



LAB ASSIGNMENT 3

22nd August 2019

About

This is the report written for the Lab assignment 3 done during the course of CSN 361 –
Computer Networks Lab – Autumn 2019-2020

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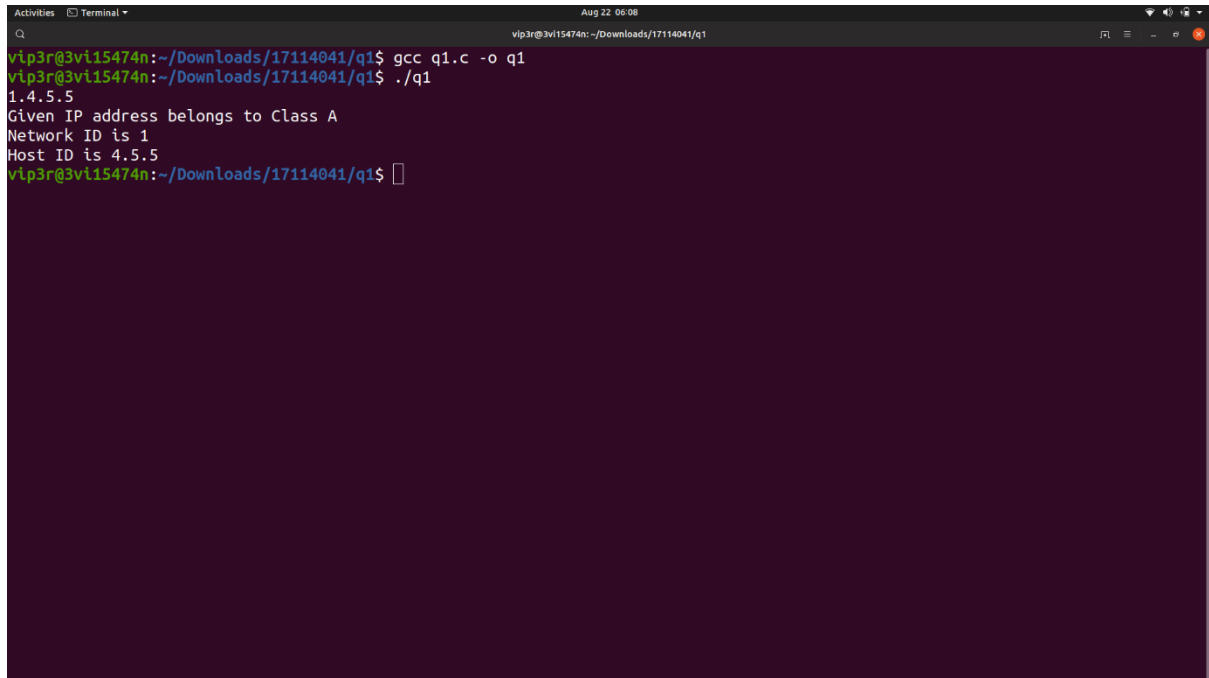
17114041

Problem Statement 1

Write a socket program in C to determine class, Network and Host ID of an IPv4 address.

Input : 1.4.5.5

Output : Given IP address belongs to Class A Network ID is 1 Host ID is 4.5.5



```
Activities Terminal Aug 22 06:08
vip3r@3vt15474n:~/Downloads/17114041/q1$ gcc q1.c -o q1
vip3r@3vt15474n:~/Downloads/17114041/q1$ ./q1
1.4.5.5
Given IP address belongs to Class A
Network ID is 1
Host ID is 4.5.5
vip3r@3vt15474n:~/Downloads/17114041/q1$
```

