



# **IT3010**

## **Network Design & Management**

### **3<sup>rd</sup> Year, 1<sup>st</sup> Semester**

IT3010 – Network Design and Management

## **Assignment (Individual Assignment)**

Submitted to

Sri Lanka Institute of Information Technology

In partial fulfillment of the requirements for the  
Bachelor of Science Special Honors Degree in Information Technology

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## **Declaration**

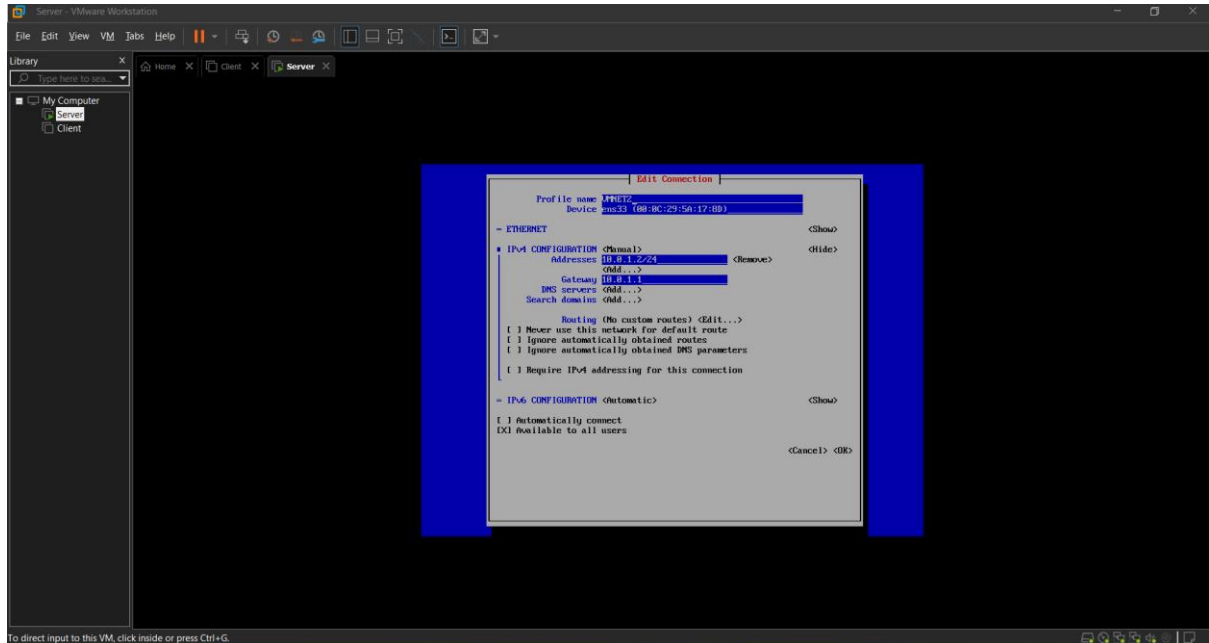
I certify that this report does not incorporate without acknowledgement, any material previously submitted for a degree or diploma in any university, and to the best of my knowledge and belief it does not contain any material previously published or written by another person, except where due reference is made in text.

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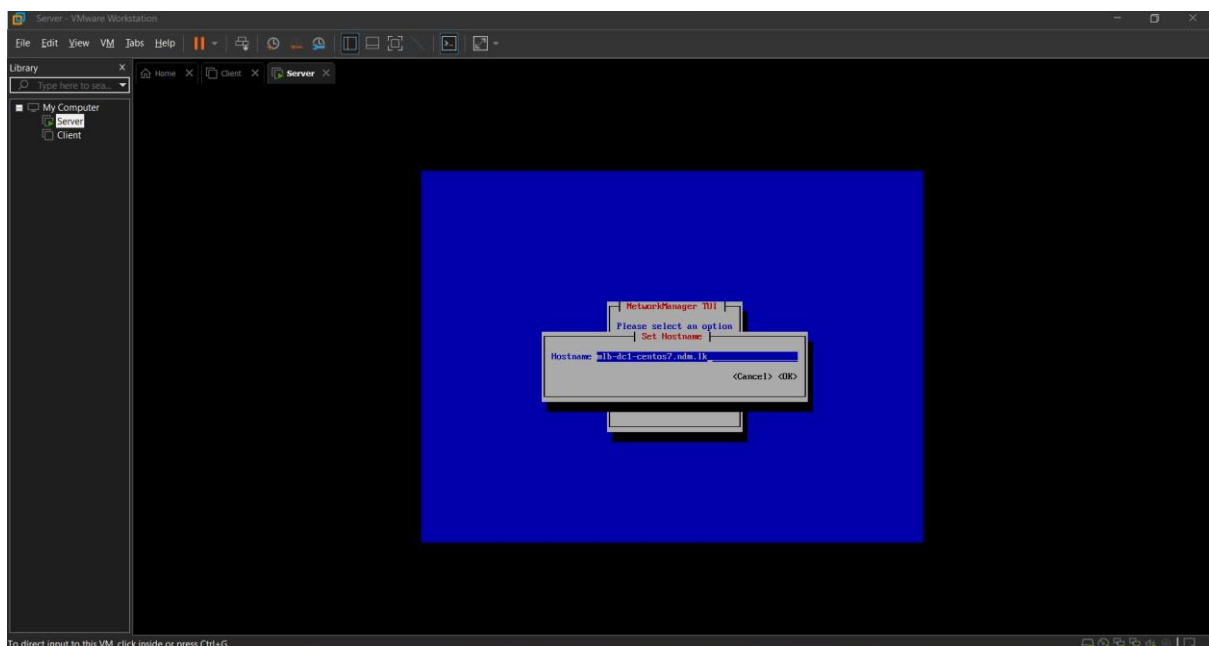
## DNS Configuration and successful execution

