7.Set up 3-node wireless network with node N1 between NO and N2. As the nodes NO and N2 moves towards each other they exchange packets. As they move out of each other's range they drop some packets. Analyze TCP performance for this scenario with AODV, DSDV and DSR as routing protocols.

Save this as p7.tcl :-

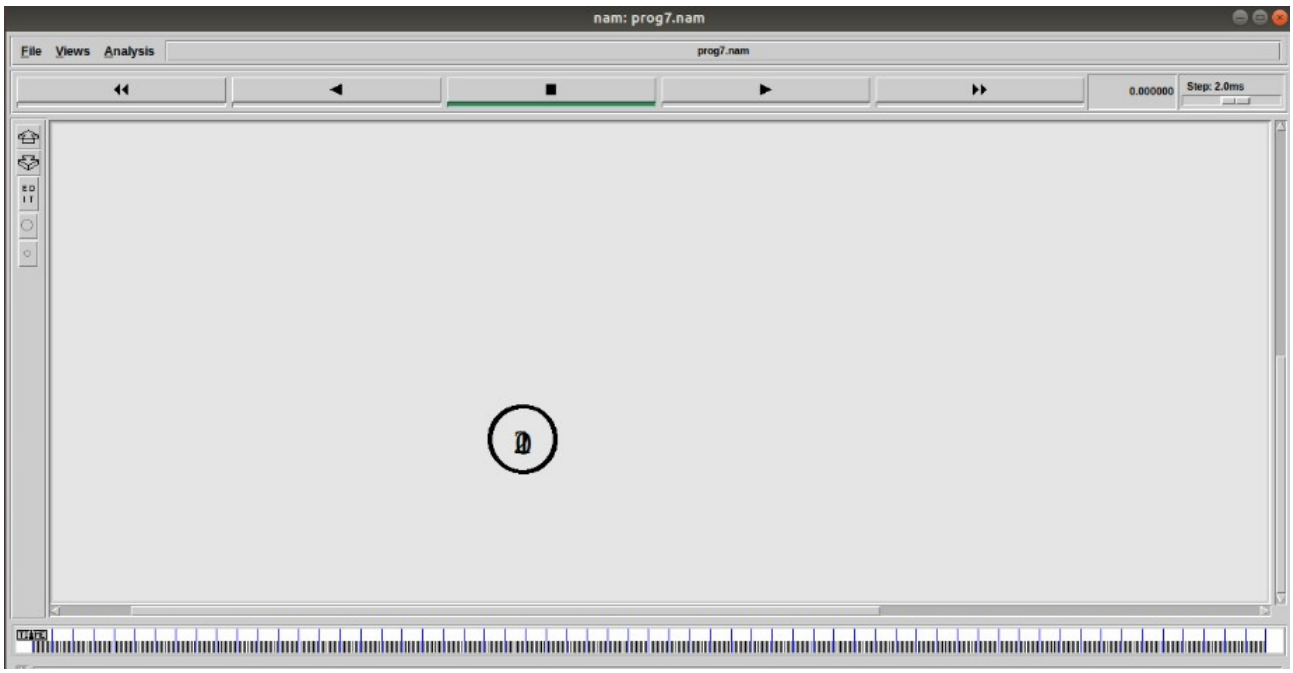
```
set val(chan) Channel/WirelessChannel
set val(prop) Propagation/TwoRayGround
set val(netif) Phy/WirelessPhy
set val(mac) Mac/802_11
set val(ifq) Queue/DropTail/PriQueue
set val(ll) LL
set val(ant) Antenna/OmniAntenna
set val(x) 500
set val(y) 400
set val(ifqlen) 50
set val(nn) 3
set val(stop) 60.0
set val(rp) AODV

set ns_ [new Simulator]
set tracefd [open prog7.tr w]
$ns_ trace-all $tracefd
set namtrace [open prog7.nam w]

$ns_ namtrace-all-wireless $namtrace $val(x) $val(y)
set prop [new $val(prop)]
set topo [new Topography]
$topo load_flatgrid $val(x) $val(y)
create-god $val(nn)

$ns_ node-config -adhocRouting $val(rp) \
        -llType $val(ll) \
        -macType $val(mac) \
        -ifqType $val(ifq) \
        -ifqLen $val(ifqlen) \
        -antType $val(ant) \
        -propType $val(prop) \
        -phyType $val(netif) \
        -channelType $val(chan) \
        -topoInstance $topo \
        -agentTrace ON \
        -routerTrace ON \
        -macTrace ON

for {set i 0} {$i < $val(nn)} {incr i} {
        set node_($i) [$ns_ node]
        $node_($i) random-motion 0
        }
```

