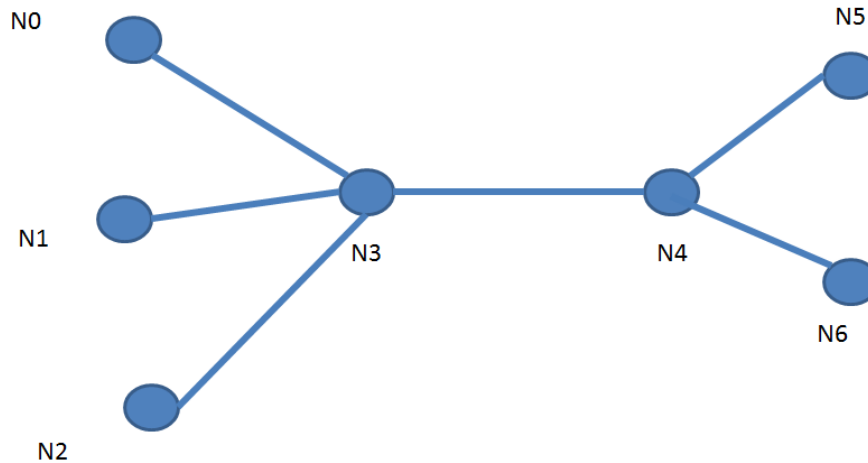# DCN Assignment 1

For the DCN assignment 1 on NS-2, write a tcl script for a (wired) network layout consisting of 7 nodes and 6 duplex link connections as shown below.

Set the following traffic on the above network –

Traffic	Color code	Node pairs	Time
UDP – CBR, Flow-1	Blue	N1-N5	2.5 s – 6.5 s
UDP – CBR, Flow-2	Red	N2-N5	3.0 s – 8.0 s
TCP – FTP, Flow-3	Green	N0-N6	1.2 s -8.5 s

a) Create NAM and trace file.
b) NAM file and awk script should be executed from the "finish" procedure of tcl file.
c) CBR traffic using UDP protocol (on flow 1 and 2) has following parameters, i.e. packet size of 500 bytes and interval as 0.005 s.
d) FTP application is run using TCP protocol on flow-3.
e) Initially, set all link parameters as follows – data rate – 1Mbps, delay = 10ms, queueing policy as Droptail.
f) Change the data rate of link N3-N4 from 1 Mbps to 2 Mbps and 3 Mbps in steps. Fill up the details in Table 1 by performing the network analysis. Use awk script to perform the analysis.
g) Change the queueing policy to SFQ (of all duplex links). Set the data rate of link N3-N4 in steps as 1 Mbps, 2 Mbps and 3 Mbps. Fill up the details in Table 2 by performing the network analysis. Use awk script to perform the analysis.
h) Simulation end time is 10 sec.

Table 1 – Queueing policy Droptail

Link N3-N4 rate	Flow -1			Flow -2			Flow -3		
	No. of packets enqueued	No. of packets received	No. of packets dropped	No. of packets enqueued	No. of packets received	No. of packets dropped	No. of packets enqueued	No. of packets received	No. of packets dropped
1 Mbps									
2 Mbps									
3 Mbps									

Table 2 – Queueing policy SFQ

Link N3-N4 rate	Flow -1			Flow -2			Flow -3		
	No. of packets enqueued	No. of packets received	No. of packets dropped	No. of packets enqueued	No. of packets received	No. of packets dropped	No. of packets enqueued	No. of packets received	No. of packets dropped
1 Mbps									
2 Mbps									
3 Mbps									

Hint – Enqueue operation is indicated by "+" sign in the first column of NS2 trace file.

Assignment submission format is given on the next page. It should be a **single pdf file** consisting of student's details, tcl script, awk script, Table 1 and Table 2 (filled with all entries).

DCN assignment 1

Name –

ID no. –

tcl script – Provide the tcl file for any one scenario (for example: link N3-N4 rate as 1 Mbps and Droptail queuing policy)

awk script – A single AWK script to analyze number of packets enqueued, received and dropped for different flows.

Table 1 – complete details

Table 2 - complete details