Problem Statement 2

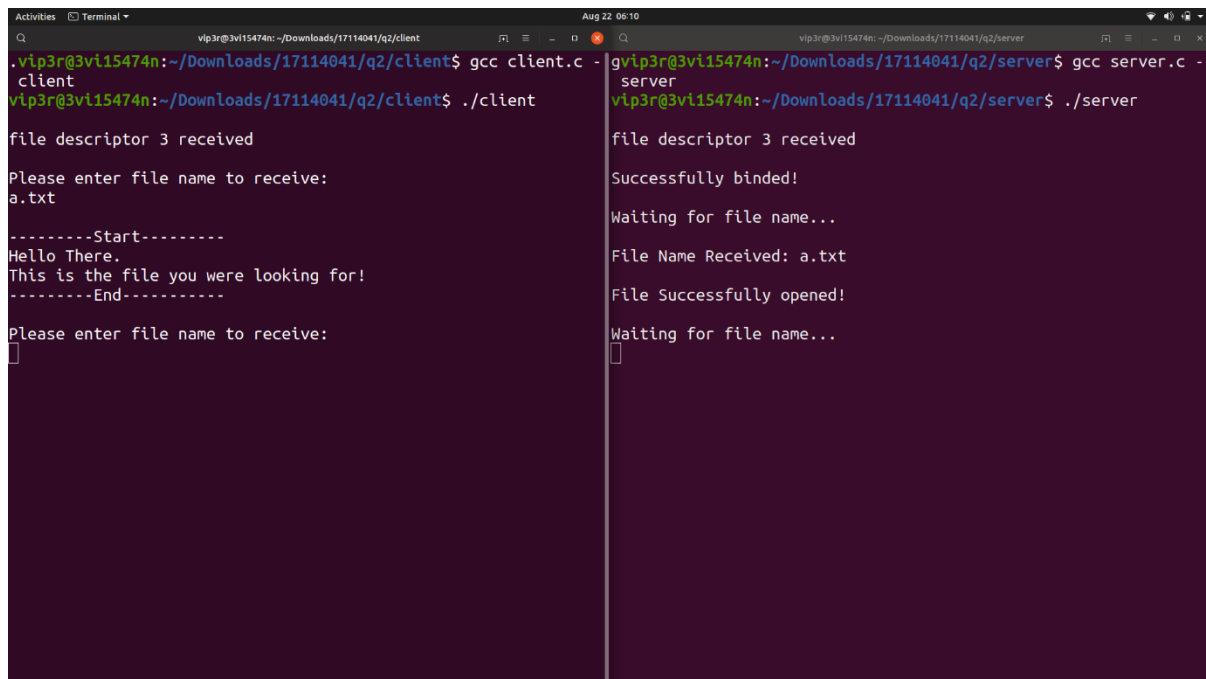
Write a C program to demonstrate File Transfer using UDP.

Input :

./client		./server
a.txt		

Output :

File Transferred		Success Message
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```
Activities Terminal
vip3r@3vi15474n: ~/Downloads/17114041/q2/client
vip3r@3vi15474n:~/Downloads/17114041/q2/client$ gcc client.c
vip3r@3vi15474n:~/Downloads/17114041/q2/client$ ./client
file descriptor 3 received
Please enter file name to receive:
a.txt
-----Start-----
Hello There.
This is the file you were looking for!
-----End-----
Please enter file name to receive:
[ ]

