**DOSP - Project 2**

**Gossip & Push-Sum Simulator**

**Team members**

Sindhura Sriram - 7635 0466

Vijay Thakkallapally - 9390 2982  
Sai Hema Sree Battula - 4290 8117

Snehit Vaddi - 1991 3483

**What is working:**

1. Gossip Algorithm
   1. Line
   2. Full
   3. 2D
   4. Imperfect3D
2. Push-Sum Algorithm
   1. Line
   2. Full
   3. 2D
   4. Imperfect3D

The program prints the convergence time for above mentioned algorithms and topologies. The convergence time is defined as following:

Gossip – When all the actors hear the rumor/message more than 10 times.

Push-Sum – When ratio of s/w changes by more than 10^ (-10) in 3 consecutive rounds.

**How to Run**

Set path for Gossip folder and run the following command:

dotnet build

dotnet run numNodes, topology, algorithm

where:

*numNodes* (Integer) – no. of nodes you want in the topology

*topology* (String) – can be one of the following: ‘line’, ‘full’, ‘3D’, ‘imp3D’

*algorithm* (String) - can be one of the following: ‘gossip’, ‘pushsum’

**Largest Network**

Below is the largest value of *numNodes* we could manage to run our algorithms and topologies to run for:

|  |  |  |
| --- | --- | --- |
|  | **Gossip** | **Push-Sum** |
| **Line** | 1000 | 300 |
| **Full** | 30000 | 5000 |
| **2D** | 500 | 300 |
| **Imperfect 3D** | 500 | 300 |

**Graph for Gossip algorithm**:  
  
A graph with numbers and lines

Description automatically generated

**Graph for PushSum algorithm:  
  
A graph with numbers and lines

Description automatically generated**