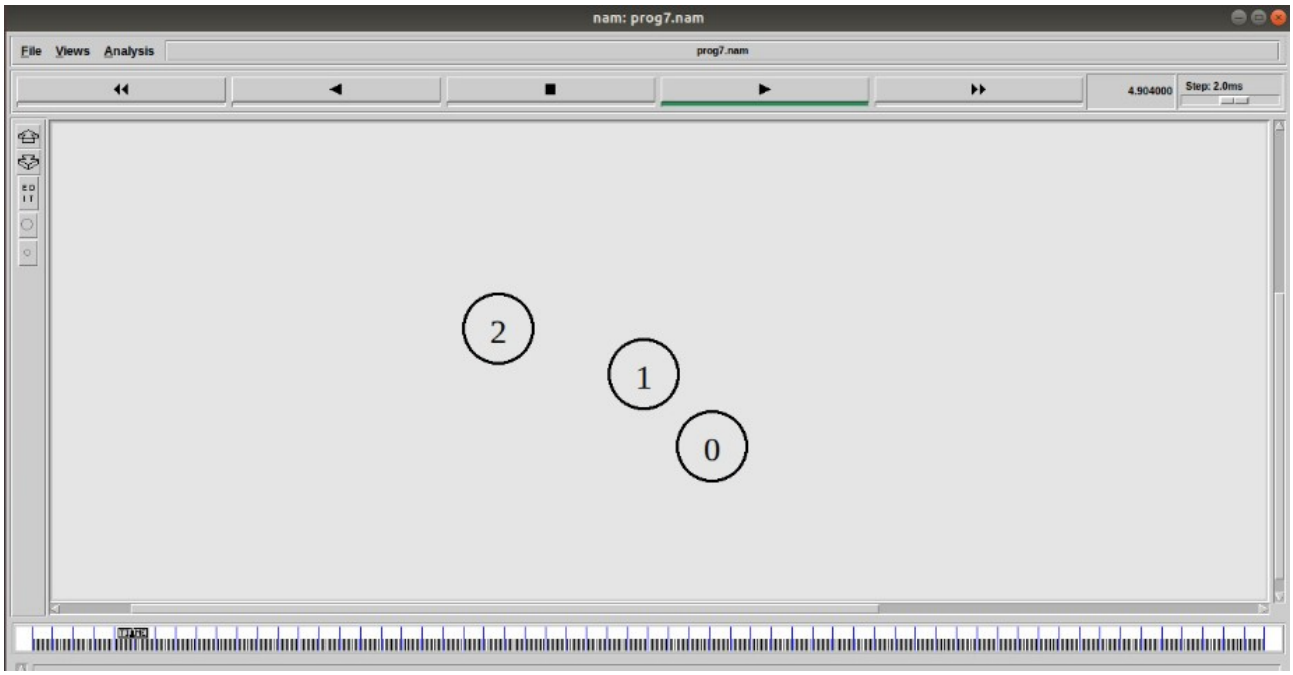
```
$node_(0) set x_ 5.0
$node_(0) set y_ 5.0
$node_(0) set z_ 0.0
$node_(1) set x_ 490.0
$node_(1) set y_ 285.0
$node_(1) set z_ 0.0
$node_(2) set x_ 150.0
$node_(2) set y_ 240.0
$node_(2) set z_ 0.0

for {set i 0} {$i < $val(nn)} {incr i} {
        $ns_ initial_node_pos $node_($i) 40
        }

$ns_ at 0.0 "$node_(0) setdest 450.0 285.0 30.0"
$ns_ at 0.0 "$node_(1) setdest 200.0 285.0 30.0"
$ns_ at 0.0 "$node_(2) setdest 1.0 285.0 30.0"

$ns_ at 25.0 "$node_(0) setdest 300.0 285.0 10.0"
$ns_ at 25.0 "$node_(2) setdest 100.0 285.0 10.0"

$ns_ at 40.0 "$node_(0) setdest 490.0 285.0 5.0"
$ns_ at 40.0 "$node_(2) setdest 1.0 285.0 5.0"

set tcp0 [new Agent/TCP]
set sink0 [new Agent/TCPSink]

$ns_ attach-agent $node_(0) $tcp0
$ns_ attach-agent $node_(2) $sink0
$ns_ connect $tcp0 $sink0

set ftp0 [new Application/FTP]
$ftp0 attach-agent $tcp0
$ns_ at 10.0 "$ftp0 start"

for {set i 0} {$i < $val(nn)} {incr i} {
        $ns_ at $val(stop) "$node_($i) reset";
        }

$ns_ at $val(stop) "puts \"NS EXITING..\"; $ns_ halt"
puts "starting sim....."

$ns_ run
```

