ASSIGNMENT

***WAQAS ASHIQ.***

***BCS-F11-201.***

***SECTION C.***

***SUBMITTED TO : Mr.Usman Ashraf***

***#Create a simulator object***

***set ns [new Simulator]***

***#Create four 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]***

***set n6 [$ns node]***

***set n7 [$ns node]***

***set n8 [$ns node]***

***set n9 [$ns node]***

***#Define different colors for data flows (for NAM)***

***$ns color 1 Blue***

***$ns color 2 Red***

***$ns color 3 Black***

***#Open the NAM trace file***

***set nf [open out.nam w]***

***$ns namtrace-all $nf***

***#Define a 'finish' procedure***

***proc finish {} {***

***global ns nf***

***$ns flush-trace***

***#Close the NAM trace file***

***close $nf***

***#Execute NAM on the trace file***

***exec nam out.nam &***

***exit 0***

***}***

***#Create links between the nodes***

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

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

***$ns duplex-link $n0 $n3 1.7Mb 20ms RED***

***$ns duplex-link $n0 $n4 2Mb 10ms DropTail***

***$ns duplex-link $n0 $n5 1.7Mb 20ms RED***

***$ns duplex-link $n0 $n6 2Mb 10ms DropTail***

***$ns duplex-link $n0 $n7 2Mb 10ms DropTail***

***$ns duplex-link $n0 $n8 1.7Mb 20ms DropTail***

***$ns duplex-link $n0 $n9 2Mb 10ms DropTail***

***#Set Queue Size of link (n0-n3) to 10***

***$ns queue-limit $n0 $n3 10***

***$ns queue-limit $n0 $n1 10***

***$ns queue-limit $n0 $n2 10***

***$ns queue-limit $n0 $n4 10***

***$ns queue-limit $n0 $n5 10***

***$ns queue-limit $n0 $n6 10***

***$ns queue-limit $n0 $n7 10***

***$ns queue-limit $n0 $n8 10***

***$ns queue-limit $n0 $n9 10***

***#Give node position (for NAM)***

***$ns duplex-link-op $n0 $n2 orient down***

***$ns duplex-link-op $n0 $n1 orient up***

***$ns duplex-link-op $n0 $n3 orient right***

***$ns duplex-link-op $n0 $n4 orient left***

***$ns duplex-link-op $n0 $n5 orient right-up***

***$ns duplex-link-op $n0 $n6 orient right-down***

***$ns duplex-link-op $n0 $n7 orient left-up***

***$ns duplex-link-op $n0 $n8 orient left-down***

***$ns duplex-link-op $n0 $n9 orient right***

***#Monitor the queue for link (n2-n3). (for NAM)***

***$ns duplex-link-op $n0 $n3 queuePos 0.5***

***$ns duplex-link-op $n0 $n1 queuePos 0.5***

***$ns duplex-link-op $n0 $n2 queuePos 0.5***

***$ns duplex-link-op $n0 $n4 queuePos 0.5***

***$ns duplex-link-op $n0 $n5 queuePos 0.5***

***$ns duplex-link-op $n0 $n6 queuePos 0.5***

***$ns duplex-link-op $n0 $n7 queuePos 0.5***

***$ns duplex-link-op $n0 $n8 queuePos 0.5***

***$ns duplex-link-op $n0 $n9 queuePos 0.5***

***#Setup a TCP connection***

***set tcp [new Agent/TCP]***

***$tcp set class\_ 3***

***$ns attach-agent $n0 $tcp***

***set sink [new Agent/TCPSink]***

***$ns attach-agent $n1 $sink***

***$ns connect $tcp $sink***

***$tcp set fid\_ 1***

***#Setup a FTP over TCP connection***

***set ftp [new Application/FTP]***

***$ftp attach-agent $tcp***

***$ftp set type\_ FTP***

***#Schedule events for the CBR and FTP agents***

***$ns at 1.0 "$ftp start"***

***$ns at 2.0 "$ftp stop"***

***#Setup a TCP connection***

***set tcp [new Agent/TCP]***

***$tcp set class\_ 3***

***$ns attach-agent $n0 $tcp***

***set sink [new Agent/TCPSink]***

***$ns attach-agent $n3 $sink***

***$ns connect $tcp $sink***

***$tcp set fid\_ 1***

***#Setup a FTP over TCP connection***

***set ftp [new Application/FTP]***

***$ftp attach-agent $tcp***

***$ftp set type\_ FTP***

***#Schedule events for the CBR and FTP agents***

***$ns at 1.5 "$ftp start"***

***$ns at 2.2 "$ftp stop"***

***#Setup a TCP connection***

***set tcp [new Agent/TCP]***

***$tcp set class\_ 3***

***$ns attach-agent $n0 $tcp***

***set sink [new Agent/TCPSink]***

***$ns attach-agent $n5 $sink***

***$ns connect $tcp $sink***

***$tcp set fid\_ 1***

***#Setup a FTP over TCP connection***

