**Distributed Operating Systems, Project 2: Gossip Protocol**

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**Instructions to RUN:**

1. Make sure epmd daemon is running. Run epmd -daemon

2. Run following commands from the directory which has mix.exs

cd project2 && mix escript.build

./project2 numNodes {full | imp2D | line | 2D} {gossip | push-sum}

**Working:**

1. Convergence of Gossip algorithm for all topologies.
2. Convergence of Push-Sum algorithm for all topologies.

**Largest network used:**

1. For Gossip algorithm:
   1. Full Network Topology:
   2. Line Topology:
   3. 2D Grid Topology:
   4. Imperfect 2D Grid Topology:
2. For Push-Sum algorithm:
   1. Full Network Topology:
   2. Line Topology:
   3. 2D Grid Topology:
   4. Imperfect 2D Grid Topology:

**Sample Outputs:**

./project2 100 full gossip

Using Gossip algorithm

Using full topology

Spread: 95.0 %

Time required: 18 ms

Spread is the ratio of nodes that received the rumour divided by the total number of nodes.

Time required is the convergence time of the network.

./project2 100 full push-sum

Using push-sum algorithm

Using full topology

Spread: 93.0 %

Time required: 20 ms