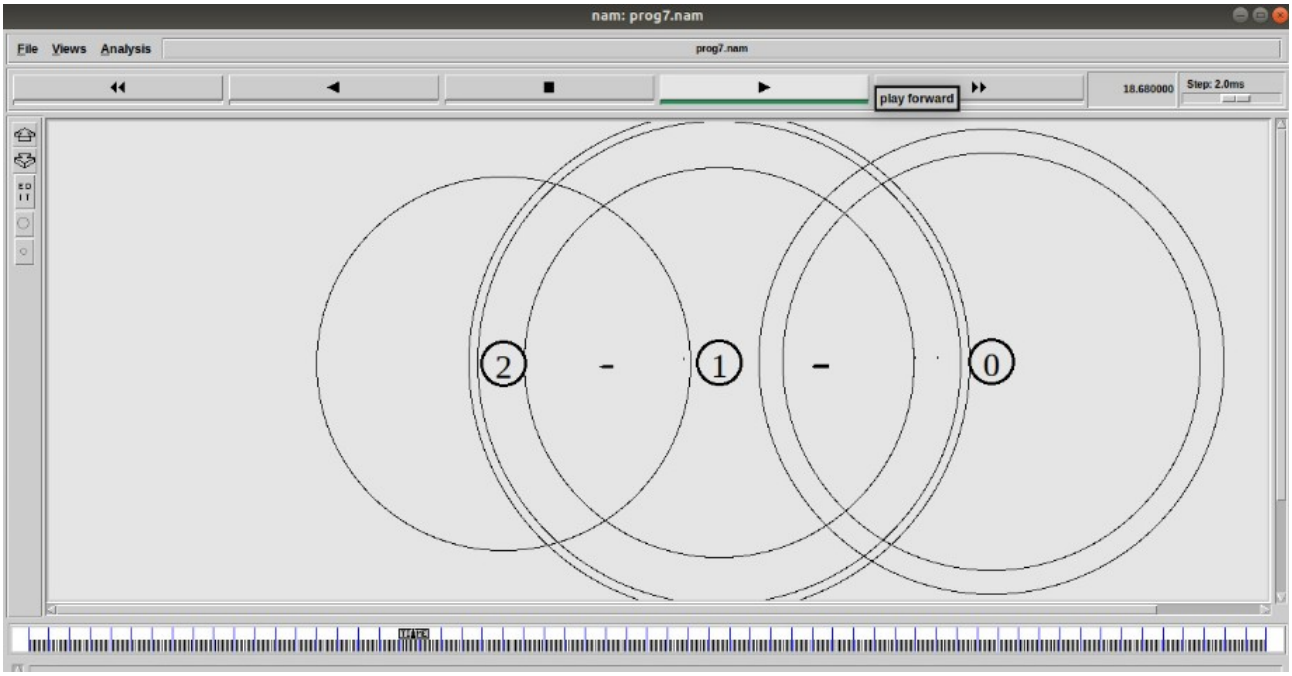
Execution commands :-

1) ns p7.tcl
2) nam prog7.nam

Outputs:-


nam: prog7.nam
File Views Analysis
prog7.nam
0.000000
Step: 2.0ms
0


nam: prog7.nam
File Views Analysis
prog7.nam
4.904000
Step: 2.0ms
2
1
0


nam: prog7.nam
File Views Analysis
prog7.nam
play forward
18.680000
Step: 2.0ms
2
1
0