Set VMware network settings to vmnet2-host\_only and make IP settings to obtained IP address Manually



*Figure 1:obtain IP addresses manually for VMnet2*

Set host name



*Figure 2:Set Host Name*

Check hostname and Fully Qualified Domain Name

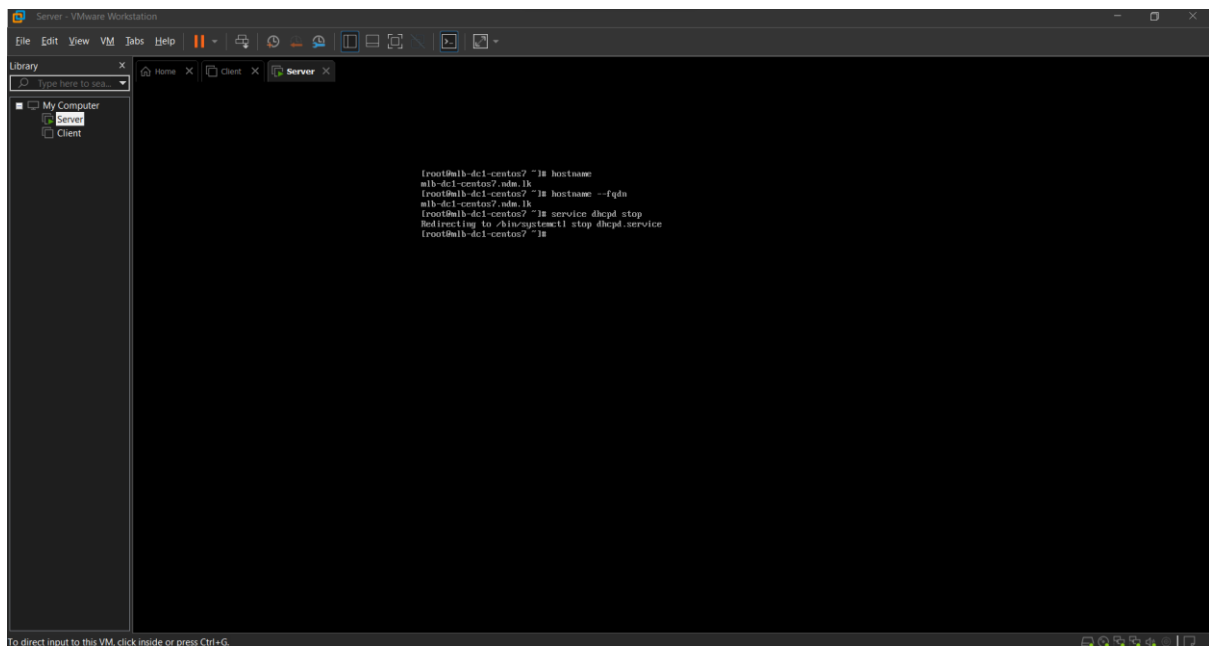


Figure 3:GGet domain name and fully qualified domain name

