SSN COLLEGE OF ENGINEERING, KALAVAKKAM
(An Autonomous Institution, Affiliated to Anna University, Chennai)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NETWORKS LAB
EXERCISE 9

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Simulation of congestion control algorithms

Aim:

Write tcl script to simulate the different congestion control algorithms.

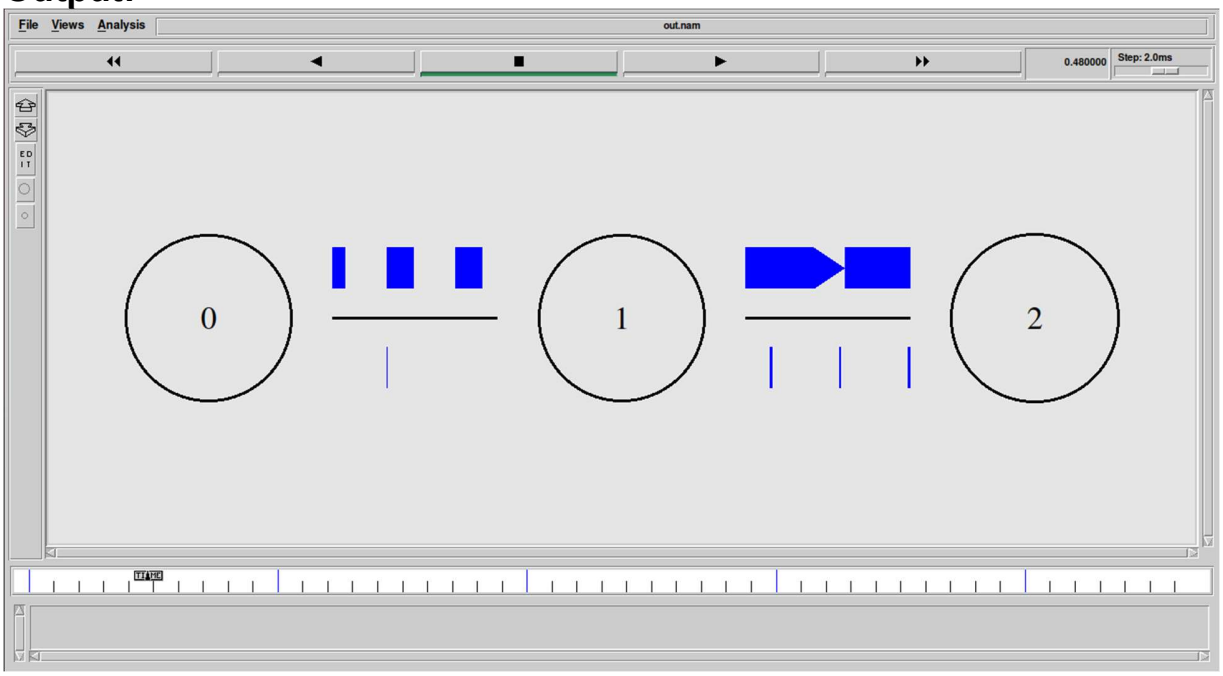
Code:

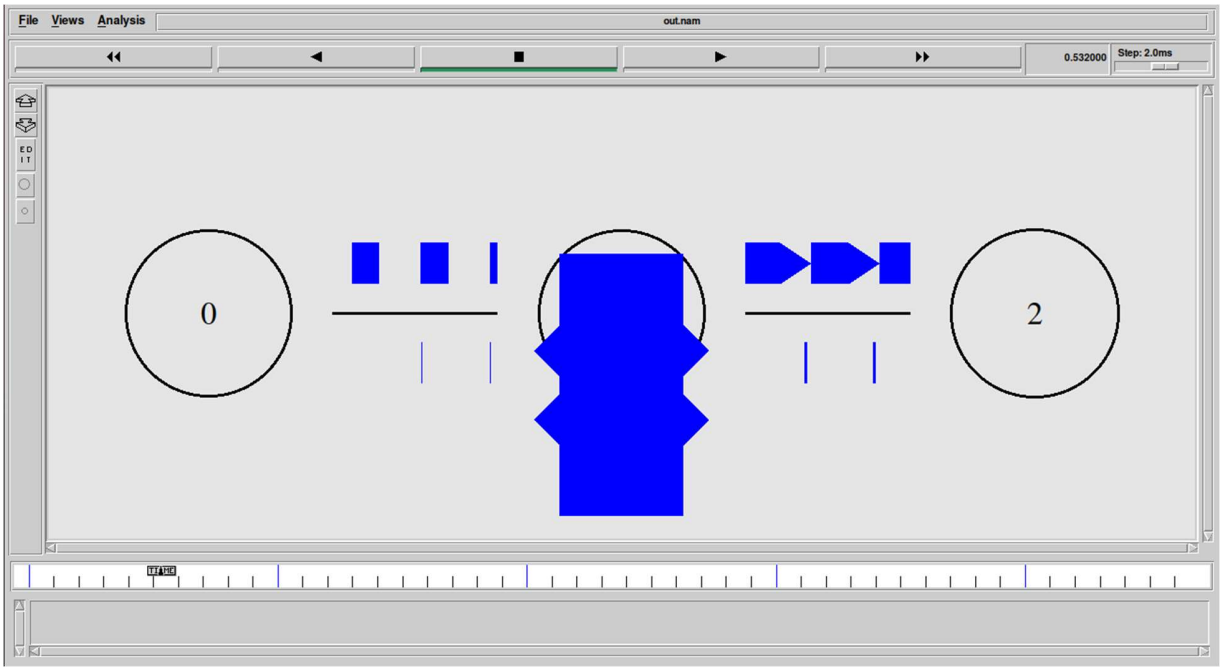
Congestion control using TCP Tahoe

```
set ns [new Simulator]

$ns color 1 Blue
$ns color 2 Red

set nf [open out.nam w]
$ns namtrace-all $nf

proc finish {} {
    global ns nf
    $ns flush-trace
    close $nf
    exec nam out.nam &
    exit 0
}

set n0 [$ns node]
set n1 [$ns node]
set n2 [$ns node]

$ns duplex-link $n0 $n1 10Mb 10ms DropTail
$ns duplex-link $n1 $n2 2Mb 10ms DropTail

$ns queue-limit $n0 $n1 10

$ns duplex-link-op $n0 $n1 orient right
```

```
$ns duplex-link-op $n1 $n2 orient right

set tcp [new Agent/TCP]
$tcp set class_ 2
$ns attach-agent $n0 $tcp

set sink [new Agent/TCPSink]
$ns attach-agent $n2 $sink

$ns connect $tcp $sink

$tcp set packetSize_ 1000
$tcp set window_ 65000
$tcp set fid_ 1

set cbr [new Application/Traffic/CBR]
$cbr set packetSize_ 500
$cbr set interval_ 0.001
$cbr attach-agent $tcp

$ns at 0.1 "$cbr start"
$ns at 4.5 "$cbr stop"
$ns at 4.5 "$ns detach-agent $n0 $tcp ; $ns detach-agent $n2 $sink"
$ns at 5.0 "finish"

$ns run
```

Output:





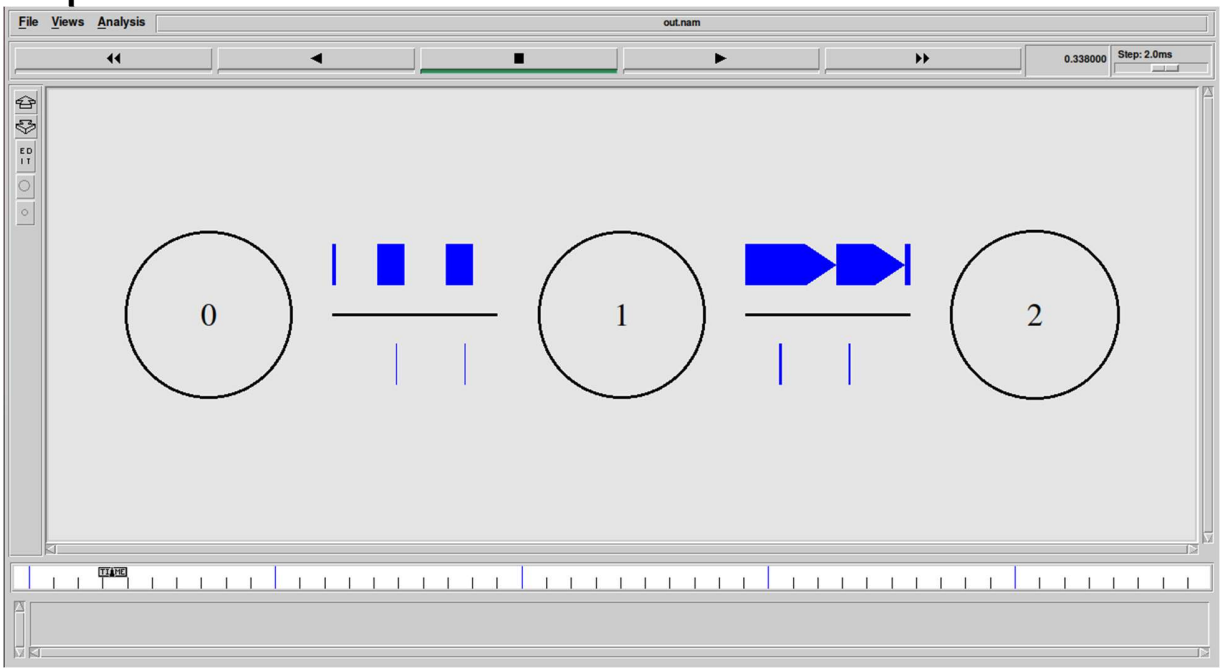
Code:

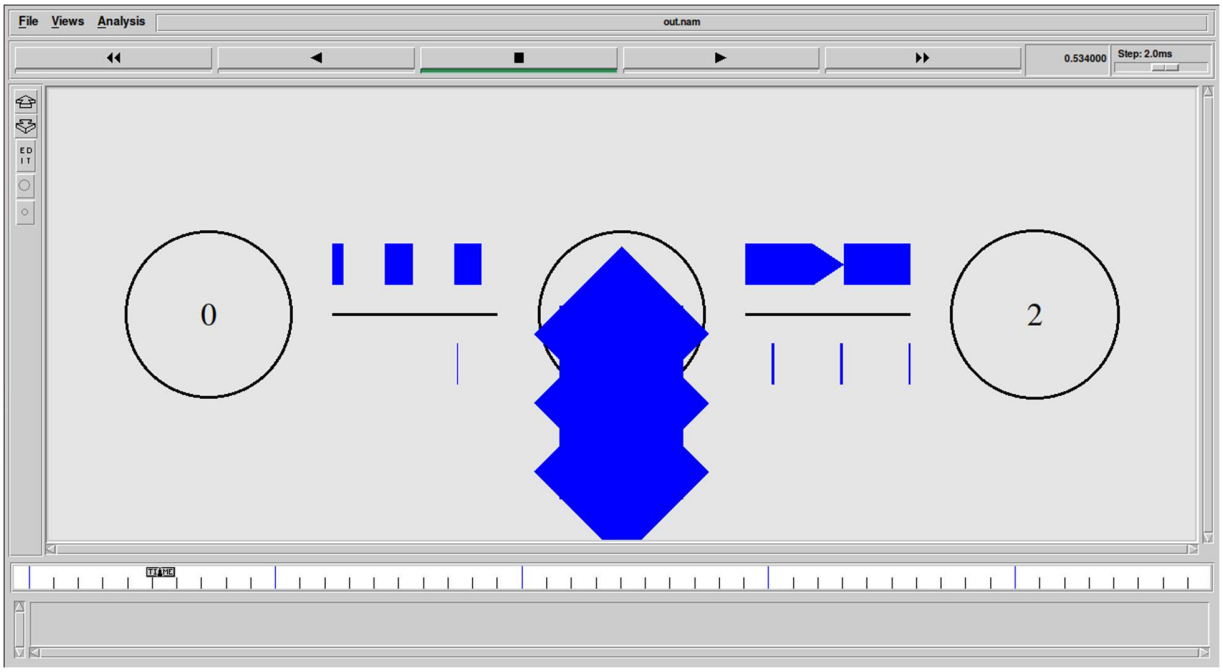
Congestion control using TCP Reno

```
set ns [new Simulator]

$ns color 1 Blue
$ns color 2 Red

set nf [open out.nam w]
$ns namtrace-all $nf

proc finish {} {
    global ns nf
    $ns flush-trace
    close $nf
    exec nam out.nam &
    exit 0
}

set n0 [$ns node]
set n1 [$ns node]
set n2 [$ns node]

$ns duplex-link $n0 $n1 10Mb 10ms DropTail
$ns duplex-link $n1 $n2 2Mb 10ms DropTail

$ns queue-limit $n0 $n1 10

$ns duplex-link-op $n0 $n1 orient right
```

```
$ns duplex-link-op $n1 $n2 orient right

set tcp [new Agent/TCP/Reno]
$tcp set class_ 2
$ns attach-agent $n0 $tcp

set sink [new Agent/TCPSink]
$ns attach-agent $n2 $sink

$ns connect $tcp $sink

$tcp set packetSize_ 1000
$tcp set window_ 65000
$tcp set fid_ 1

set cbr [new Application/Traffic/CBR]
$cbr set packetSize_ 500
$cbr set interval_ 0.001
$cbr attach-agent $tcp

$ns at 0.1 "$cbr start"
$ns at 4.5 "$cbr stop"
$ns at 4.5 "$ns detach-agent $n0 $tcp ; $ns detach-agent $n2 $sink"
$ns at 5.0 "finish"

$ns run
```

Output:





Learning outcome:

Learnt to implement simulate the different congestion control algorithms