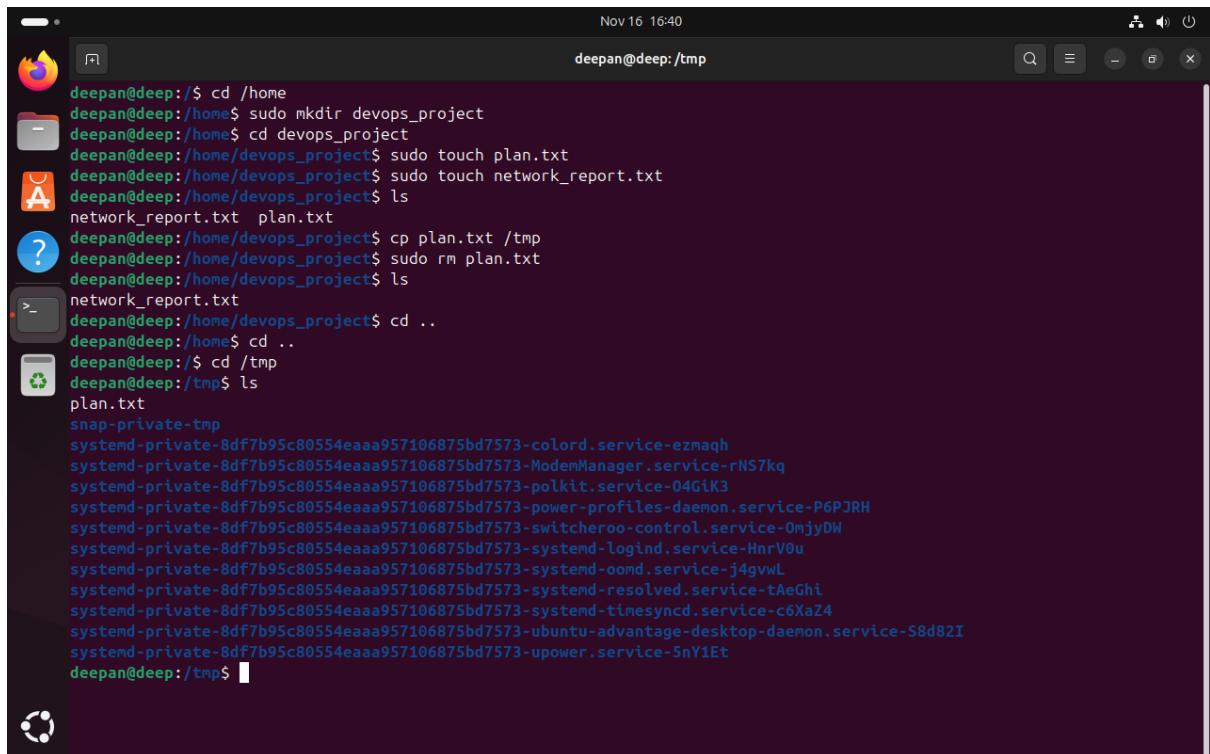
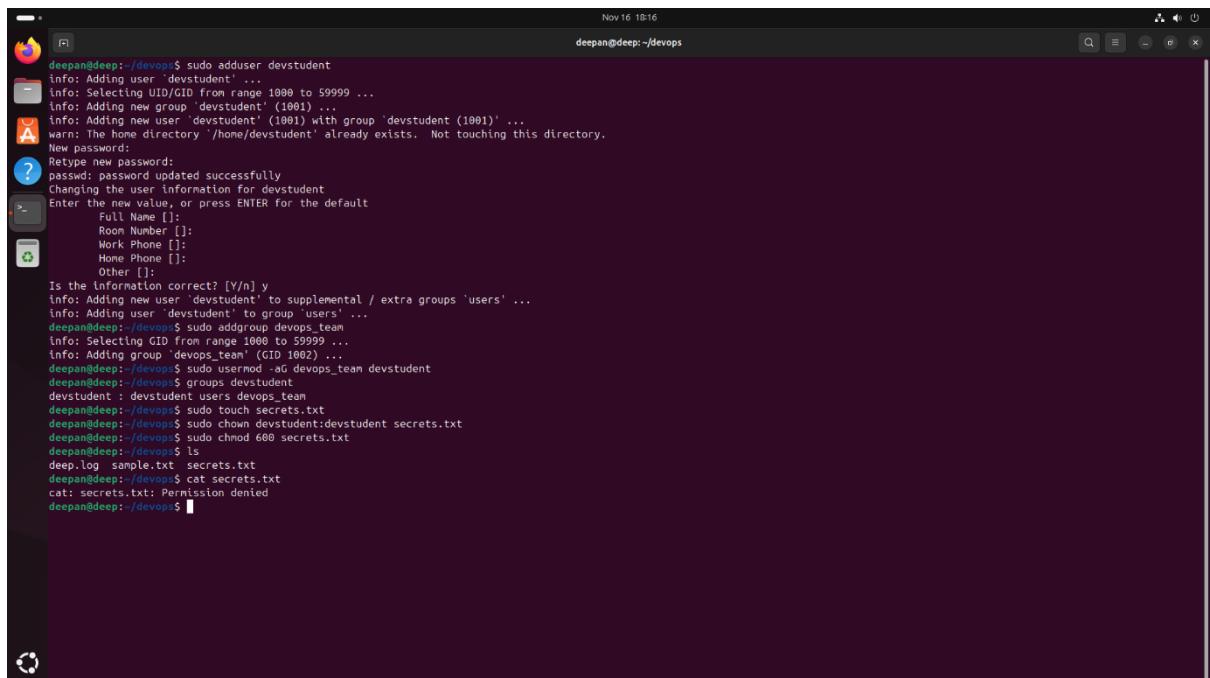


## Files and Directories:



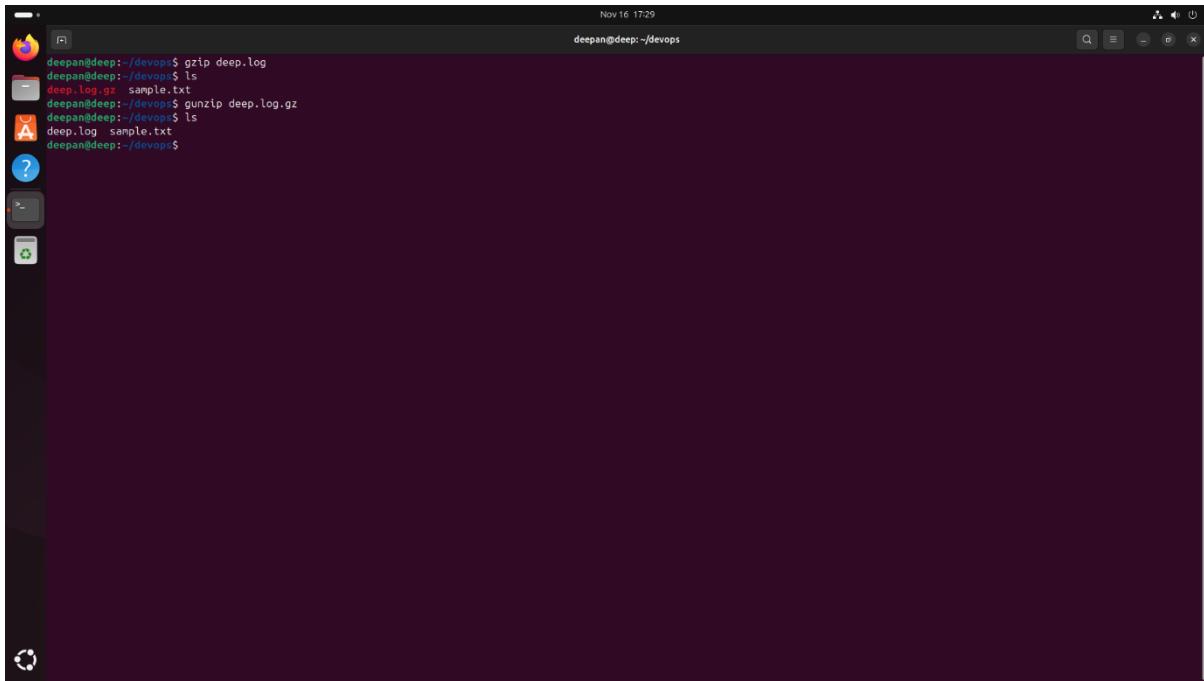
```
Nov 16 16:40
deepan@deep:~$ cd /home
deepan@deep:/home$ sudo mkdir devops_project
deepan@deep:/home$ cd devops_project
deepan@deep:/home/devops_project$ sudo touch plan.txt
deepan@deep:/home/devops_project$ sudo touch network_report.txt
deepan@deep:/home/devops_project$ ls
network_report.txt plan.txt
deepan@deep:/home/devops_project$ cp plan.txt /tmp
deepan@deep:/home/devops_project$ sudo rm plan.txt
deepan@deep:/home/devops_project$ ls
network_report.txt
deepan@deep:/home/devops_project$ cd ..