Use Ping command and perform a querying to existing internet domain

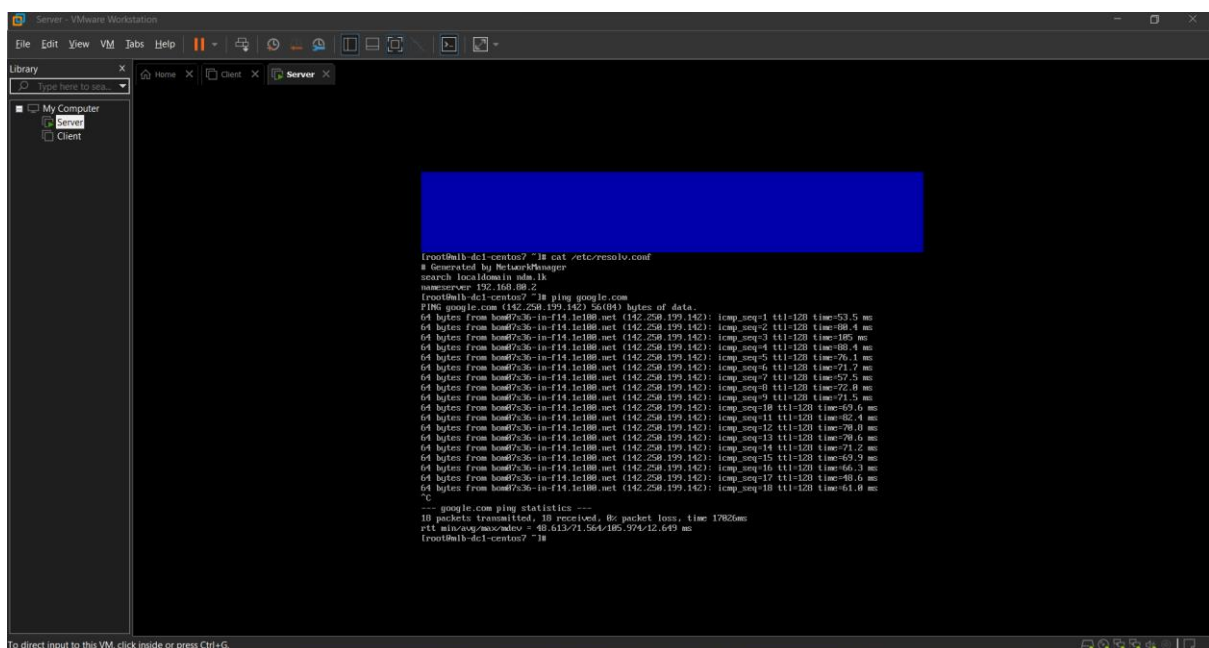
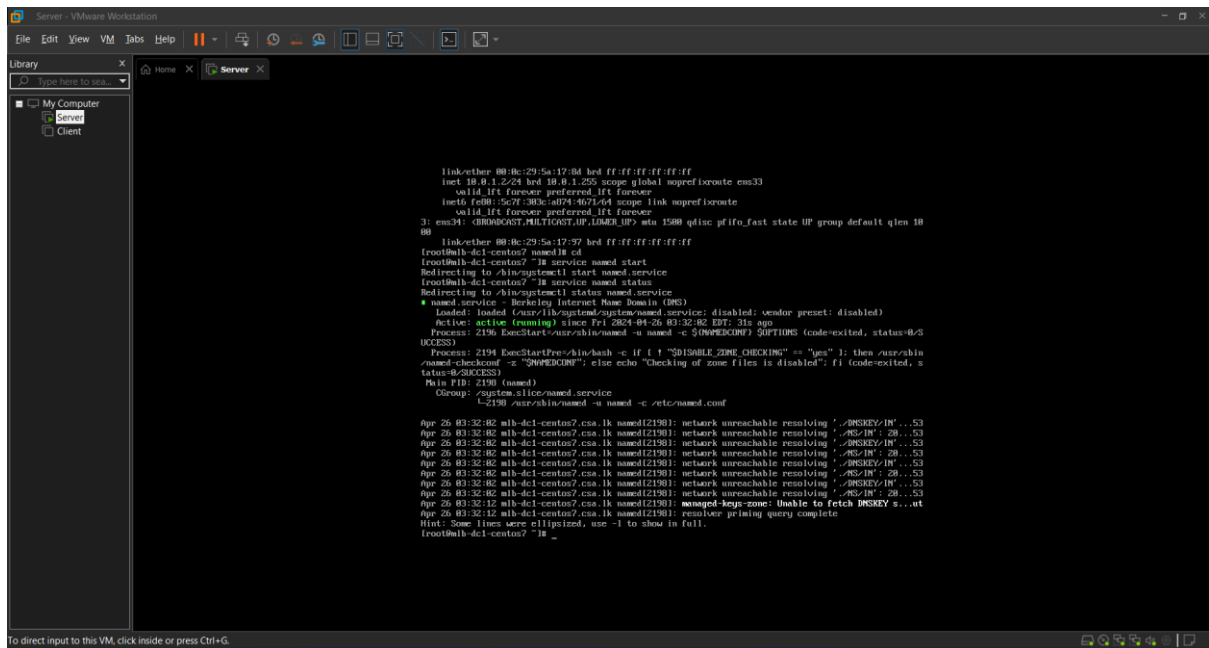


Figure 4:check network connectivity using ping command

First start named service by using [root@mlb-dc1-centos7 ]#service named start. Then ,  
Check the status by using [root@mlb-dc1-centos7 ]#service named status



