

# VI Semester B.Tech. (CSE) | Winter Semester (2023-2024)

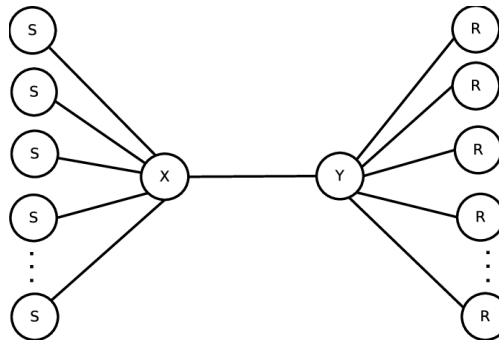
## Computer Networks Lab (CSC307)

### List of experiments for 13th Feb 2024:

1. Design and implement a Token ring LAN protocol in NS-3.
  - Let the number of nodes in the topology be settable by command line, where minimum nodes should be 3 and maximum up to 8 nodes.
  - Create bidirectional links between these nodes.
  - Set appropriate parameters like data rate, delay, packet size and addressing.

Generate the trace files and visualize this whole scenario with the help of network animator NetAnim.

2. Design a “Dumbbell network topology” and simulate the scenario in NS-3 which consists of **three nodes on each side**; three clients Node1, Node2 and Node3 on the left side of the dumbbell and server Node4, Node5 and Node6 on the right-side dumbbell. Let Node7 and Node8 form the bridge of the dumbbell. Sample representation of such dumbbell is shown below. Use the point-to-point communication links.



Consider the following cases and simulate the network:

1. Install a TCP socket instance on Node1 that will connect to Node4.
2. Install a TCP socket instance on Node2 that will connect to Node5.
3. Install a TCP socket instance on Node3 that will connect to Node6.
4. Start Node1--Node4 flow at time 1s then measure its throughput.
5. Start Node2--Node5 and Node3--Node6 flows at time 20s, measure their throughput.
6. Show the throughput and delay analysis with the help of Tracemetrics.

**Hint:** May go through the file examples/tcp/star.cc file which will give a basic idea and help in designing such topology.

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