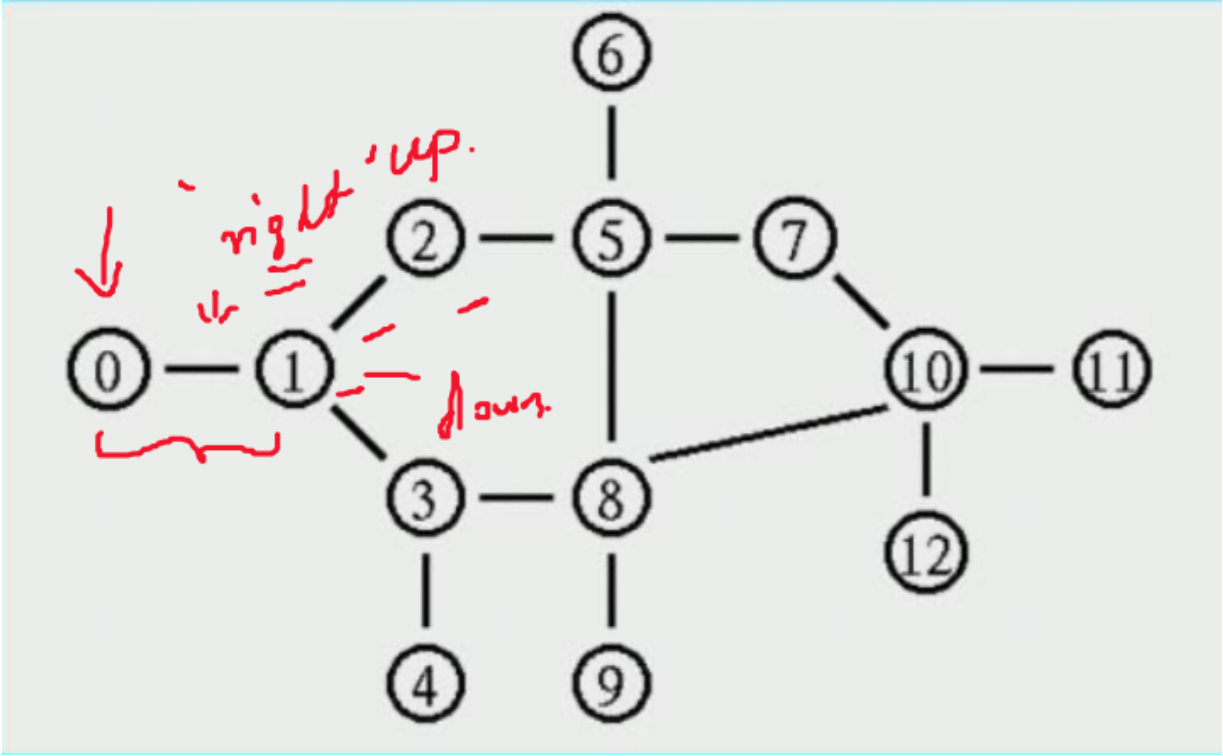
Assignment 3

Write a TCL script to simulate wired network for the given topology.