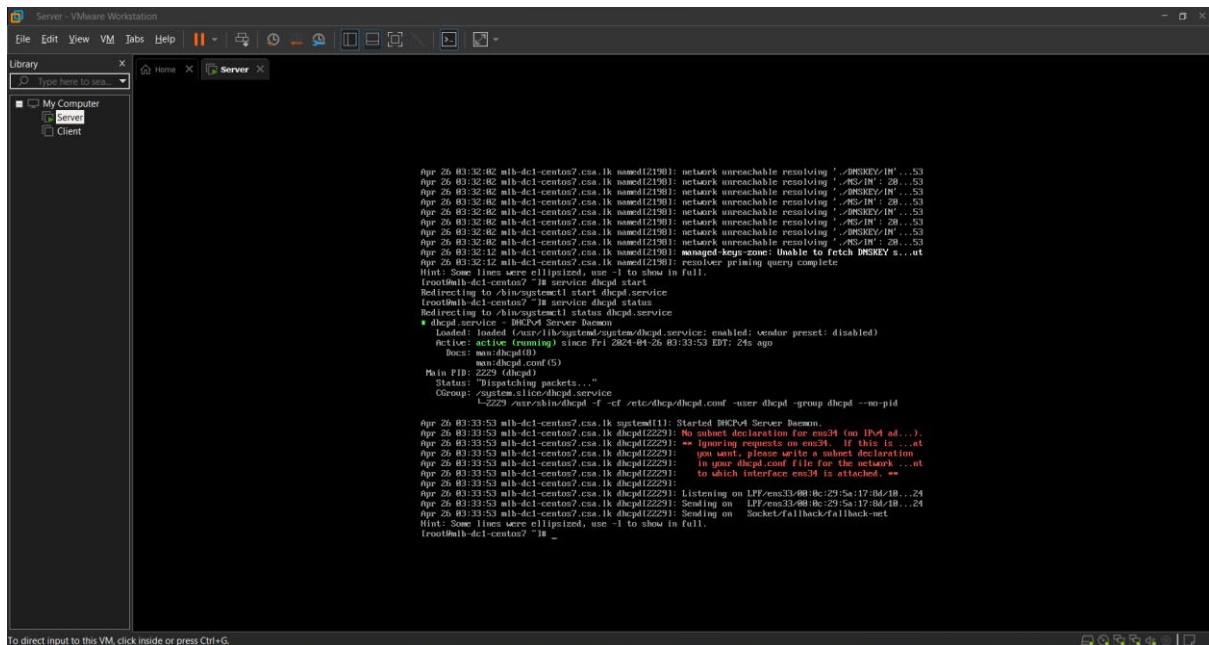
```
Link ether 08:0c:29:5a:17:9d hrd ff:ff:ff:ff:ff:ff
lnet 10.0.1.224 hrd 10.0.1.225 scope global noreply route em33
valid ift forever preferred ift forever
lnet6 fe80::5c9:303:a074:467d4 scope link noreply route
valid ift forever preferred ift forever
3: em34: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qlen 1 pfifo_fast state UP group default qlen 10
08

Link ether 08:0c:29:5a:17:9d hrd ff:ff:ff:ff:ff:ff
[root@mlb-dc1-centos7 ~]# systemctl start named.service
Redirecting to /bin/systemctl start named.service
[root@mlb-dc1-centos7 ~]# systemctl status named.service
● named.service - Berkeley Internet Name Domain (DNS)
   Loaded: loaded (/usr/lib/systemd/system/named.service; disabled; vendor preset: disabled)
   Active: active (running) since Fri 2024-04-26 03:32:02 EDT; 31s ago
     Process: 2196 ExecStart=/usr/sbin/named -u named -c $DNAMEDCONF?OPTIONS (code=exited, status=0/SUCCESS)
    Main PID: 2190 (named)
      Group: systemd.slice.slice/named.service
             C=2190 /usr/sbin/named -u named -c /etc/named.conf

Apr 26 03:32:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'DNSKEY/IN'...53
Apr 26 03:32:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'RS/IN' 20...53
Apr 26 03:32:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'DNSKEY/IN'...53
Apr 26 03:32:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'RS/IN' 20...53
Apr 26 03:32:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'DNSKEY/IN'...53
Apr 26 03:32:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'RS/IN' 20...53
Apr 26 03:32:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'DNSKEY/IN'...53
Apr 26 03:32:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'RS/IN' 20...53
Apr 26 03:32:12 mlb-dc1-centos7.csa.ik named[2190]: managed-keys-zone: Unable to fetch DNSKEY s...ut
Apr 26 03:32:12 mlb-dc1-centos7.csa.ik named[2190]: resolver priming query complete
Hint: Some lines were ellipsized, use -l to show in full.
[root@mlb-dc1-centos7 ~]#
```

Figure 5:service 'named' start and check 'named' status

As same as to check dhcpd status, First start dhcpd by using [root@mlb-dc1-centos7 ]#service dhcpd start. Then check the status by using [root@mlb-dc1-centos7 ]#service dhcpd status



```
Apr 26 03:33:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'DNSKEY/IN'...53
Apr 26 03:33:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'RS/IN' 20...53
Apr 26 03:33:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'DNSKEY/IN'...53
Apr 26 03:33:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'RS/IN' 20...53
Apr 26 03:33:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'DNSKEY/IN'...53
Apr 26 03:33:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'RS/IN' 20...53
Apr 26 03:33:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'DNSKEY/IN'...53
Apr 26 03:33:02 mlb-dc1-centos7.csa.ik named[2190]: network unresolvable resolving 'RS/IN' 20...53
Apr 26 03:33:12 mlb-dc1-centos7.csa.ik named[2190]: managed-keys-zone: Unable to fetch DNSKEY s...ut
Apr 26 03:33:12 mlb-dc1-centos7.csa.ik named[2190]: resolver priming query complete
Hint: Some lines were ellipsized, use -l to show in full.
[root@mlb-dc1-centos7 ~]# service dhcpd start
Redirecting to /bin/systemctl start dhcpd.service
[root@mlb-dc1-centos7 ~]# service dhcpd status
● dhcpd.service - DHCPd Server Daemon
   Loaded: loaded (/usr/lib/systemd/system/dhcpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Fri 2024-04-26 03:33:53 EDT; 24s ago
     Docs: man:dhcpd(8)
    Main PID: 2229 (dhcpd)
      Status: "Dispatching packets..."
      Group: systemd.slice.slice/dhcpd.service
             C=2229 /usr/sbin/dhcpd -f -c /etc/dhcp/dhcpd.conf -user dhcpd -group dhcpd --no-pid

Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: Started DHCPd Server Daemon.
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: No subnet declaration for em34 (on IPV4 ad...).
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: If this is...at
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: you want, please set a subnet declaration
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: in your dhcpd.conf file for the network...nt
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: to which interface em34 is attached. --
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]:
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: Listening on LPF/em33/08:0c:29:5a:17:9d/10...24
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: Sending on LPF/em33/08:0c:29:5a:17:9d/10...24
Apr 26 03:33:53 mlb-dc1-centos7.csa.ik dhcpd[2229]: Sending on Socket/fallback/fallback-net
Hint: Some lines were ellipsized, use -l to show in full.
[root@mlb-dc1-centos7 ~]#
```

Figure 6:Service 'dhcp' start and check 'dhcp' status

Check network scripts by [root@mlb-dc1-centos7 ]#cd /etc/sysconfig/network-scripts

