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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

Report on P2

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Semester/Section	5B
Course Code	18CSL57
Course Name	Computer Network Laboratory
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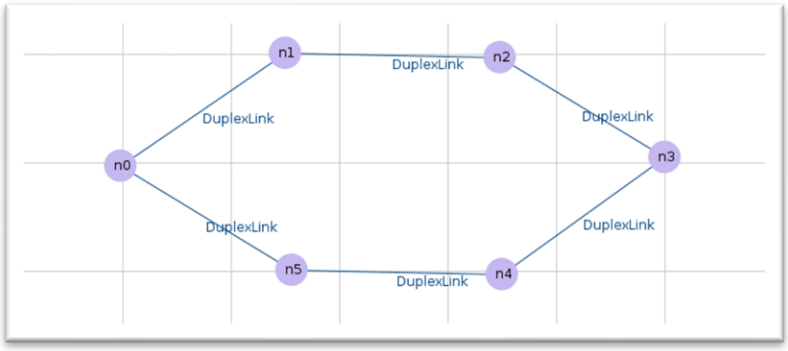
Title	P2
Date	29-12-2020

Signature of a Student **Signature of a Faculty**

Aim:

Implement transmission of ping messages/trace route over a network topology consisting of 6 nodes and find the number of packets dropped due to congestion.

Topology:



Source code:

```
# This script is created by NSG2 beta1
# <http://wushoupong.googlepages.com/nsg>

#===================================
#     Simulation parameters setup
#===================================
set val(stop)   10.0                          ;# time of
simulation end

#===================================
#        Initialization
#===================================
Agent/Ping instproc recv {from rtt} {
$self instvar node_
puts "node [$node_ id] received ping answer from \ $from with
round-trip-time $rtt ms."
}

#Create a ns simulator
set ns [new Simulator]

#Open the NS trace file
set tracefile [open p2.tr w]
$ns trace-all $tracefile

#Open the NAM trace file
set namfile [open p2.nam w]
$ns namtrace-all $namfile

#===================================
```

