**WEEK-10**

**AIM** :

To create scenario for CSMA/CD using NS2 Simulation Tool.

**SOFTWARE USED:**

NS2

**PROCEDURE**:

1. Create a simulator object

2. Define different colors for different data flows

3. Open a nam trace file and define finish procedure then close the trace

file, and execute nam on trace

file.

4. Create six nodes that forms a network numbered from 0 to 5

5. Create duplex links between the nodes and add Orientation to the

nodes for setting a LAN topology

6. Setup TCP Connection between n(0) and n(4)

7. Apply FTP Traffic over TCP

8. Setup UDP Connection between n(1) and n(5)

9. Apply CBR Traffic over UDP.

10. Apply CSMA/CD mechanisms and study their

performance

11. Schedule events and run the program.

**IMPLEMENTATION:**

set ns [new Simulator]

$ns color 1 Blue

$ns color 2 Red

set file1 [open out.tr w]

set winfile [open WinFile w]

$ns trace-all $file1

set file2 [open out.nam w]

$ns namtrace-all $file2

proc finish {} {

global ns file1 file2

$ns flush-trace

close $file1

close $file2

exec nam out.nam &

exit 0

}

set n0 [$ns node]

set n1 [$ns node]

set n2 [$ns node]

set n3 [$ns node]

set n4 [$ns node]

set n5 [$ns node]

$n1 color red

$n1 shape box

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

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

$ns simplex-link $n2 $n3 0.3Mb 100ms DropTail

$ns simplex-link $n3 $n2 0.3Mb 100ms DropTail

set lan [$ns newLan "$n3 $n4 $n5" 0.5Mb 40ms LL Queue/DropTail

MAC/Csma/Cd Channel]

Setup a TCP connection

set tcp [new Agent/TCP/]

$ns attach-agent $n0 $tcp

set sink [new Agent/TCPSink/]

$ns attach-agent $n4 $sink

$ns connect $tcp $sink

$tcp set fid\_ 1

$tcp set window\_ 8000

$tcp set packetSize\_ 552

set ftp [new Application/FTP]

$ftp attach-agent $tcp

$ftp set type\_ FTP

set udp [new Agent/UDP]

$ns attach-agent $n1 $udp

set null [new Agent/Null]

$ns attach-agent $n5 $null

$ns connect $udp $null

$udp set fid\_ 2

set cbr [new Application/Traffic/CBR]

$cbr attach-agent $udp

$cbr set type\_ CBR

$cbr set packet\_size\_ 1000

$cbr set rate\_ 0.01mb

$cbr set random\_ false

$ns at 0.1 "$cbr start"

$ns at 1.0 "$ftp start"

$ns at 124.0 "$ftp stop"

$ns at 124.5 "$cbr stop"

proc plotWindow {tcpSource file} {

global ns

set time 0.1

set now [$ns now]

set cwnd [$tcpSource set cwnd\_]

set wnd [$tcpSource set window\_]

$ns at [expr $now+$time] "plotWindow $tcpSource $file" }

$ns at 0.1 "plotWindow $tcp $winfile"

$ns at 5 "$ns trace-annotate \"packet drop\""

$ns at 125.0 "finish"

$ns run

**OUTPUT:**