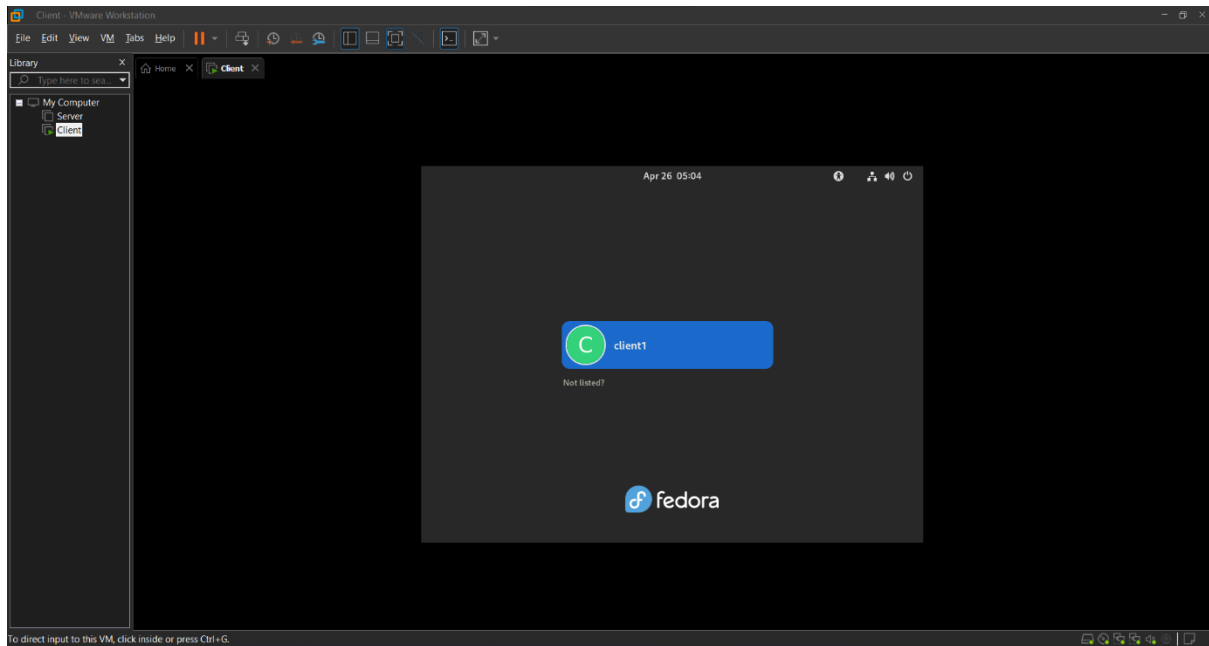
and add DNS for VMnet2

[illegible]

Figure 7: Network script check

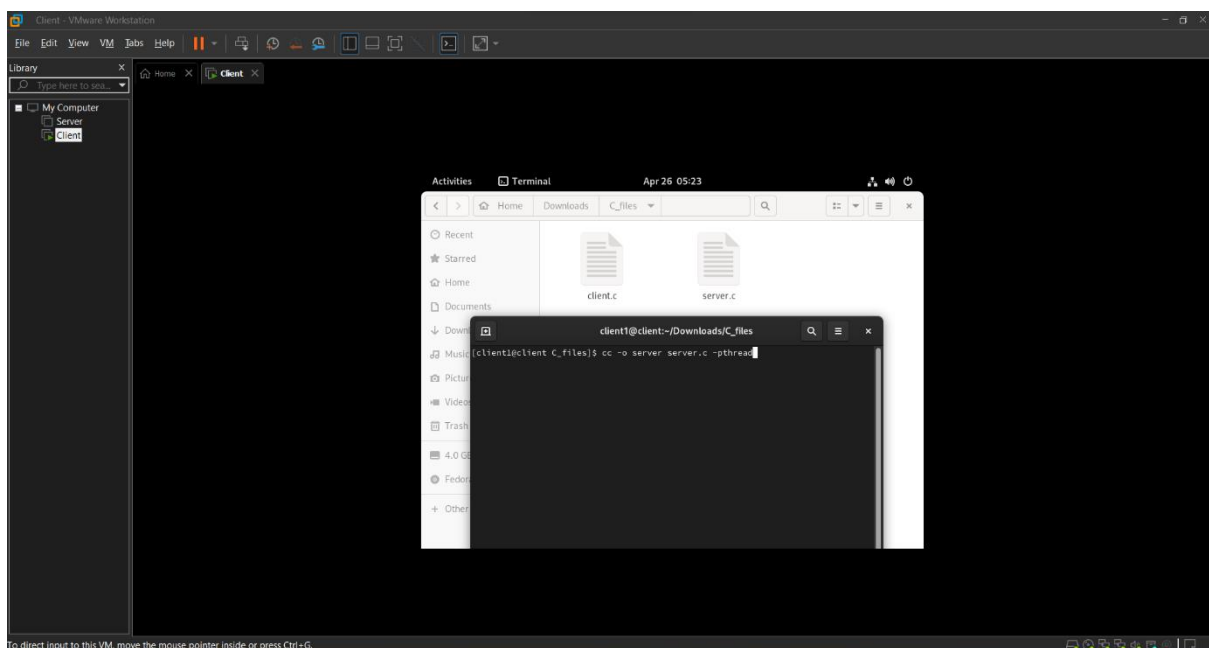
**Create a chatting server (chat.ndm.lk) and client program using C programming language capable of performing the following tasks.**

a. Open Client Terminal.(Fedora)