deepan@deep:/home$ cd /tmp
deepan@deep:/tmp$ ls
plan.txt
snap-private-tmp
systemd-private-8df7b95c80554eaaa957106875bd7573-colord.service-eznaqh
systemd-private-8df7b95c80554eaaa957106875bd7573-ModemManager.service-rN57kq
systemd-private-8df7b95c80554eaaa957106875bd7573-polkit.service-04GLK3
systemd-private-8df7b95c80554eaaa957106875bd7573-power-profiles-daemon.service-P6PJRH
systemd-private-8df7b95c80554eaaa957106875bd7573-switcheroo-control.service-0mjyDW
systemd-private-8df7b95c80554eaaa957106875bd7573-systemd-logind.service-HnrV0u
systemd-private-8df7b95c80554eaaa957106875bd7573-systemd-oomd.service-j4gvwL
systemd-private-8df7b95c80554eaaa957106875bd7573-systemd-resolved.service-tAeGhi
systemd-private-8df7b95c80554eaaa957106875bd7573-systemd-timesyncd.service-c6XaZ4
systemd-private-8df7b95c80554eaaa957106875bd7573-ubuntu-adantage-desktop-daemon.service-S8d82I
systemd-private-8df7b95c80554eaaa957106875bd7573-upower.service-5nY1Et
deepan@deep:/tmp$
```

## Users & Permissions:



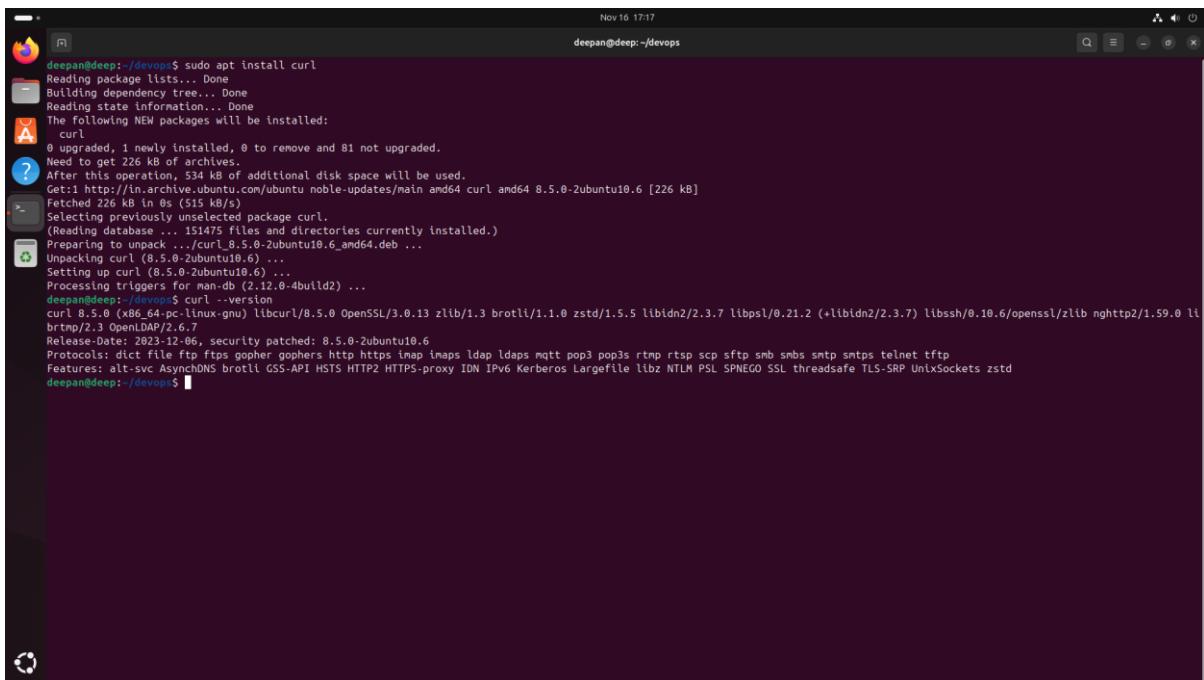
```
Nov 16 18:16
deepan@deep:~/devops$ sudo adduser devstudent
info: Adding user 'devstudent' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'devstudent' (1001) ...
info: Adding new user 'devstudent' (1001) with group 'devstudent (1001)' ...
warn: The home directory '/home/devstudent' already exists. Not touching this directory.
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for devstudent
Enter the new value, or press ENTER for the default
