**Assignment 3**

The assignment1.cc simulates an ad hoc network using 802.11g.

It uses Optimize Link State Routing (OLSR) protocol to establish paths to all nodes.

Other parameters are accordingly added.

**Task 1.**

You are required to run the simulation for different scenarios of node densities (10, 20, 30, … 100).

For each node density you required to generate traffic using only 1 source – destination pairs.

The seed variable allows for randomization of simulation. For each node density, randomize your simulation 10 times by varying the seed value from 1.0 to 10.0. Compute the mean throughput, Packet Delivery Ratio (PDR) and end-to-end delay for each node density.

Using excel or any graphing tool such as gnuplot to plot separate line graphs for throughput and end-to-end delay vrs. Node density.

You graph should look like the following:

**Task 2.**

You are required to run a simulation of fix size of 80 nodes for different scenarios of udp packet traffic densities (i.e. number of traffic flows (Traffic load)) (1, 5, 10, 15, 20, 25, 30) source-destination pairs. For each udp packet traffic density you required to use 50 nodes. The seed variable allows for randomization of simulation. For each packet traffic densities, randomize your simulation 10 times by varying the seed value from 1.0 to 10.0. Compute the mean throughput, Packet Delivery Ratio (PDR) and end-to-end delay for each node density..

Use the following source - destination connections or flows for your simulations.

|  |  |  |  |
| --- | --- | --- | --- |
| Traffic Flow (Load) | Source Node | Destination Node |  |
| 1 | 0 | 79 |  |
| 5 | 0 | 79 |  |
|  | 1 | 78 |  |
|  | 2 | 77 |  |
|  | 3 | 76 |  |
|  | 4 | 75 |  |
|  |  |  |  |
| 10 | 0 | 79 |  |
|  | 1 | 78 |  |
|  | 2 | 77 |  |
|  | 3 | 76 |  |
|  | 4 | 75 |  |
|  | 5 | 74 |  |
|  | 6 | 73 |  |
|  | 7 | 72 |  |
|  | 8 | 71 |  |
|  | 9 | 70 |  |
|  |  |  |  |
| 15 | 0 | 79 |  |
|  | 1 | 78 |  |
|  | 2 | 77 |  |
|  | 3 | 76 |  |
|  | 4 | 75 |  |
|  | 5 | 74 |  |
|  | 6 | 73 |  |
|  | 7 | 72 |  |
|  | 8 | 71 |  |
|  | 9 | 70 |  |
|  | 10 | 69 |  |
|  | 11 | 68 |  |
|  | 12 | 67 |  |
|  | 13 | 66 |  |
|  | 14 | 65 |  |
|  |  |  |  |
| 20 | 0 | 79 |  |
|  | 1 | 78 |  |
|  | . | . |  |
|  | . | . |  |
|  | . | . |  |
|  | . | . |  |
|  |  |  |  |
|  |  |  |  |

Using excel or any graphing tool such as gnuplot to plot separate line graphs for throughput and end-to-end delay vrs. Traffic Load (Flows).

**Submission Deadline: 03/04/2020**

Write a two page report on your simulation results using the trends observed from your graphs.