***set ftp [new Application/FTP]***

***$ftp attach-agent $tcp***

***$ftp set type\_ FTP***

***#Schedule events for the CBR and FTP agents***

***$ns at 3.0 "$ftp start"***

***$ns at 4.0 "$ftp stop"***

***#Setup a TCP connection***

***set tcp [new Agent/TCP]***

***$tcp set class\_ 3***

***$ns attach-agent $n0 $tcp***

***set sink [new Agent/TCPSink]***

***$ns attach-agent $n7 $sink***

***$ns connect $tcp $sink***

***$tcp set fid\_ 1***

***#Setup a FTP over TCP connection***

***set ftp [new Application/FTP]***

***$ftp attach-agent $tcp***

***$ftp set type\_ FTP***

***#Schedule events for the CBR and FTP agents***

***$ns at 2.0 "$ftp start"***

***$ns at 3.2 "$ftp stop"***

***#Setup a TCP connection***

***set tcp [new Agent/TCP]***

***$tcp set class\_ 3***

***$ns attach-agent $n0 $tcp***

***set sink [new Agent/TCPSink]***

***$ns attach-agent $n9 $sink***

***$ns connect $tcp $sink***

***$tcp set fid\_ 1***

***#Setup a FTP over TCP connection***

***set ftp [new Application/FTP]***

***$ftp attach-agent $tcp***

***$ftp set type\_ FTP***

***#Schedule events for the CBR and FTP agents***

***$ns at 3.5 "$ftp start"***

***$ns at 4.0 "$ftp stop"***

***#Setup a UDP connection***

***set udp [new Agent/UDP]***

***$ns attach-agent $n0 $udp***

***set null [new Agent/Null]***

***$ns attach-agent $n2 $null***

***$ns connect $udp $null***

***$udp set fid\_ 2***

***#Setup a CBR over UDP connection***

***set cbr [new Application/Traffic/CBR]***

***$cbr attach-agent $udp***

***$cbr set type\_ CBR***

***$cbr set packet\_size\_ 1000***

***$cbr set rate\_ 1mb***

***$cbr set random\_ false***

***#Schedule events for the CBR and FTP agents***

***$ns at 0.1 "$cbr start"***

***$ns at 0.9 "$cbr stop"***

***#Setup a UDP connection***

***set udp [new Agent/UDP]***

***$ns attach-agent $n0 $udp***

***set null [new Agent/Null]***

***$ns attach-agent $n4 $null***

***$ns connect $udp $null***

***$udp set fid\_ 2***

***#Setup a CBR over UDP connection***

***set cbr [new Application/Traffic/CBR]***

***$cbr attach-agent $udp***

***$cbr set type\_ CBR***

***$cbr set packet\_size\_ 1000***

***$cbr set rate\_ 1mb***

***$cbr set random\_ false***

***#Schedule events for the CBR and FTP agents***

***$ns at 1.0 "$cbr start"***

***$ns at 1.8 "$cbr stop"***

***#Setup a UDP connection***

***set udp [new Agent/UDP]***

***$ns attach-agent $n0 $udp***

***set null [new Agent/Null]***

***$ns attach-agent $n6 $null***

***$ns connect $udp $null***

***$udp set fid\_ 2***

***#Setup a CBR over UDP connection***

***set cbr [new Application/Traffic/CBR]***

***$cbr attach-agent $udp***

***$cbr set type\_ CBR***

***$cbr set packet\_size\_ 1000***

***$cbr set rate\_ 1mb***

***$cbr set random\_ false***

***#Schedule events for the CBR and FTP agents***

***$ns at 1.8 "$cbr start"***

***$ns at 2.6 "$cbr stop"***

***#Setup a UDP connection***

***set udp [new Agent/UDP]***

***$ns attach-agent $n0 $udp***

***set null [new Agent/Null]***

***$ns attach-agent $n8 $null***

***$ns connect $udp $null***

***$udp set fid\_ 2***

***#Setup a CBR over UDP connection***

***set cbr [new Application/Traffic/CBR]***

***$cbr attach-agent $udp***

***$cbr set type\_ CBR***

***$cbr set packet\_size\_ 1000***

***$cbr set rate\_ 1mb***

***$cbr set random\_ false***

***#Schedule events for the CBR and FTP agents***

***$ns at 2.1 "$cbr start"***

***$ns at 2.9 "$cbr stop"***

***#Detach tcp and sink agents (not really necessary)***

***$ns at 4.5 "$ns detach-agent $n0 $tcp ; $ns detach-agent $n3 $sink"***

***#Call the finish procedure after 5 seconds of simulation time***

***$ns at 5.0 "finish"***

***#Print CBR packet size and interval***

***puts "CBR packet size = [$cbr set packet\_size\_]"***

***puts "CBR interval = [$cbr set interval\_]"***

***#Run the simulation***

***$ns run***