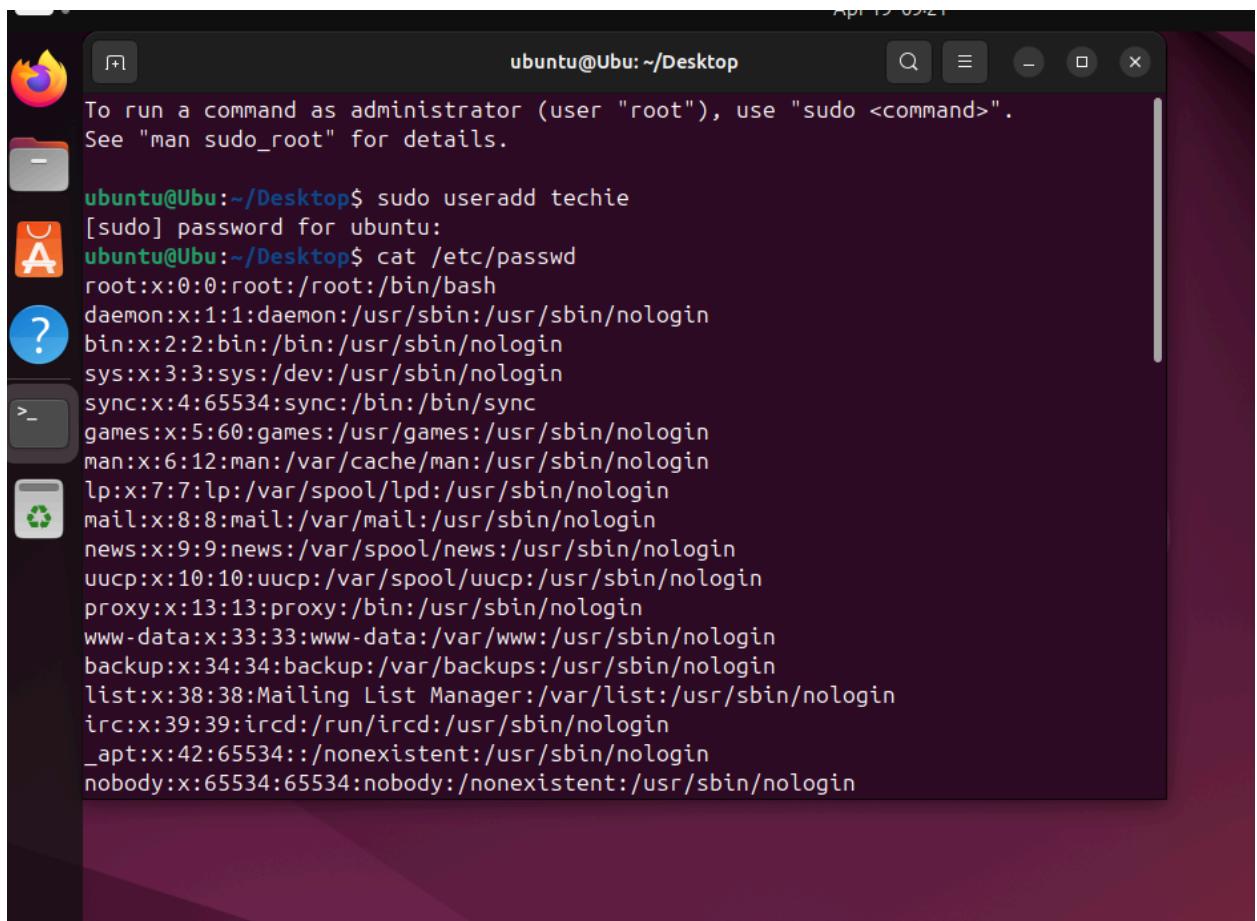


LINUX TASK - 2

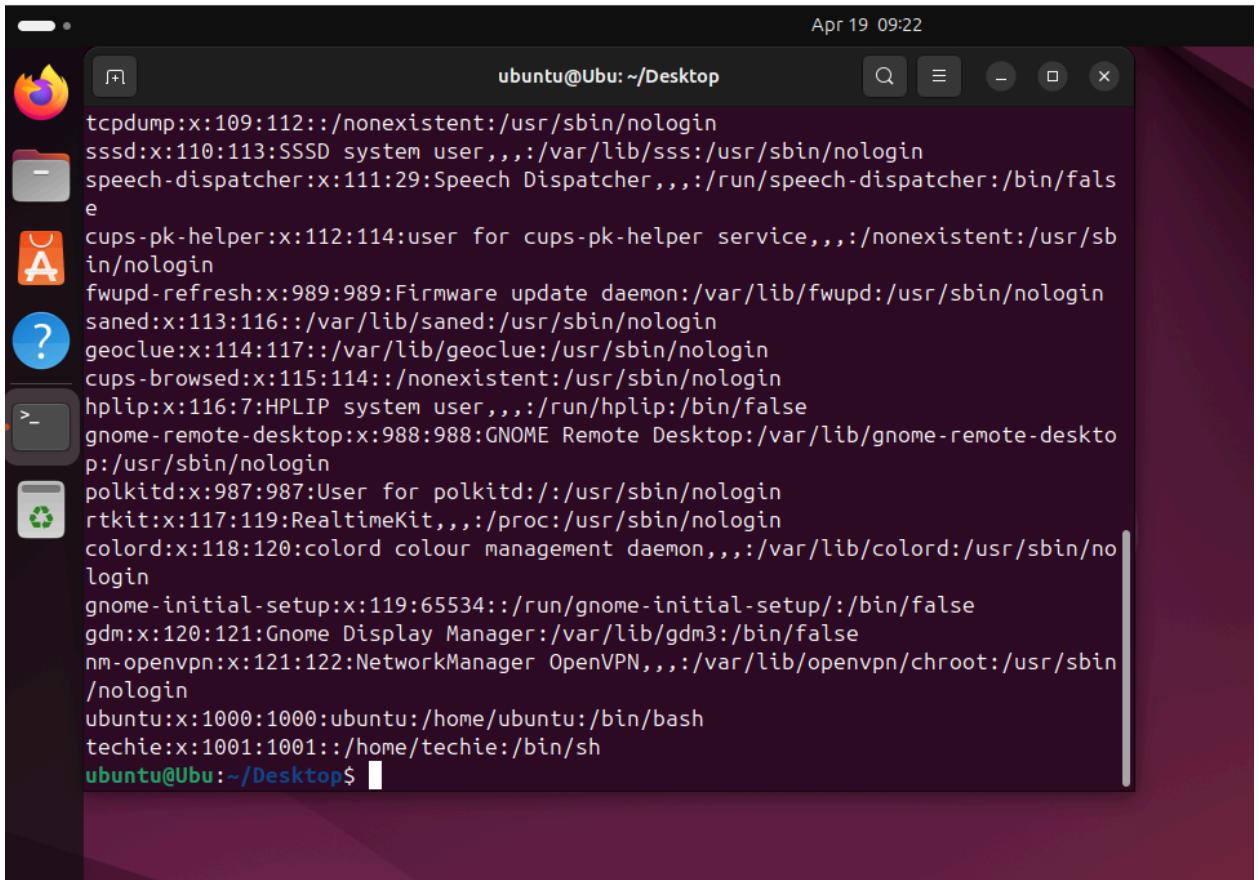
- 1) Create user with name Techie and provide sudo access to user



The screenshot shows a terminal window titled "ubuntu@Ubu: ~/Desktop". The terminal displays the following command and its output:

```
ubuntu@Ubu:~/Desktop$ sudo useradd techie
[sudo] password for ubuntu:
ubuntu@Ubu:~/Desktop$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
```

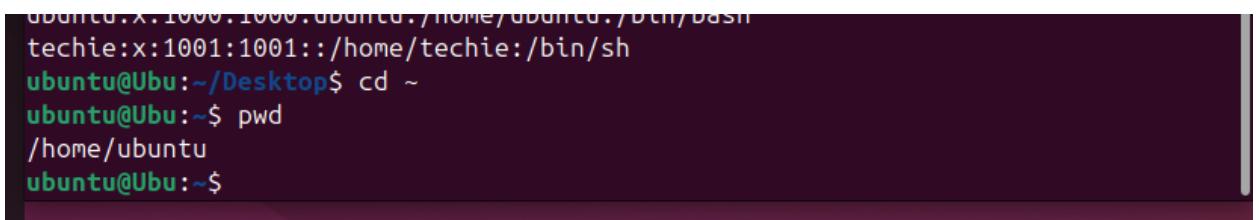
```
irc:x:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin
systemd-timesync:x:996:996:systemd Time Synchronization:/:/usr/sbin/nologin
dhpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhpcd:/bin/false
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin
syslog:x:102:102::/nonexistent:/usr/sbin/nologin
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin
uuidd:x:103:103::/run/uuidd:/usr/sbin/nologin
usbmux:x:104:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
tss:x:105:105:TPM software stack,,,:/var/lib/tpm:/bin/false
systemd-oom:x:990:990:systemd Userspace OOM Killer:/:/usr/sbin/nologin
kernoops:x:106:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
whoopsie:x:107:109::/nonexistent:/bin/false
dnsmasq:x:999:65534:dnsmasq:/var/lib/misc:/usr/sbin/nologin
avahi:x:108:111:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
tcpdump:x:109:112::/nonexistent:/usr/sbin/nologin
sssd:x:110:113:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:111:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
cups-pk-helper:x:112:114:user for cups-pk-helper service,,,:/nonexistent:/usr/sbin/nologin
fwupd-refresh:x:989:989:Firmware update daemon:/var/lib/fwupd:/usr/sbin/nologin
```



A screenshot of a Ubuntu desktop environment. In the top right corner, there is a terminal window titled "ubuntu@Ubu: ~/Desktop". The terminal displays a list of users and their logins, including "tcpdump", "sssd", "speech-dispatcher", "cups-pk-helper", "fwupd-refresh", "saned", "geoclue", "cups-browsed", "hplip", "gnome-remote-desktop", "polkitd", "rtkit", "colord", "gnome-initial-setup", "gdm", "nm-openvpn", "ubuntu", and "techie". The terminal prompt "ubuntu@Ubu:~/Desktop\$" is visible at the bottom.

```
tcpdump:x:109:112::/nonexistent:/usr/sbin/nologin
sssd:x:110:113:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:111:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
cups-pk-helper:x:112:114:user for cups-pk-helper service,,,:/nonexistent:/usr/sbin/nologin
fwupd-refresh:x:989:989:Firmware update daemon:/var/lib/fwupd:/usr/sbin/nologin
saned:x:113:116::/var/lib/saned:/usr/sbin/nologin
geoclue:x:114:117::/var/lib/geoclue:/usr/sbin/nologin
cups-browsed:x:115:114::/nonexistent:/usr/sbin/nologin
hplip:x:116:7:HPLIP system user,,,:/run/hplip:/bin/false
gnome-remote-desktop:x:988:988:GNOME Remote Desktop:/var/lib/gnome-remote-desktop:/usr/sbin/nologin
polkitd:x:987:987:User for polkitd:/:/usr/sbin/nologin
rtkit:x:117:119:RealtimeKit,,,:/proc:/usr/sbin/nologin
colord:x:118:120:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
gnome-initial-setup:x:119:65534::/run/gnome-initial-setup/:/bin/false
gdm:x:120:121:Gnome Display Manager:/var/lib/gdm3:/bin/false
nm-openvpn:x:121:122:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
ubuntu:x:1000:1000:ubuntu:/home/ubuntu:/bin/bash
techie:x:1001:1001:/home/techie:/bin/sh
ubuntu@Ubu:~/Desktop$
```

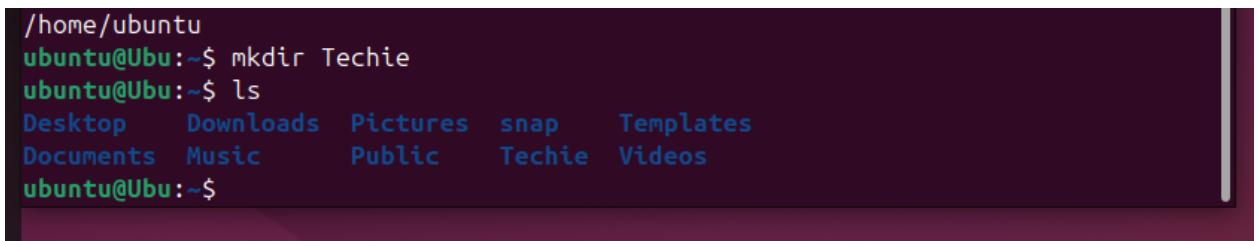
2. Navigate to the home directory



A screenshot of a terminal window. The user has navigated to their home directory by entering "cd ~" and pressing Enter. They then checked the current directory with "pwd" and pressed Enter. The output shows they are in "/home/ubuntu".

```
ubuntu@x:1000:1000:ubuntu:~/home/ubuntu:~/bin/bash
techie:x:1001:1001:/home/techie:/bin/sh
ubuntu@Ubu:~/Desktop$ cd ~
ubuntu@Ubu:~$ pwd
/home/ubuntu
ubuntu@Ubu:~$
```

