Project 3 Distributed Operating Systems--- Chord P2P Simulation

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To build -- sbt compile

To run -- sbt "run <numNodes> <numRequestsperNode>"

In this project I have followed the algorithms as presented in the published paper to create a chord p2p network and than validate the performance of the protocol by routing randomly generated messages through the network.

I follow the stabilization method to create the network as recommended by the authors of the paper, on very rare occasions I noticed that some of the nodes in the network are partitioned -- which might lead to failures in routing. I was able to both set up the network and validated it by printing out finger_tables for small number of nodes-say 10, also I print Succ and Pred of every node on the console--to check correctness.

Below is a summary of results obtained.

NumNodes	NumRequestsPerNode	Avg Hops per message
10	10	2
100	10	4
1000	10	5
5000	10	6
10000	10	7

I ran the network to the maximum of 10000 nodes which took around 508 seconds to complete.

As can be seen by the above results we have less than O(log n) performance for all the above experiments hence validating the performance. I am attaching logs for experiment run with the submission for reference.