COP5615 Fall 2019

Project 2 Gossip Simulator

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Group Members

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Instructions to run the program

1. Extract the zip file Raghavan\_karlekar.zip.
2. Go the folder proj2.
3. Run the command- mix escript.build
4. After building, run the program by executing escript my\_program numNodes topology algorithm.
5. For example – escript my\_program 100 full gossip
6. The program will execute.

Note: If the topologies don’t converge, terminate the program by pressing ctrl + c, and re-execute the program.

**What is working:**

**Topologies:**

1. Full: Every node is neighbor to every other node.
2. Line: Nodes form a queue. Each node has two neighbors except for the first and the last node.
3. Random 2D: Nodes are randomly placed at x, y co-ordinates on a 1x1 grid. Two nodes are connected if the distance between them is less than or equal to 0.1 units.
4. 3D Torus: Nodes are arranged in a three-dimensional grid with each node having six neighbors.
5. HoneyComb: Nodes are arranged in a hexagonal pattern resembling that of a honeycomb. Each node can have maximum of three neighbors.
6. Random HoneyComb: Same as HoneyComb but one other random neighbor is selected from the list of all nodes.

Convergence is achieved for all topologies for both algorithms.

**Largest network for both algorithms:**

|  |  |  |
| --- | --- | --- |
|  | Gossip | Push-Sum |
| Full | 600 | 500 |
| Line | 1200 | 1000 |
| Random 2D | 700 | 5000 |
| 3D Torus | 6000 | 7000 |
| Honeycomb | 5000 | 6000 |
| Random Honeycomb | 5000 | 6000 |