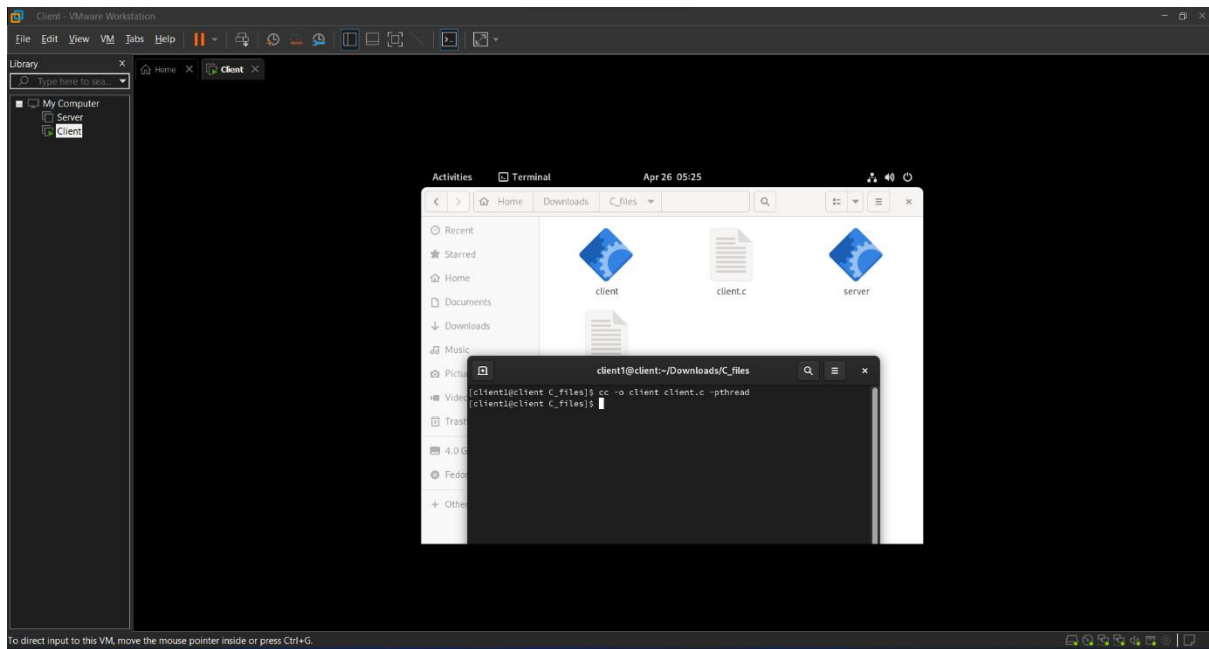
*Figure 8: Open Fedora*

b. Add client.c and server.c files in fedora and compile server.c in terminal by using “cc -o server server.c -pthread” command



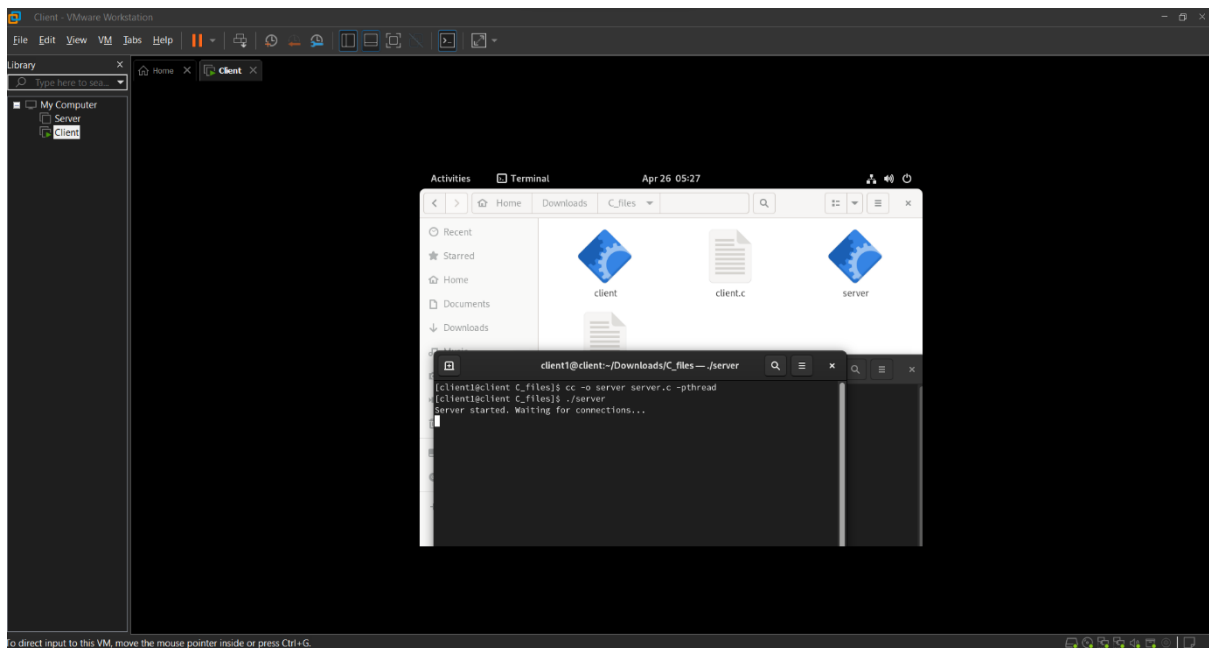
*Figure 9:compile server.c*

c. As same way, Compile client.c in terminal by using “cc -o client client.c -pthread” command



*Figure 10: compile client.c*

d. Run server.c using “./server”

