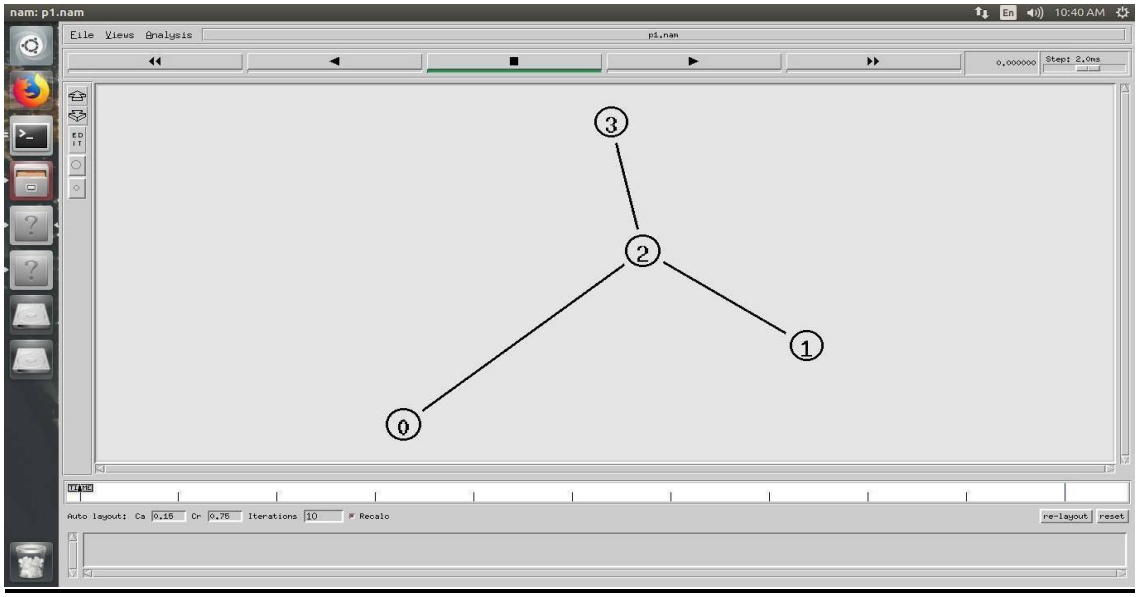
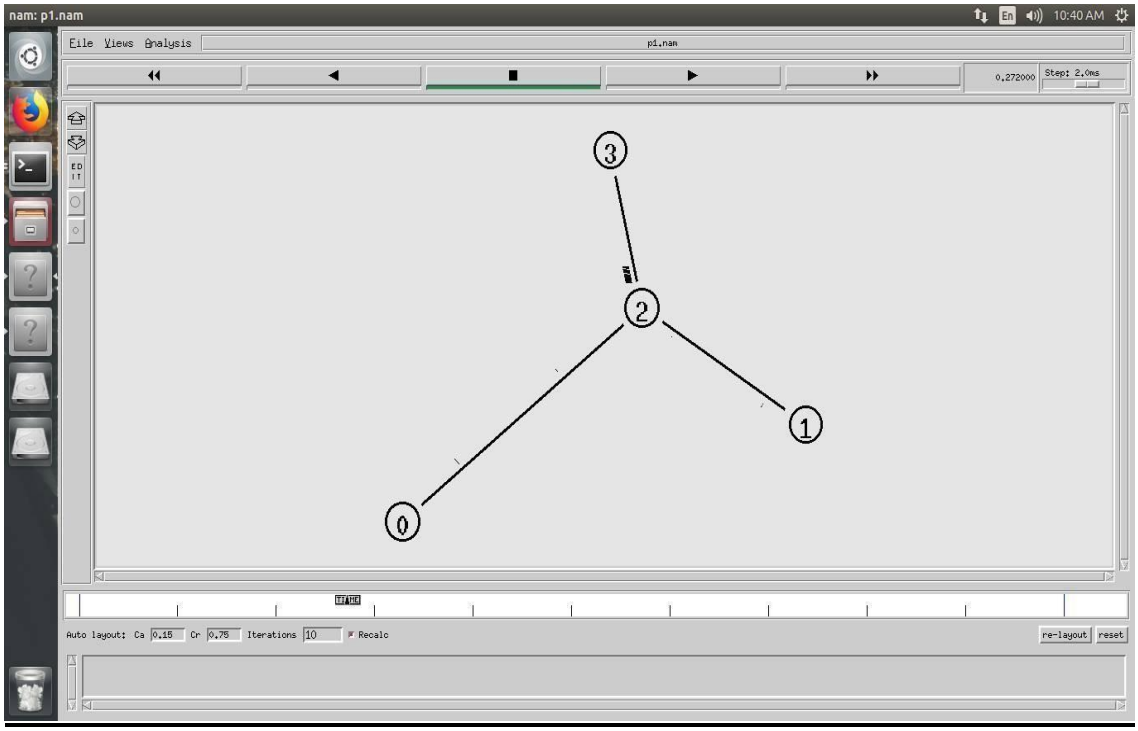
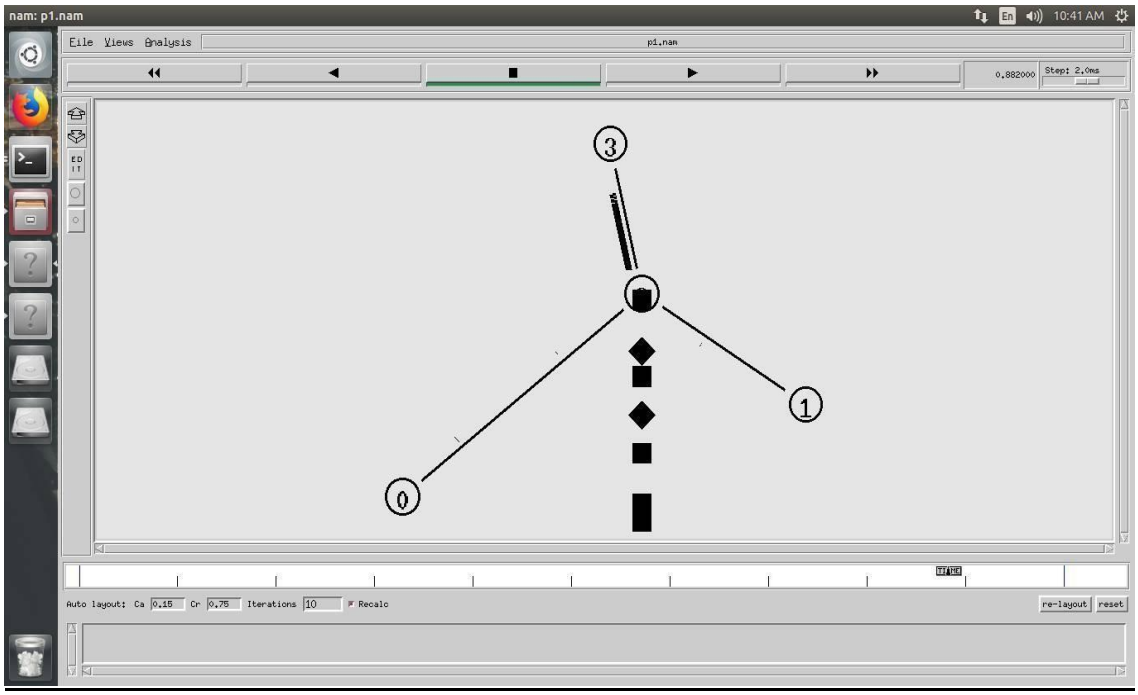
Trace file contains 12 columns:-

Event type, Event time, From Node, Source Node, Packet Type, Packet Size, Flags (indicated by --------), Flow ID, Source address, Destination address, Sequence ID, Packet ID

