

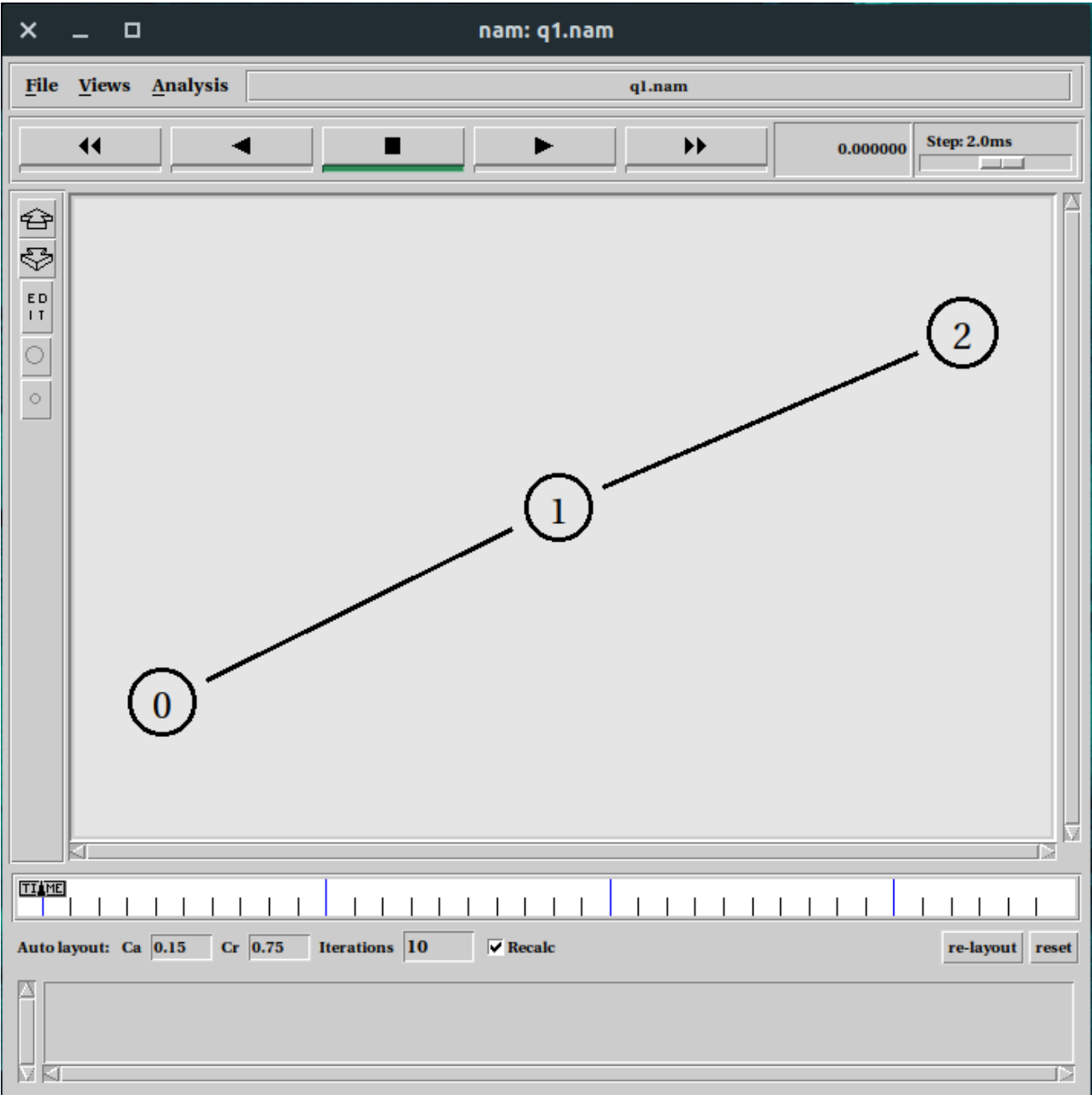
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Dept	CSE
Batch	CS 2
Class	B. Tech. 3rd yr

Lab Assignment 4

This assignment aims to make us familiar with the hardware and software aspects of computer networking and extracting information related to computer networking using TCL programs.

Problem Statement 1

Q: Write a Network Simulator (NS2) code to simulate a three node network with duplex links among them as shown in figure. Show the topology using NAM. Study the variation in number of packets dropped with the variation of the queue size in the nodes and with the variation of the bandwidth of the links.



```

X  _  □                                r1walz@ar135: /tmp/csn361/util
File Edit View Search Terminal Help
→ util ./queue.sh q1
Running q1.tcl

      |Packet Drops --->
-----
Q  0|####(4)
u  1|####(4)
e  2|#####(41)
u  3|#####(17)
e  4|#####(19)
   5|#####(19)
l  6|#####(18)
e  7|#####(17)
n  8|#####(16)
g  9|#####(15)
t 10|#####(14)
h 11|#####(12)
   12|#####(9)
| 13|#####(8)
| 14|#####(6)
| 15|#####(5)
v 16|####(4)
   17|###(3)
   18|(0)
   19|(0)