vip3r@3vi15474n: ~/Downloads/17114041/q2/server
vip3r@3vi15474n:~/Downloads/17114041/q2/server$ gcc server.c
vip3r@3vi15474n:~/Downloads/17114041/q2/server$ ./server
file descriptor 3 received
Successfully binded!
Waiting for file name...
File Name Received: a.txt
File Successfully opened!
Waiting for file name...
[ ]
```

Here we are reading the files and maintain a buffer to transfer the data inside the file. Here we are running sessions continuously using loops with no end conditions which exit only on signal interrupts.

For Problem 3 , Problem 4 and Problem 5

Input :

N = 5 ; K = 2

Node pairs <source> <sink>

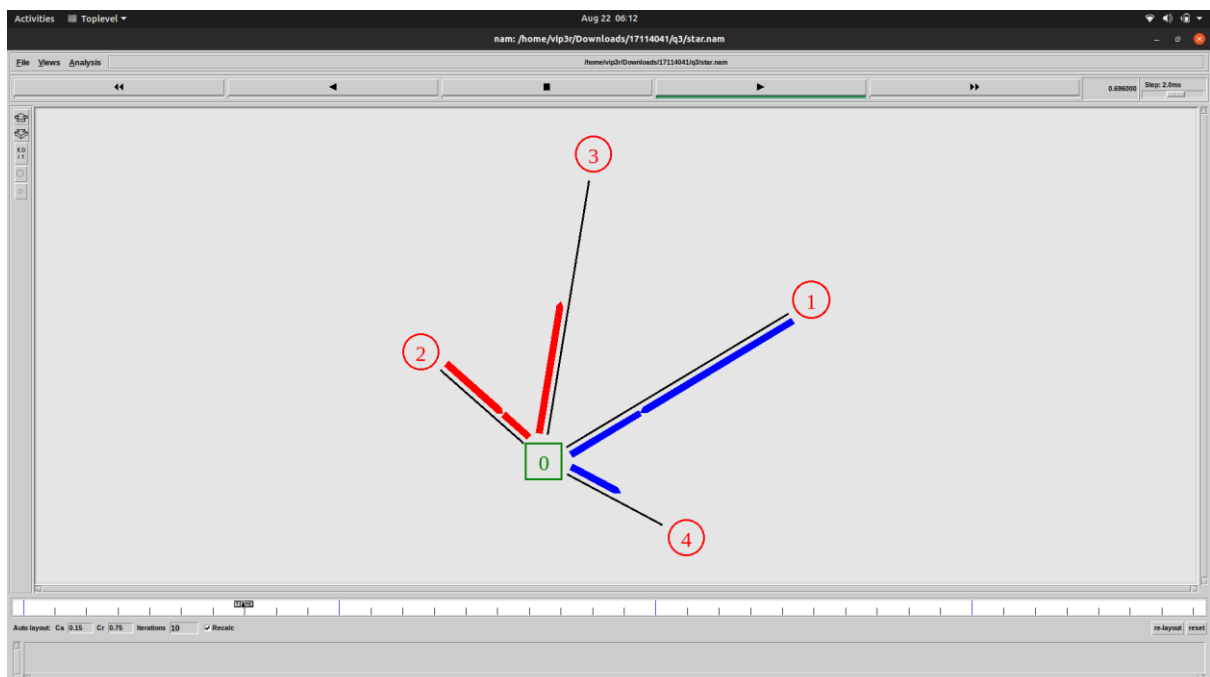
1 4

2 3

Problem Statement 3

Write a TCL code for network simulator NS2 to demonstrate the star topology among a set of computer nodes. Given N nodes, one node will be assigned as the central node and the other nodes will be connected to it to form the star. You have to set up a TCP connection between k pairs of nodes and demonstrate the packet transfer between them using Network Animator (NAM). Use File Transfer protocol (FTP) for the same. Each link should have different color of packets to differentiate the packets transferred between each pair of nodes. The program should take the number of nodes (N) as input followed by k pairs of nodes

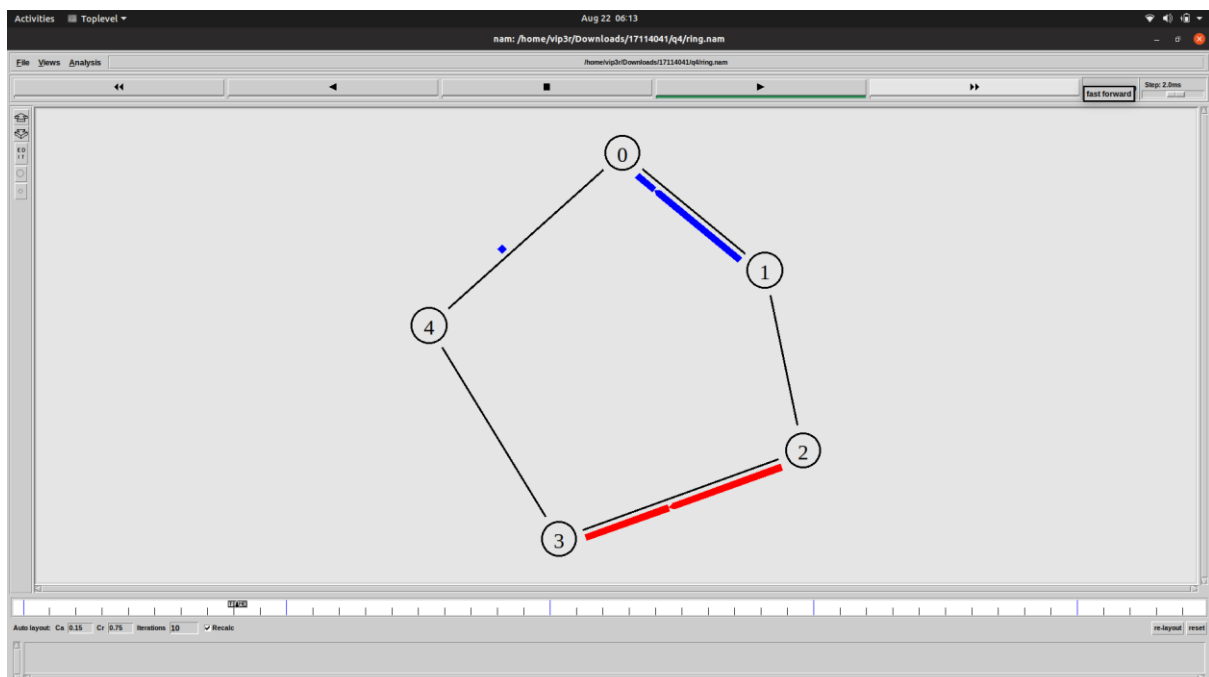
```
Activities Terminal Aug 22 06:11
vip3r@3vi15474n:~/Downloads/17114041/q3$ ns star.tcl
When configured, ns found the right version of tclsh in /usr/bin/tclsh8.6
but it doesn't seem to be there anymore, so ns will fall back on running the first tclsh in your path. The wrong version of tcl
sh may break the test suites. Reconfigure and rebuild ns if this is a problem.
Enter N
5
Enter K
2
Enter K pairs of nodes: <source> <sink>
1 4
2 3
vip3r@3vi15474n:~/Downloads/17114041/q3$
```



Problem Statement 4

Write a TCL code for network simulator NS2 to demonstrate the ring topology among a set of computer nodes. Given N nodes, each node will be connected to two other nodes in the form of a ring. You have to set up a TCP connection between k pairs of nodes and demonstrate packet transfer between them using Network Animator (NAM). Use File Transfer protocol (FTP) for the same. Each link should have different color of packets to differentiate the packets transferred between each pair of nodes. The program should take the number of nodes (N) as input followed by k pairs of nodes.