  Full Name []:
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
Is the information correct? [Y/n] y
info: Adding new user 'devstudent' to supplemental / extra groups 'users' ...
info: Adding user 'devstudent' to group 'users'
deepan@deep:~/devops$ sudo addgroup devops_team
info: Selecting GID from range 1000 to 59999 ...
info: Adding group 'devops_team' (GID 1002) ...
deepan@deep:~/devops$ sudo usermod -aG devops_team devstudent
deepan@deep:~/devops$ groups devstudent
devstudent : devstudent users devops_team
deepan@deep:~/devops$ sudo touch secrets.txt
deepan@deep:~/devops$ sudo chown devstudent:devstudent secrets.txt
deepan@deep:~/devops$ sudo chmod 600 secrets.txt
deepan@deep:~/devops$ ls
deep.log sample.txt secrets.txt
deepan@deep:~/devops$ cat secrets.txt
cat: secrets.txt: Permission denied
deepan@deep:~/devops$
```

## File Compression:



```
Nov 16 17:29
deepan@deep:~/devops$ gzip deep.log
deepan@deep:~/devops$ ls
deep.log.gz sample.txt
deepan@deep:~/devops$ gunzip deep.log.gz
deepan@deep:~/devops$ ls
deep.log sample.txt
deepan@deep:~/devops$
```

## Package Management:

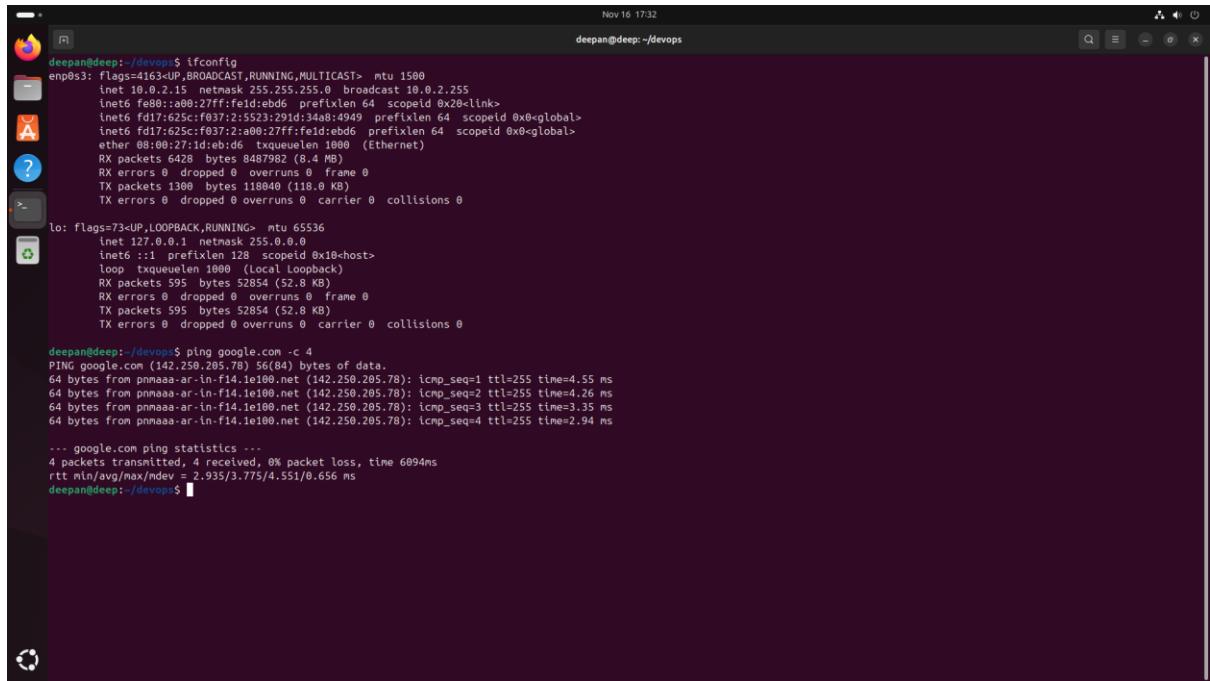


```
Nov 16 17:17
deepan@deep:~/devops$ sudo apt install curl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
curl
0 upgraded, 1 newly installed, 0 to remove and 81 not upgraded.
Need to get 226 kB of archives.
After this operation, 534 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0-2ubuntu10.6 [226 kB]
Fetched 226 kB in 0s (515 kB/s)