```

```

X  _  □                                r1walz@ar135: /tmp/csn361/util
File Edit View Search Terminal Help
→ util ./bandwidth.sh q1
Running q1.tcl

      |Packet Drops --->
-----
B  1|#####(18)
a  2|#####(21)
n  3|#####(19)
d  4|#####(17)
w  5|#####(14)
i  6|####(5)
d  7|####(5)
t  8|####(5)
h  9|####(5)
  10|####(5)
i 11|####(5)
n 12|####(5)
  13|####(5)
M 14|####(5)
b 15|####(5)
  16|####(5)
| 17|####(5)
| 18|####(5)
v 19|####(5)

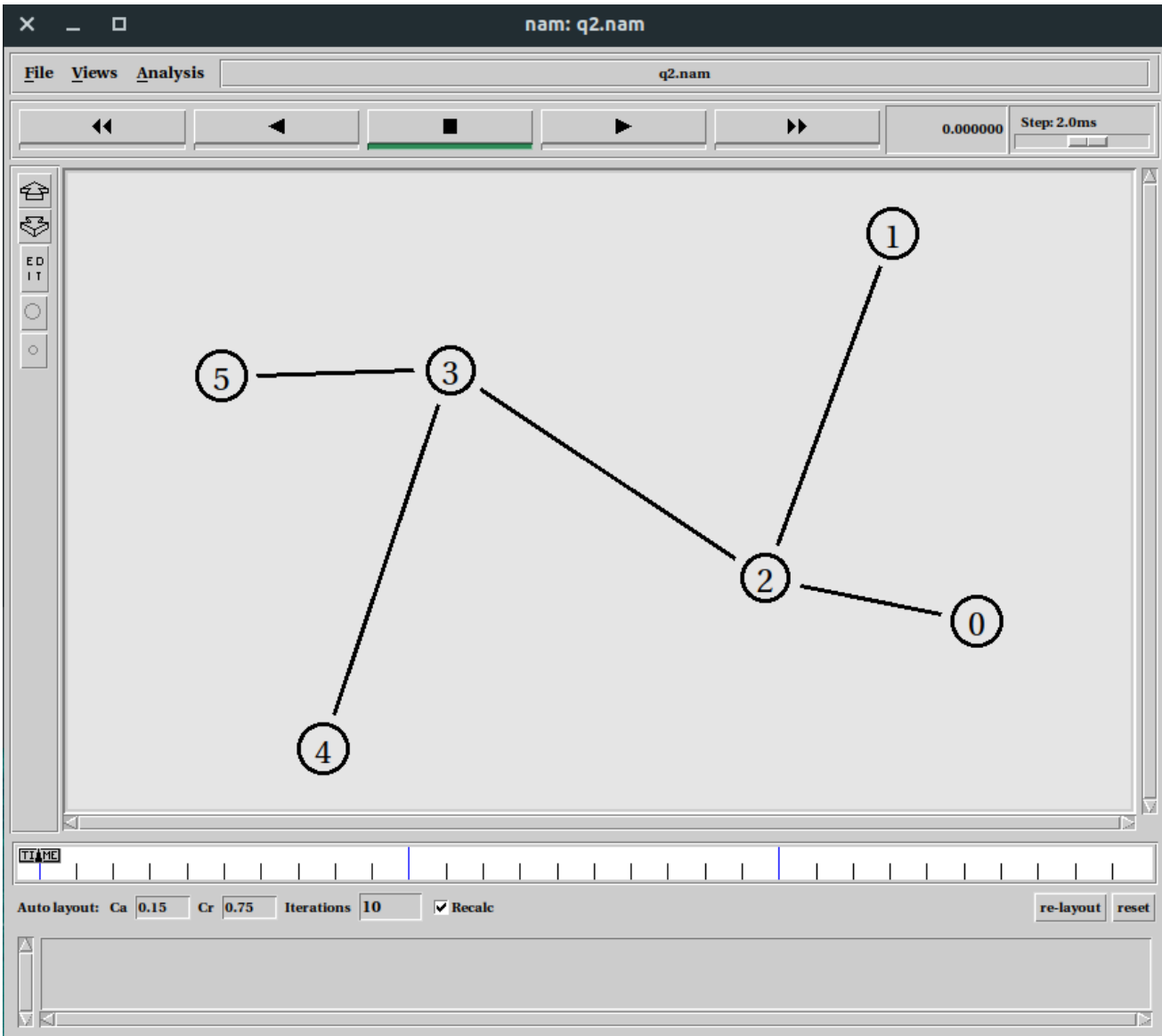
```

No special algorithms or data structures were used.

Above graphs show that with the increase in queue size / bandwidth, the number of packets drop increase with some minor fluctuations.

Problem Statement 2

Q: Write a Network Simulator (NS2) code to simulate the transmission of ping messages over a network topology consisting of 6 nodes and find the number of packets dropped due to congestion. Study the variation in number of packets dropped with the variation of the queue size in the nodes and with the variation of the bandwidth of the links.



r1walz@ar135: /tmp/csn361/utl

File Edit View Search Terminal Help

→ util ./queue.sh q2

Running q2.tcl

|Packet Drops --->

```
-----
Q 0|#####(34)
u 1|#####(34)
e 2|#####(23)
u 3|#####(20)
e 4|#####(19)
5|#####(18)
l 6|#####(17)
e 7|#####(16)
n 8|#####(15)
g 9|#####(14)
t 10|#####(13)
h 11|#####(12)
12|#####(11)
| 13|#####(10)
| 14|#####(9)
| 15|#####(8)
v 16|#####(7)
17|#####(6)
18|#####(5)
19|####(4)
```

```

X _ □ r1walz@ar135: /tmp/csn361/util
File Edit View Search Terminal Help
→ util ./bandwidth.sh q2
Running q2.tcl

|Packet Drops --->
-----
B 1|#####(17)
a 2|#####(10)
n 3|##(2)
d 4|(0)
w 5|(0)
i 6|(0)
d 7|(0)
t 8|(0)
h 9|(0)
10|(0)
i 11|(0)
n 12|(0)
13|(0)
M 14|(0)
b 15|(0)
16|(0)
| 17|(0)
| 18|(0)
v 19|(0)

```

No special algorithms or data structures were used.

Above graphs show that with the increase in queue size / bandwidth, the number of packets drop increase with some minor fluctuations.