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What is working

Command to be run in console : **dotnet run num_nodes, topology(line, full,3D,Imp3D) algorithm(gossip, push sum)**
Four topologies were implemented namely, line, full, 3D and imperfect 3D. The algorithms used were gossip and push sum. Both algorithms were running successfully for all 4 topologies. The point of convergence for the gossip algorithm is achieved when all nodes have heard the rumor ten times. Once this is achieved the supervisor will print the total time taken.

The Full topology ran the fastest for both algorithms gossip and push sum. As we were randomly picking neighbors from all nodes. 3D and Imperfect 3D both performed better than Line topology for both algorithms. Imperfect 3D was better than 3D for gossip and for push sum. Imperfect 3D and 3D both faired the same although imperfect 3D was slightly better. Imperfect 3D is better as we assign neighbors similar to 3D (like that in a 3D lattice) in addition to a random node from the list of nodes. Line faired the worst for both algorithms. It was interesting to see that Imperfect 3D and 3D performance was nearly the same for push sum. Below the graphs have been attached. The number of nodes we ran it for was upto 1000.

**We were able to run the program for 9000 nodes. For all topologies and algorithms.**

**References :**
**For understanding the gossip process :** https://manishyadav.dev/blog/gossip-push-sum-protocols
**Scheduler understanding :** https://bartoszsypytkowski.com/actor-supervisors-in-akka-net-fsharp-api/