

ASSIGNMENT-3 REPORT

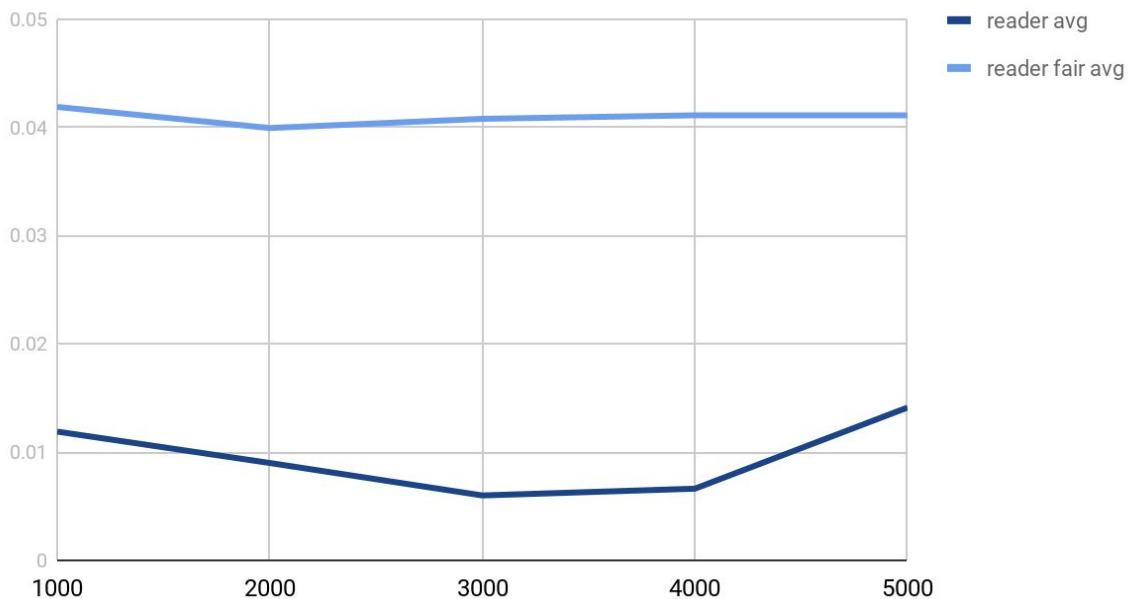
The above programming assignment is about implementation of readers writers problem using semaphores. Semaphore is nothing but a integer which is initialized in main function and its value is changed using wait() and signal() functions only. Here we used normal semaphore in which there is bounded waiting.semaphore is nothing but a lock it allows only one thread to pass through the critical section and blocks every other program that tries to enter the same critical section.

In this there are two cases 1.normal readers writers problem 2. Fair reader writer problem. In the first case writer threads may lead to starvation because of the fact that only one writer is allow to modify the critical section at a time and all other reader writer programs should wait for it to complete but in case of readers any number of readers can enter the critical section so if one thread enters the critical section all other threads also enters at the same time causing starvation for the writers.

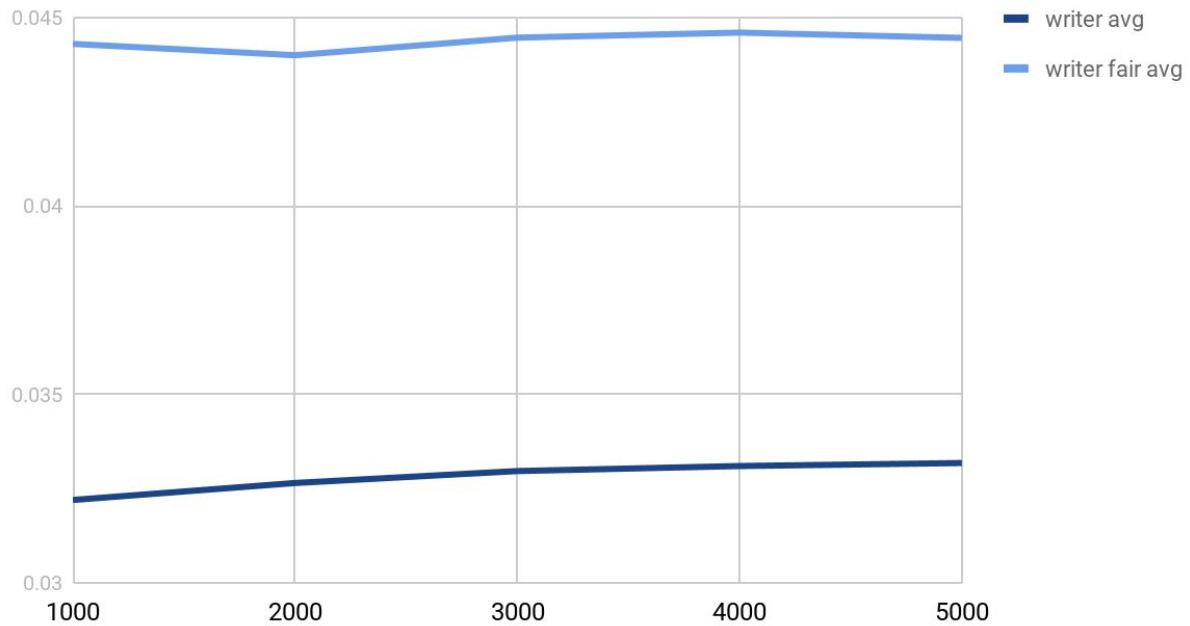
In the second i.e fair readers and writer problem we used extra semaphore to reduce the waiting time of writers and increase (little) waiting time of readers there by preventing the starvatio to the writers.

Here we have the graphs of waiting times of both writers and reader threads

Points scored



Points scored



In the first case i.e in normal reader writer problem when we tried with reader threads less than 5 and kw less than 100 the waiting time of readers comes out to be approximately zero but the avg waiting time of writers is always greater than zero.this proving the starvation of writer threads in normal case.