Assignment No 3

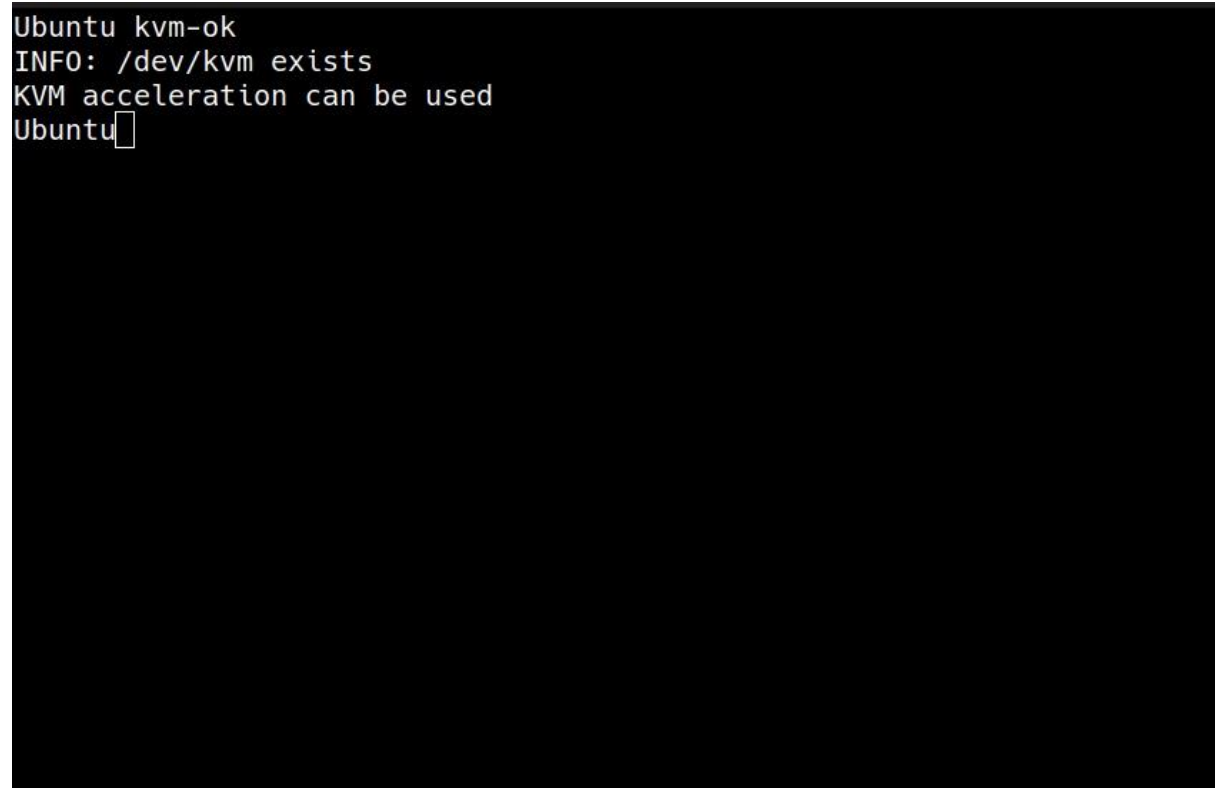**Name :** Omkar Kore   **Roll no :** BTC19

Step 1 : Install the Required Packages

1. Check CPU virtualization support

sudo apt install cpu-checker -y

kvm-ok   # This should say "KVM acceleration can be used"

```
Ubuntu kvm-ok
INFO: /dev/kvm exists
KVM acceleration can be used
Ubuntu
```

