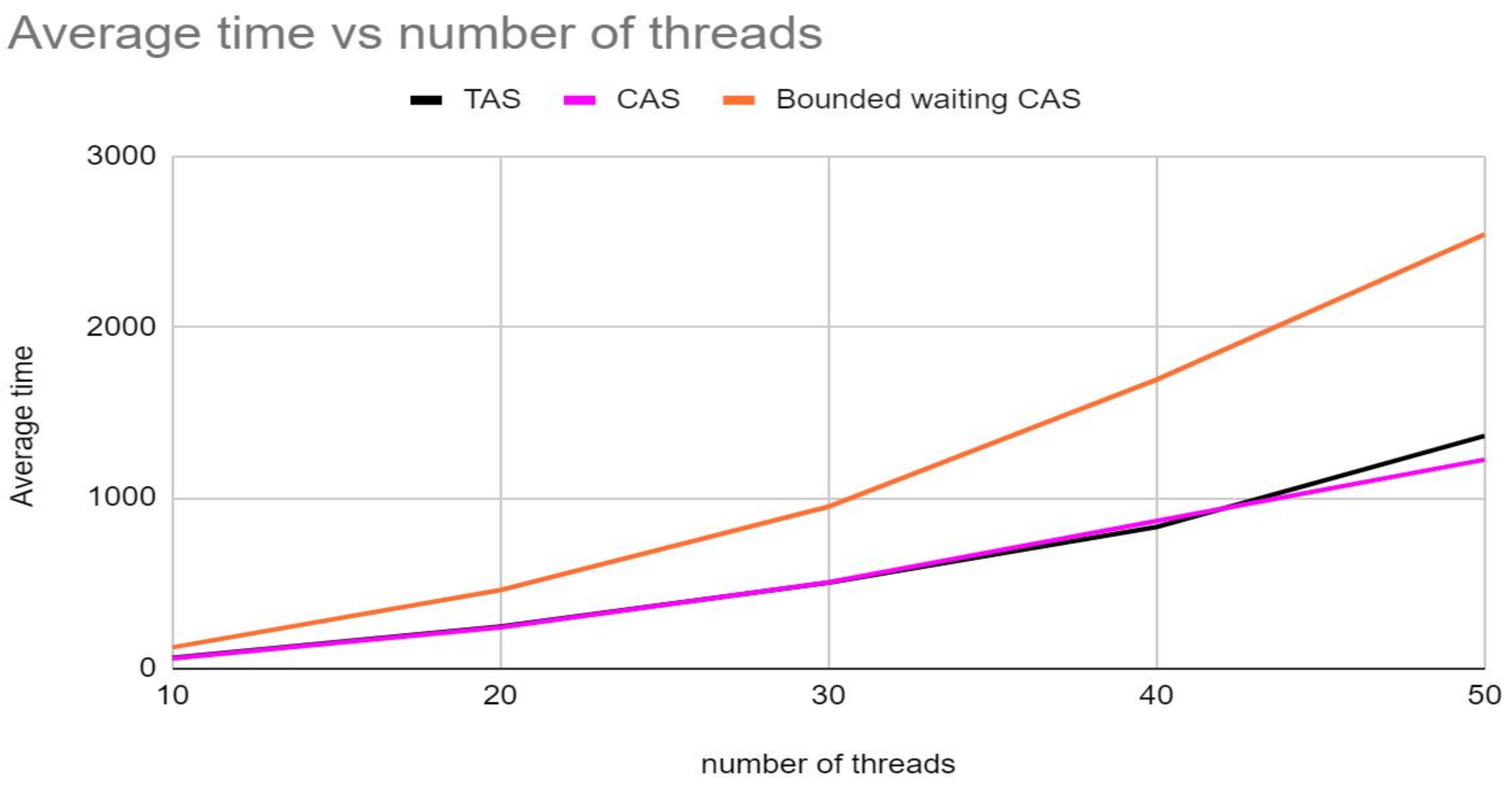
Note: Behaviour of both TAS and CAS implementation are same because in tas in its entry section we will check whether CS is locked or not if CS is locked then we will wait until it is unlocked if CS is not locked then we will give permission for that process to enter CS and we will Lock CS and in exit section we will unlock CS ,in CAS also we will indirectly do same procedure as TAS ,in both graphs we almost got same result for both TAS and CAS

Note: k is number of times that thread has to enter CS

Analysis of Graph1



TAS vs CAS

At every point of time average time for both TAS and CAS is almost same

CAS vs Bounded waiting CAS

Average time to enter CS=(time spent by all threads in its entry section for all its k occurrences) /(number of threads * k)

Average time to enter CS is directly proportional to (time spent by all threads in its entry section for all its k occurrences)

(time spent by all threads in its entry section for all its k occurrences) is directly proportional to (amount of time spent on exit section for all threads) because if thread has spent less amount of time
In exit section that means that thread will unlock CS in less time so other thread will wait less time to enter CS
If thread has spent more amount of time in exit section that means that thread will take more time to unlock CS
So other thread has to wait more time to enter CS

So average time taken to enter cs is directly proportional to (amount of time spent on exit section for all threads)

So for Bounded waiting CAS ,amount of time spent on exit section for all threads will be more compared to CAS and TAS because we will have an extra loop to select a process in Bounded waiting CAS