```
Activities Terminal Aug 22 06:12
vip3r@3vi15474n:~/Downloads/17114041/q4$ ns ring.tcl
When configured, ns found the right version of tclsh in /usr/bin/tclsh8.6
but it doesn't seem to be there anymore, so ns will fall back on running the first tclsh in your path. The wrong version of tcl
sh may break the test suites. Reconfigure and rebuild ns if this is a problem.
Enter N
5
Enter K
2
Enter K pairs of nodes: <source> <sink>
1 4
2 3
vip3r@3vi15474n:~/Downloads/17114041/q4$
```



Problem Statement 5

Write a TCL code for network simulator NS2 to demonstrate the star topology among a set of computer nodes. Given N nodes, one node will be assigned as the central node and the other nodes will be connected to it to form the star. You have to set up a TCP connection between k pairs of nodes and demonstrate the packet transfer between them using Network Animator (NAM). Use File Transfer protocol (FTP) for the same. Each link should have different color of packets to differentiate the packets transferred between each pair of nodes. The program should take the number of nodes (N) as input followed by k pairs of nodes.

```
Activities Terminal Aug 22 06:14
vip3r@3vi15474n:~/Downloads/17114041/q5$ ns bus.tcl 2>/dev/null
Enter N
5
Enter K
2
Enter K pairs of nodes: <source> <sink>
1 4
2 3
vip3r@3vi15474n:~/Downloads/17114041/q5$
```