2. Install libvirt daemon

sudo apt install libvirt-daemon -y

3. Install Virt-Manager (GUI for managing VMs)

sudo apt install virt-manager -y

4. Install virsh (CLI for managing libvirt VMs)

sudo apt update

sudo apt install libvirt-clients -y

5. Install QEMU (virtualization backend)

sudo apt install qemu qemu-kvm -y

6. Install FileZilla

sudo apt install filezilla -y

Checking the ip and bridge network before setting up the Bridge network

```
Ubuntu ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp4s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 58:11:22:82:3c:ae brd ff:ff:ff:ff:ff:ff
    inet 192.168.29.216/24 brd 192.168.29.255 scope global dynamic noprefixroute enp4s0
       valid_lft 86364sec preferred_lft 86364sec
    inet6 2405:201:1011:e0cc:c489:11a4:2cd6:ba19/64 scope global temporary dynamic
       valid_lft 7479sec preferred_lft 7479sec
    inet6 2405:201:1011:e0cc:5a11:22ff:fe82:3cae/64 scope global dynamic mngtmpaddr
       valid_lft 7479sec preferred_lft 7479sec
    inet6 fe80::5a11:22ff:fe82:3cae/64 scope link
       valid_lft forever preferred_lft forever
3: wlp3s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether b4:8c:9d:63:bd:f9 brd ff:ff:ff:ff:ff:ff
    inet 192.168.29.28/24 brd 192.168.29.255 scope global dynamic noprefixroute wlp3s0
       valid_lft 80491sec preferred_lft 80491sec
    inet6 2405:201:1011:e0cc:6a09:83ac:af82:fa04/64 scope global temporary dynamic
       valid_lft 7479sec preferred_lft 7479sec
    inet6 2405:201:1011:e0cc:4b96:4874:f66a:ccca/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 7479sec preferred_lft 7479sec
    inet6 fe80::58a:3bee:9568:3071/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000
    link/ether 52:54:00:6e:76:cf brd ff:ff:ff:ff:ff:ff
    inet 192.168.122.1/24 brd 192.168.122.255 scope global virbr0
       valid_lft forever preferred_lft forever
Ubuntu
```

Step 2 – Enable & Start libvirt

sudo systemctl enable libvirtd

sudo systemctl start libvirtd
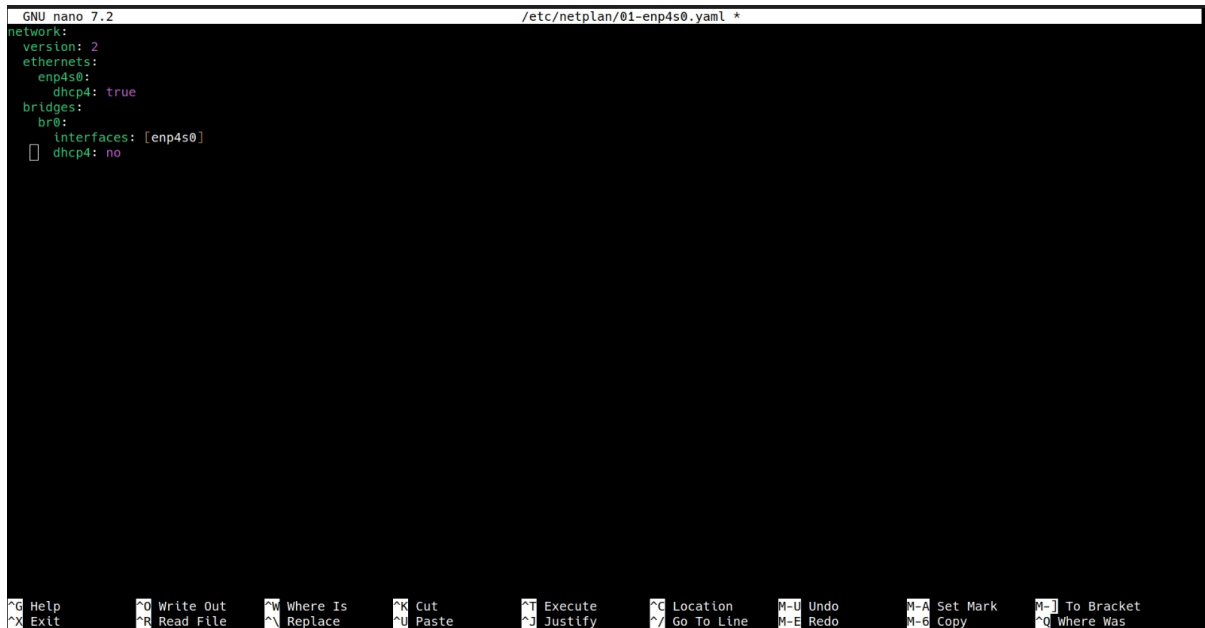
sudo systemctl status libvirtd