Selecting previously unselected package curl.
(Reading database ... 151475 files and directories currently installed.)
Preparing to unpack .../curl_8.5.0-2ubuntu10.6_amd64.deb ...
Unpacking curl (8.5.0-2ubuntu10.6) ...
Setting up curl (8.5.0-2ubuntu10.6) ...
Processing triggers for man-db (2.12.0-4build2) ...
deepan@deep:~/devops$ curl --version
curl 8.5.0 (x86_64-pc-linux-gnu) libcurl/8.5.0 OpenSSL/3.0.13 zlib/1.1.0 zstd/1.5.5 libidn2/2.3.7 libpsl/0.21.2 (+libidn2/2.3.7) libssh/0.10.6/openssl/zlib nghttp2/1.59.0 libbrotli/1.1.0 libnghttp2/1.59.0 libssh2/1.10.0 libzstd/1.5.5 libidn2/2.3.7 libpsl/0.21.2 (+libidn2/2.3.7) libbrotli/1.1.0 libnghttp2/1.59.0 libssh/0.10.6/openssl/zlib
Protocols: dict file ftp ftps gopher gophers http https imap imaps ldap ldaps mqtt pop3 pop3s rtsp rtmp scp sftp smb smbs smtps telnet tftp
Features: alt-svc AsynchDNS brotli GSS-API HSTS HTTP2 HTTPS-proxy IDN IPv6 Kerberos Largefile libbz NTLM PSL SPNEGO SSL threadsafe TLS-SRP UnixSockets zstd
deepan@deep:~/devops$
```

```
Nov 16 17:20
deepan@deep:~/devops$ sudo apt install htop
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  lm-sensors
The following NEW packages will be installed:
  htop
0 upgraded, 1 newly installed, 0 to remove and 81 not upgraded.
Need to get 171 kB of archives.
After this operation, 434 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu/noble/main amd64 htop amd64 3.3.0-4build1 [171 kB]
Fetched 171 kB in 0s (372 kB/s)
Selecting previously unselected package htop.