3. Create a new directory



A screenshot of a terminal window. The user has created a new directory named "Techie" in their home directory by entering "mkdir Techie" and pressing Enter. They then listed the contents of their home directory with "ls" and pressed Enter. The output shows the new "Techie" directory and other existing directories like "Desktop", "Downloads", "Pictures", "snap", "Templates", "Documents", "Music", "Public", "Videos", and "Public".

```
/home/ubuntu
ubuntu@Ubu:~$ mkdir Techie
ubuntu@Ubu:~$ ls
Desktop  Downloads  Pictures  snap      Templates
Documents  Music      Public    Techie   Videos
ubuntu@Ubu:~$
```

4. List the contents of directory

```
ubuntu@Ubu:~$ ls -l
total 40
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Desktop
drwxr-xr-x 3 ubuntu ubuntu 4096 Apr 17 08:18 Documents
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Downloads
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Music
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Pictures
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Public
drwx----- 4 ubuntu ubuntu 4096 Apr 19 06:00 snap
drwxrwxr-x 2 ubuntu ubuntu 4096 Apr 19 09:26 Techie
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Templates
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Videos
ubuntu@Ubu:~$
```

5. Changes the current directory

```
drwxr-Xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Videos
ubuntu@Ubu:~$ cd
ubuntu@Ubu:~$
```

6. Create a new empty file

```
ubuntu@Ubu:~$ cd
ubuntu@Ubu:~$ touch hello
ubuntu@Ubu:~$ ls
Desktop  Downloads  Music      Public  Techie      Videos
Documents  hello      Pictures  snap    Templates
ubuntu@Ubu:~$
```

7. View the contents of a file.

```
Documents  hello      Pictures  snap    Templates
ubuntu@Ubu:~$ cat hello
ubuntu@Ubu:~$ ls
Desktop  Downloads  Music      Public  Techie      Videos
Documents  hello      Pictures  snap    Templates
ubuntu@Ubu:~$
```

8. Copy a file to another location

```
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Videos/
ubuntu@Ubu:~$ l
Desktop/ Downloads/ Music/ Public/ Techie/ Videos/
Documents/ hello Pictures/ snap/ Templates/
ubuntu@Ubu:~$
```

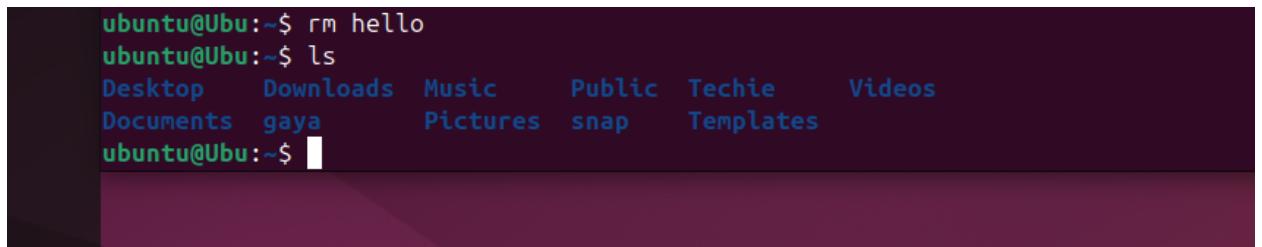
9. Move a file to another location

```
ubuntu@Ubu:~$ cp hello /home/ubuntu/Downloads/
ubuntu@Ubu:~$ ll
total 80
drwxr-x--- 16 ubuntu ubuntu 4096 Apr 19 09:29 .
drwxr-xr-x  3 root   root   4096 Apr 16 06:24 ..
-rw-------  1 ubuntu ubuntu   20 Apr 19 09:18 .bash_history
-rw-r--r--  1 ubuntu ubuntu  220 Mar 31 2024 .bash_logout
-rw-r--r--  1 ubuntu ubuntu 3771 Mar 31 2024 .bashrc
drwx----- 10 ubuntu ubuntu 4096 Apr 17 07:48 .cache/
drwx----- 11 ubuntu ubuntu 4096 Apr 16 06:48 .config/
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 16 06:25 Desktop/
drwxr-xr-x  3 ubuntu ubuntu 4096 Apr 17 08:18 Documents/
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 19 09:32 Downloads/
-rw-rw-r--  1 ubuntu ubuntu    0 Apr 19 09:29 hello
drwx----- 4 ubuntu ubuntu 4096 Apr 16 06:25 .local/
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 16 06:25 Music/
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 16 06:25 Pictures/
-rw-r--r--  1 ubuntu ubuntu  807 Mar 31 2024 .profile
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 16 06:25 Public/
drwx----- 4 ubuntu ubuntu 4096 Apr 19 06:00 snap/
drwx----- 2 ubuntu ubuntu 4096 Apr 16 06:25 .ssh/
-rw-r--r--  1 ubuntu ubuntu    0 Apr 19 09:19 .sudo_as_admin_successful
drwxrwxr-x  2 ubuntu ubuntu 4096 Apr 19 09:26 Techie/
```

10. Rename a file

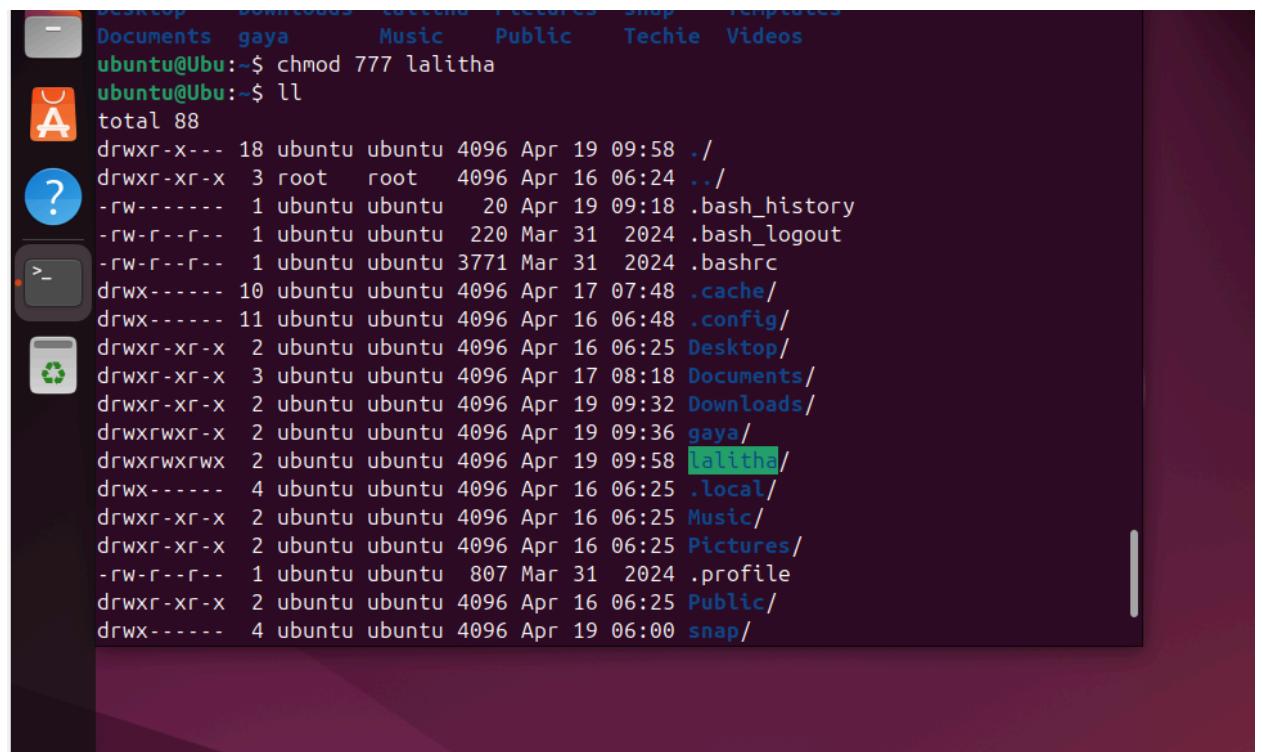
```
ubuntu@Ubu:~$ mkdir lali
ubuntu@Ubu:~$ mv lali gaya
ubuntu@Ubu:~$ ls
Desktop  Downloads  hello  Pictures  snap    Templates
Documents  gaya        Music  Public    Techie  Videos
ubuntu@Ubu:~$
```

11. Delete a file



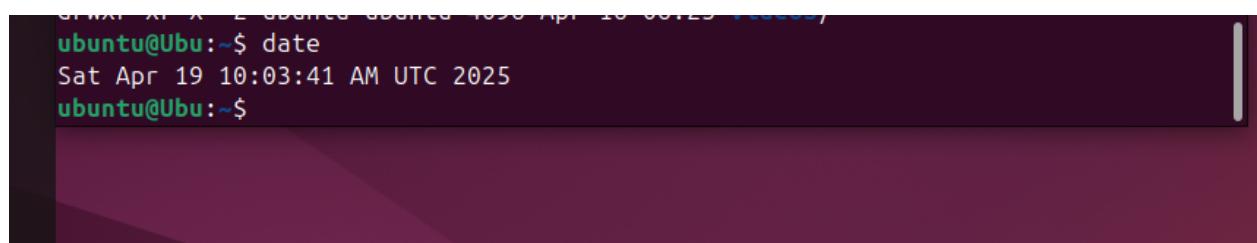
```
ubuntu@Ubu:~$ rm hello
ubuntu@Ubu:~$ ls
Desktop  Downloads  Music  Public  Techie  Videos
Documents  gaya      Pictures  snap    Templates
ubuntu@Ubu:~$
```

12. Grant or revoke permissions of a file or directory.



```
ubuntu@Ubu:~$ chmod 777 lalitha
ubuntu@Ubu:~$ ll
total 88
drwxr-x--- 18 ubuntu ubuntu 4096 Apr 19 09:58 .
drwxr-xr-x  3 root   root  4096 Apr 16 06:24 ..
-rw-----  1 ubuntu ubuntu  20 Apr 19 09:18 .bash_history
-rw-r--r--  1 ubuntu ubuntu 220 Mar 31 2024 .bash_logout
-rw-r--r--  1 ubuntu ubuntu 3771 Mar 31 2024 .bashrc
drwxr----- 10 ubuntu ubuntu 4096 Apr 17 07:48 .cache/
drwxr----- 11 ubuntu ubuntu 4096 Apr 16 06:48 .config/
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 16 06:25 Desktop/
drwxr-xr-x  3 ubuntu ubuntu 4096 Apr 17 08:18 Documents/
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 19 09:32 Downloads/
drwxrwxr-x  2 ubuntu ubuntu 4096 Apr 19 09:36 gaya/
drwxrwxrwx  2 ubuntu ubuntu 4096 Apr 19 09:58 lalitha/
drwxr----- 4 ubuntu ubuntu 4096 Apr 16 06:25 .local/
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 16 06:25 Music/
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 16 06:25 Pictures/
-rw-r--r--  1 ubuntu ubuntu 807 Mar 31 2024 .profile
drwxr-xr-x  2 ubuntu ubuntu 4096 Apr 16 06:25 Public/
drwxr----- 4 ubuntu ubuntu 4096 Apr 19 06:00 snap/
```

13 . view the current date and time



```
ubuntu@Ubu:~$ date
Sat Apr 19 10:03:41 AM UTC 2025
ubuntu@Ubu:~$
```

14. Check the system uptime

```

Sat Apr 19 10:03:41 AM UTC 2025
ubuntu@Ubu:~$ top

top - 10:08:14 up 1:00, 1 user, load average: 0.18, 0.08, 0.05
Tasks: 200 total, 1 running, 199 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.4 us, 1.7 sy, 0.0 ni, 97.6 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
MiB Mem : 3914.9 total, 2276.9 free, 1014.6 used, 874.7 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 2900.3 avail Mem

      PID USER      PR  NI    VIRT    RES    SHR   S %CPU %MEM     TIME+ COMMAND
 1937 ubuntu    20   0 4926364 363968 139616 S  17.2  9.1  2:04.75 gnome-s+
 3203 root      20   0      0      0      0 I   1.7  0.0  0:00.32 kworker+
 2970 ubuntu    20   0 562364 52436 41848 S  0.3  1.3  0:08.44 gnome-t+
3238 ubuntu    20   0 23204 5936 3760 R  0.3  0.1  0:00.67 top
  1 root      20   0 23120 13656 9304 S  0.0  0.3  0:06.91 systemd
  2 root      20   0      0      0      0 S  0.0  0.0  0:00.07 kthreadd
  3 root      20   0      0      0      0 S  0.0  0.0  0:00.00 pool_wq+
  4 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 kworker+
  5 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 kworker+
  6 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 kworker+
  7 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 kworker+
 12 root      0 -20      0      0      0 I  0.0  0.0  0:00.00 kworker+
 13 root      20   0      0      0      0 I  0.0  0.0  0:00.00 rcu_tas+
 14 root      20   0      0      0      0 I  0.0  0.0  0:00.00 rcu_tas+

