Report
EE17BTECH11041
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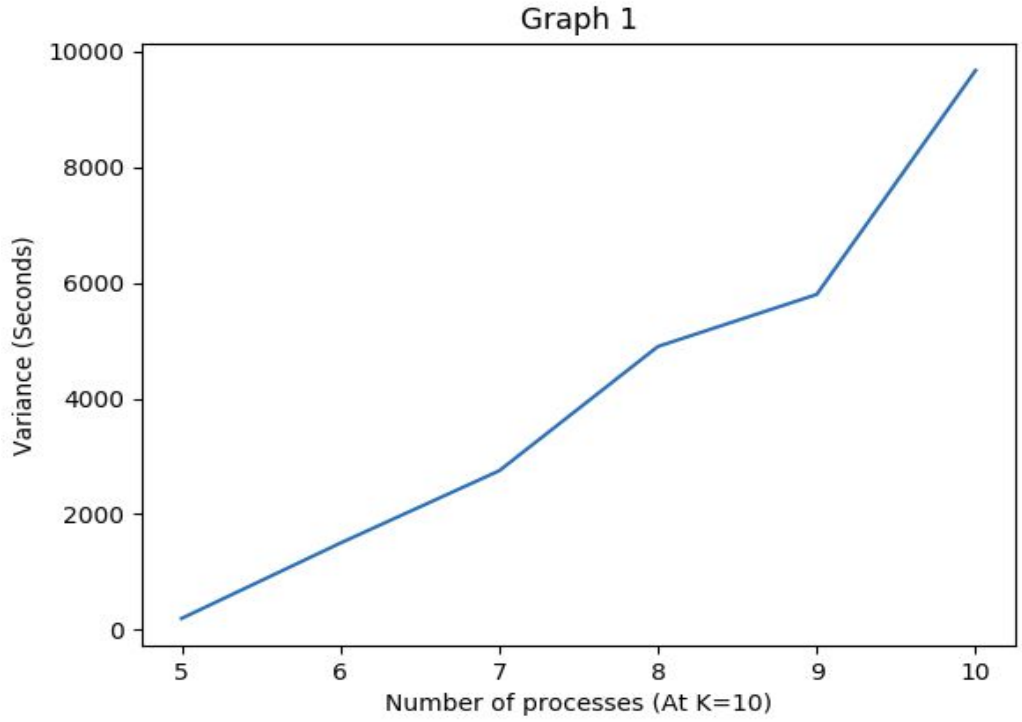
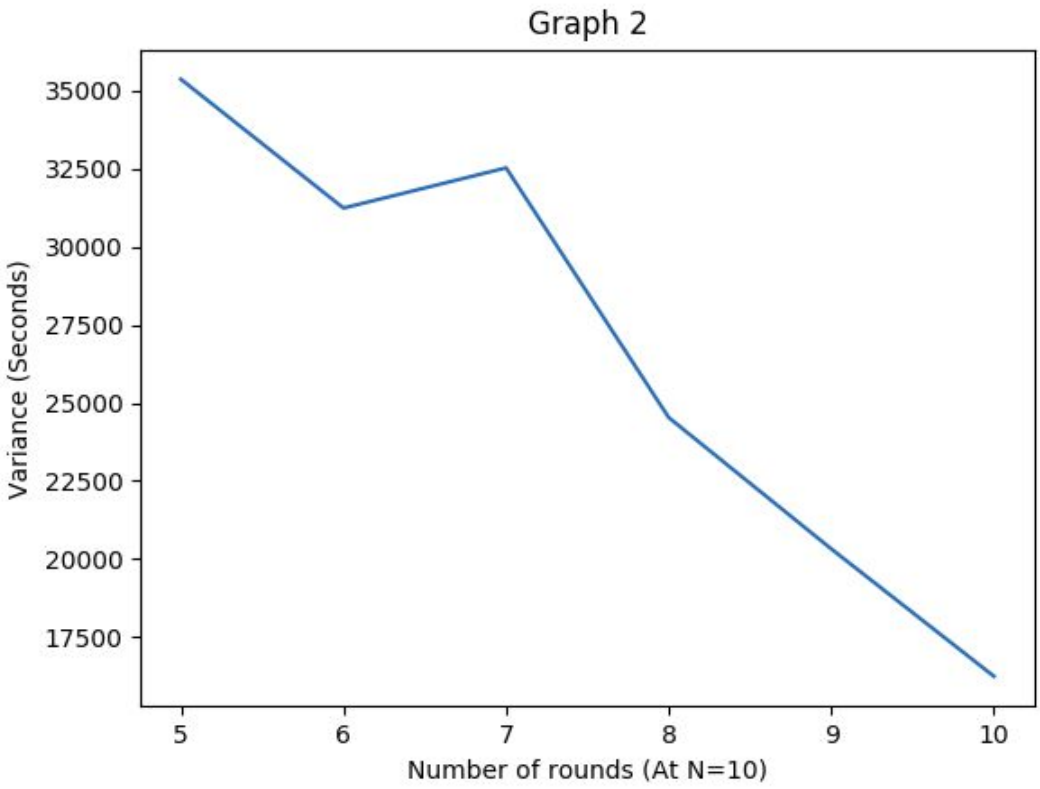
Program design -

- Each process runs on a thread.
- Each process further divided into three threads.
    - Client thread - The thread that sends sync_requests to other processes at the start of every round. Receives sync_reply and updates the error factor.
    - Server thread - The thread which sends sync_reply to other process clients that send sync_requests.
    - Drift thread - This thread simulates the drift of the system clock by incrementing the drift factor continuously with the random exponential distribution
- Client thread starts by sending connections requests to other servers until all the connections are established. Once all the connections are established the 1st round starts. After all the rounds are finished the client thread exits and also the drift thread exits to stop the clock from further deviating.
- The server thread accepts all the connections it gets and then replies to the sync_requests by reading the system clock. After all the rounds the clients close connections with the server. After all the connections close the server thread also exits.
- The client thread updates the error factor after every sync_reply from every other process in every round.

Graphs -





Log table for N=5 and K=5

Time in ns	P1	P2	P3	P4	P5	Mean	Variance
Round1	5534250705057	5534251951143	5534251747374	5534250662960	5534249861529	5534253391556	4479117331678
Round2	5534252683636	5534253862594	5534253507203	5534253032920	5534251656992	5534254767627	5872088744931
Round3	5534253993644	5534255281659	5534254681286	5534254477506	5534253825303	5534254223849	5144086482147
Round4	5534255141002	5534256548543	5534255810495	5534255654697	5534255135134	5534253918154	5171954167939
Round5	5534256219546	5534258316138	5534257634755	5534257256026	5534256379357	5534253018744	5848786236037