(Reading database ... 151482 files and directories currently installed.)
Preparing to unpack .../htop_3.3.0-4build1_amd64.deb ...
Unpacking htop (3.3.0-4build1) ...
Setting up htop (3.3.0-4build1) ...
Processing triggers for desktop-file-utils (0.27-2build1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1.1ubuntu3) ...
Processing triggers for man-db (2.12.0-4build2) ...
deepan@deep:~/devops$ htop --version
htop 3.3.0
deepan@deep:~/devops$
```

```
Nov 16 17:21
deepan@deep:~/devops$ sudo apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 81 not upgraded.
Need to get 284 kB of archives.
After this operation, 811 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu/noble-updates/main amd64 net-tools amd64 2.10-0.1ubuntu4.4 [284 kB]
Fetched 284 kB in 0s (539 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 151492 files and directories currently installed.)
Preparing to unpack .../net-tools_2.10-0.1ubuntu4.4_amd64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4.4) ...
Setting up net-tools (2.10-0.1ubuntu4.4) ...
Processing triggers for man-db (2.12.0-4build2) ...
deepan@deep:~/devops$ apt show net-tools
Package: net-tools
Version: 2.10-0.1ubuntu4.4
Priority: optional
Section: net
Origin: Ubuntu
Maintainer: Ubuntu Developers <ubuntu-devel-discuss@lists.ubuntu.com>
Original-Maintainer: net-tools Team <team@net-tools.tracker.debian.org>
Bugs: http://bugs.launchpad.net/ubuntu/+filebug
Installed-Size: 811 kB
Depends: libed (>= 2.38), libselinux1 (>= 3.1-)
Homepage: http://sourceforge.net/projects/net-tools/
Task: ubuntukylin-desktop, ubuntukylin-desktop, ubuntukylin-desktop-minimal
Download-Size: 204 kB