Step 3 – Create a Bridge Network

3.1 Install bridge utilities:

sudo apt install bridge-utils -y

3.2 Edit Netplan Config

sudo nano /etc/netplan/01-netcfg.yaml

```
  GNU nano 7.2                                    /etc/netplan/01-enp4s0.yaml *
network:
  version: 2
  ethernets:
    enp4s0:
      dhcp4: true
  bridges:
    br0:
      interfaces: [enp4s0]
    dhcp4: no
```

```
^G Help       ^O Write Out   ^W Where Is    ^K Cut       ^T Execute    ^C Location    M-U Undo    M-A Set Mark   M-] To Bracket
^X Exit       ^R Read File   ^\ Replace     ^U Paste     ^J Justify    ^/ Go To Line  M-E Redo    M-6 Copy       ^Q Where Was
```

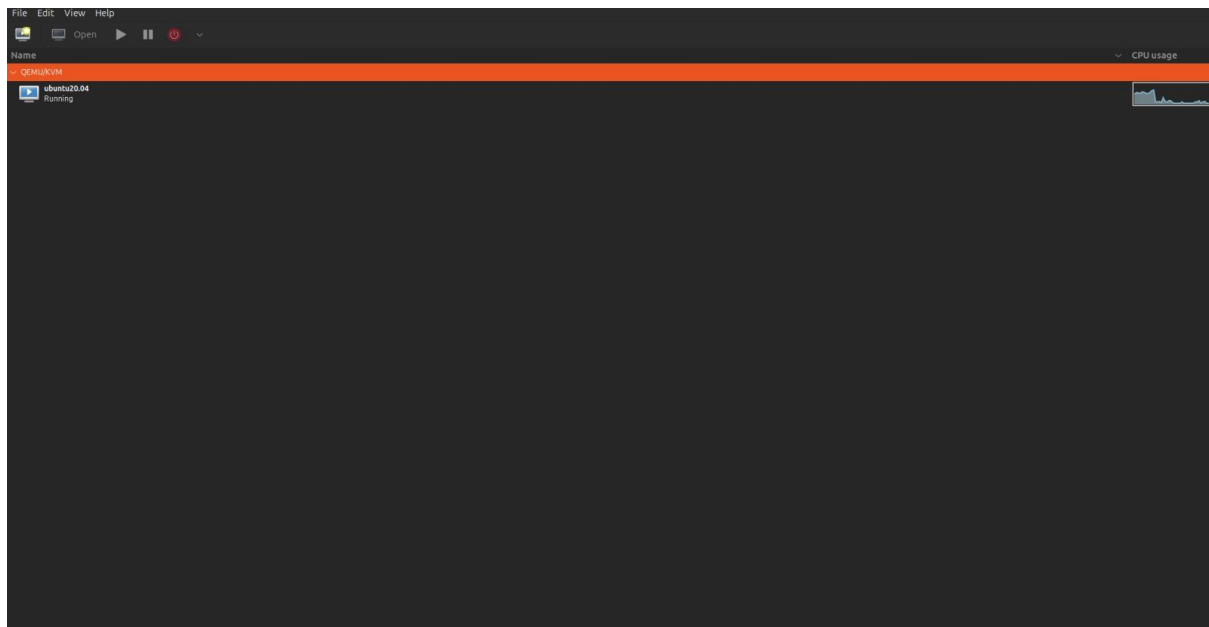**3.3 Apply the changes:**

sudo netplan apply

3.4 Verify bridge:

ip a show br0

Bridge network after changing the netplan

```
Ubuntu ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp4s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel master br0 state UP group default qlen 1000
    link/ether 58:11:22:82:3c:ae brd ff:ff:ff:ff:ff:ff
3: wlp3s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether b4:8c:9d:63:bd:f9 brd ff:ff:ff:ff:ff:ff
    inet 192.168.29.28/24 brd 192.168.29.255 scope global dynamic noprefixroute wlp3s0
       valid_lft 86323sec preferred_lft 86323sec
    inet6 2405:201:1011:e0cc:60fc:16bc:98f:11f6/64 scope global temporary dynamic