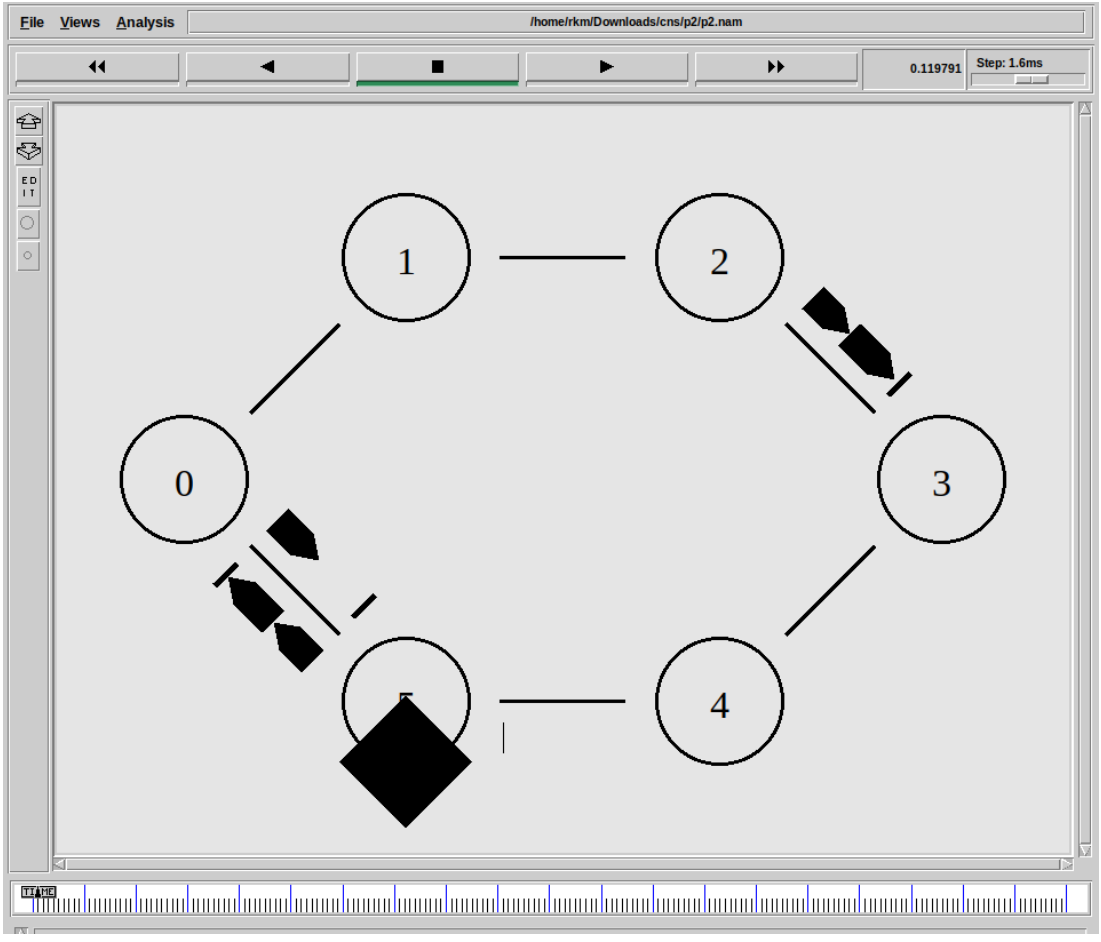
```
#        Nodes Definition
#==================================
#Create 6 nodes
set n0 [$ns node]
set n1 [$ns node]
set n2 [$ns node]
set n3 [$ns node]
set n4 [$ns node]
set n5 [$ns node]

#==================================
#        Links Definition
#==================================
#Createlinks between nodes
$ns duplex-link $n0 $n1 10.0Mb 10ms DropTail
$ns queue-limit $n0 $n1 5
$ns duplex-link $n1 $n2 1.0Mb 10ms DropTail
$ns queue-limit $n1 $n2 3
$ns duplex-link $n2 $n3 0.1Mb 10ms DropTail
$ns queue-limit $n2 $n3 2
$ns duplex-link $n3 $n4 100.0Mb 10ms DropTail
$ns queue-limit $n3 $n4 10
$ns duplex-link $n4 $n5 10.0Mb 10ms DropTail
$ns queue-limit $n4 $n5 5
$ns duplex-link $n5 $n0 0.1Mb 10ms DropTail
$ns queue-limit $n5 $n0 2

#Give node position (for NAM)
$ns duplex-link-op $n0 $n1 orient right-up
$ns duplex-link-op $n1 $n2 orient right
$ns duplex-link-op $n2 $n3 orient right-down
$ns duplex-link-op $n3 $n4 orient left-down
$ns duplex-link-op $n4 $n5 orient left

$ns duplex-link-op $n5 $n0 orient left-up

#==================================
#        Agents Definition
#==================================
set PingAgent1 [new Agent/Ping]
$ns attach-agent $n0 $PingAgent1
set PingAgent2 [new Agent/Ping]
$ns attach-agent $n1 $PingAgent2
set PingAgent3 [new Agent/Ping]
$ns attach-agent $n2 $PingAgent3
set PingAgent4 [new Agent/Ping]
$ns attach-agent $n3 $PingAgent4
set PingAgent5 [new Agent/Ping]
$ns attach-agent $n4 $PingAgent5
set PingAgent6 [new Agent/Ping]
```

```
$ns attach-agent $n5 $PingAgent6



#==================================
#        Applications Definition
#==================================

$ns connect $PingAgent1 $PingAgent2
$ns connect $PingAgent2 $PingAgent3
$ns connect $PingAgent3 $PingAgent4
$ns connect $PingAgent4 $PingAgent5
$ns connect $PingAgent5 $PingAgent6
$ns connect $PingAgent6 $PingAgent1

$ns at 0.1 "$PingAgent1 send"
$ns at 0.1 "$PingAgent2 send"
$ns at 0.1 "$PingAgent3 send"
$ns at 0.1 "$PingAgent4 send"
$ns at 0.1 "$PingAgent5 send"
$ns at 0.1 "$PingAgent6 send"
$ns at 0.1 "$PingAgent1 send"
$ns at 0.1 "$PingAgent2 send"
$ns at 0.1 "$PingAgent3 send"
$ns at 0.1 "$PingAgent4 send"
$ns at 0.1 "$PingAgent5 send"
$ns at 0.1 "$PingAgent6 send"

#==================================
#        Termination
#==================================
#Define a 'finish' procedure
proc finish {} {
    global ns tracefile namfile
    $ns flush-trace
    close $tracefile
    close $namfile
    exec nam p2.nam &
    exit 0
}
$ns at $val(stop) "$ns nam-end-wireless $val(stop)"
$ns at $val(stop) "finish"
$ns at $val(stop) "puts \"done\" ; $ns halt"
$ns run
```

Output:

For:

Connected nodes	Capacity (Mb)	Propagation delay(ms)	Queue size
n0-n1	10	10	5
n1-n2	1	10	3
n2-n3	0.1	10	2
n3-n4	100	10	10
n4-n5	10	10	5
n5-n0	0.1	10	2




```
rkm@rkm-VirtualBox:~/Downloads/cns/p2$ grep -c "^d" p2.tr
5
rkm@rkm-VirtualBox:~/Downloads/cns/p2$
```