PROJECT 2
README
DISTRIBUTED OPERATING SYSTEMS PRINCIPLES
COP 5615

Group Info:

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What is working:

-Convergence of gossip and push-sum algorithm for full network, 3D grid, random 2D grid, torus, line and imperfect line topologies.
-Simulated failed nodes for both the algorithms for all the topologies.

Assumptions:

Due to some ambiguity, we have made some assumptions. They are as follows:

1. When sphere is entered as topology input, it corresponds to Torus topology in implementation
2. When imp2D is entered as topology input, it corresponds to Imperfect Line Topology implementation

Largest Network:

Gossip:

1. Full Network - 10000 nodes
2. 3D Grid - 10000 nodes
3. Random 2D Grid - 10000 nodes
4. Torus - 10000 nodes
5. Line - 10000 nodes
6. Imperfect Line - 10000 nodes

Push-sum:

1. Full Network - 5000 nodes
2. 3D Grid - 5000 nodes
3. Random 2D Grid - 5000 nodes

4. Torus - 5000 nodes
5. Line - 5000 nodes
6. Imperfect Line - 5000 nodes

How to run the program:

Unzip assignment2.zip, cd into assignment2 folder
then run the project by typing on the terminal:
mix run lib/assignment2.ex numNodes topology algorithm

where, numNodes is the number of nodes,topology is the network topology (full stands for Full Network, 3D stands for 3D Grid, rand2D stands for Random 2D Grid, sphere stands for Torus, line stands for Line, imp2D stands for Imperfect Line),
algorithm is the algorithm to be used (gossip or push-sum)

How to run the Bonus portion:
Bonus portion with failed nodes is also implemented and can be run as follows:
Unzip assignment2bonus.zip, cd into assignment2bonus folder
then run the project by typing on the terminal:
mix run lib/assignment2bonus numNodes topology algorithm percentage

where, numNodes is the number of nodes,
topology is the network topology (full stands for Full Network, 3D stands for 3D Grid, rand2D stands for Random 2D Grid, sphere stands for Torus, line stands for Line, imp2D stands for Imperfect Line),
algorithm is the algorithm to be used (gossip or push-sum),
percentage is the percentage of nodes that need to be killed.