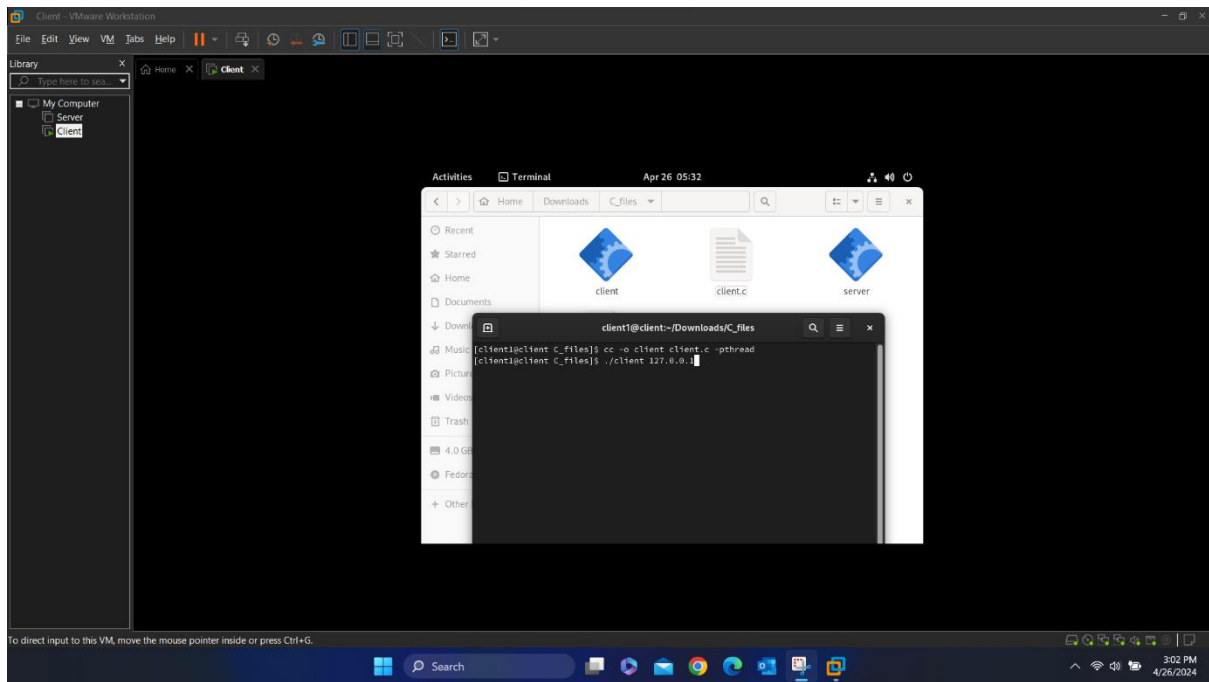


*Figure 11: Start server*

In here server is started, but still no client folder executed, so server is waiting for connection.

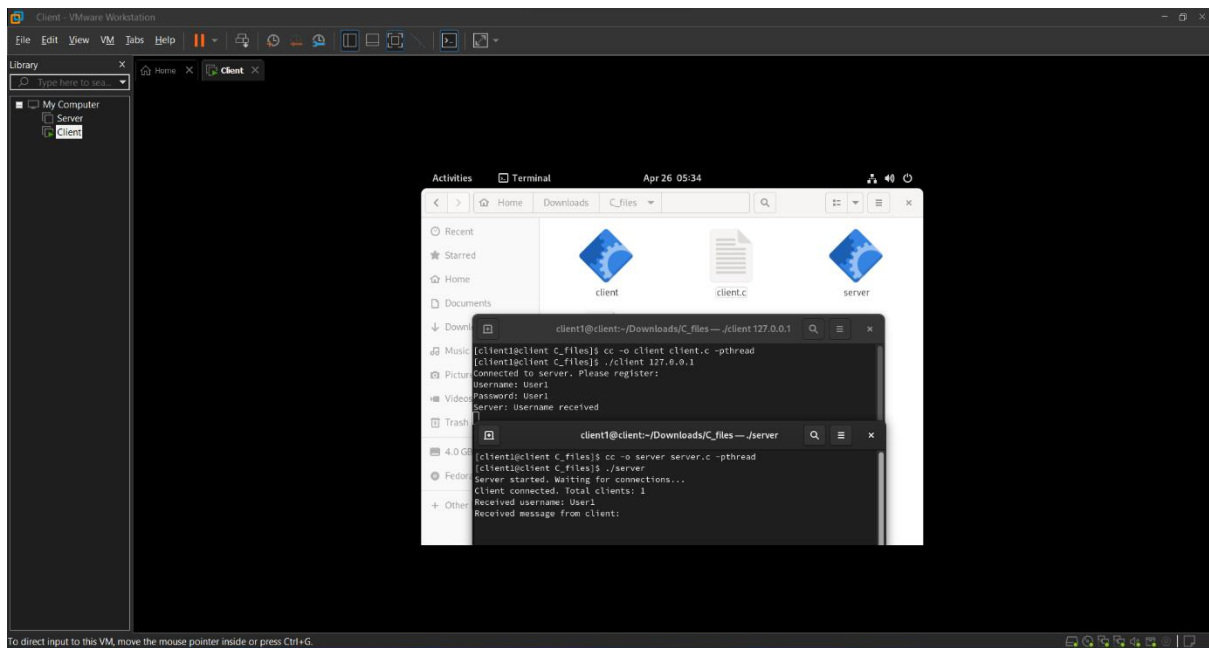
e. Run client.c using “./client 127.0.0.1”





*Figure 12:Start client*

- f. User is connected to server, and allow add user by adding user name and password ( Add user1)



*Figure 13:Add user by adding User name and password*

- g. As same as add user 2 by adding user name and password, then allow users to chat

