**PROGRAM8A: File name - TCP.tcl**

#Create a simulator object set ns [new Simulator]

#Open trace files

set f [open droptail-queue-out.tr w]

$ns trace-all $f

#Open the nam trace file

set nf [open droptail-queue-out.nam w]

$ns namtrace-all $nf

#s1, s2 and s3 act as sources. set s1 [$ns node]

set s2 [$ns node] set s3 [$ns node]

#G acts as a gateway set G [$ns node]

#r acts as a receiver set r [$ns node]

#Define different colors for data flows

$ns color 1 red

$ns color 2 SeaGreen

$ns color 3 blue

#Create links between the nodes

$ns duplex-link $s1 $G 6Mb 10ms DropTail

$ns duplex-link $s2 $G 6Mb 10ms DropTail

$ns duplex-link $s3 $G 6Mb 10ms DropTail

$ns duplex-link $G $r 3Mb 10ms DropTail

#Define the layout of the nodes

$ns duplex-link-op $s1 $G orient right-up

$ns duplex-link-op $s2 $G orient right

$ns duplex-link-op $s3 $G orient right-down

$ns duplex-link-op $G $r orient right

#Define the queue size for the link between node G and r

$ns queue-limit $G $r 5

#Monitor the queues for links vertically

$ns duplex-link-op $s1 $G queuePos 0.5

$ns duplex-link-op $s2 $G queuePos 0.5

$ns duplex-link-op $s3 $G queuePos 0.5

$ns duplex-link-op $G $r queuePos 0.5

#Create a TCP agent and attach it to node s1 set tcp1 [new Agent/TCP/Reno]

$ns attach-agent $s1 $tcp1

$tcp1 set window\_ 8

$tcp1 set fid\_ 1

#Create a TCP agent and attach it to node s2 set tcp2 [new Agent/TCP/Reno]

$ns attach-agent $s2 $tcp2

$tcp2 set window\_ 8

$tcp2 set fid\_ 2

#Create a TCP agent and attach it to node s3 set tcp3 [new Agent/TCP/Reno]

$ns attach-agent $s3 $tcp3

$tcp3 set window\_ 4

$tcp3 set fid\_ 3

#Create TCP sink agents and attach them to node r set sink1 [new Agent/TCPSink]

set sink2 [new Agent/TCPSink] set sink3 [new Agent/TCPSink]

$ns attach-agent $r $sink1

$ns attach-agent $r $sink2

$ns attach-agent $r $sink3

#Connect the traffic sources with the traffic sinks

$ns connect $tcp1 $sink1

$ns connect $tcp2 $sink2

$ns connect $tcp3 $sink3

Create FTP applications and attach them to agents set ftp1 [new Application/FTP]

$ftp1 attach-agent $tcp1

set ftp2 [new Application/FTP]

$ftp2 attach-agent $tcp2

set ftp3 [new Application/FTP]

$ftp3 attach-agent $tcp3

#Define a 'finish' procedure proc finish {} {

global ns

$ns flush-trace

puts "running nam..."

exec nam -a droptail-queue-out.nam & exit 0

}

#Define label for nodes

$ns at 0.0 "$s1 label Sender1"

$ns at 0.0 "$s2 label Sender2"

$ns at 0.0 "$s3 label Sender3"

$ns at 0.0 "$G label Gateway"

$ns at 0.0 "$r label Receiver"

#Schedule ftp events

$ns at 0.1 "$ftp1 start"

$ns at 0.1 "$ftp2 start"

$ns at 0.1 "$ftp3 start"

$ns at 5.0 "$ftp1 stop"

$ns at 5.0 "$ftp2 stop"

$ns at 5.0 "$ftp3 stop"

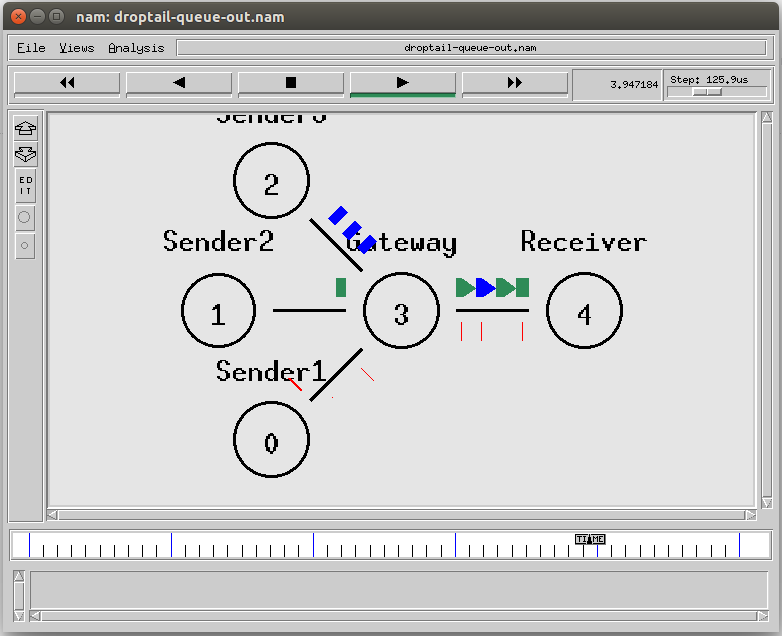
#Call finish procedure after 5 seconds of simulation time

$ns at 5.25 "finish"

#Run the simulation

$ns run

# OUTPUT:

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