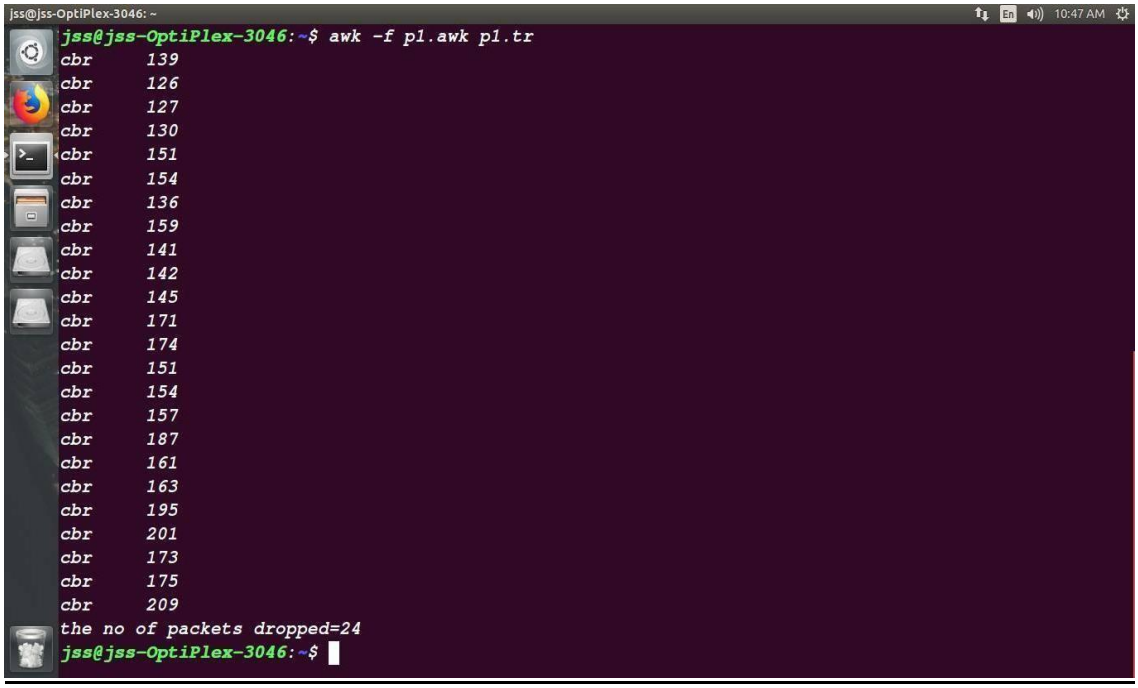
Topology







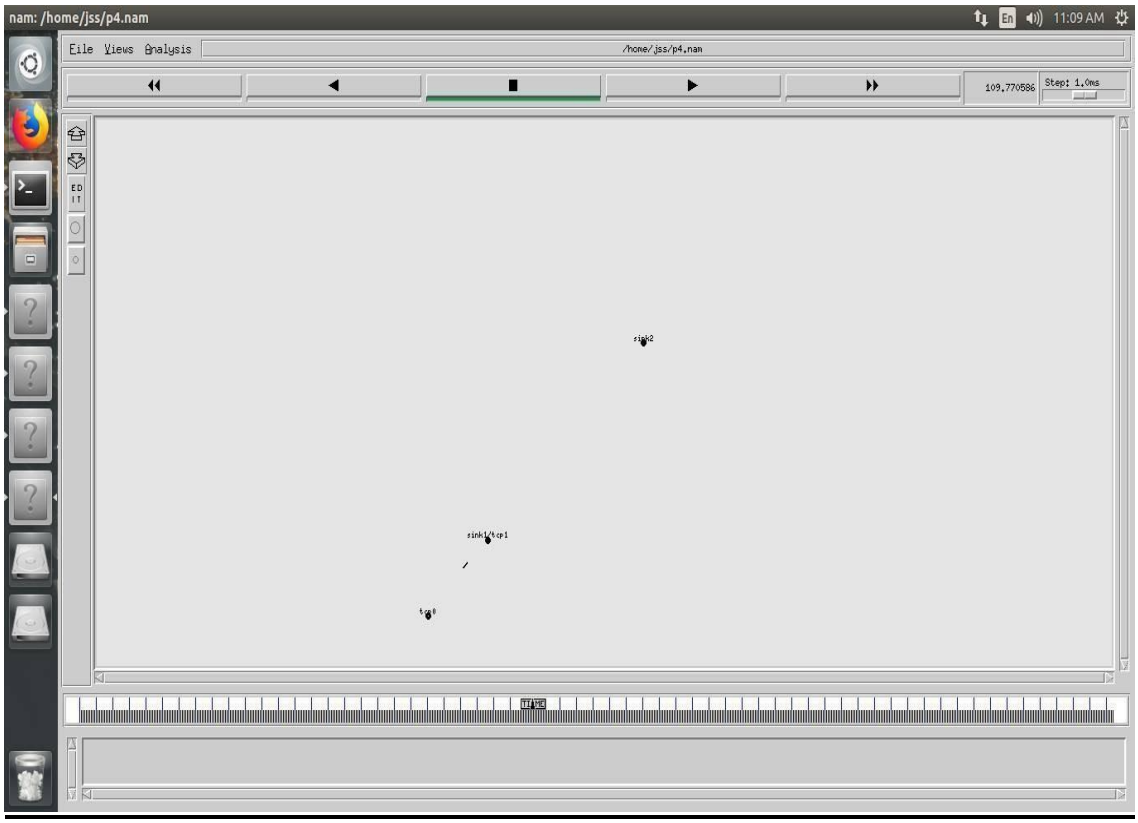
Output

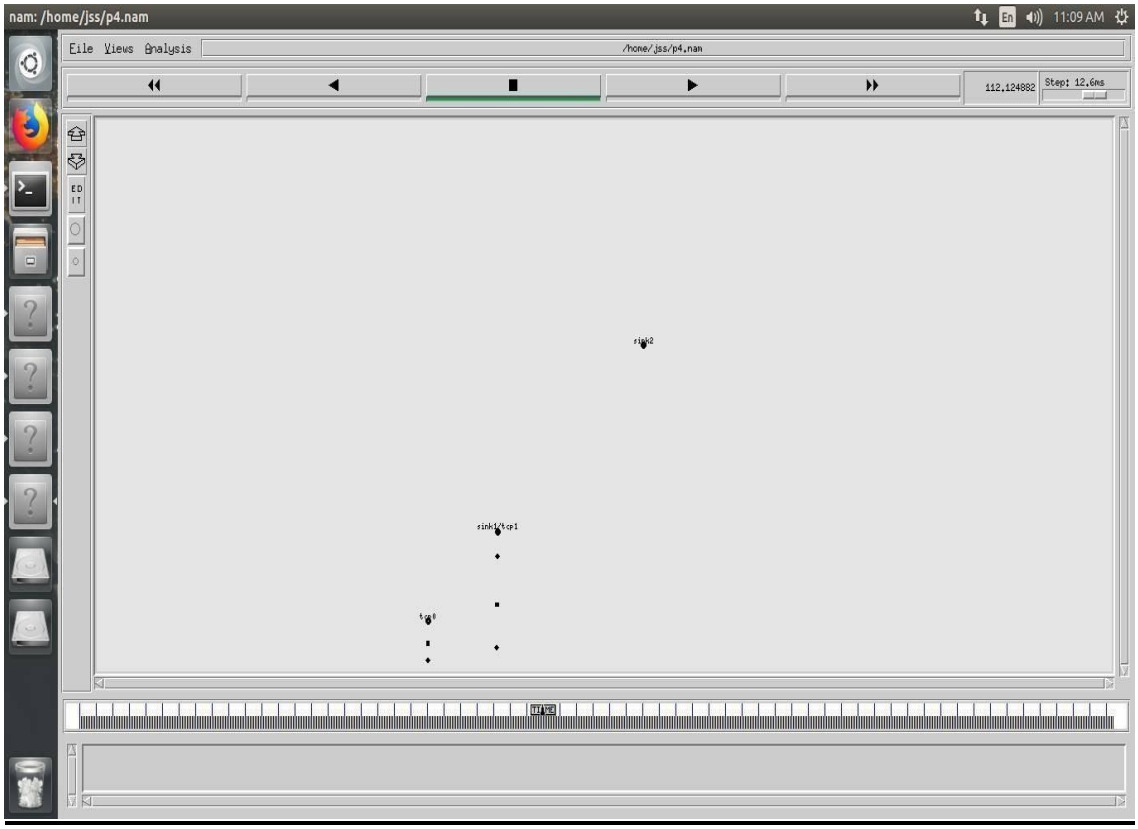


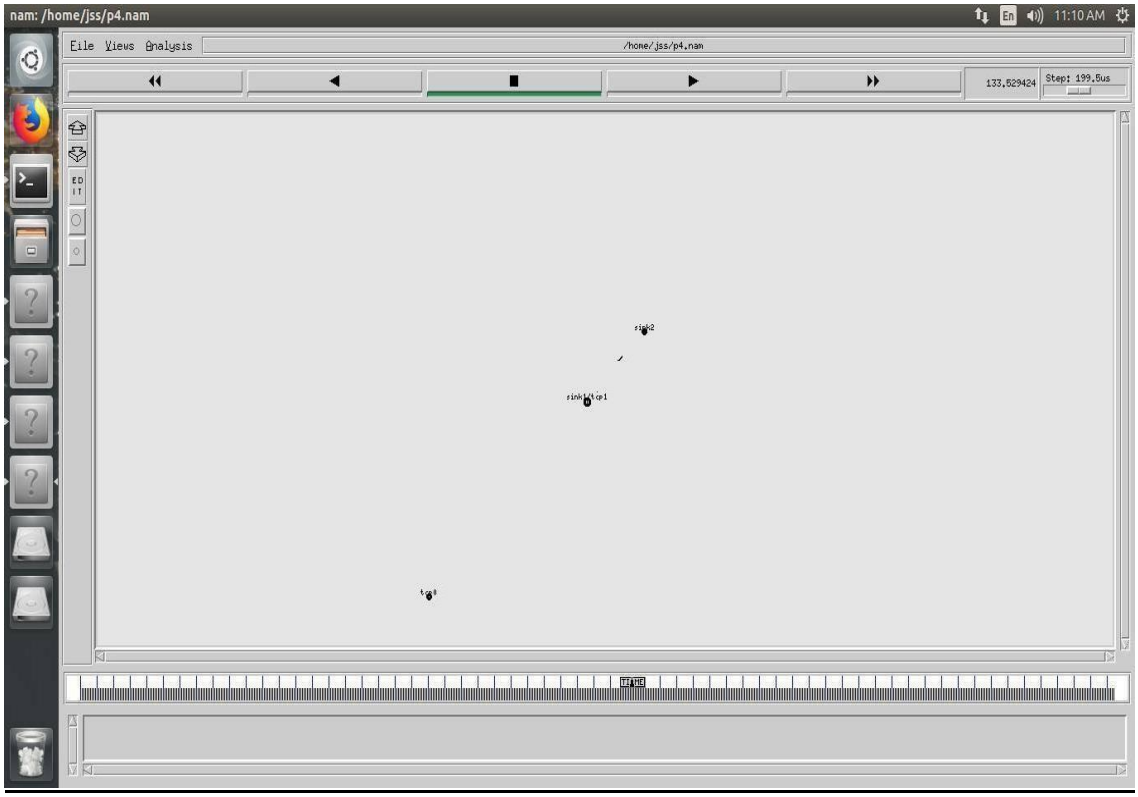
Note:

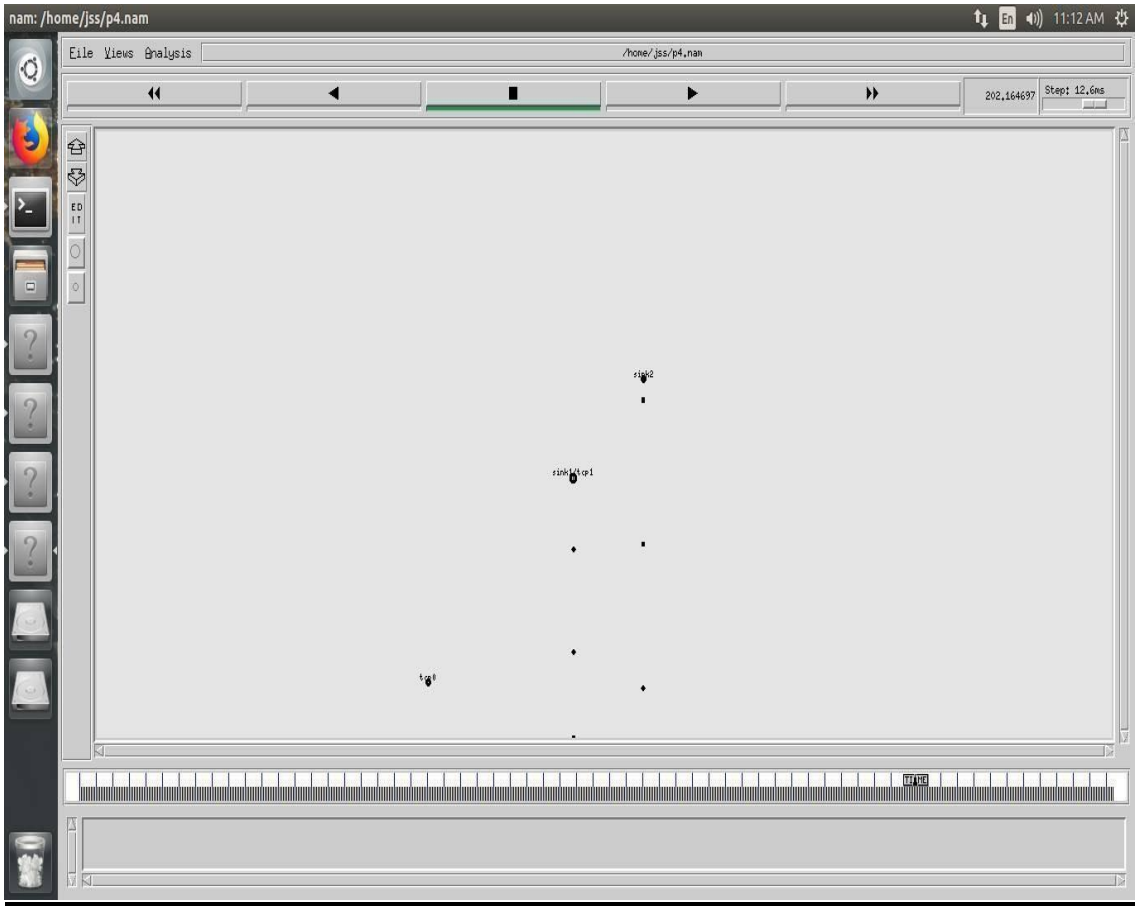
1. Set the queue size fixed from n0 to n2 as 10, n1-n2 to 10 and from n2-n3 as 5.
   Syntax: To set the queue size
   $ns set queue-limit <from> <to> <size>
   Eg: $ns set queue-limit $n0 $n2 10
2. Go on varying the bandwidth from 10, 20 30 . . and find the number of packets dropped at the node 2

Topology

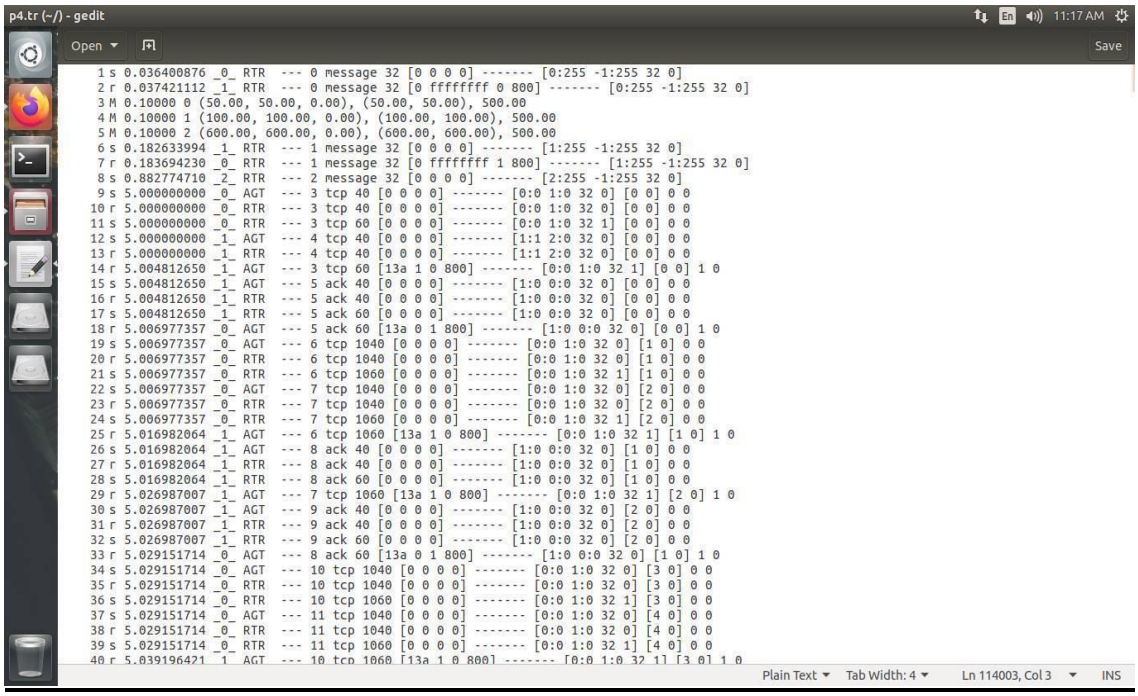

nam: /home/jss/p4.nam
11:09 AM
File Views Analysis
/home/jss/p4.nam
109.770586
Step: 1.0ms


nam: /home/jss/p4.nam
11:09 AM
File Views Analysis
/home/jss/p4.nam
112.124882
Step: 12.6ms


nam: /home/jss/p4.nam
11:10 AM
File Views Analysis
/home/jss/p4.nam
133.629424
Step: 199.6us

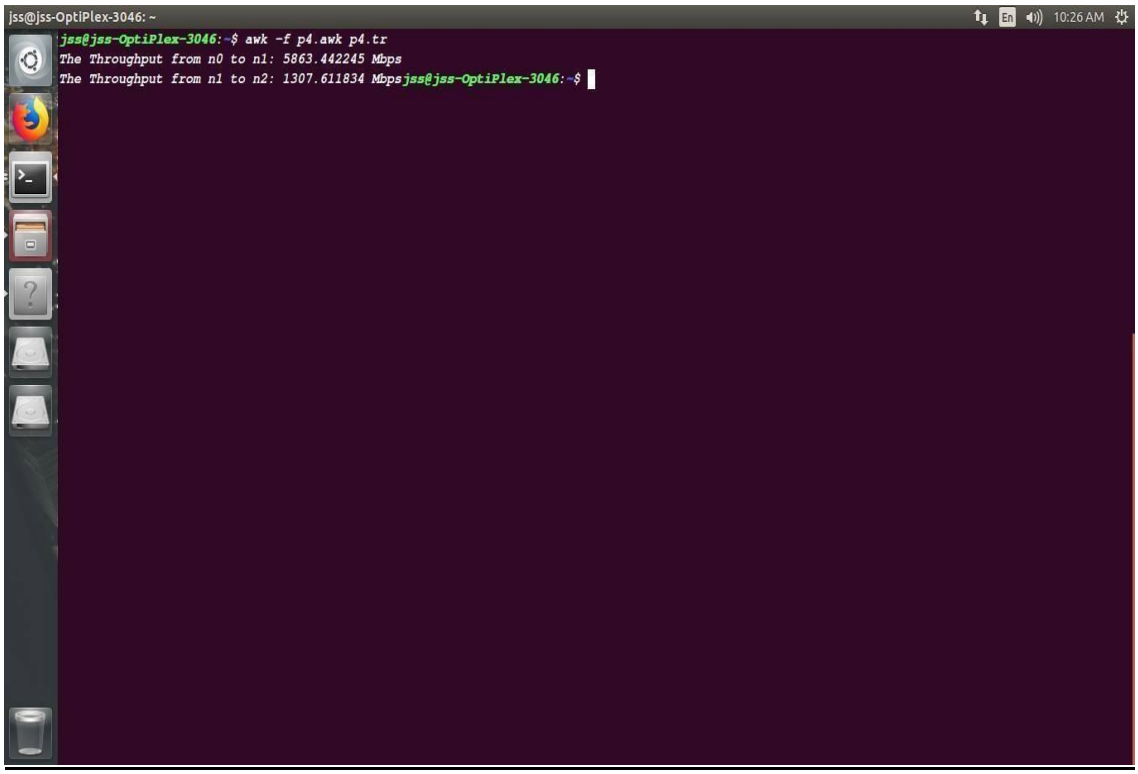

nam: /home/jss/p4.nam
11:12 AM
File Views Analysis
/home/jss/p4.nam
202.164697
Step: 12.6ms