```

15 . View the running processes

```

ubuntu@Ubu:~/Desktop$ ps aux
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START  TIME COMMAND
root      1  0.1  0.3  23120 13656 ?      Ss  09:07  0:06 /sbin/init sp
root      2  0.0  0.0      0      0 ?      S  09:07  0:00 [kthreadd]
root      3  0.0  0.0      0      0 ?      S  09:07  0:00 [pool_workque
root      4  0.0  0.0      0      0 ?      I< 09:07  0:00 [kworker/R-rc
root      5  0.0  0.0      0      0 ?      I< 09:07  0:00 [kworker/R-sy
root      6  0.0  0.0      0      0 ?      I< 09:07  0:00 [kworker/R-sl
root      7  0.0  0.0      0      0 ?      I< 09:07  0:00 [kworker/R-ne
root     12  0.0  0.0      0      0 ?      I< 09:07  0:00 [kworker/R-mm
root     13  0.0  0.0      0      0 ?      I  09:07  0:00 [rcu_tasks_kt
root     14  0.0  0.0      0      0 ?      I  09:07  0:00 [rcu_tasks_ru
root     15  0.0  0.0      0      0 ?      I  09:07  0:00 [rcu_tasks_tr
root     16  0.0  0.0      0      0 ?      S  09:07  0:00 [ksoftirqd/0]
root     17  0.0  0.0      0      0 ?      I  09:07  0:03 [rcu_preempt]
root     18  0.0  0.0      0      0 ?      S  09:07  0:00 [rcu_exp_par_
root     19  0.0  0.0      0      0 ?      S  09:07  0:00 [rcu_exp_gp_k
root     20  0.0  0.0      0      0 ?      S  09:07  0:00 [migration/0]
root     21  0.0  0.0      0      0 ?      S  09:07  0:00 [idle_inject/
root     22  0.0  0.0      0      0 ?      S  09:07  0:00 [cpuhp/0]
root     23  0.0  0.0      0      0 ?      S  09:07  0:00 [cpuhp/1]
root     24  0.0  0.0      0      0 ?      S  09:07  0:00 [idle_inject/
root     25  0.0  0.0      0      0 ?      S  09:07  0:01 [migration/1]
root     26  0.0  0.0      0      0 ?      S  09:07  0:00 [ksoftirqd/1]

```

16. Kill a running process

```
ubuntu      3285 66.6 0.1 22284 4468 pts/0    R+   10:11  0:00 ps aux
ubuntu@Ubu:~/Desktop$ kill
kill: usage: kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill
-l [sigspec]
ubuntu@Ubu:~/Desktop$
```

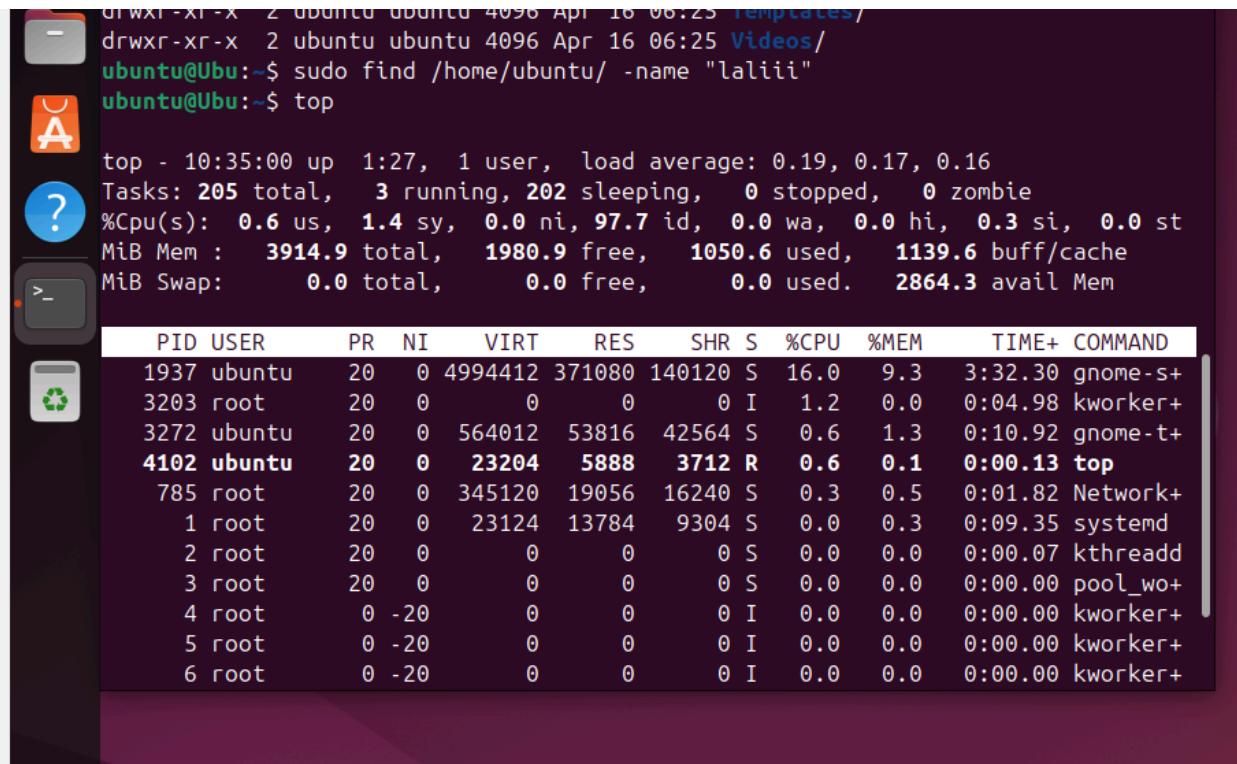
17 . Install a package using the package manager (e.g. apt or yum)

```
kill: usage: kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill
-l [sigspec]
ubuntu@Ubu:~/Desktop$ sudo apt install nginx
[sudo] password for ubuntu:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  nginx-common
Suggested packages:
  fcgiwrap nginx-doc
The following NEW packages will be installed:
  nginx nginx-common
0 upgraded, 2 newly installed, 0 to remove and 102 not upgraded.
Need to get 551 kB of archives.
After this operation, 1,596 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common
all 1.24.0-2ubuntu7.3 [31.2 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1
.24.0-2ubuntu7.3 [520 kB]
Fetched 551 kB in 2s (264 kB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
```

18. Update the system packages

```
/etc/systemd/system/nginx.service.
Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
ubuntu@Ubu:~/Desktop$ sudo apt update
Hit:1 http://in.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://in.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:3 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu noble-backports InRelease
Get:5 http://in.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages
[1,056 kB]
Fetched 1,182 kB in 3s (402 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
102 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@Ubu:~/Desktop$
```

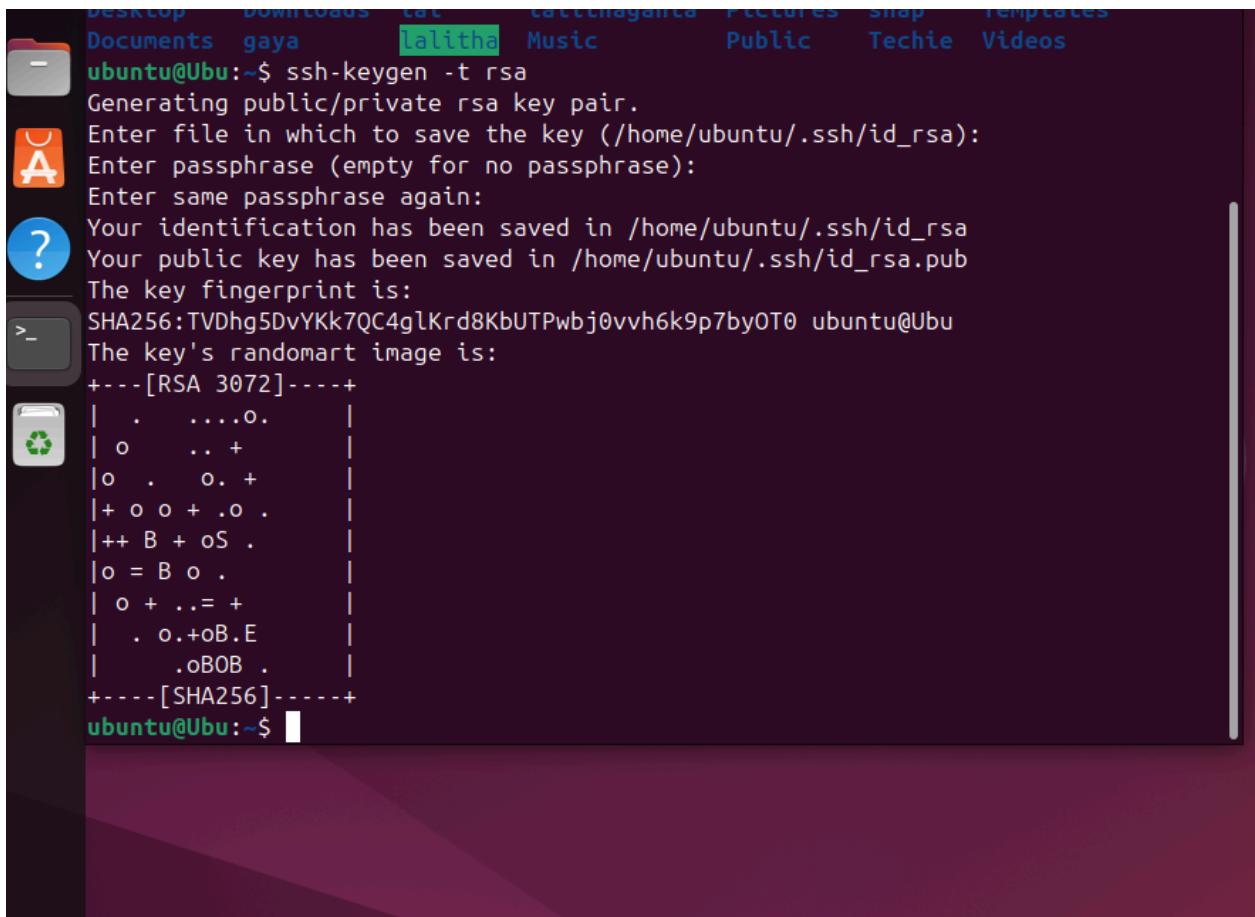
19. Search for file using the find command



```
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Templates/
drwxr-xr-x 2 ubuntu ubuntu 4096 Apr 16 06:25 Videos/
ubuntu@Ubu:~$ sudo find /home/ubuntu/ -name "laliii"
ubuntu@Ubu:~$ top
top - 10:35:00 up 1:27, 1 user, load average: 0.19, 0.17, 0.16
Tasks: 205 total, 3 running, 202 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.6 us, 1.4 sy, 0.0 ni, 97.7 id, 0.0 wa, 0.0 hi, 0.3 si, 0.0 st
MiB Mem : 3914.9 total, 1980.9 free, 1050.6 used, 1139.6 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 2864.3 avail Mem

PID USER      PR  NI    VIRT    RES    SHR S %CPU %MEM TIME+ COMMAND
1937 ubuntu    20   0 4994412 371080 140120 S 16.0  9.3 3:32.30 gnome-s+
3203 root      20   0        0      0      0 I 1.2  0.0 0:04.98 kworker+
3272 ubuntu    20   0  564012  53816  42564 S 0.6  1.3 0:10.92 gnome-t+
4102 ubuntu    20   0  23204  5888  3712 R 0.6  0.1 0:00.13 top
785 root      20   0 345120 19056 16240 S 0.3  0.5 0:01.82 Network+
1 root       20   0  23124 13784  9304 S 0.0  0.3 0:09.35 systemd
2 root       20   0        0      0      0 S 0.0  0.0 0:00.07 kthreadd
3 root       20   0        0      0      0 S 0.0  0.0 0:00.00 pool_wo+
4 root       0 -20        0      0      0 I 0.0  0.0 0:00.00 kworker+
5 root       0 -20        0      0      0 I 0.0  0.0 0:00.00 kworker+
6 root       0 -20        0      0      0 I 0.0  0.0 0:00.00 kworker+
```