       valid_lft 7493sec preferred_lft 7493sec
    inet6 2405:201:1011:e0cc:4b96:4874:f66a:ccca/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 7493sec preferred_lft 7493sec
    inet6 fe80::58a:3bee:9568:3071/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000
    link/ether 52:54:00:6e:76:cf brd ff:ff:ff:ff:ff:ff
    inet 192.168.122.1/24 brd 192.168.122.255 scope global virbr0
       valid_lft forever preferred_lft forever
5: br0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 26:c9:9e:cc:7f:50 brd ff:ff:ff:ff:ff:ff
    inet 192.168.29.133/24 brd 192.168.29.255 scope global dynamic noprefixroute br0
       valid_lft 86351sec preferred_lft 86351sec
    inet6 2405:201:1011:e0cc:19af:576c:c50c:374/64 scope global temporary dynamic
       valid_lft 7493sec preferred_lft 7493sec
    inet6 2405:201:1011:e0cc:24c9:9eff:fecc:7f50/64 scope global dynamic mngtmpaddr
       valid_lft 7493sec preferred_lft 7493sec
    inet6 fe80::24c9:9eff:fecc:7f50/64 scope link
       valid_lft forever preferred_lft forever
Ubuntu
```

Step 4 – Create the VM in Virt-Manager

1. Open Virt-Manager:

   virt-manager

2. Click Create a new virtual machine.
3. Choose Local install media (ISO) and select your Ubuntu ISO file.
4. Assign RAM and CPUs as needed.
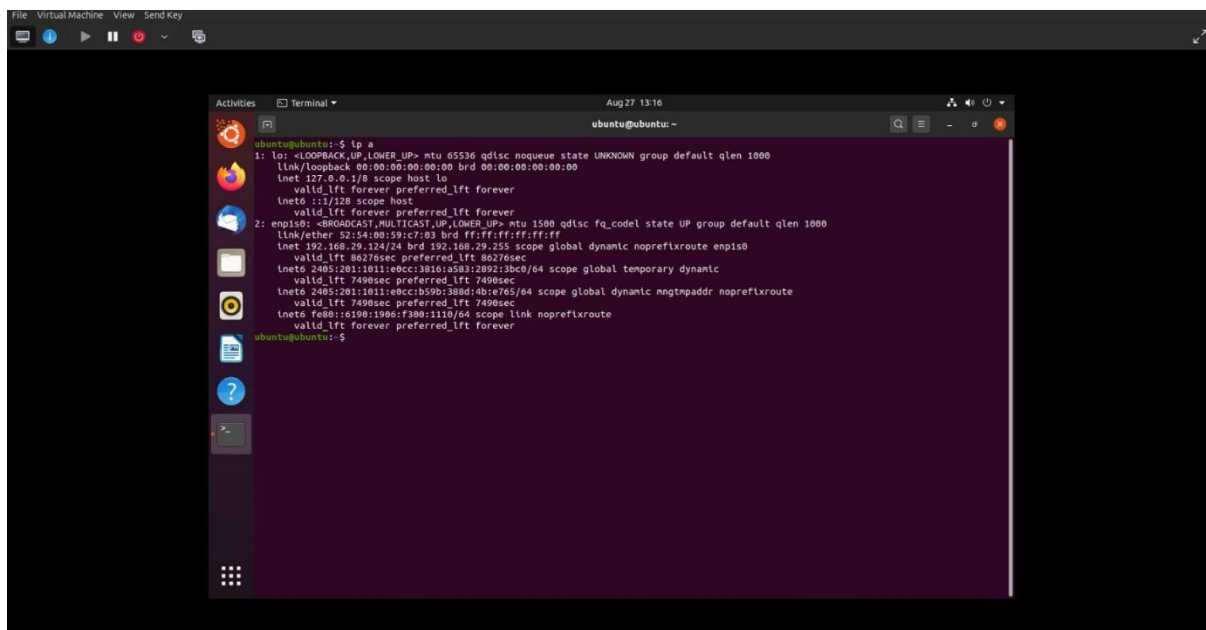5. Create a virtual disk for storage.
6. Important:
   In Network selection, choose:

- "Specify shared device name" → Select br0 (your bridge network).
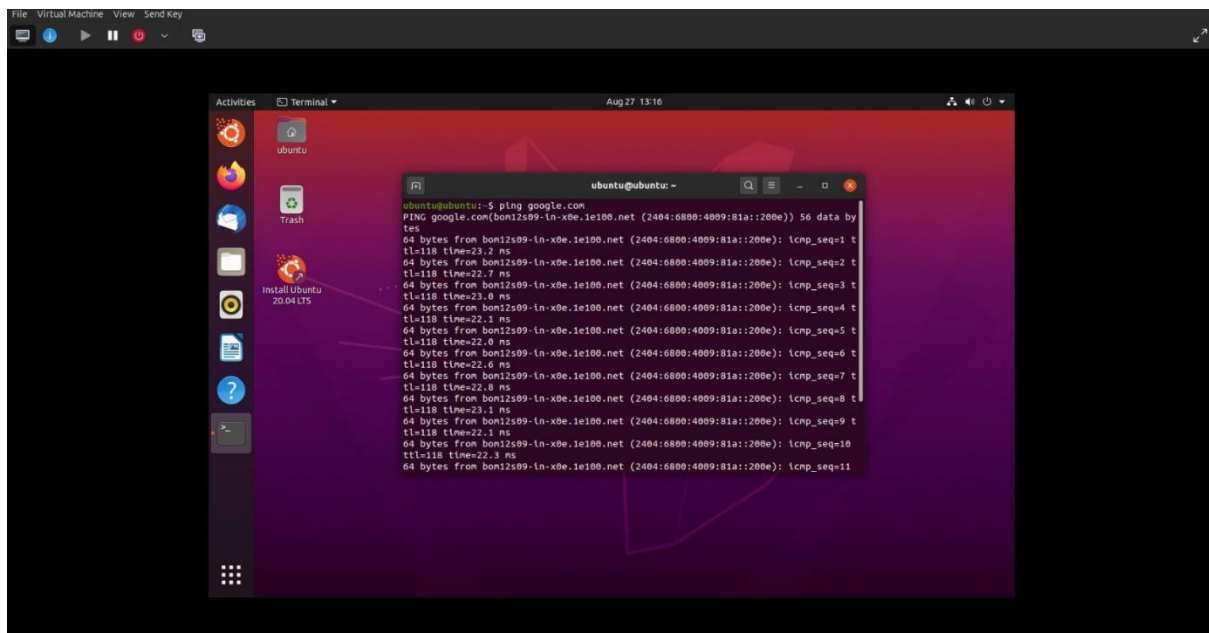
7. Finish and start the VM.

Step 5 – Test Network Access

ip a

ping google.com

Step 6 – Access VM Browser from Client PC