Trace file



Here **"M"** indicates mobile nodes, **"AGT"** indicates Agent Trace, **"RTR"** indicates Router Trace

Output



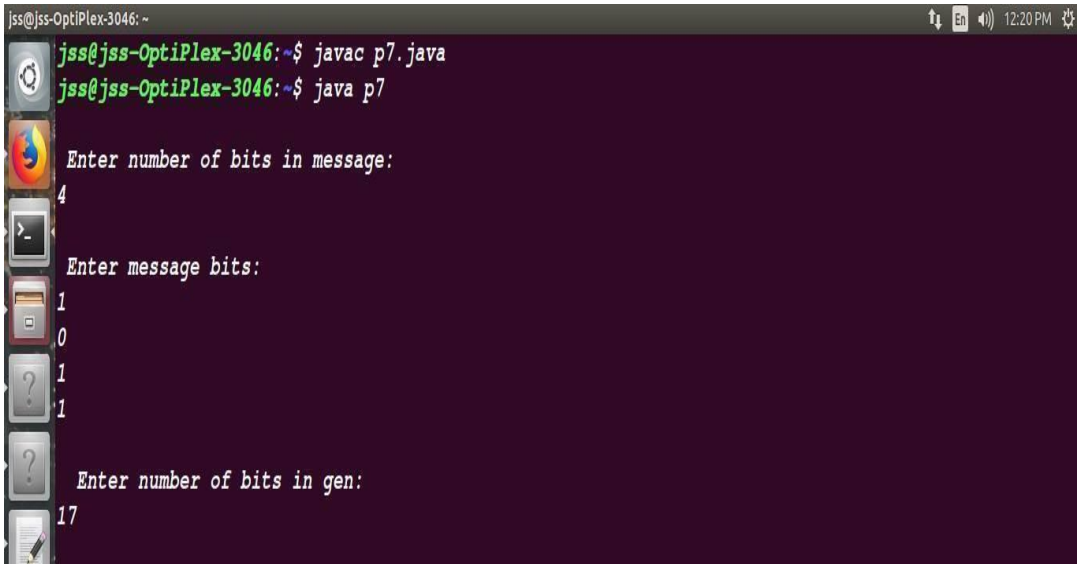
```
{
int current=0;
while(true)
{
for(int i=0;i<gen.length;i++)
{
rem[current+i]=(rem[current+i]^gen[i]);
}
while(rem[current]==0 && current!=rem.length-1)
{
current++;
}
if((rem.length-current)<gen.length)
{
break;
}
}
return rem;
}
}
```

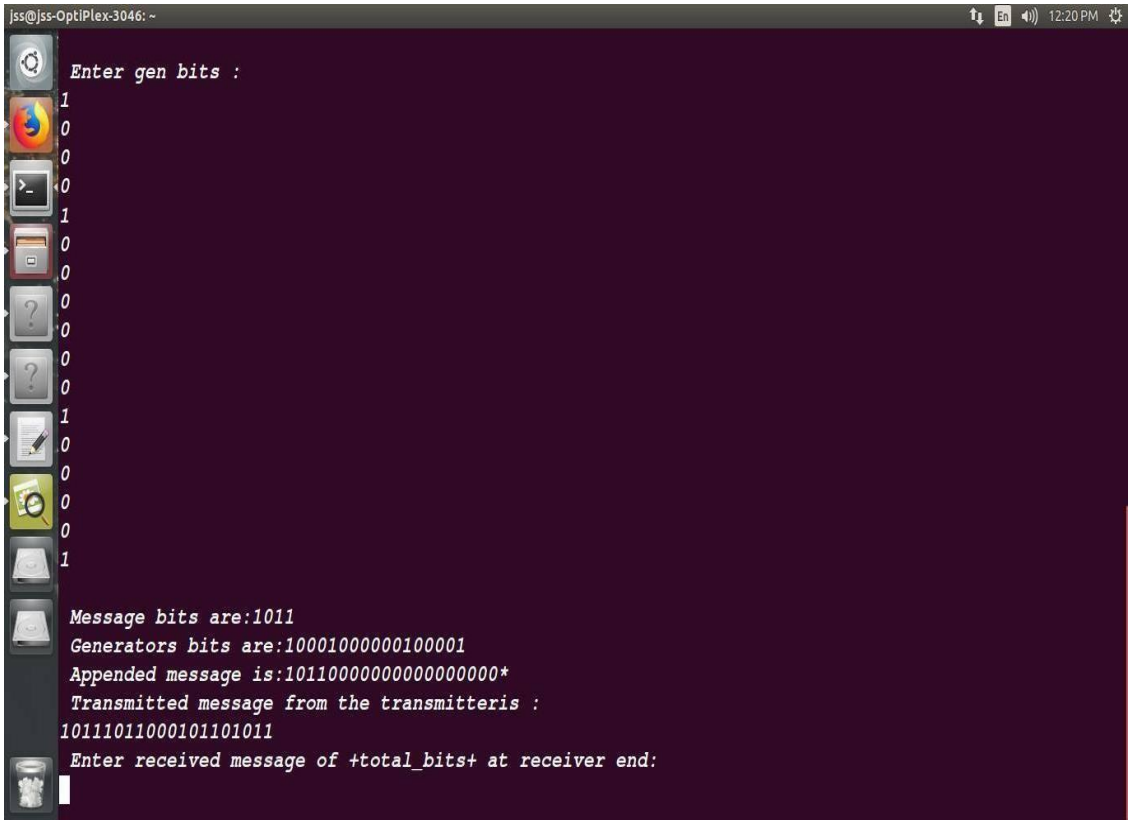
Output:

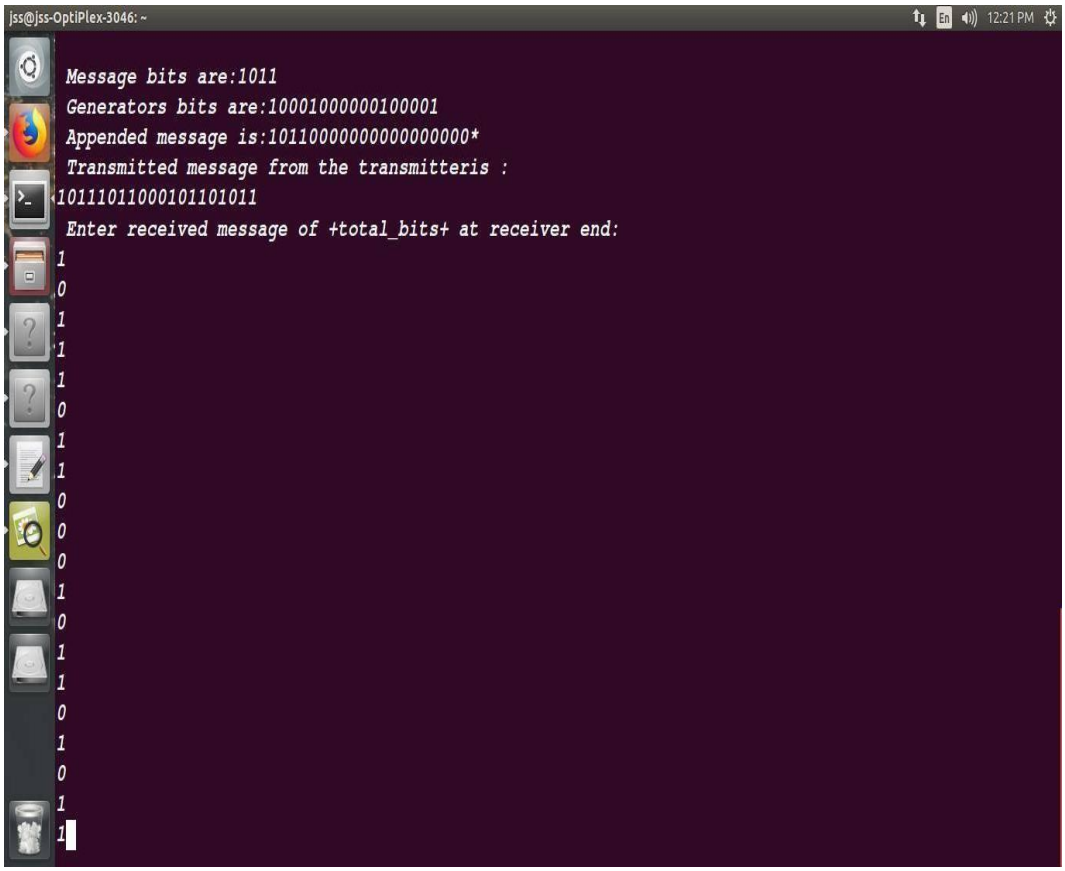
jss@jss-Optiplex-3046:~ vi p7.java

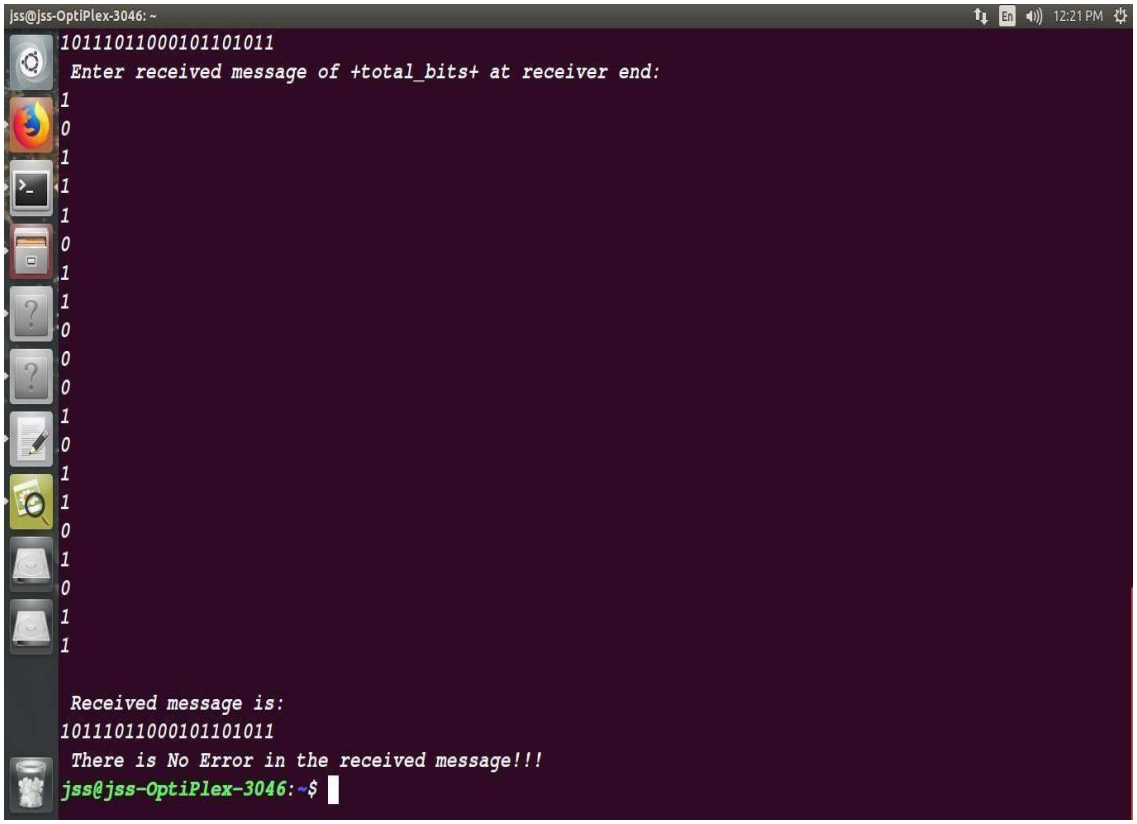
jss@jss-Optiplex-3046:~ javac p7.java

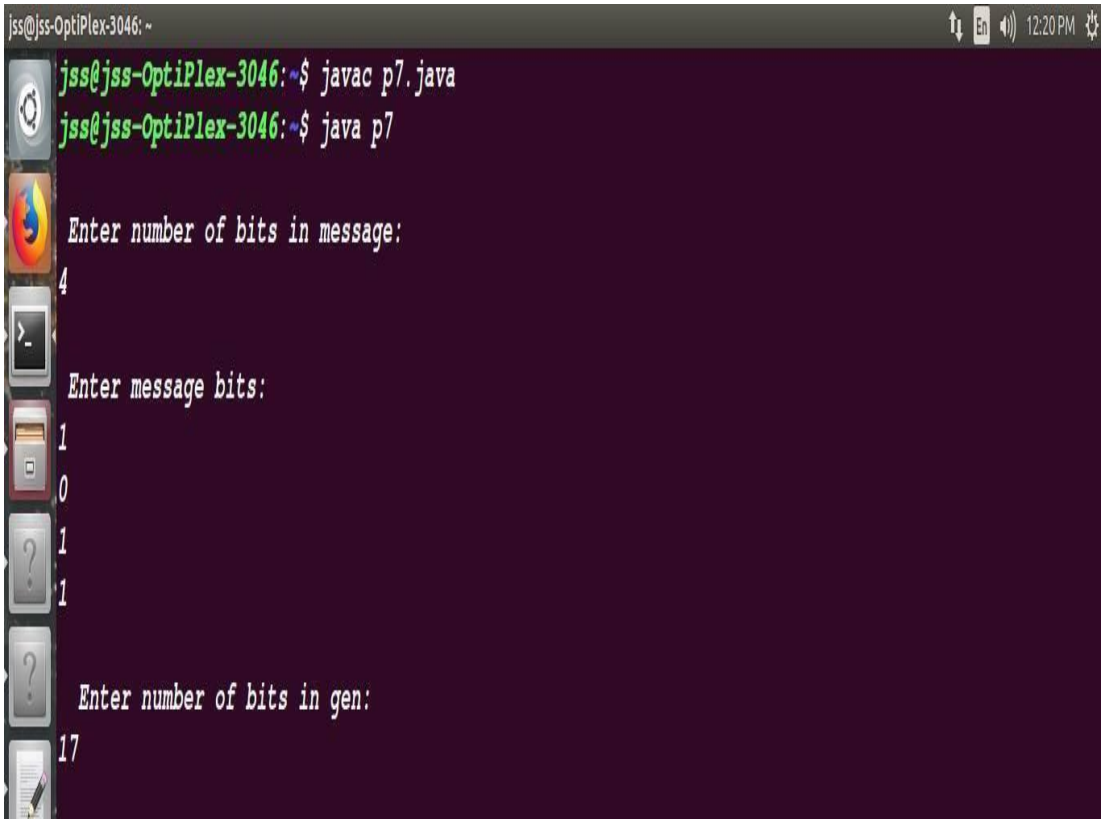
jss@jss-Optiplex-3046:~ java p7

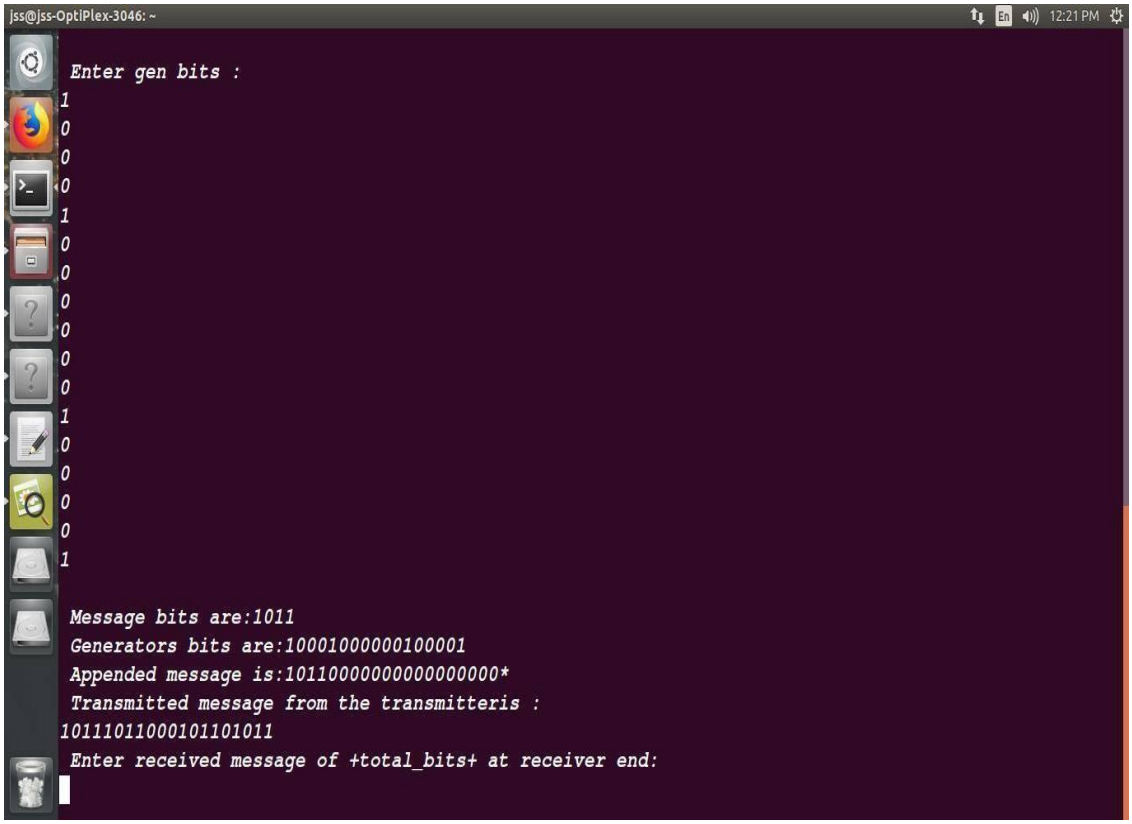


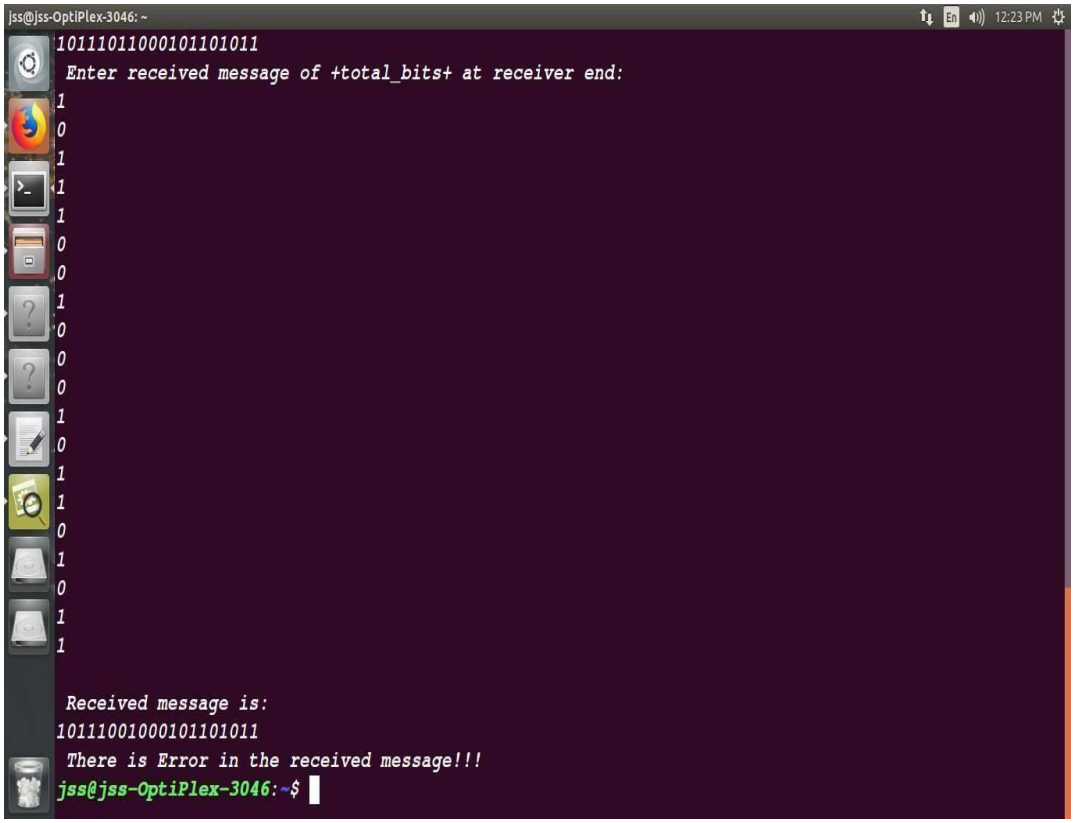

jss@jss-OptiPlex-3046: ~
12:20 PM
Enter gen bits :
1
0
0
0
1
0
0
0
0
0
0
1
0
0
0
0
1
Message bits are:1011
Generators bits are:10001000000100001
Appended message is:10110000000000000000*
Transmitted message from the transmitteris :
10111011000101101011
Enter received message of +total_bits+ at receiver end:


jss@jss-OptiPlex-3046: ~
12:21 PM
Message bits are:1011
Generators bits are:10001000000100001
Appended message is:10110000000000000000*
Transmitted message from the transmitteris :
10111011000101101011
Enter received message of +total_bits+ at receiver end:
1
0
1
1
1
0
1
1
0
0
0
1
0
1
1
0
1
0
1
1


jss@jss-OptiPlex-3046: ~
12:21 PM
1011011000101101011
Enter received message of +total_bits+ at receiver end:
1
0
1
1
1
0
1
1
0
0
0
1
0
1
1
0
1
0
1
1
Received message is:
1011011000101101011
There is No Error in the received message!!!
jss@jss-OptiPlex-3046:~$


jss@jss-OptiPlex-3046: ~
12:20 PM
jss@jss-OptiPlex-3046:~$ javac p7.java
jss@jss-OptiPlex-3046:~$ java p7
Enter number of bits in message:
4
Enter message bits:
1
0
1
1
Enter number of bits in gen:
17

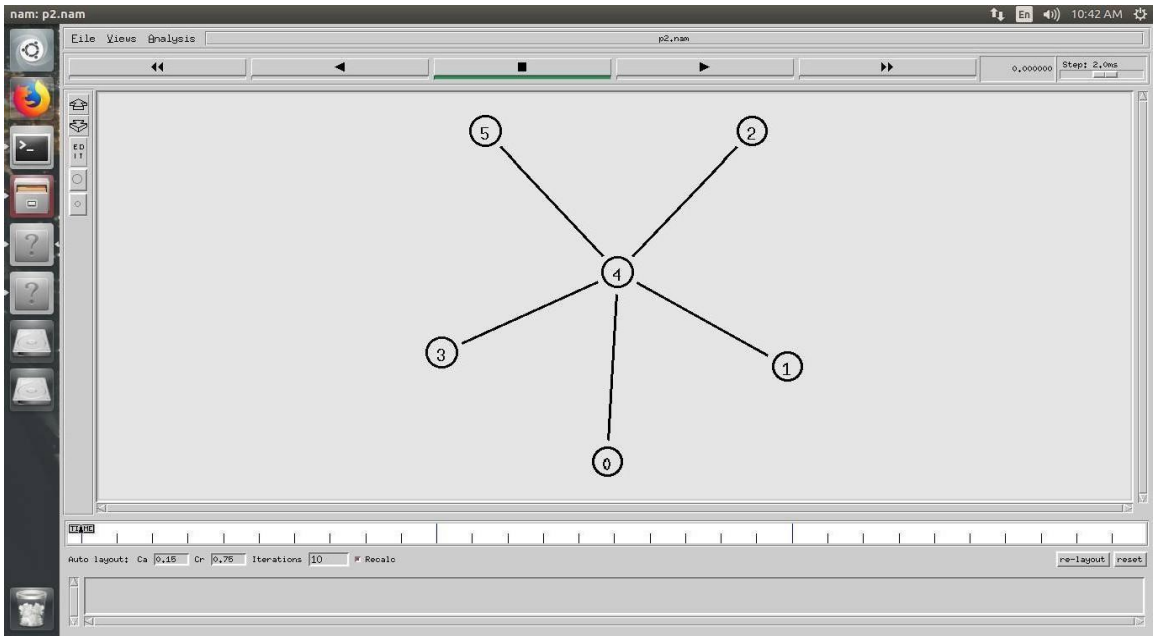

jss@jss-OptiPlex-3046: ~
12:21 PM
Enter gen bits :
1
0
0
0
1
0
0
0
0
0
0
1
0
0
0
0
1
Message bits are:1011
Generators bits are:10001000000100001
Appended message is:10110000000000000000*
Transmitted message from the transmitteris :
10111011000101101011
Enter received message of +total_bits+ at receiver end:

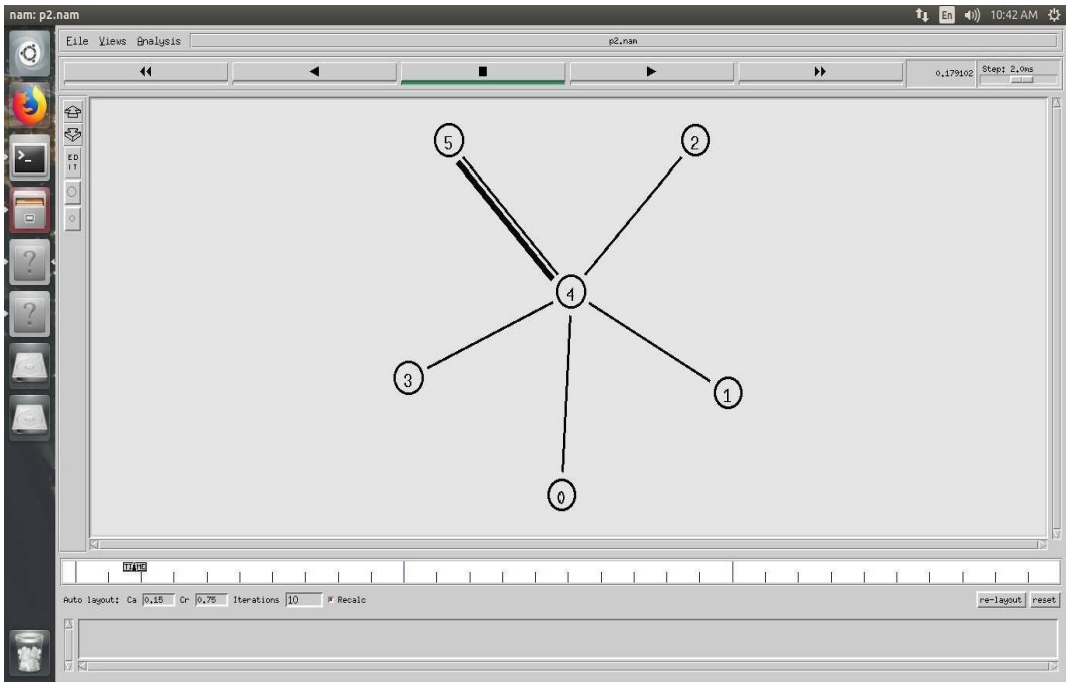

jss@jss-OptiPlex-3046: ~
12:23 PM
10111011000101101011
Enter received message of +total_bits+ at receiver end:
1
0
1
1
1
0
0
1
0
0
0
1
0
1
1
0
1
0
1
1
Received message is:
10111001000101101011
There is Error in the received message!!!
jss@jss-OptiPlex-3046:~$