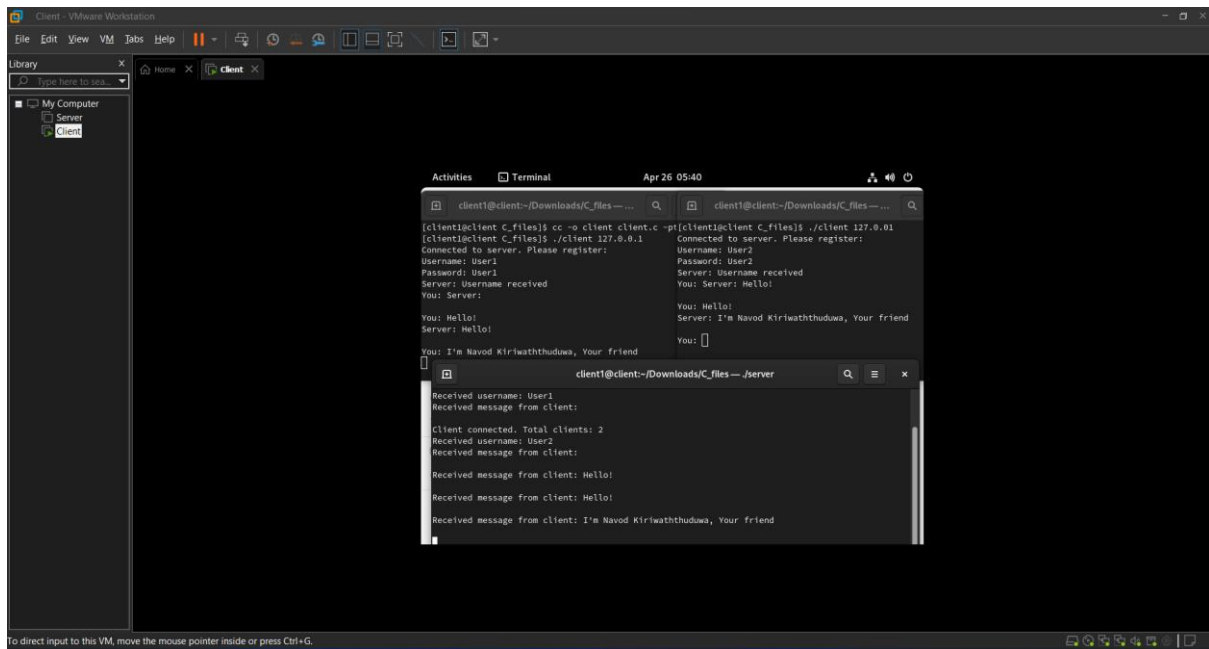


Figure 14: Start chat between users

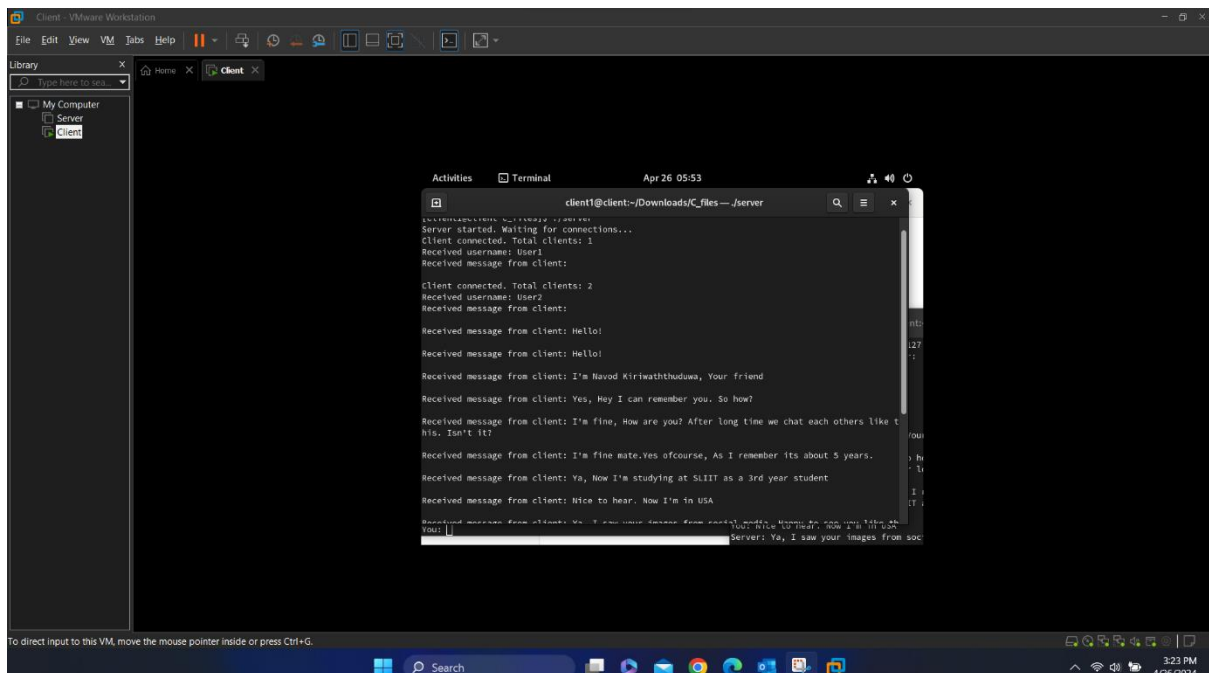


Figure 15: Chat between Users