APT-Manual-Installed: yes
APT-Sources: http://archive.ubuntu.com/ubuntu/noble-updates/main amd64 Packages
Description: NET-3 networking toolkit
This package includes the important tools for controlling the network
subsystem of the Linux kernel. This includes arp, ifconfig, netstat,
arp, nameif and route. Additionally, this package contains utilities
relating to particular network hardware types (plipconfig, slattach,
mi-tool) and advanced aspects of IP configuration (iptunnel, ipmaddr).
.
In the upstream package 'hostname' and friends are included. Those are
not installed by this package, since there is a special "hostname*.deb".
N: There is 1 additional record. Please use the '-a' switch to see it
deepan@deep:~/devops$
```

## Run and shortly explain outputs of the following commands:

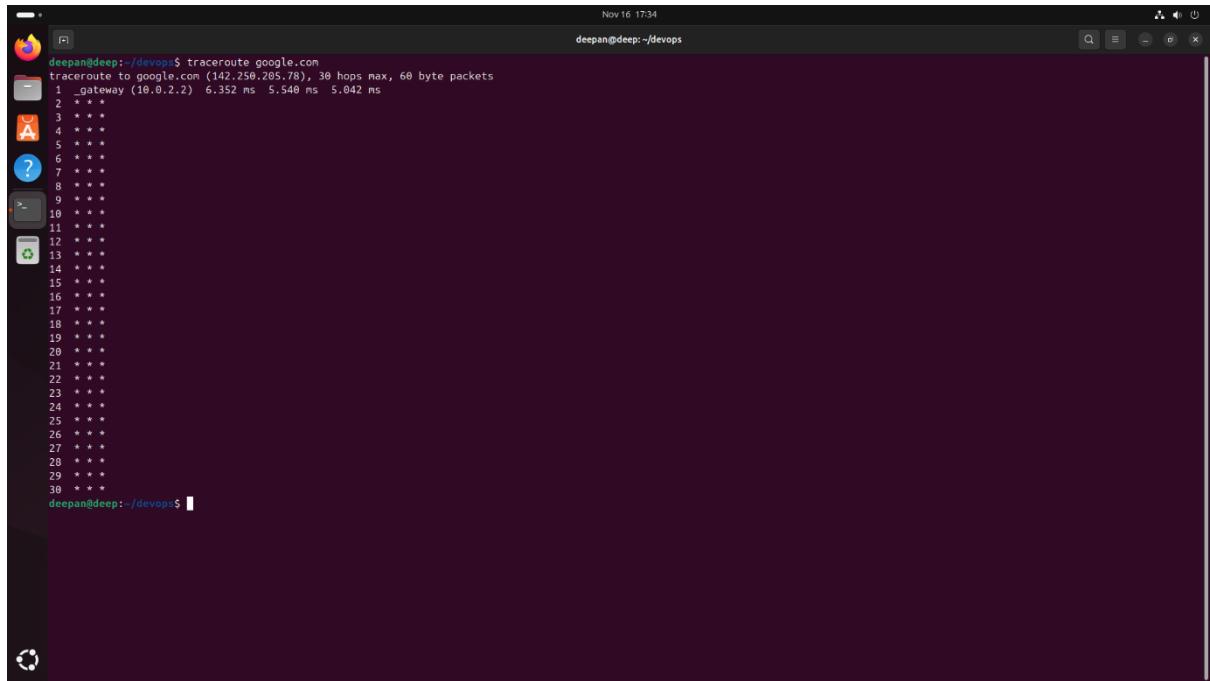


```
deepan@deep:~/devops$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::a63c:2ff:fe00:15%enp0s3  prefixlen 64  scopeid 0x20<link>
    ether 08:00:27:1d:eb:d6  txqueuelen 1000  (Ethernet)
    RX packets 6428  bytes 8487982 (8.4 MB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 1306  bytes 118040 (118.0 KB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
    inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
    loop  txqueuelen 1000  (Local Loopback)
    RX packets 595  bytes 52854 (52.8 KB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 595  bytes 52854 (52.8 KB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

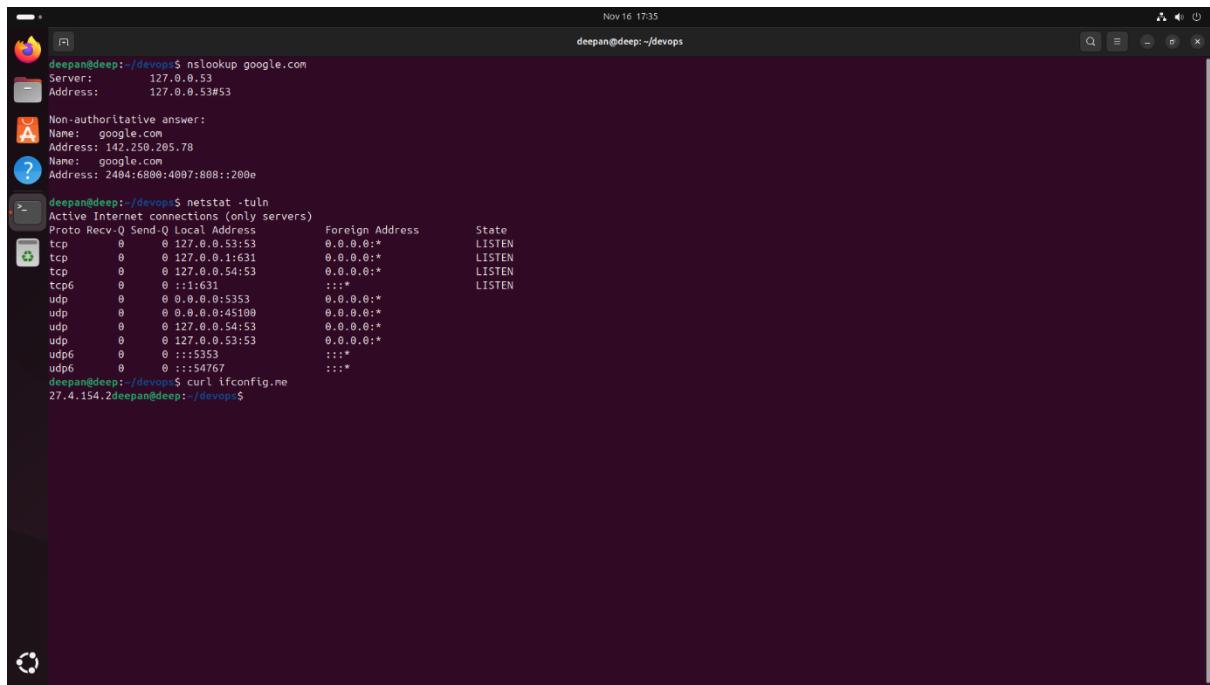
deepan@deep:~/devops$ ping google.com -c 4
PING google.com (142.250.205.78) 56(84) bytes of data.
