Aim:

To create simple topology using Network Simulator

Algorithm:

Step 1: Start network simulator OTCL editor.

Step 2: Create new simulator using set ns [new Simulator] syntax

Step 3: Create Trace route to Network Animator set nf [open out.nam w] $ns namtrace-all $nf

Step 4: Create procedure to trace all path

Step 5: Create full/simplex connection

Step 6: Connect TCP with null command/udp

Step7:visualise the same in nam

Code:

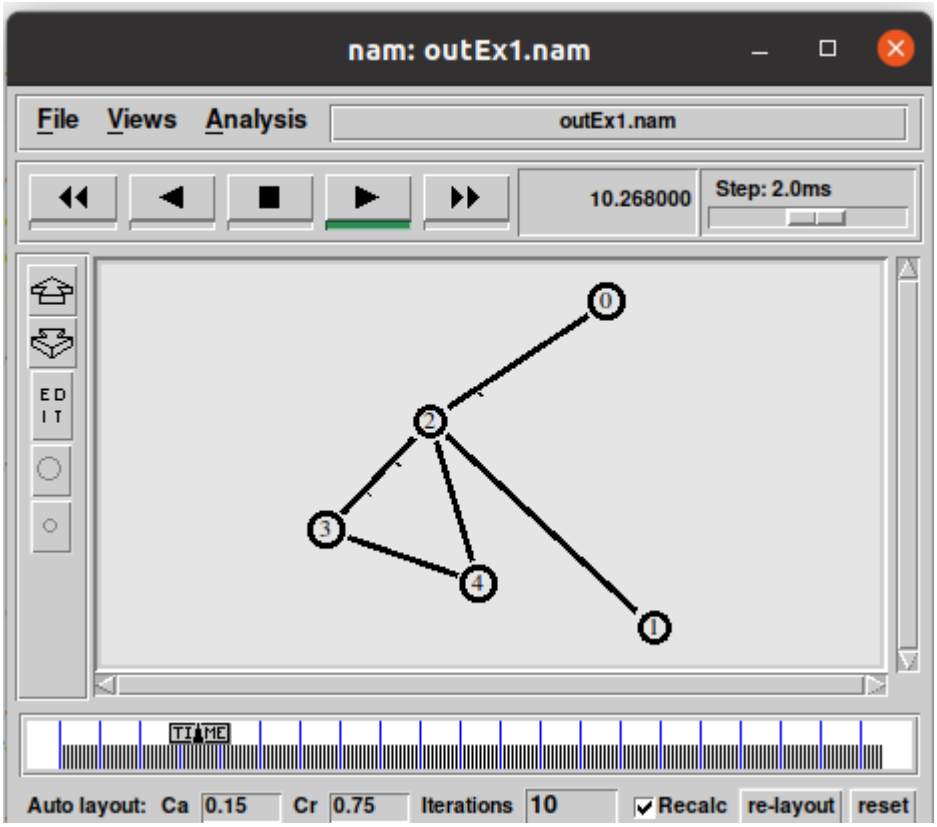
```
# Creating New Simulator
set ns [new Simulator]

# Setting up the traces
set f [open outEx1.tr w]
set nf [open outEx1.nam w]
$ns namtrace-all $nf
$ns trace-all $f

proc finish {} {

    global ns nf f
    $ns flush-trace
    puts "Simulation completed."
    close $nf
    close $f
```

```
    exit 0
}

#
#Create Nodes
#

set n0 [$ns node]
    puts "n0: [$n0 id]"
set n1 [$ns node]
    puts "n1: [$n1 id]"
set n2 [$ns node]
    puts "n2: [$n2 id]"
set n3 [$ns node]
    puts "n3: [$n3 id]"
set n4 [$ns node]
    puts "n4: [$n4 id]"

#
#Setup Connections
#

$ns duplex-link $n0 $n2 100Mb 5ms DropTail
$ns duplex-link $n2 $n4 54Mb 10ms DropTail
$ns duplex-link $n1 $n2 100Mb 5ms DropTail
$ns duplex-link $n2 $n3 54Mb 10ms DropTail
$ns queue-limit $n2 $n3 40
$ns simplex-link $n3 $n4 10Mb 15ms DropTail
$ns simplex-link $n4 $n3 10Mb 15ms DropTail
```

```
#
#Set up Transportation Level Connections
#

set tcp0 [new Agent/TCP]
$ns attach-agent $n1 $tcp0

set udp1 [new Agent/UDP]
$udp1 set dst_addr_ Unicast
$udp1 set fid_ 1
$ns attach-agent $n0 $udp1

set null0 [new Agent/Null]
$ns attach-agent $n3 $null0

set sink0 [new Agent/TCPSink]
$ns attach-agent $n4 $sink0

#
#Setup traffic sources
#

set ftp0 [new Application/FTP]
$ftp0 attach-agent $tcp0

set cbr0 [new Application/Traffic/CBR]
$cbr0 set rate_ 2Mb
$cbr0 set packetSize_ 1000
$cbr0 attach-agent $udp1
$ns connect $udp1 $null0
$udp1 set fid_ 0
```

```
$ns connect $tcp0 $null0

$tcp0 set fid_ 1


#

#Start up the sources

#


$ns at 0.05 "$ftp0 start"

$ns at 0.1 "$cbr0 start"

$ns at 60.0 "$ftp0 stop"

$ns at 60.5 "$cbr0 stop"

$ns at 61.0 "finish"

$ns run
```

Output:



My Understanding:

We write out the physical node and define the connection by duplex/simplex and we set up udp/tcp connections for the nodes whose types may vary .When we run ns x.tcl this generate a nam

and a trace file which can be further processed in anyother programming language,here we use NAM to visualise the connections and packet delivery between nodes.

Result:

Thus a simple network topology was created and visualised using nam and network simulator