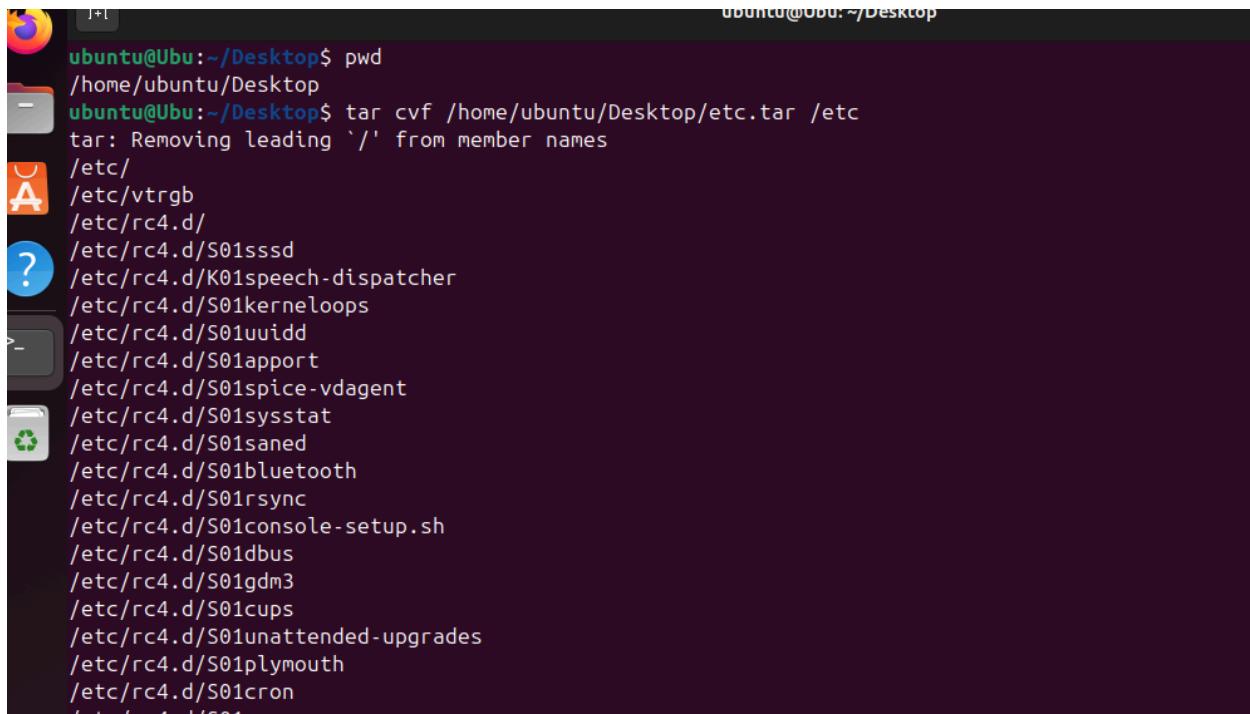
20. Set up ssh password less authentication



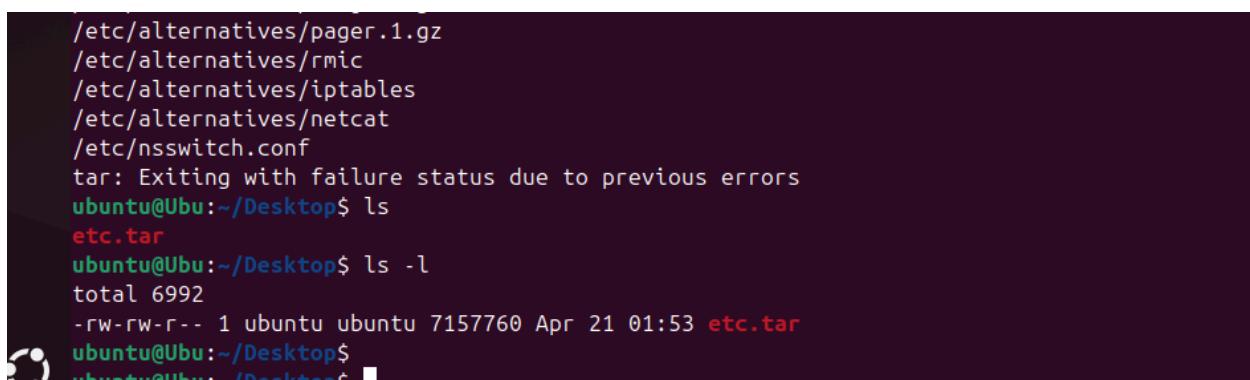
DESKTOP Downloads cat tattchaganta Pictures snap Templates
Documents gaya lalitha Music Public Techie Videos

ubuntu@Ubu:~\$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ubuntu/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ubuntu/.ssh/id_rsa
Your public key has been saved in /home/ubuntu/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:TVDhg5DvYKk7QC4glKrd8KbUTPwbj0vvh6k9p7byOT0 ubuntu@Ubu
The key's randomart image is:
+---[RSA 3072]---+
| o . |
| o . . + |
| o . o . + |
| + o o + .o . |
| ++ B + oS . |
| o = B o . |
| o + ..= + |
| . o.+oB.E |
| .oBOB . |
+---[SHA256]---+
ubuntu@Ubu:~\$

21) Compress and decompress the files using tar



```
ubuntu@Ubu:~/Desktop$ pwd
/home/ubuntu/Desktop
ubuntu@Ubu:~/Desktop$ tar cvf /home/ubuntu/Desktop/etc.tar /etc
tar: Removing leading `/' from member names
/etc/
/etc/vtrgb
/etc/rc4.d/
/etc/rc4.d/S01sssd
/etc/rc4.d/K01speech-dispatcher
/etc/rc4.d/S01kerneloops
/etc/rc4.d/S01uuidd
/etc/rc4.d/S01apport
/etc/rc4.d/S01spice-vdagent
/etc/rc4.d/S01sysstat
/etc/rc4.d/S01saned
/etc/rc4.d/S01bluetooth
/etc/rc4.d/S01rsync
/etc/rc4.d/S01console-setup.sh
/etc/rc4.d/S01dbus
/etc/rc4.d/S01gdm3
/etc/rc4.d/S01cups
/etc/rc4.d/S01unattended-upgrades
/etc/rc4.d/S01plymouth
/etc/rc4.d/S01cron
/etc/rc4.d/S01accounts
```



```
/etc/alternatives/pager.1.gz
/etc/alternatives/rmic
/etc/alternatives/iptables
/etc/alternatives/netcat
/etc/nsswitch.conf
tar: Exiting with failure status due to previous errors
ubuntu@Ubu:~/Desktop$ ls
etc.tar
ubuntu@Ubu:~/Desktop$ ls -l
total 6992
-rw-rw-r-- 1 ubuntu ubuntu 7157760 Apr 21 01:53 etc.tar
ubuntu@Ubu:~/Desktop$
```

22. Monitor system resources with top and htop

```

-rw-rw-r-- 1 ubuntu ubuntu 7157760 Apr 21 01:53 etc.tar
ubuntu@Ubu:~/Desktop$ top

top - 02:01:35 up 11 min, 1 user, load average: 0.15, 0.33, 0.28
Tasks: 202 total, 1 running, 201 sleeping, 0 stopped, 0 zombie
%CPU(s): 0.3 us, 0.3 sy, 0.0 ni, 98.7 id, 0.3 wa, 0.0 hi, 0.3 si, 0.0 st
MiB Mem : 3914.9 total, 2227.4 free, 1056.6 used, 885.2 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 2858.3 avail Mem

PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
2016 ubuntu 20 0 4823284 388300 141192 S 4.2 9.7 1:42.51 gnome-shell
77 root 20 0 0 0 0 I 0.3 0.0 0:07.40 kworker/u16:5-flush-8:0
216 root 20 0 0 0 0 S 0.3 0.0 0:00.15 jbd2/sda2-8
2766 ubuntu 20 0 564060 54016 43188 S 0.3 1.3 0:28.42 gnome-terminal-
2935 ubuntu 20 0 23184 5916 3740 R 0.3 0.1 0:00.25 top
1 root 20 0 23000 13804 9324 S 0.0 0.3 0:03.15 systemd
2 root 20 0 0 0 0 S 0.0 0.0 0:00.03 kthreadd
3 root 20 0 0 0 0 S 0.0 0.0 0:00.00 pool_workqueue_release
4 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-rcu_gp
5 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-sync_wq
6 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-slub_flushwq
7 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-netns
8 root 20 0 0 0 0 I 0.0 0.0 0:00.09 kworker/0:0-ata_sff
10 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/0:0H-events_highpri
11 root 20 0 0 0 0 I 0.0 0.0 0:04.96 kworker/u16:0-events_power_efficient
12 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-mm_percpu_wq
13 root 20 0 0 0 0 I 0.0 0.0 0:00.00 rcu_tasks_kthread
14 root 20 0 0 0 0 I 0.0 0.0 0:00.00 rcu_tasks_rude_kthread
15 root 20 0 0 0 0 I 0.0 0.0 0:00.00 rcu_tasks_trace_kthread
16 root 20 0 0 0 0 S 0.0 0.0 0:00.21 ksoftirqd/0
17 root 20 0 0 0 0 I 0.0 0.0 0:02.58 rcu_preempt
18 root 20 0 0 0 0 S 0.0 0.0 0:00.00 rcu_exp_par_on_kthread_worker/0

```

```

ubuntu@Ubu:~/Desktop

0[|||] Tasks: 110, 336 thr, 94 kthr; 2 running
1[|||||] 6.5% Load average: 0.28 0.21 0.24
2[|||] 1.9% Uptime: 00:15:48
3[|||] 3.8%
Mem[|||||||||] 856M/3.82G
Swp[0K/0K]

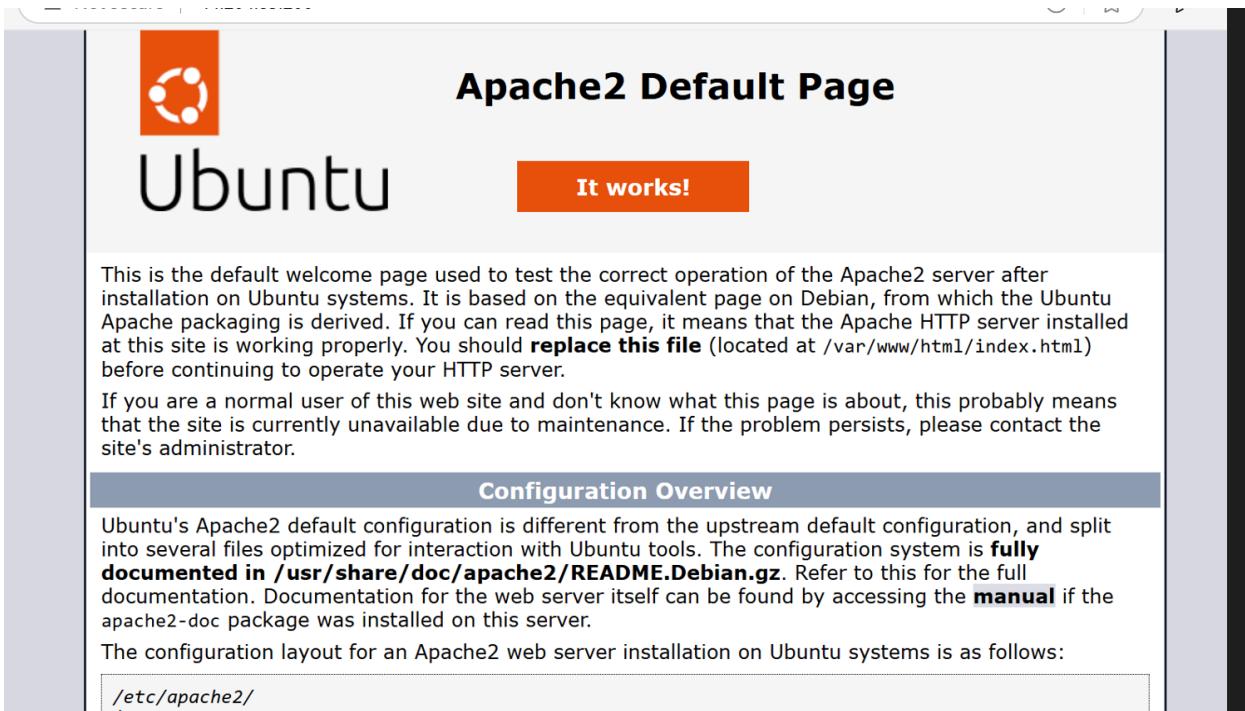
Main I/O PID USER PRI NI VIRT RES SHR S CPU% MEM% TIME+ Command
3098 ubuntu 20 0 20012 4856 3576 R 8.5 0.1 0:01.20 htop
2016 ubuntu 20 0 4710M 380M 137M S 9.2 9.7 0:44.18 /usr/bin/gnome-shell
2766 ubuntu 20 0 552M 55368 43772 S 3.3 1.4 0:29.81 /usr/libexec/gnome-terminal-server
2045 ubuntu 20 0 4710M 380M 137M S 3.9 9.7 0:12.25 /usr/bin/gnome-shell
2075 ubuntu 20 0 4710M 380M 137M S 2.6 9.7 0:03.78 /usr/bin/gnome-shell
2053 ubuntu 20 0 4710M 380M 137M S 1.3 9.7 0:12.58 /usr/bin/gnome-shell
2054 ubuntu 20 0 4710M 380M 137M S 1.3 9.7 0:12.27 /usr/bin/gnome-shell
1 root 20 0 23000 13804 9324 S 0.0 0.3 0:03.18 /sbin/init splash
265 root 19 -1 56832 16948 15668 S 0.0 0.4 0:00.81 /usr/lib/systemd/systemd-journald
334 root 20 0 36528 8320 4864 S 0.0 0.2 0:00.34 /usr/lib/systemd/systemd-udevd
440 systemd-oo 20 0 17556 7500 6732 S 0.0 0.2 0:00.72 /usr/lib/systemd/systemd-oomd
445 systemd-re 20 0 21580 12988 18812 S 0.0 0.3 0:00.45 /usr/lib/systemd/systemd-resolved
453 systemd-ti 20 0 91044 7756 6860 S 0.0 0.2 0:00.11 /usr/lib/systemd/systemd-timesyncd
542 systemd-ti 20 0 91044 7756 6860 S 0.0 0.2 0:00.00 /usr/lib/systemd/systemd-timesyncd
733 avahi 20 0 8668 4212 3956 S 0.0 0.1 0:00.22 avahi-daemon: running [Ubu.local]
734 messagebus 20 0 12208 7080 4520 S 0.0 0.2 0:01.42 @dbus-daemon --system --address=systemd: --nofork --n
743 gnome-remo 20 0 356M 15868 13692 S 0.0 0.4 0:00.21 /usr/libexec/gnome-remote-desktop-daemon --system
769 polkitd 20 0 390M 11816 8032 S 0.0 0.3 0:00.97 /usr/lib/polkit-1/polkitd --no-debug
775 root 20 0 314M 7116 6348 S 0.0 0.2 0:00.08 /usr/libexec/power-profiles-daemon
788 root 20 0 1363M 34288 21416 S 0.0 0.9 0:01.57 /usr/lib/snapd/snapd
791 root 20 0 314M 7452 6812 S 0.0 0.2 0:00.12 /usr/libexec/accounts-daemon