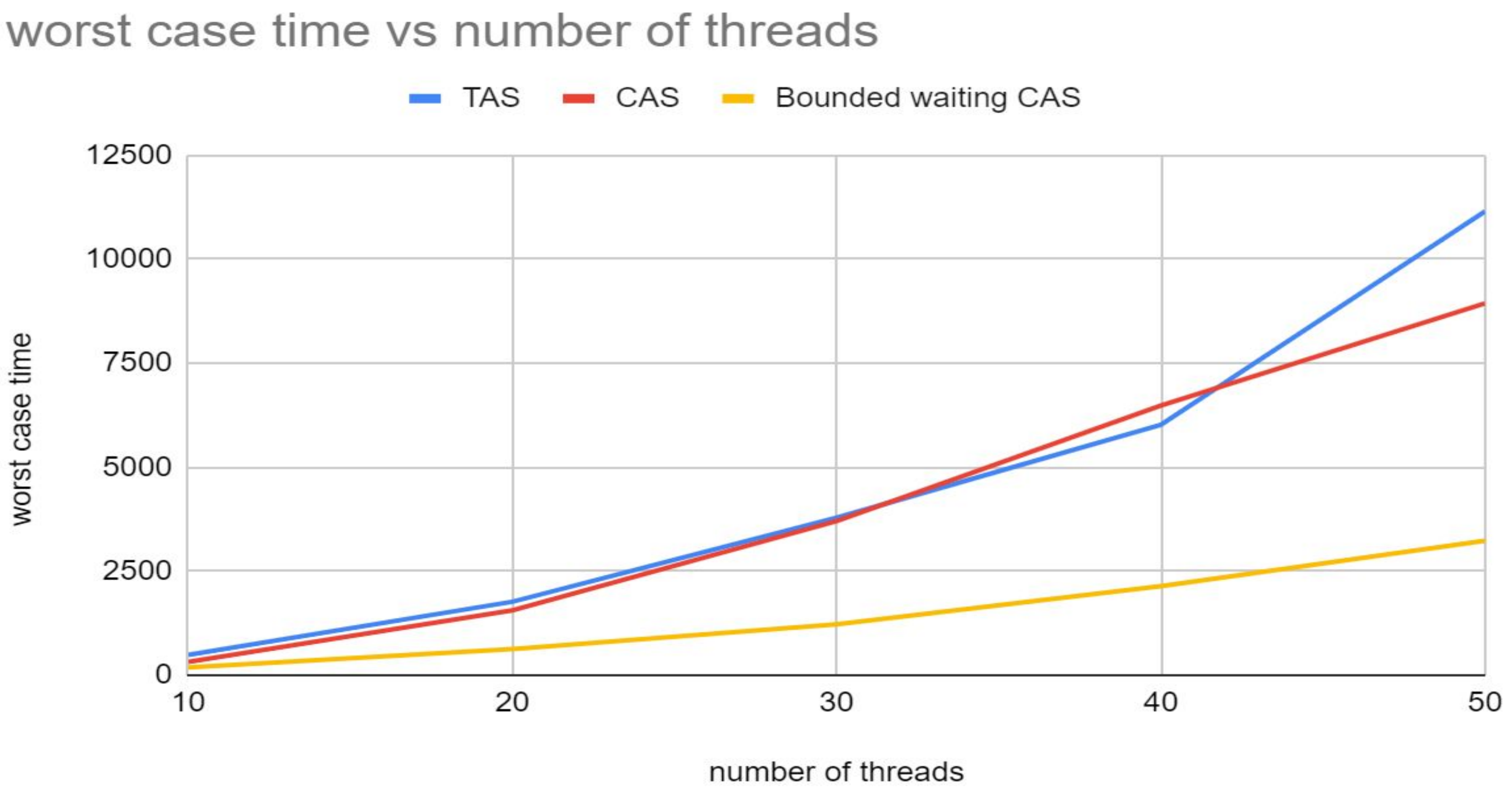
(amount of time spent on exit section for all threads in bounded waiting CAS)>(amount of time spent on exit section for all threads in CAS or TAS)

We showed that (average time taken to enter cs) is directly proportional to (amount of time spent on exit section for all threads)

So (average time taken to enter cs in bounded waiting CAS) >(average time taken to enter cs in CAS or TAS)

In graph also at every point of time we got (average time taken to enter cs in bounded waiting CAS) greater than (average time taken to enter cs in CAS or TAS)

Analysis of Graph2



TAS vs CAS

Because both behaviours are same there will only minor difference in worst case time for process to enter CS and there may be some difference in worst case times because if a thread just after exiting loop in entry section if it gets swapped out then more waiting time to enter CS will be added ,so in TAS or CAS this case may happen because of that CAS and TAS worst case time's may differ ,at no of threads=50 TAS may be following this case because of that worst case time to enter CS will be more for TAS Compared to CAS ,and at no of threads=10,20,30,40 they are almost equal

CAS vs Bounded waiting CAS

Consider **thread i** has worst case time to enter CS in CAS and thread j has taken worst case time to enter CS in Bounded waiting CAS.

In CAS thread i can be overtaken by other's atmost ((no of threads-1)*(k)) number of times because next Process to enter CS will be selected randomly

In Bounded waiting CAS thread j can be overtaken by other's atmost (no of threads-1) number of times because we will select process in circular fashion for suppose if thread 2 has to select next process then thread 2 will look for thread 3,4,5,........n,1 .so no thread will enter CS more than one time before other thread here thread1 can be overtaken by thread 2,3,...n after completion of **cs** of thread n it will select thread1 so no other threads can overtake thread1 again, thread1 can be overtaken atmost n-1 times.

So there are very higher chances that thread i in CAS can be overtaken more number of times compared to thread j in Bounded waiting CAS because of their upper bounds

If thread is overtaken more times means it has to wait more time in entry section, here thread i in CAS will wait more time in entry section compared to thread j in Bounded waiting CAS so worst case time taken to enter CS will be more in CAS compared to Bounded Waiting CAS ,this thread i will starve more time because it will wait until atmost **((no of threads-1)*(k))** threads finishes their execution in CS.

In graph also we got worst case time lesser for Bounded waiting CAS compared to CAS and TAS