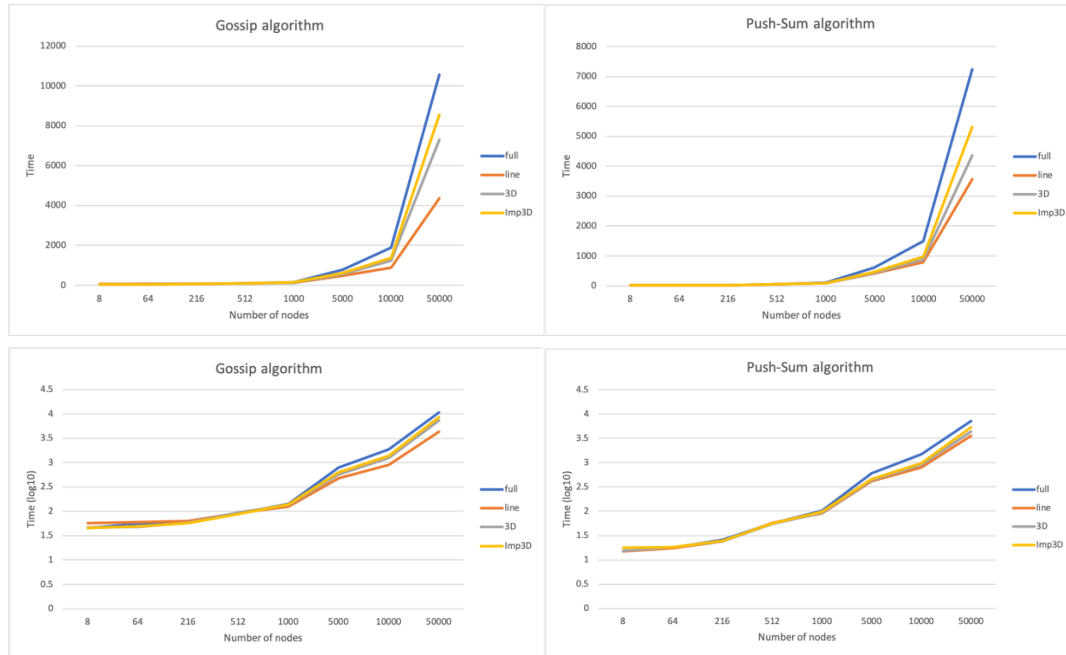# Project 2 Report

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In this project, we designed algorithm to run all Line, Full, 3D, and Imp3D with gossip or push-sum protocol. After convergence, the node stops transmitting the message to its neighbor. Once the network is converged, the total time for convergence is printed out.

The converge time results are shown as below:

We tested 8, 64, 216, 512, 1000, 5000, 10000, 50000 nodes respectively. The results show that the differences between those topologies become larger and larger, when there are more than 1000 nodes. The 'line' topology usually costs the least time, and the 'full' topology costs the most time. Based on the graphs, we can obtain that the time cost sequence is full > Imp3D > 3D > line. The push-sum algorithm uses the less time compared to gossip algorithm.