```

23) monitor log files using tail and grep

```
ubuntu@Ubu:~/Desktop$ tail -f /var/log/syslog
2025-04-24T04:12:01.301745+00:00 Ubu dbus-daemon[1718]: [session uid=1000 pid=17
18] Successfully activated service 'org.gnome.Terminal'
2025-04-24T04:12:01.304025+00:00 Ubu systemd[1694]: Started gnome-terminal-serv
r.service - GNOME Terminal Server.
2025-04-24T04:12:01.731022+00:00 Ubu systemd[1694]: Started vte-spawn-01008187-9
cfc-43bb-8545-74251cf905e.scope - VTE child process 2764 launched by gnome-term
inal-server process 2728.
2025-04-24T04:12:07.093025+00:00 Ubu kernel: workqueue: blk_mq_run_work_fn hogge
d CPU for >10000us 11 times, consider switching to WQ_UNBOUND
2025-04-24T04:12:22.087757+00:00 Ubu systemd[1]: systemd-hostnamed.service: Deac
tivated successfully.
2025-04-24T04:12:22.171833+00:00 Ubu systemd[1]: systemd-locale.service: Deacti
vated successfully.
2025-04-24T04:12:26.635996+00:00 Ubu geoclue[1575]: Service not used for 60 seco
nds. Shutting down..
2025-04-24T04:12:26.654418+00:00 Ubu systemd[1]: geoclue.service: Deactivated su
ccessfully.
2025-04-24T04:12:44.700545+00:00 Ubu systemd[1694]: Started app-gnome-ubuntu\x2d
advantage\x2dnotification-2784.scope - Application launched by gnome-session-bin
ary.
2025-04-24T04:12:44.706053+00:00 Ubu systemd[1694]: Started app-gnome-update\x2d
notifier-2786.scope - Application launched by gnome-session-binary.
```

24) set up a web server (eg apache or nginx)



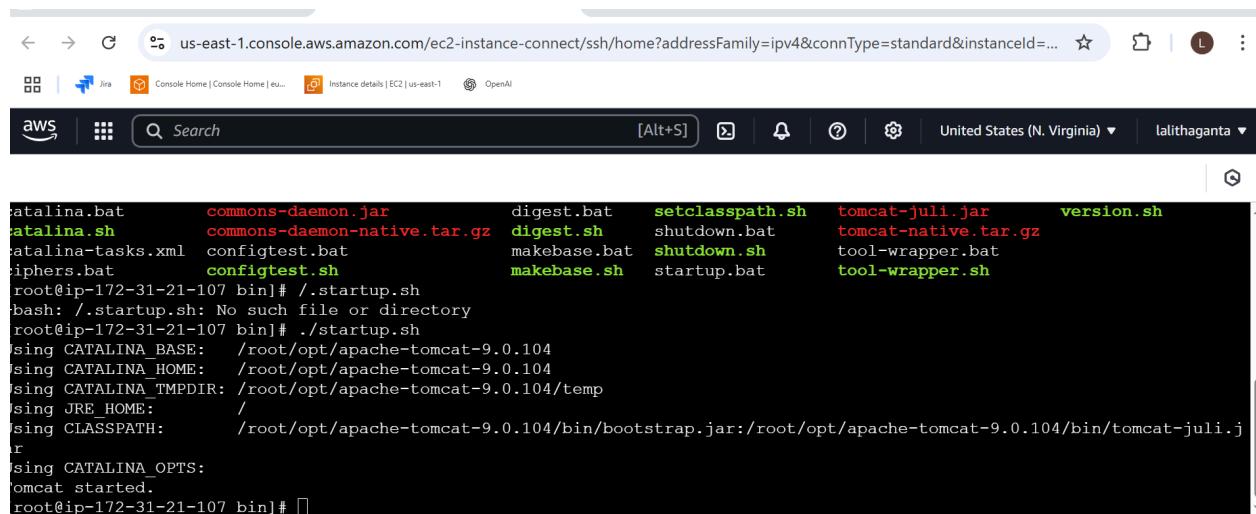
25) set up a Application server (e.g Apache Tomcat)

```

ubuntu@ip-172-31-94-134:~$ sudo -s
root@ip-172-31-94-134:/home/ubuntu# ls
root@ip-172-31-94-134:/home/ubuntu# cd opt/
bash: cd: opt/: No such file or directory
root@ip-172-31-94-134:/home/ubuntu# cd ..
root@ip-172-31-94-134:/home# ls
ubuntu
root@ip-172-31-94-134:/home# cd ..
root@ip-172-31-94-134:# ls
bin          boot   etc    lib      lib64     media   opt    root   sbin   snap   sys
bin usr-is-merged dev    home   lib usr-is-merged lost+found mnt    proc   run    sbin usr-is-merged srv  tmp
root@ip-172-31-94-134:# cd opt
root@ip-172-31-94-134:/opt# ls
containerd  tomcat
root@ip-172-31-94-134:/opt# cd tomcat
root@ip-172-31-94-134:/opt/tomcat# curl -o https://dlcdn.apache.org/tomcat/tomcat-10/v10.1.34/bin/apache-tomee-plus-10.1.34.tar.gz
% Total    % Received % Xferd  Average Speed   Time     Time     Time  Current
          Dload  Upload Total   Spent    Left Speed
100  196  100  196    0     0  582      0 --:--:-- --:--:-- --:--:--  583
root@ip-172-31-94-134:/opt/tomcat# |

```

26) create a service file for Apache Tomcat (should execute by using systemctl command)



```

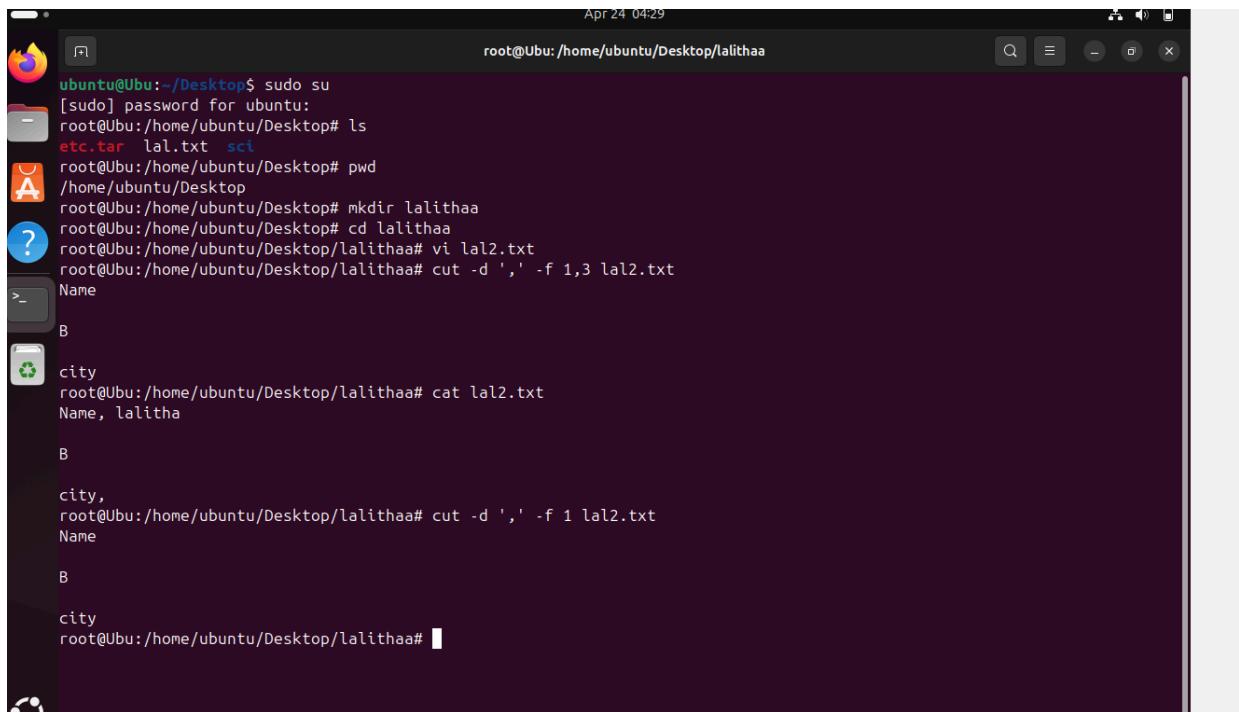
aws | Search [Alt+S] | Instance details | EC2 | us-east-1 | OpenAI | United States (N. Virginia) | lalithaganta | G
catalina.bat      commons-daemon.jar      digest.bat      setclasspath.sh      tomcat-juli.jar      version.sh
catalina.sh       commons-daemon-native.tar.gz  digest.sh       shutdown.bat      tomcat-native.tar.gz
catalina-tasks.xml configtest.bat        makebase.bat    shutdown.sh       tool-wrapper.bat
ciphers.bat       configtest.sh        makebase.sh     startup.bat      tool-wrapper.sh
root@ip-172-31-21-107 bin]# ./startup.sh
bash: ./startup.sh: No such file or directory
root@ip-172-31-21-107 bin]# ./startup.sh
Using CATALINA_BASE: /root/opt/apache-tomcat-9.0.104
Using CATALINA_HOME: /root/opt/apache-tomcat-9.0.104
Using CATALINA_TMPDIR: /root/opt/apache-tomcat-9.0.104/temp
Using JRE_HOME: /
Using CLASSPATH: /root/opt/apache-tomcat-9.0.104/bin/bootstrap.jar:/root/opt/apache-tomcat-9.0.104/bin/tomcat-juli.j
ar
Using CATALINA_OPTS:
Tomcat started.
root@ip-172-31-21-107 bin]#

```

i-024ac8395206f89d3 (Lalitha_test)

PublicIPs: 3.82.46.98 PrivateIPs: 172.31.21.107

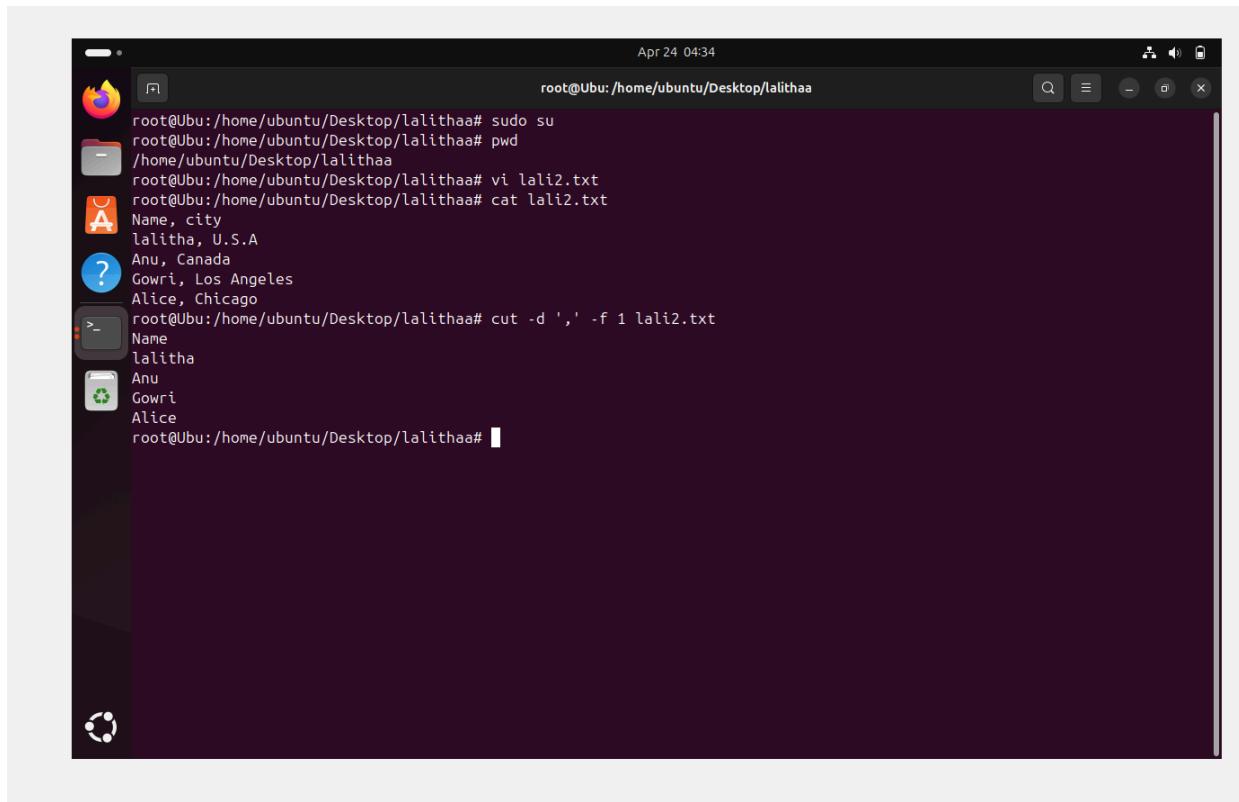
27) prepare specific columns from a delimited file.