Given Topology

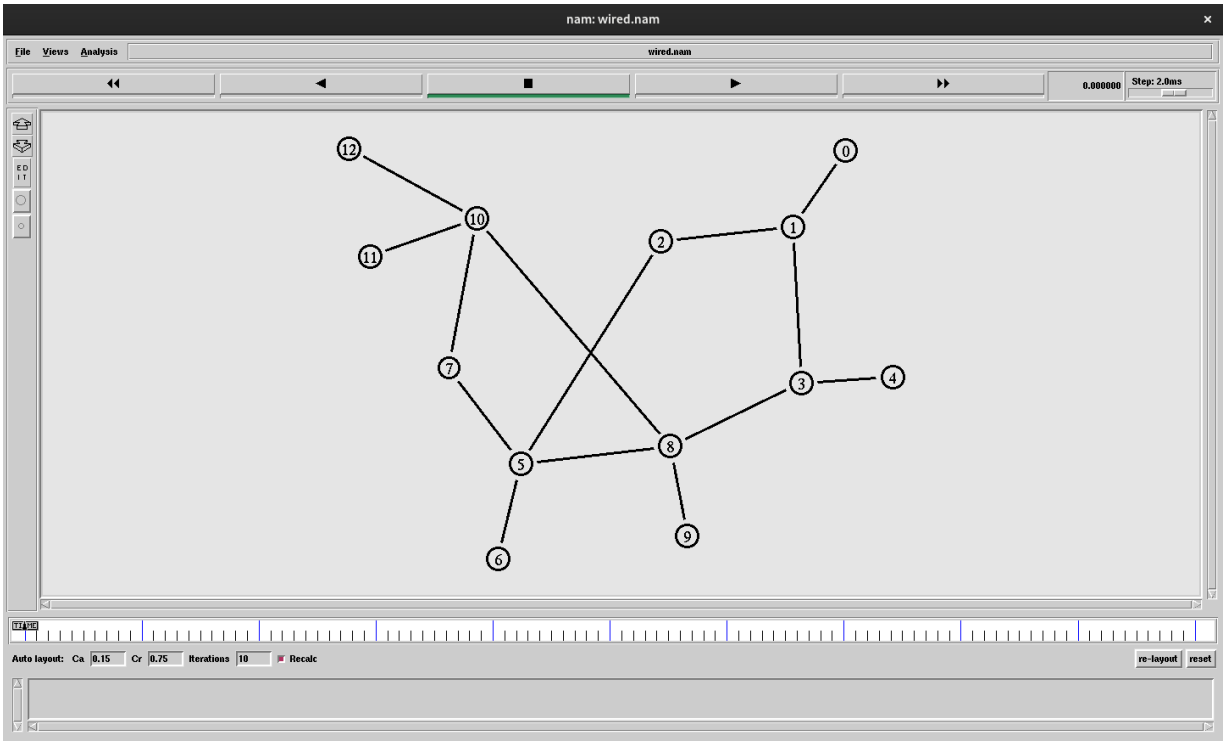


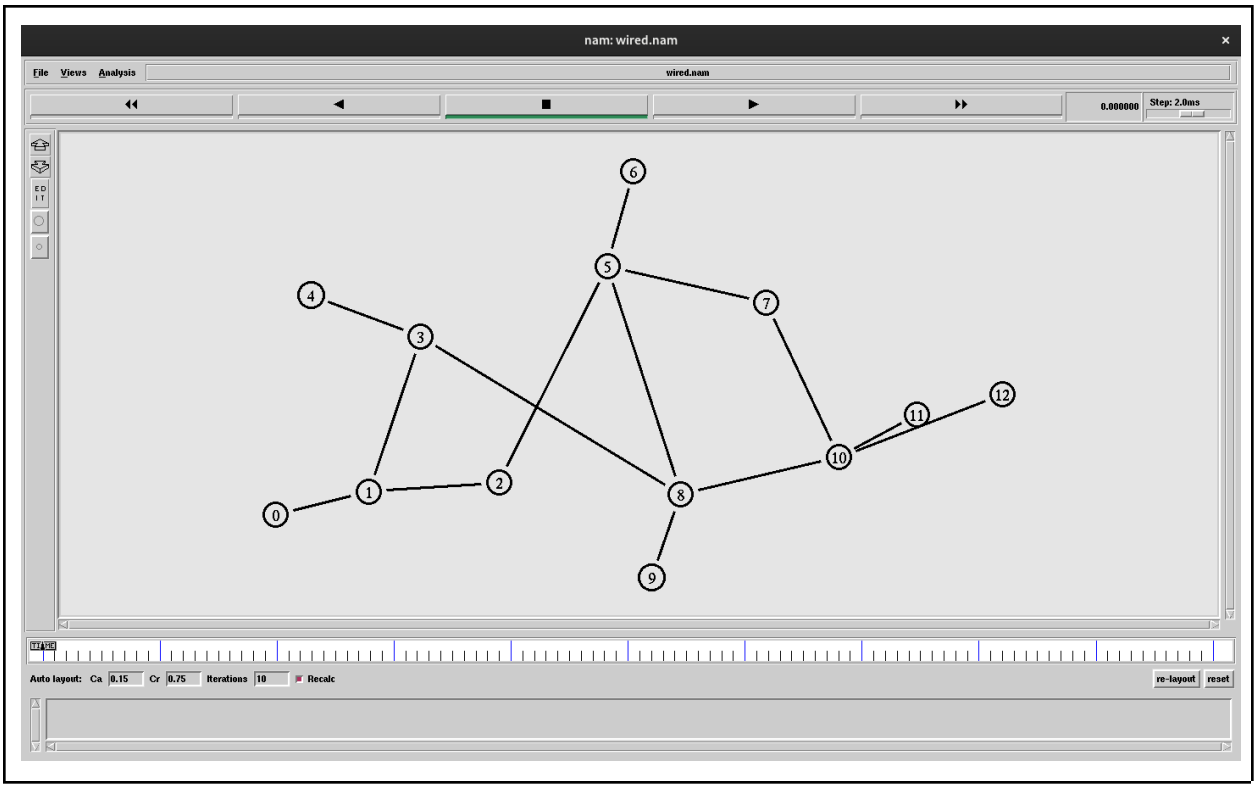

```
# code.tcl
#create a simulator object
set ns [new Simulator]

#create a trace file, this file is for logging purpose
set tracefile [open wired.tr w]
$ns trace-all $tracefile

#create a animation infomration or NAM file creation
set namfile [open wired.nam w]
$ns namtrace-all $namfile

#create 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 [$ns node]
set n10 [$ns node]
set n11 [$ns node]
set n12 [$ns node]

#creation of link between nodes with DropTail Queue
#Droptail means Dropping the tail.
$ns duplex-link $n0 $n1 2Mb 10ms DropTail
$ns duplex-link $n1 $n2 2Mb 10ms DropTail
$ns duplex-link $n1 $n3 2Mb 10ms DropTail
$ns duplex-link $n2 $n5 2Mb 10ms DropTail
$ns duplex-link $n3 $n8 2Mb 10ms DropTail
$ns duplex-link $n3 $n4 2Mb 10ms DropTail
$ns duplex-link $n8 $n9 2Mb 10ms DropTail
$ns duplex-link $n5 $n6 2Mb 10ms DropTail
$ns duplex-link $n5 $n7 2Mb 10ms DropTail
$ns duplex-link $n8 $n10 2Mb 10ms DropTail
$ns duplex-link $n10 $n11 2Mb 10ms DropTail
$ns duplex-link $n10 $n12 2Mb 10ms DropTail
$ns duplex-link $n5 $n8 2Mb 10ms DropTail