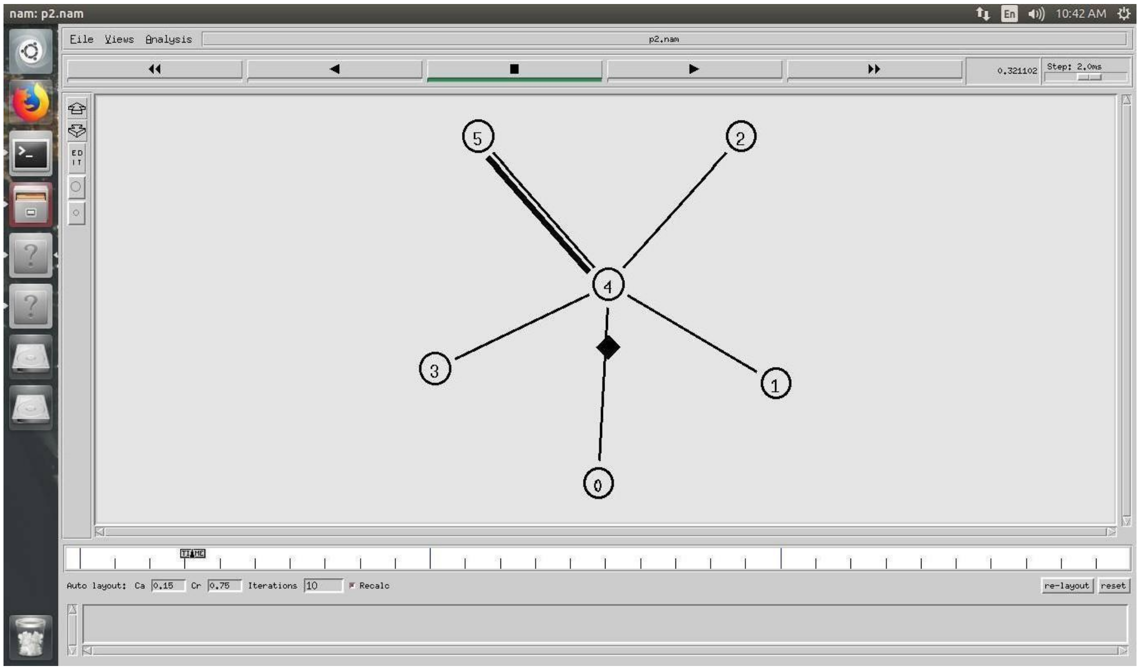
i) Here **"ns"** indicates network simulator. We get the topology shown in the snapshot.
ii) Now press the play button in the simulation window and the simulation will begins.

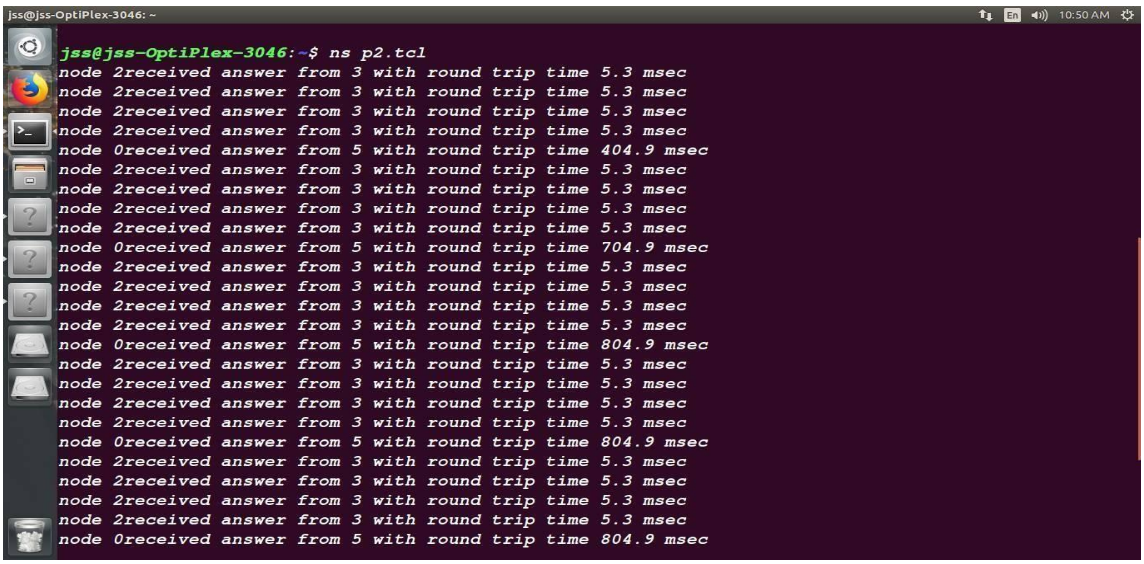
6) After simulation is completed run **awk file** to see the output ,
[root@localhost~]# awk –f p2.awk p2.tr
7) To see the trace file contents open the file as ,
[root@localhost~]# vi p2.tr

Topology

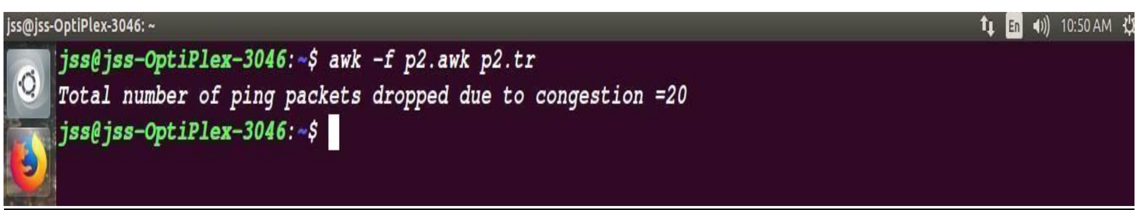






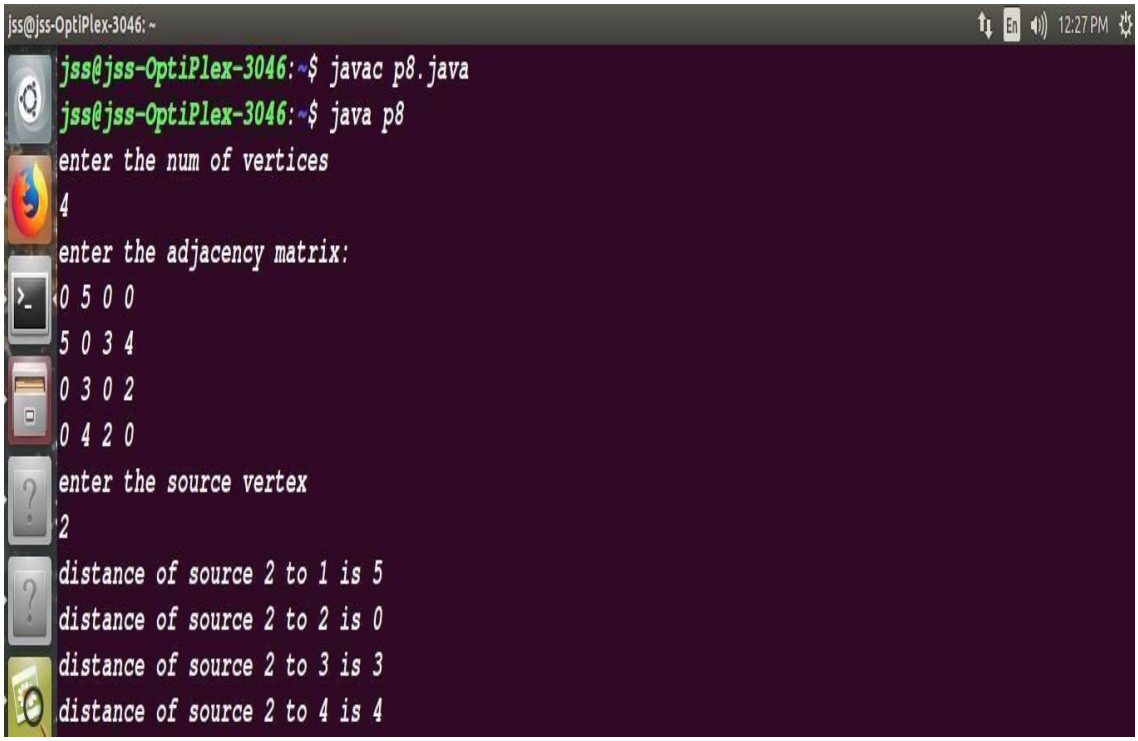


Output



Note:

Vary the bandwidth and queue size between the nodes n0-n2 , n2-n4. n6-n2 and n2- n5 and see the number of packets dropped at the nodes.


jss@jss-OptiPlex-3046: ~
12:27 PM
jss@jss-OptiPlex-3046:~$ javac p8.java
jss@jss-OptiPlex-3046:~$ java p8
enter the num of vertices
4
enter the adjacency matrix:
0 5 0 0
5 0 3 4
0 3 0 2
0 4 2 0
enter the source vertex
2
distance of source 2 to 1 is 5
distance of source 2 to 2 is 0
distance of source 2 to 3 is 3
distance of source 2 to 4 is 4

5) Run the simulation program

[root@localhost~]# ns p3.tcl

6) After simulation is completed run **awk file** to see the output ,

i. **[root@localhost~]# awk –f p3.awk file1.tr > a1**

ii. **[root@localhost~]# awk –f p3.awk file2.tr > a2**

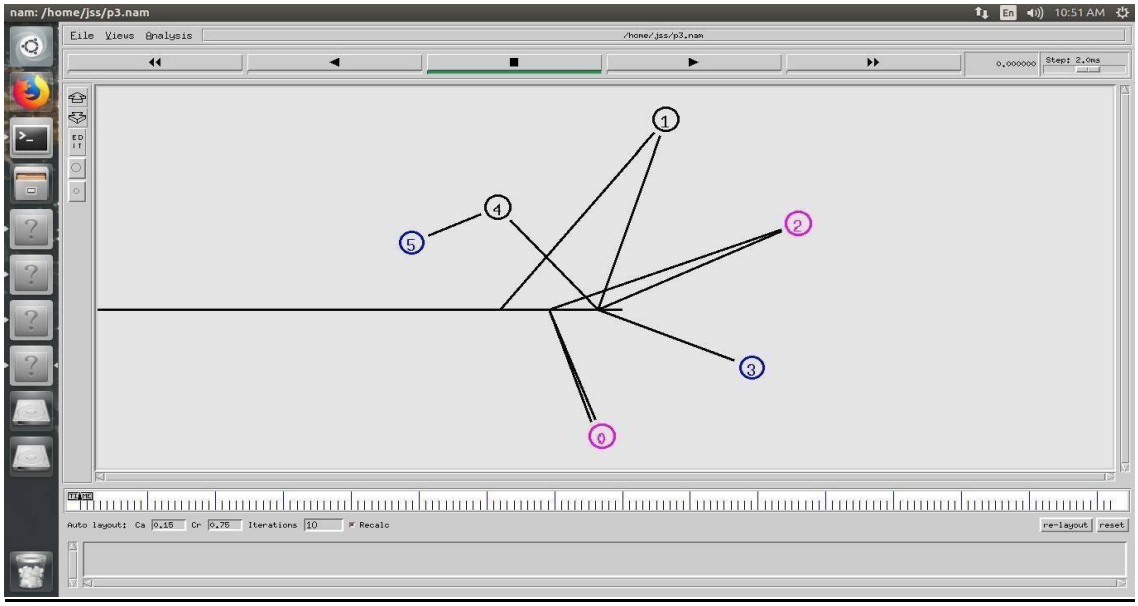
iii. **[root@localhost~]# xgraph a1 a2**

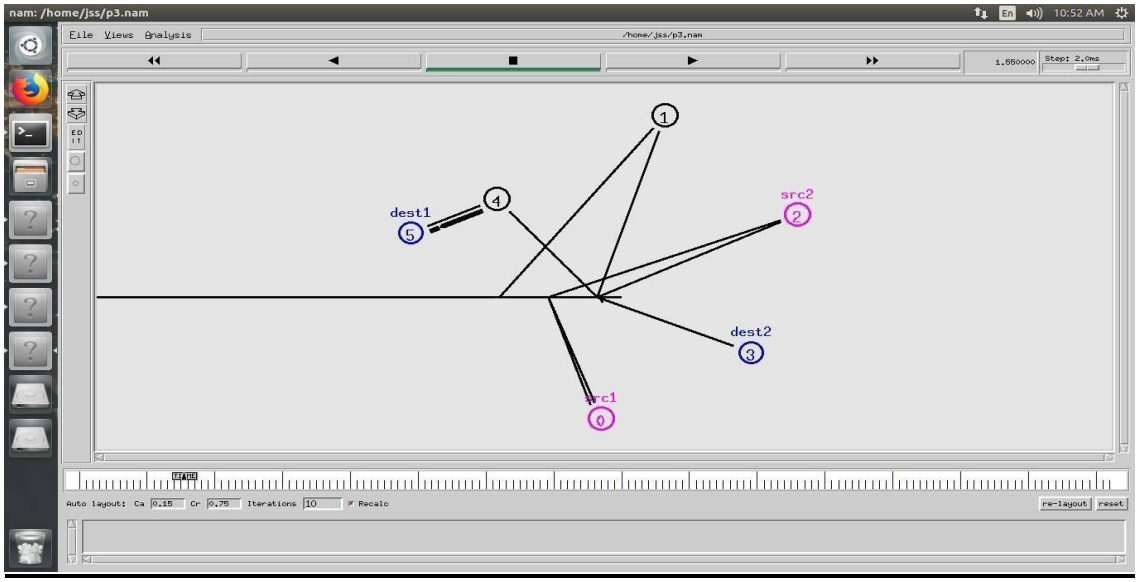
7) Here we are using the congestion window trace files i.e. **file1.tr** and **file2.tr** and we are redirecting the contents of those files to new files say **a1** and **a2** using **output redirection operator (>)**.

8) To see the trace file contents open the file as ,

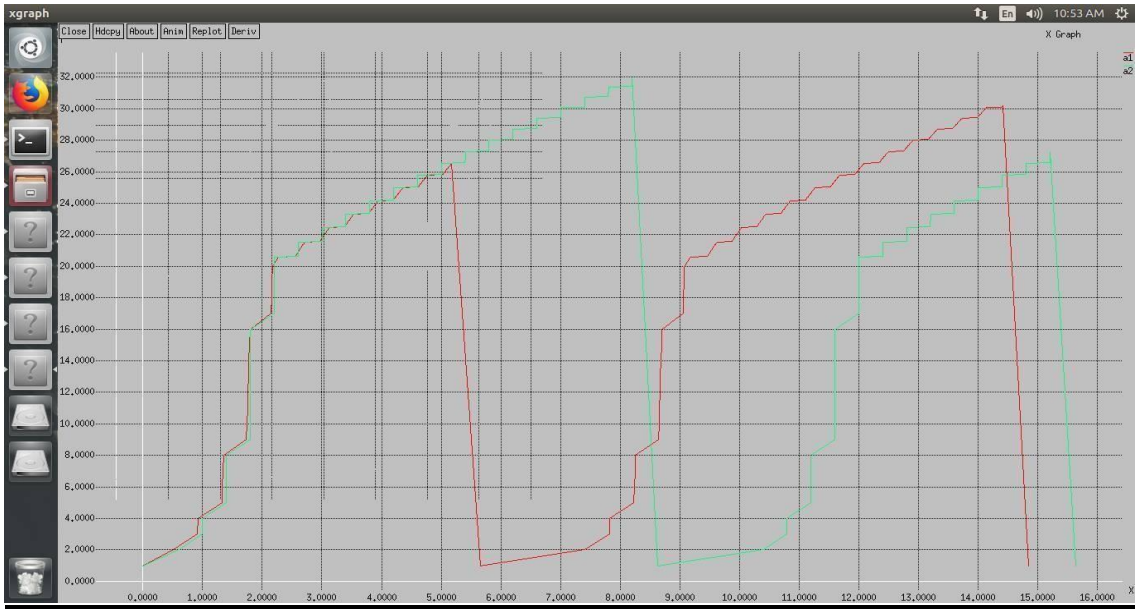
[root@localhost~]# vi p3.tr

Topology





Output


xgraph
Close
Hdcpy
About
Anim
Replot
Deriv
X Graph
a1
a2
32.0000
30.0000
28.0000
26.0000
24.0000
22.0000
20.0000
18.0000
16.0000
14.0000
12.0000
10.0000
8.0000
6.0000
4.0000
2.0000
0.0000
0.0000
1.0000
2.0000
3.0000
4.0000
5.0000
6.0000
7.0000
8.0000
9.0000
10.0000
11.0000
12.0000
13.0000
14.0000
15.0000
16.0000

Output:

```
jss@jss-OptiPlex-3046:~$ javac p12.java
jss@jss-OptiPlex-3046:~$ java p12
enter the bs,outgoing rate,inputs,incoming size
7
5
10
8
incoming size is 8
packet lost = 1
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
```

```
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
incoming size is 8
packet lost = 3
bucket buffersize is 7 out of 7
after outgoing = 2 packet left out of 7 in buffer
jss@jss-OptiPlex-3046:~$
```