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window has a dark background and contains the following command-line session:

```
ubuntu@Ubu:~/Desktop$ sudo su
[sudo] password for ubuntu:
root@Ubu:/home/ubuntu/Desktop# ls
etc.tar lal.txt sci
root@Ubu:/home/ubuntu/Desktop# pwd
/home/ubuntu/Desktop
root@Ubu:/home/ubuntu/Desktop# mkdir lalithaa
root@Ubu:/home/ubuntu/Desktop# cd lalithaa
root@Ubu:/home/ubuntu/Desktop/lalithaa# vi lal2.txt
root@Ubu:/home/ubuntu/Desktop/lalithaa# cut -d ',' -f 1,3 lal2.txt
Name
B
city
root@Ubu:/home/ubuntu/Desktop/lalithaa# cat lal2.txt
Name, lalitha
B
city,
root@Ubu:/home/ubuntu/Desktop/lalithaa# cut -d ',' -f 1 lal2.txt
Name
B
city
root@Ubu:/home/ubuntu/Desktop/lalithaa#
```

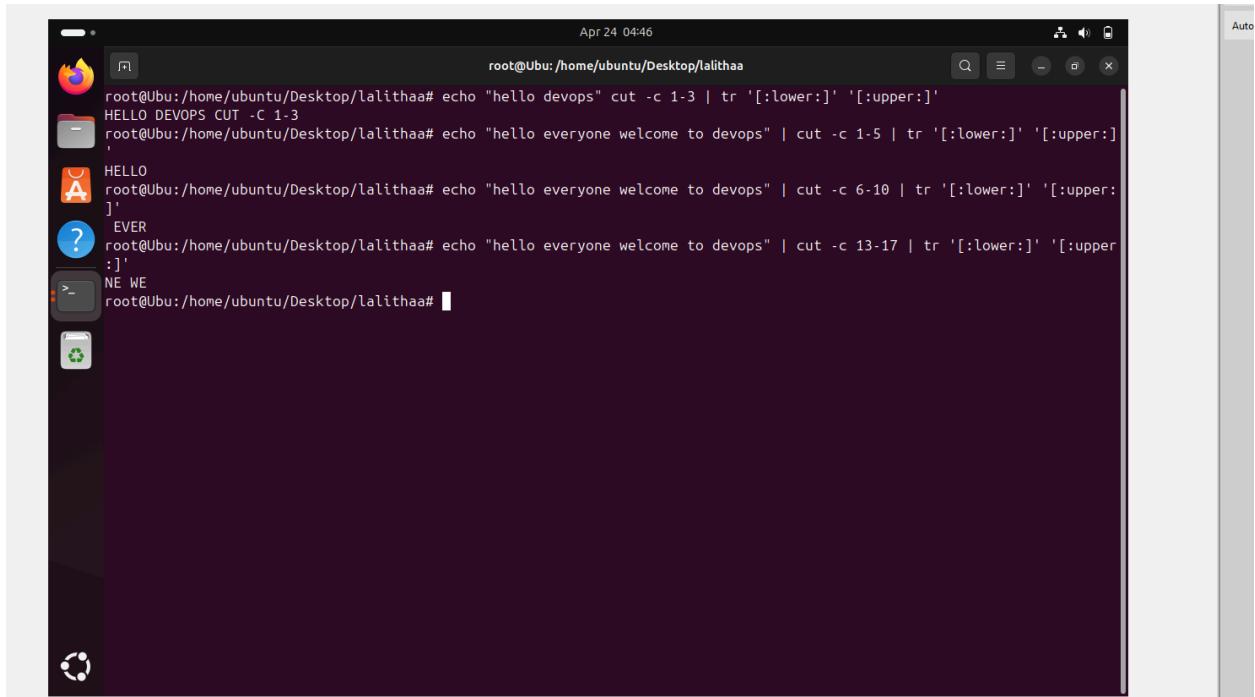
28) Filter and print lines based on a specific pattern or condition



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window has a dark background and contains the following command-line session:

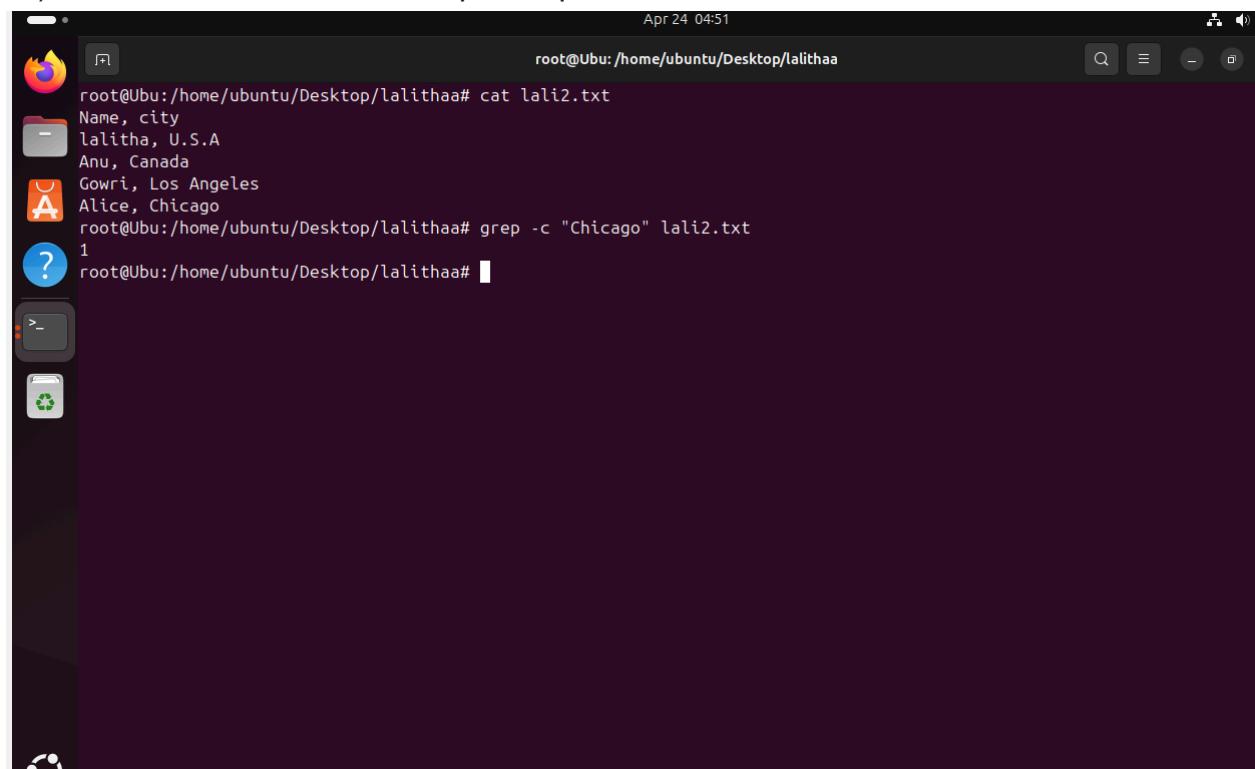
```
root@Ubu:/home/ubuntu/Desktop/lalithaa# sudo su
root@Ubu:/home/ubuntu/Desktop/lalithaa# pwd
/home/ubuntu/Desktop/lalithaa
root@Ubu:/home/ubuntu/Desktop/lalithaa# vi lali2.txt
root@Ubu:/home/ubuntu/Desktop/lalithaa# cat lali2.txt
Name, city
lalitha, U.S.A
Anu, Canada
Gowri, Los Angeles
Alice, Chicago
root@Ubu:/home/ubuntu/Desktop/lalithaa# cut -d ',' -f 1 lali2.txt
Name
lalitha
Anu
Gowri
Alice
root@Ubu:/home/ubuntu/Desktop/lalithaa#
```

29) perform string manipulation such as extracting substrings or changing case.



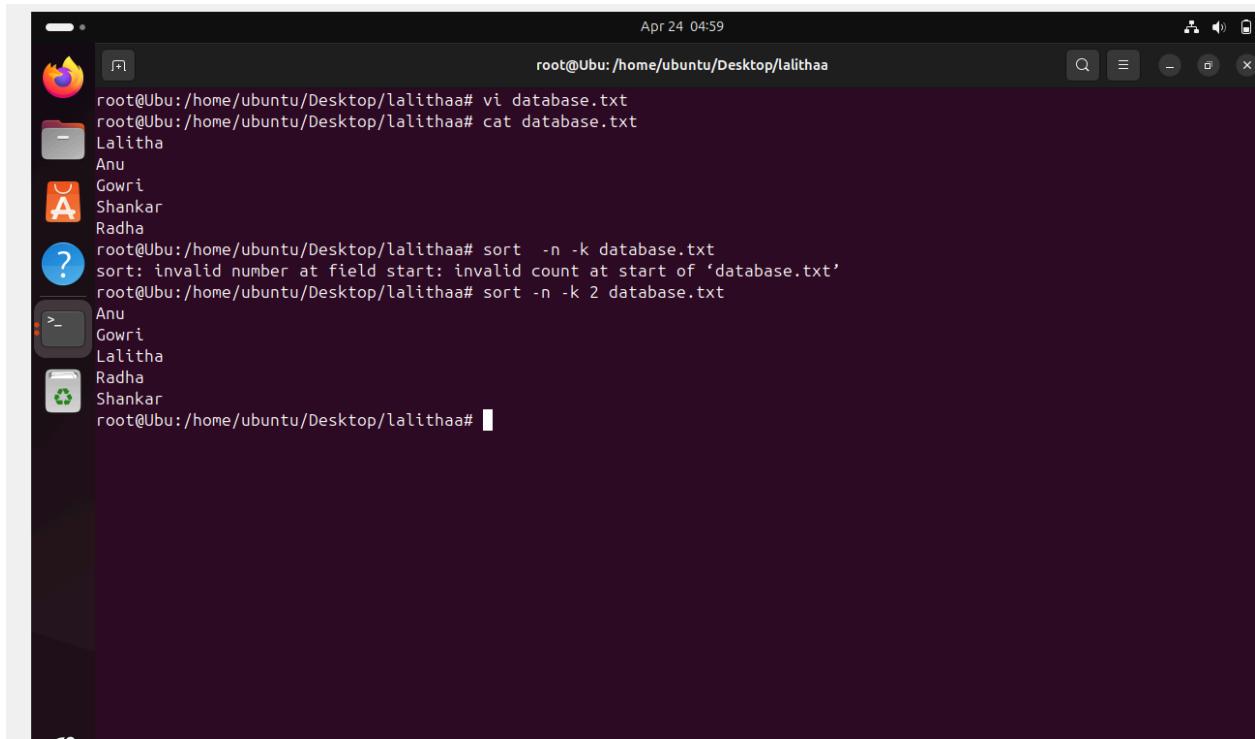
```
root@Ubu:/home/ubuntu/Desktop/lalithaa# echo "hello devops" | cut -c 1-3 | tr '[:lower:]' '[:upper:]'
HELLO
root@Ubu:/home/ubuntu/Desktop/lalithaa# echo "hello everyone welcome to devops" | cut -c 1-5 | tr '[:lower:]' '[:upper:]'
HELO
root@Ubu:/home/ubuntu/Desktop/lalithaa# echo "hello everyone welcome to devops" | cut -c 6-10 | tr '[:lower:]' '[:upper:]'
EVER
root@Ubu:/home/ubuntu/Desktop/lalithaa# echo "hello everyone welcome to devops" | cut -c 13-17 | tr '[:lower:]' '[:upper:]'
NE WE
root@Ubu:/home/ubuntu/Desktop/lalithaa#
```

30) count the occurrences of a specific pattern in a file



```
root@Ubu:/home/ubuntu/Desktop/lalithaa# cat lali2.txt
Name, city
lalitha, U.S.A
Anu, Canada
Gowri, Los Angeles
Alice, Chicago
root@Ubu:/home/ubuntu/Desktop/lalithaa# grep -c "Chicago" lali2.txt
1
root@Ubu:/home/ubuntu/Desktop/lalithaa#
```