$ns duplex-link $n7 $n10 2Mb 10ms DropTail

#creation of Agents
#node 0 to Node 3
set udp [new Agent/UDP]
set null [new Agent/Null]
$ns attach-agent $n0 $udp
$ns attach-agent $n3 $null
$ns connect $udp $null

#creation of TCP Agent
set tcp [new Agent/TCP]
set sink [new Agent/TCPSink]
$ns attach-agent $n2 $tcp
$ns attach-agent $n12 $sink
$ns connect $tcp $sink

#creation of Application CBR, FTP
#CBR - Constant Bit Rate (Example nmp3 files that have a CBR or 192kbps, 320kbps, etc.)
#FTP - File Transfer Protocol (Ex: To download a file from a network)
set cbr [new Application/Traffic/CBR]
$cbr attach-agent $udp

set ftp [new Application/FTP]
$ftp attach-agent $tcp
```

```
#Start the traffic
$ns at 1.0 "$cbr start"
$ns at 2.0 "$ftp start"

$ns at 10.0 "finish"

#the following procedure will be called at 10.0 seconds
proc finish {} {
 global ns tracefile namfile
 $ns flush-trace
 close $tracefile
 close $namfile
 exit 0
}

puts "Simulation is starting..."
$ns run
```

Output (*wired.nam)*




nam: wired.nam
File
Views
Analysis
wired.nam
0.000000
Step: 2.0ms
EDIT
Auto layout:
Ca
0.15
Cr
0.75
Iterations
10
Recalc
re-layout
reset
0
1
2
3
4
5
6
7
8
9
10
11
12