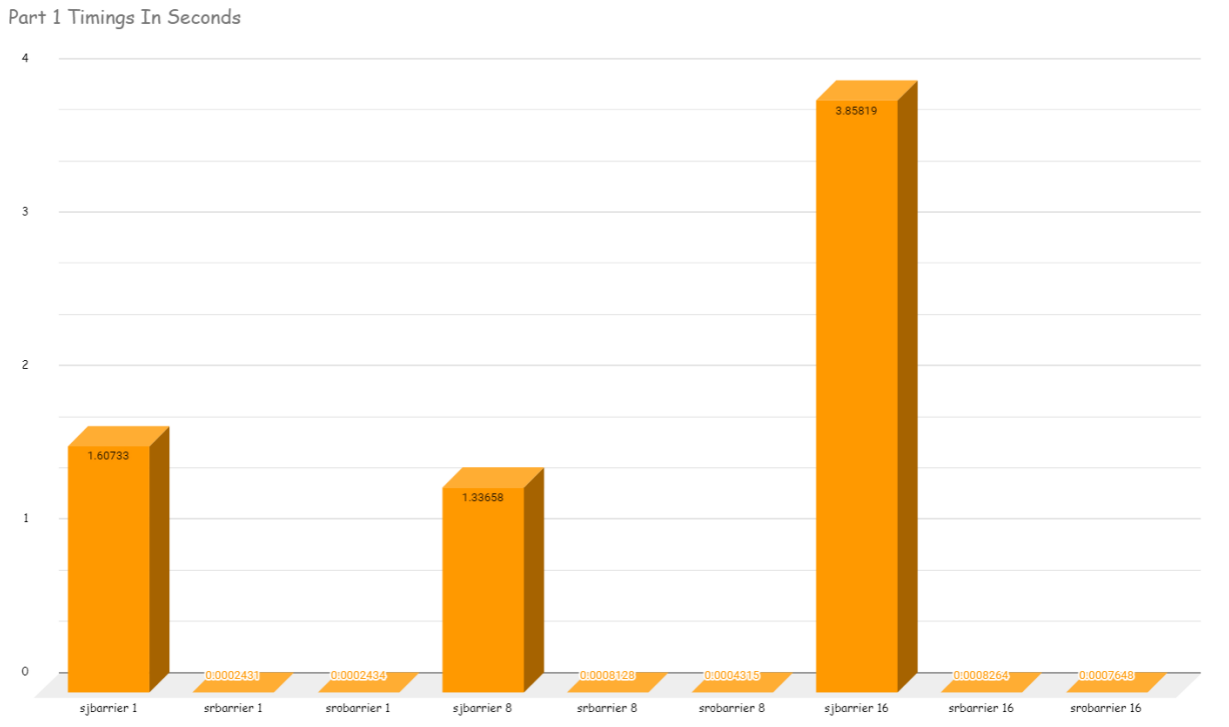
Part1: Write Up

For `sjbarrier`, my implementation consisted of chunking the array by the size of the array divided by the number of threads. For each iteration of my loop, I multiplied the chunk size by the iteration number and sent that to the repeated blur.

For `srbarrier`, my implementation of the barrier was almost identical to the book. Of course, not everything from java can be a direct translation into C++. That is where I decided to use `atomic_fetch_sub()` to calculate my position. I also used an `atomic_int` and an `atomic_bool` for my private variables.

For `srobarrier`, I was surprised in how simple our optimization was. I added `this_thread::yield()` to my spin lock and `memory_order_relaxed` to my atomic load functions.



The results of these binaries were similar, even when the number of threads changed.

sjbarrier 1	srbarrier 1	srobarrier 1

1.60733	0.0002431	0.0002434

sjbarrier 8	srbarrier 8	srobarrier 8
1.33658	0.0008128	0.0004315

sjbarrier 16	srbarrier 16	srobarrier 16
3.85819	0.0008264	0.0007648

After I compared the time of each barrier implementation, it appears that the more threads we allocate, the more time it takes to synchronize.