64 bytes from pnnnaa.ar-in-f14.1e100.net (142.250.205.78): icmp_seq=1 ttl=255 time=4.55 ms
64 bytes from pnnnaa.ar-in-f14.1e100.net (142.250.205.78): icmp_seq=2 ttl=255 time=4.26 ms
64 bytes from pnnnaa.ar-in-f14.1e100.net (142.250.205.78): icmp_seq=3 ttl=255 time=3.35 ms
64 bytes from pnnnaa.ar-in-f14.1e100.net (142.250.205.78): icmp_seq=4 ttl=255 time=2.94 ms
--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 6094ms
rtt min/avg/max/mdev = 2.935/3.775/4.551/0.656 ms
deepan@deep:~/devops$
```

- **ifconfig:** shows IP address of the network.
- **ping google.com -c 4:** shows response time (ms), packet loss percentage.



```
deepan@deep:~/devops$ traceroute google.com
traceroute to google.com (142.250.205.78), 30 hops max, 60 byte packets
 1  gateway (10.0.2.2)  6.352 ms  5.540 ms  5.042 ms
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  * * *
13  * * *
14  * * *
15  * * *
16  * * *
17  * * *
18  * * *
19  * * *
20  * * *
21  * * *
22  * * *
23  * * *
24  * * *
25  * * *
26  * * *
27  * * *
28  * * *
29  * * *
30  * * *
```

- **traceroute google.com:** shows the path taken by packets to reach google.com



The screenshot shows a terminal window with a dark background and white text. It displays three commands run by the user 'deepan' on a system named 'deep'. The first command is 'nslookup google.com', which returns the IP address 142.250.205.78. The second command is 'netstat -tuln', which lists active listening network ports. The third command is 'curl ifconfig.me', which outputs the public IP address 27.4.154.2.

```
Nov 16 17:35
deepan@deep:~/devops$ nslookup google.com
Server: 127.0.0.53
Address: 127.0.0.53#53

Non-authoritative answer:
Name: google.com
Address: 142.250.205.78
Name: google.com
Address: 2404:6800:4007:800::200e

deepan@deep:~/devops$ netstat -tuln
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
tcp     0      0 127.0.0.53:53           0.0.0.0.*        LISTEN
tcp     0      0 127.0.0.1:631          0.0.0.0.*        LISTEN
tcp     0      0 127.0.0.54:53          0.0.0.0.*        LISTEN
tcp6    0      0 ::1:631                ::*:*
tcp6    0      0 0.0.0.0:5353          0.0.0.0.*        LISTEN
udp    0      0 0.0.0.0:45100          0.0.0.0.*        LISTEN
udp    0      0 127.0.0.54:53          0.0.0.0.*        LISTEN
udp    0      0 127.0.0.53:53          0.0.0.0.*        LISTEN
udp6   0      0 ::1:5353               ::*:*
udp6   0      0 0 ::54767              ::*:*
deepan@deep:~/devops$ curl ifconfig.me
27.4.154.2deepan@deep:~/devops$
```

- **nslookup google.com:** Shows IP address of google.com
- **netstat -tuln:** shows current listening network ports, t=TCP,u=UDP,l=listening,n=show numeric addresses
- **curl ifconfig.me:** show public IP address