31) sort lines based on a specific field or column

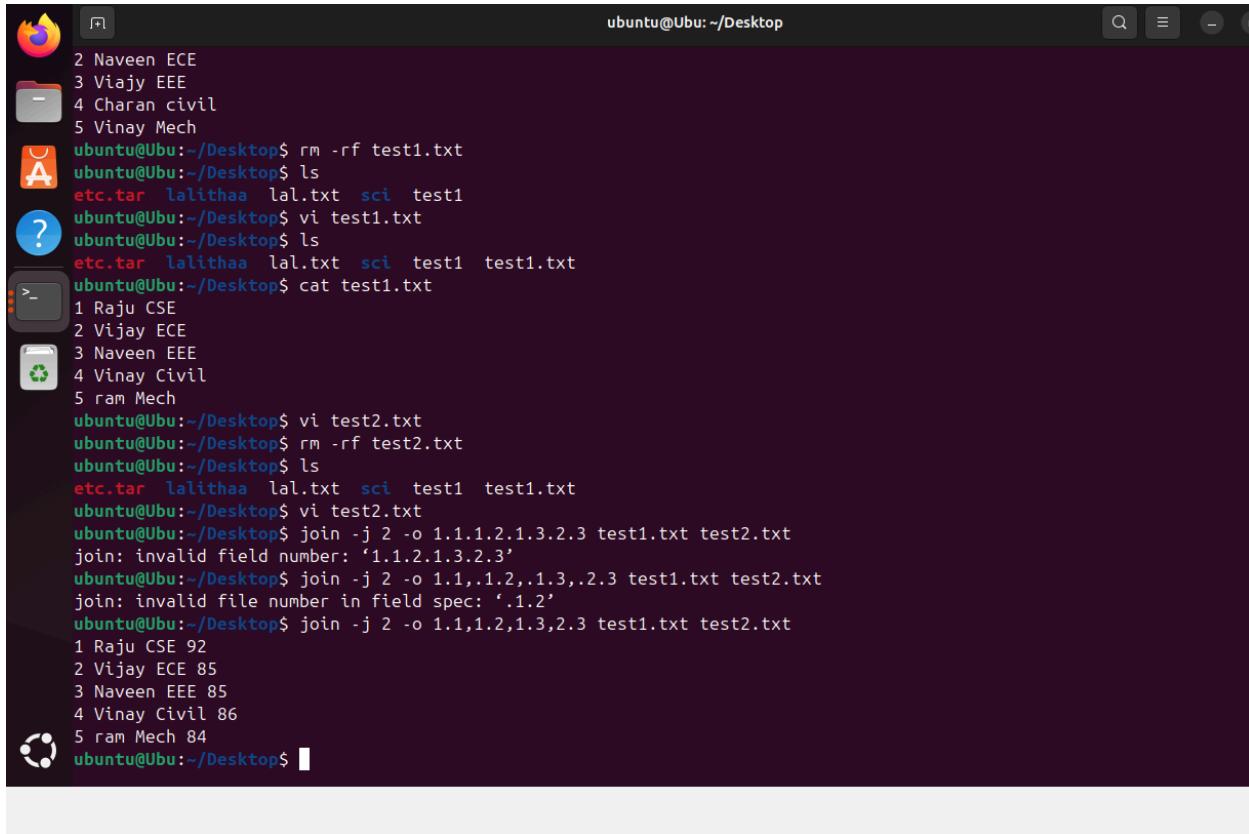


The screenshot shows a terminal window on a dark-themed desktop environment. The terminal title bar reads "root@Ubu:/home/ubuntu/Desktop/lalithaa" and the date and time "Apr 24 04:59". The terminal content is as follows:

```
root@Ubu:/home/ubuntu/Desktop/lalithaa# vi database.txt
root@Ubu:/home/ubuntu/Desktop/lalithaa# cat database.txt
Lalitha
Anu
Gowri
Shankar
Radha
root@Ubu:/home/ubuntu/Desktop/lalithaa# sort -n -k database.txt
sort: invalid number at field start: invalid count at start of 'database.txt'
root@Ubu:/home/ubuntu/Desktop/lalithaa# sort -n -k 2 database.txt
Anu
Gowri
Lalitha
Radha
Shankar
root@Ubu:/home/ubuntu/Desktop/lalithaa#
```

The terminal window has a standard Linux-style interface with icons for file operations (copy, paste, move, delete) and system status indicators.

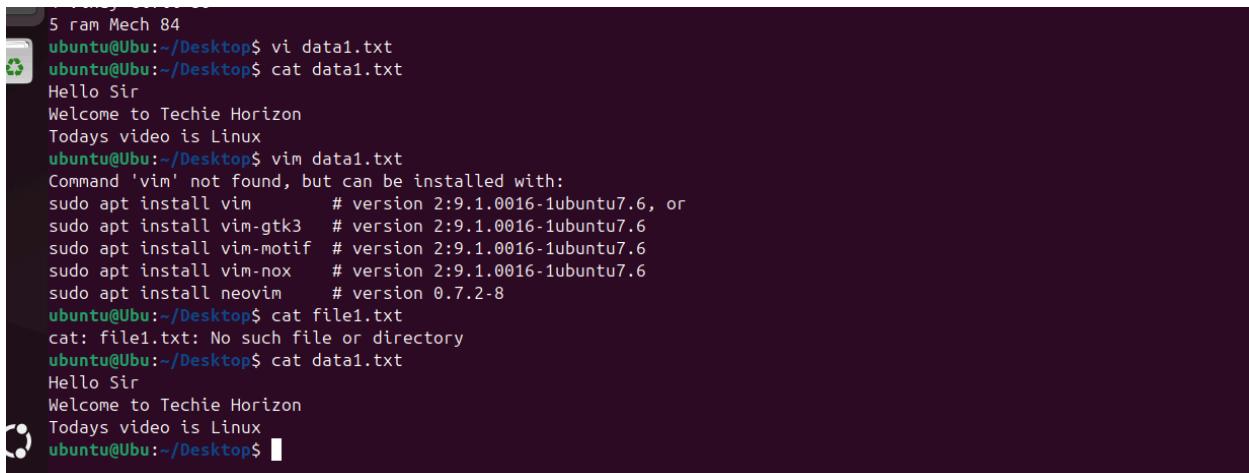
32) Merge multiple files based on a common field or column



ubuntu@Ubu: ~/Desktop

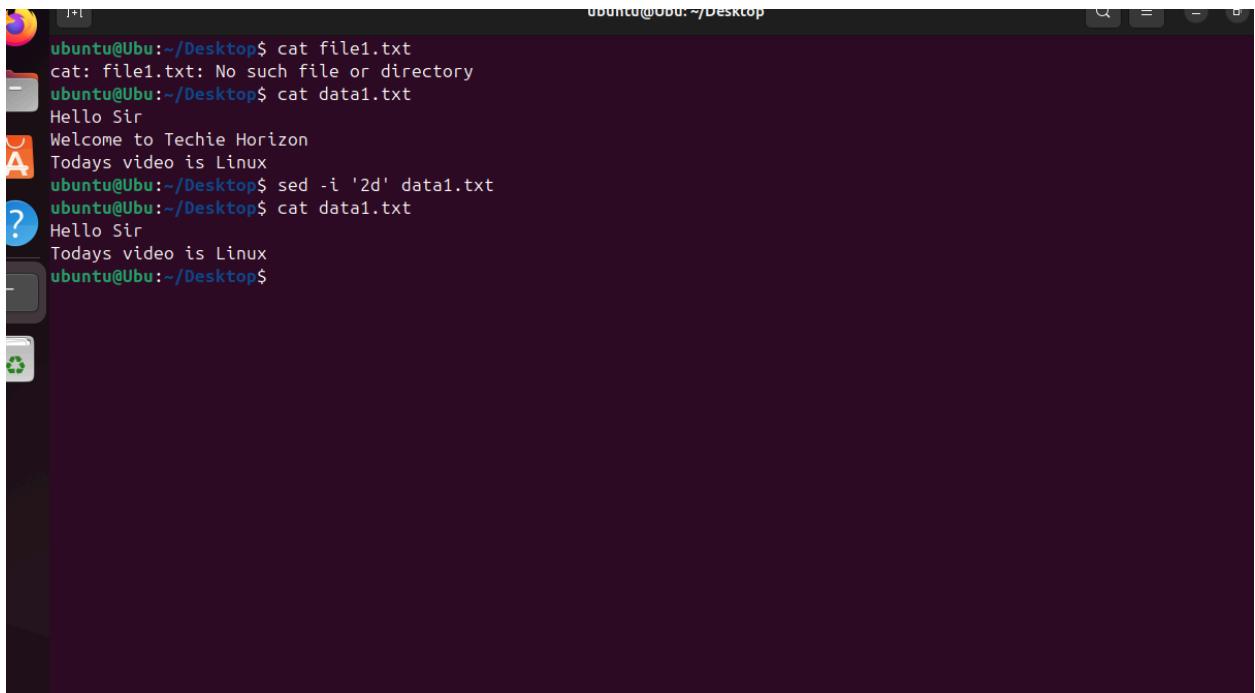
```
2 Naveen ECE
3 Viajy EEE
4 Charan civil
5 Vinay Mech
ubuntu@Ubu:~/Desktop$ rm -rf test1.txt
ubuntu@Ubu:~/Desktop$ ls
etc.tar lalithaa lal.txt sci test1
ubuntu@Ubu:~/Desktop$ vi test1.txt
ubuntu@Ubu:~/Desktop$ ls
etc.tar lalithaa lal.txt sci test1 test1.txt
ubuntu@Ubu:~/Desktop$ cat test1.txt
1 Raju CSE
2 Vijay ECE
3 Naveen EEE
4 Vinay Civil
5 ram Mech
ubuntu@Ubu:~/Desktop$ vi test2.txt
ubuntu@Ubu:~/Desktop$ rm -rf test2.txt
ubuntu@Ubu:~/Desktop$ ls
etc.tar lalithaa lal.txt sci test1 test1.txt
ubuntu@Ubu:~/Desktop$ vi test2.txt
ubuntu@Ubu:~/Desktop$ join -j 2 -o 1.1.2.1.3.2.3 test1.txt test2.txt
join: invalid field number: '1.1.2.1.3.2.3'
ubuntu@Ubu:~/Desktop$ join -j 2 -o 1.1,.1.2.,.1.3.,.2.3 test1.txt test2.txt
join: invalid file number in field spec: '.1.2'
ubuntu@Ubu:~/Desktop$ join -j 2 -o 1.1,1.2,1.3,2.3 test1.txt test2.txt
1 Raju CSE 92
2 Vijay ECE 85
3 Naveen EEE 85
4 Vinay Civil 86
5 ram Mech 84
ubuntu@Ubu:~/Desktop$
```

33) substitute text in a file using search and replace



```
5 ram Mech 84
ubuntu@Ubu:~/Desktop$ vi data1.txt
ubuntu@Ubu:~/Desktop$ cat data1.txt
Hello Sir
Welcome to Techie Horizon
Todays video is Linux
ubuntu@Ubu:~/Desktop$ vim data1.txt
Command 'vim' not found, but can be installed with:
sudo apt install vim      # version 2:9.1.0016-1ubuntu7.6, or
sudo apt install vim-gtk3  # version 2:9.1.0016-1ubuntu7.6
sudo apt install vim-motif # version 2:9.1.0016-1ubuntu7.6
sudo apt install vim-nox   # version 2:9.1.0016-1ubuntu7.6
sudo apt install neovim    # version 0.7.2-8
ubuntu@Ubu:~/Desktop$ cat file1.txt
cat: file1.txt: No such file or directory
ubuntu@Ubu:~/Desktop$ cat data1.txt
Hello Sir
Welcome to Techie Horizon
Todays video is Linux
ubuntu@Ubu:~/Desktop$
```

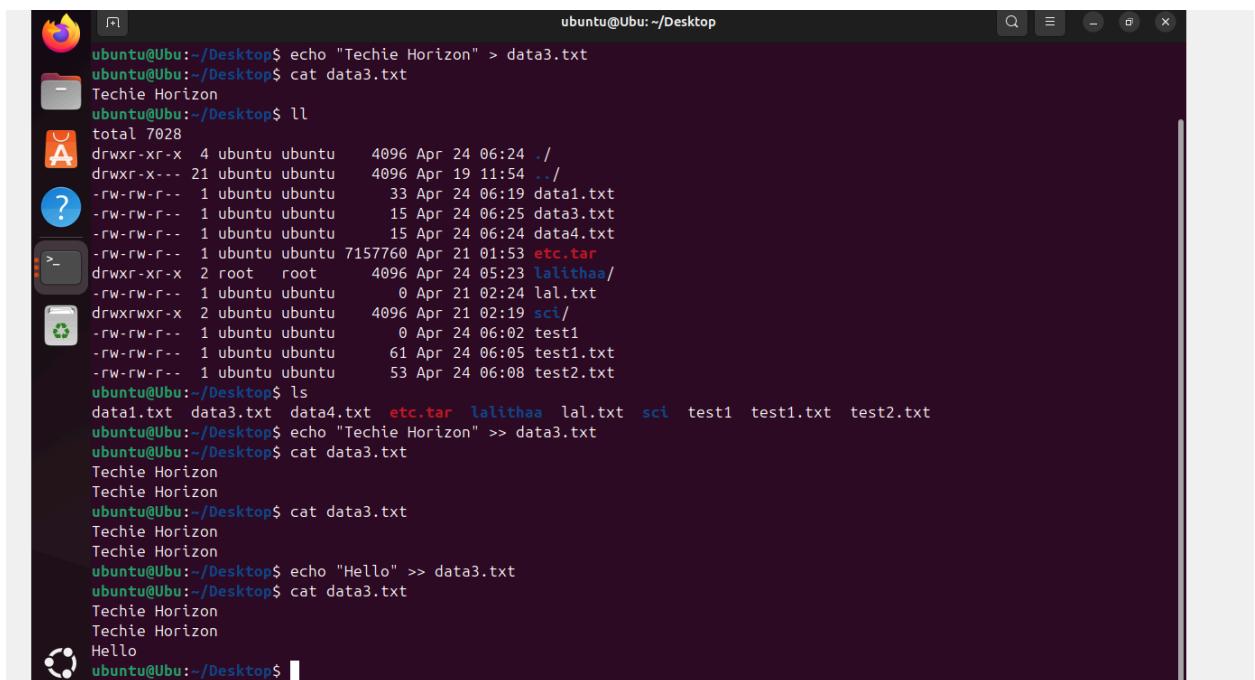
34) Delete a specific lines based on a pattern or line number



