THADOMAL SHAHANI
TSEC
ENGINEERING COLLEGE

ATHARVA YADAV
ROLL NO : 127
BATCH : S23

NETWORK LAB ASSIGNMENT NO.3

Aim: Implementation of specific network topology which is supported in TCP.

Theory:

In wireless networks nodes communicate Using Communication model that consist of TCP agent, TCP sink agent and FTP Application .

The sender node is attach to TCP agent The receiver node is attach to TCP sink agent The connection between TCP agent and TCP Sink agent is establish using keyword "connect".

In Transport Layer,TCP agent and the FTP Application are connected using keyword "attach-agent".

On receiving packet TCP sink agent sent the acknowledgment to the TCP agent that in turn Process the acknowledgment and adjust the data- transmission rate, The loss of packet are interpreted as sign of congestion.

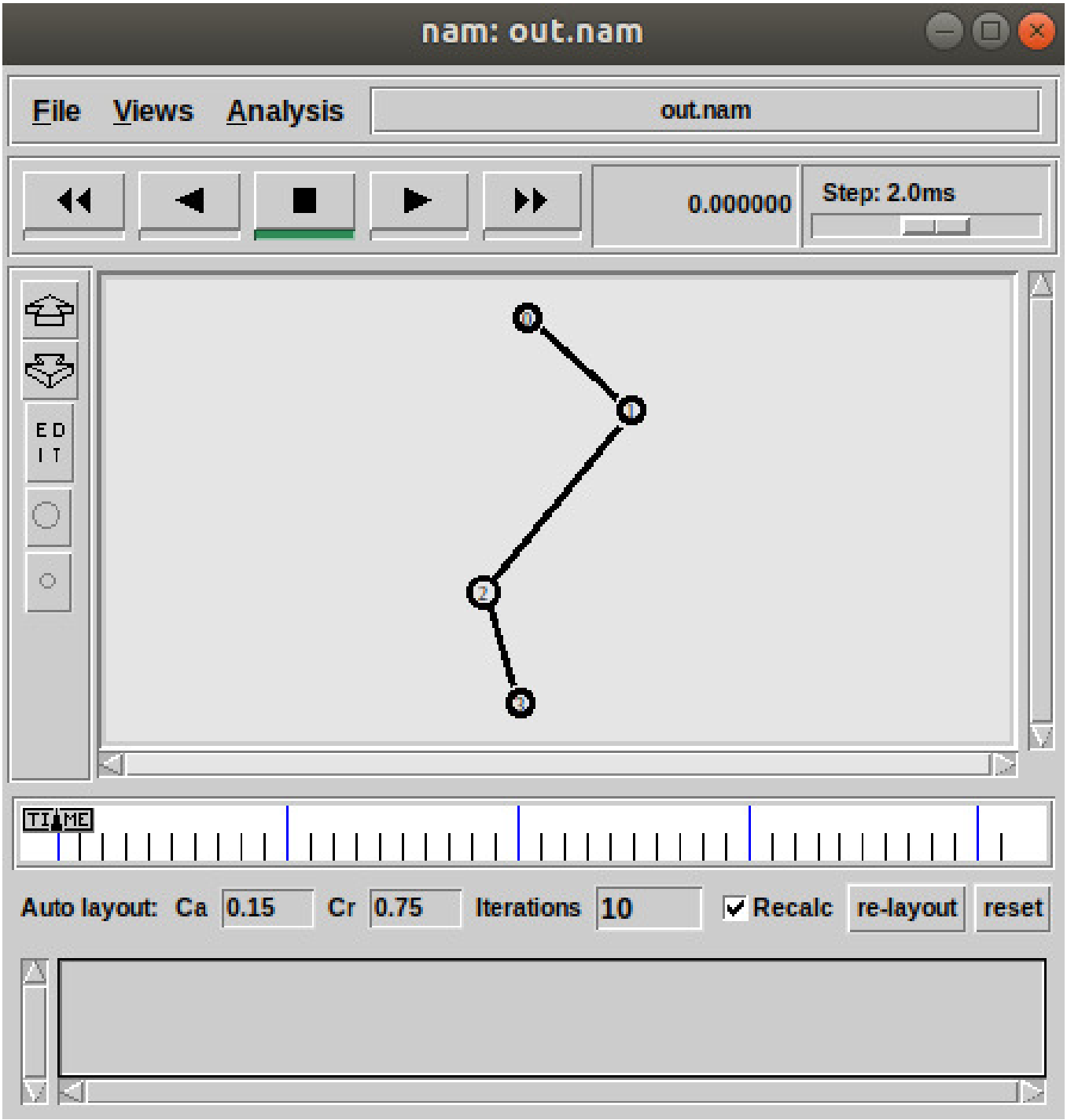
CODE :

```
#Create a Simulator Object
set ns [new Simulator]

#Open the NAM trace file
set nf [open out.nam w]
$ns namtrace-all $nf
set np [open out.tr w]
$ns trace-all $np

#define finish procedure
proc finish {} {
global ns nf np
$nsflush-trace
#Close NAM Trace
close $nf
#Execute NAM on the tracefile
exec nam out.nam &
exit 0
}

#create two nodes
set n0 [$ns node]
set n1 [$ns node]
set n2 [$ns node]
set n3 [$ns node]

#Create links between all nodes
$ns duplex-link $n0 $n1 2Mb 10ms DropTail
$ns duplex-link $n1 $n2 2Mb 10ms DropTail
$ns duplex-link $n2 $n3 2Mb 10ms DropTail
```

```
#set Queue Size
$ns queue-limit $n0 $n1 5
$ns queue-limit $n1 $n2 5
$ns queue-limit $n2 $n3 5

#Monitor The queue for link (n0-n1)
$ns duplex-link-op $n0 $n1 queuePos 0.5
$ns duplex-link-op $n1 $n2 queuePos 0.5
$ns duplex-link-op $n2 $n3 queuePos 0.5



#Set up a TCP connection
set tcp [new Agent/TCP]
$ns attach-agent $n1 $tcp
set sink [new Agent/TCPSink]
$ns attach-agent $n2 $sink
$ns connect $tcp $sink


#Set up a TCP connection
set tcp [new Agent/TCP]
$ns attach-agent $n0 $tcp
set sink [new Agent/TCPSink]
$ns attach-agent $n1 $sink
$ns connect $tcp $sink
#Set up a TCP connection
set tcp [new Agent/TCP]
$ns attach-agent $n1 $tcp
set sink [new Agent/TCPSink]
$ns attach-agent $n2 $sink
$ns connect $tcp $sink
#Set up a TCP connection
set tcp [new Agent/TCP]
```

```
$ns attach-agent $n2 $tcp
set sink [new Agent/TCPSink]
$ns attach-agent $n3 $sink
$ns connect $tcp $sink
#Set up a TCP connection
set tcp [new Agent/TCP]
$ns attach-agent $n0 $tcp
set sink [new Agent/TCPSink]
$ns attach-agent $n3 $sink
$ns connect $tcp $sink
#Set Packet Colour
$tcp set fid_ 4


#Set up FTP Protocol (Application Layer) over TCP (Transport Layer)
set ftp [new Application/FTP]
$ftp attach-agent $tcp


#Schedule Events for FTP agents
$ns at 0.1 "$ftp start"
$ns at 4.0 "$ftp stop"
$ns at 5.0 "finish"
#Run Simulator
$ns run
```

OUTPUT :


nam: out.nam
File
Views
Analysis
out.nam
0.000000
Step: 2.0ms
EDIT
TIME
Auto layout:
Ca
0.15
Cr
0.75
Iterations
10
Recalc
re-layout
reset