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window has a dark background and contains the following text:

```
ubuntu@Ubu:~/Desktop$ cat file1.txt
cat: file1.txt: No such file or directory
ubuntu@Ubu:~/Desktop$ cat data1.txt
Hello Sir
Welcome to Techie Horizon
Todays video is Linux
ubuntu@Ubu:~/Desktop$ sed -i '2d' data1.txt
ubuntu@Ubu:~/Desktop$ cat data1.txt
Hello Sir
Todays video is Linux
ubuntu@Ubu:~/Desktop$
```

35) Append or insert text before or after a specific pattern or line



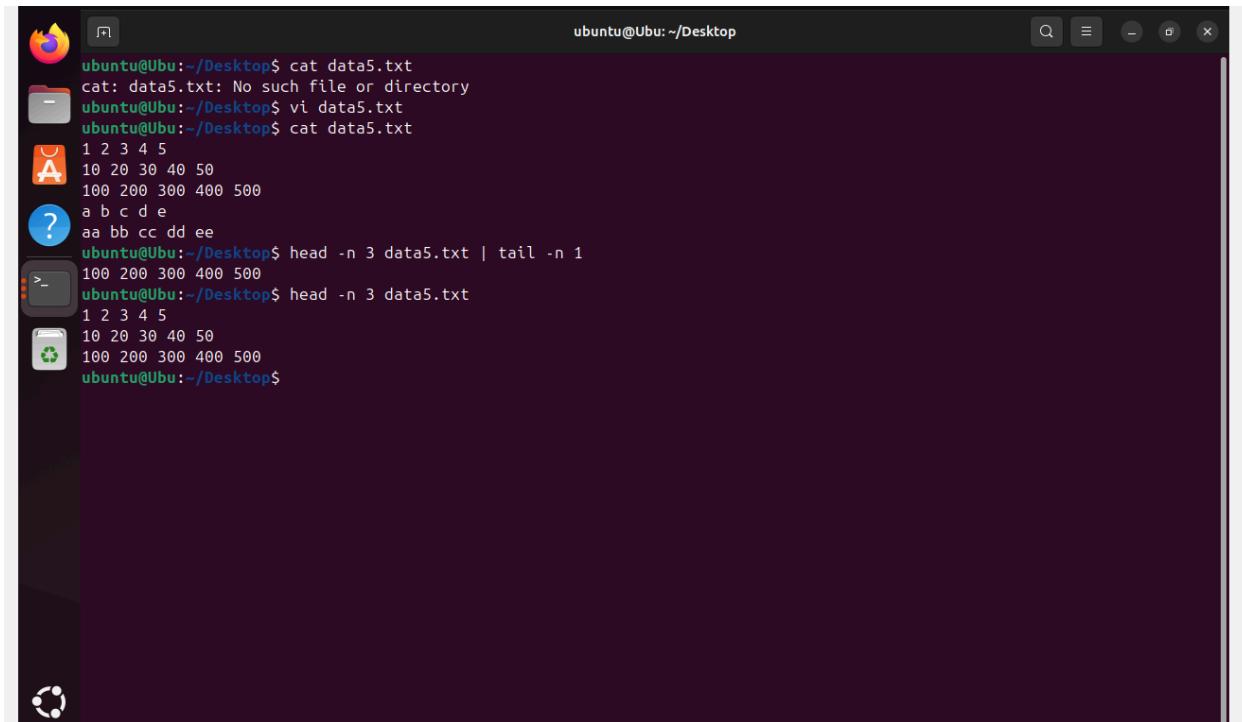
A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window has a dark background and contains the following text:

```
ubuntu@Ubu:~/Desktop$ echo "Techie Horizon" > data3.txt
ubuntu@Ubu:~/Desktop$ cat data3.txt
Techie Horizon
ubuntu@Ubu:~/Desktop$ ll
total 7028
drwxr-xr-x  4 ubuntu  ubuntu   4096 Apr 24 06:24 .
drwxr-x--- 21 ubuntu  ubuntu   4096 Apr 19 11:54 ..
-rw-rw-r--  1 ubuntu  ubuntu    33 Apr 24 06:19 data1.txt
-rw-rw-r--  1 ubuntu  ubuntu   15 Apr 24 06:25 data3.txt
-rw-rw-r--  1 ubuntu  ubuntu   15 Apr 24 06:24 data4.txt
-rw-rw-r--  1 ubuntu  ubuntu 7157760 Apr 21 01:53 etc.tar
drwxr-xr-x  2 root   root    4096 Apr 24 05:23 lalithaa/
-rw-rw-r--  1 ubuntu  ubuntu      0 Apr 21 02:24 lal.txt
drwxrwxr-x  2 ubuntu  ubuntu   4096 Apr 21 02:19 sci/
-rw-rw-r--  1 ubuntu  ubuntu      0 Apr 24 06:02 test1
-rw-rw-r--  1 ubuntu  ubuntu     61 Apr 24 06:05 test1.txt
-rw-rw-r--  1 ubuntu  ubuntu    53 Apr 24 06:08 test2.txt
ubuntu@Ubu:~/Desktop$ ls
data1.txt  data3.txt  data4.txt  etc.tar  lalithaa  lal.txt  sci  test1  test1.txt  test2.txt
ubuntu@Ubu:~/Desktop$ echo "Techie Horizon" >> data3.txt
ubuntu@Ubu:~/Desktop$ cat data3.txt
Techie Horizon
Techie Horizon
ubuntu@Ubu:~/Desktop$ cat data3.txt
Techie Horizon
Techie Horizon
ubuntu@Ubu:~/Desktop$ echo "Hello" >> data3.txt
ubuntu@Ubu:~/Desktop$ cat data3.txt
Techie Horizon
Techie Horizon
Hello
ubuntu@Ubu:~/Desktop$
```

36) Compress and decompress a link in a file

```
total 7044
drwxr-xr-x  4 ubuntu  ubuntu        4096 Apr 24 07:22 .
drwxr-x--- 21 ubuntu  ubuntu        4096 Apr 19 11:54 ..
-rw-rw-r--  1 ubuntu  ubuntu         33 Apr 24 06:19 data1.txt
-rw-rw-r--  1 ubuntu  ubuntu         36 Apr 24 06:28 data3.txt
-rw-rw-r--  1 ubuntu  ubuntu         15 Apr 24 06:24 data4.txt
-rw-rw-r--  1 ubuntu  ubuntu         71 Apr 24 06:31 data5.txt
-rw-rw-r--  1 ubuntu  ubuntu         24 Apr 24 07:07 data.txt
-rw-rw-r--  1 ubuntu  ubuntu         79 Apr 24 06:36 employee.txt
-rw-rw-r--  1 ubuntu  ubuntu 7157760 Apr 21 01:53 etc.tar
-rw-rw-r--  1 ubuntu  ubuntu         218 Apr 24 06:44 greekfile.txt
drwxr-xr-x  2 root   root          4096 Apr 24 05:23 lalithaa/
-rw-rw-r--  1 ubuntu  ubuntu          0 Apr 21 02:24 lal.txt
drwxrwxr-x  2 ubuntu  ubuntu        4096 Apr 21 02:19 sci/
lrwxrwxrwx  1 ubuntu  ubuntu          31 Apr 24 07:22 symlink -> /path/original/path/
for/symlink
-rw-rw-r--  1 ubuntu  ubuntu          0 Apr 24 06:02 test1
-rw-rw-r--  1 ubuntu  ubuntu         61 Apr 24 06:05 test1.txt
-rw-rw-r--  1 ubuntu  ubuntu         53 Apr 24 06:08 test2.txt
ubuntu@Ubu:~/Desktop$
```

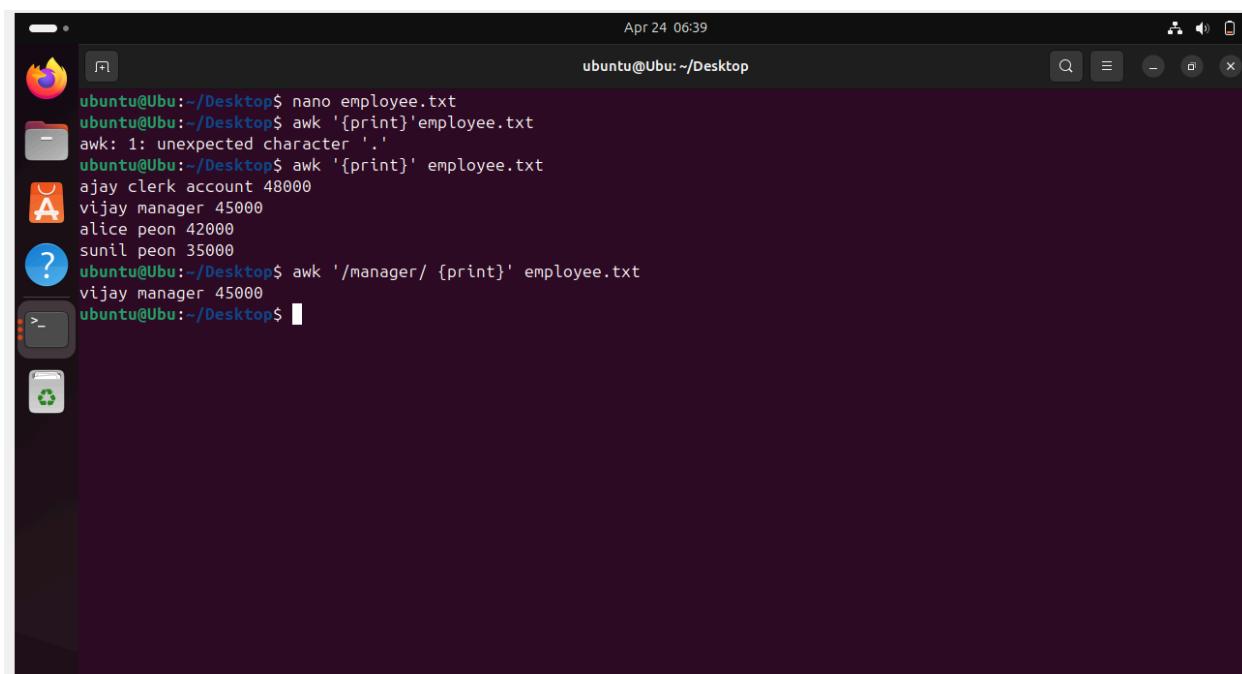
37) print only specific lines from a file



A screenshot of a terminal window on an Ubuntu desktop environment. The window title is "ubuntu@Ubu: ~/Desktop". The terminal shows the following commands and output:

```
ubuntu@Ubu:~/Desktop$ cat data5.txt
cat: data5.txt: No such file or directory
ubuntu@Ubu:~/Desktop$ vi data5.txt
ubuntu@Ubu:~/Desktop$ cat data5.txt
1 2 3 4 5
10 20 30 40 50
100 200 300 400 500
a b c d e
aa bb cc dd ee
ubuntu@Ubu:~/Desktop$ head -n 3 data5.txt | tail -n 1
100 200 300 400 500
ubuntu@Ubu:~/Desktop$ head -n 3 data5.txt
1 2 3 4 5
10 20 30 40 50
100 200 300 400 500
ubuntu@Ubu:~/Desktop$
```

38) copy file from linux to window machine



A screenshot of a terminal window on an Ubuntu desktop environment. The window title is "ubuntu@Ubu: ~/Desktop". The terminal shows the following commands and output:

```
ubuntu@Ubu:~/Desktop$ nano employee.txt
ubuntu@Ubu:~/Desktop$ awk '{print}' employee.txt
awk: 1: unexpected character '.'
ubuntu@Ubu:~/Desktop$ awk '{print}' employee.txt
ajay clerk account 48000
vijay manager 45000
alice peon 42000
sunil peon 35000
ubuntu@Ubu:~/Desktop$ awk '/manager/ {print}' employee.txt
vijay manager 45000
ubuntu@Ubu:~/Desktop$
```

39) 5 use cases for awk and 5 use cases for sed

```
Apr 24 06:50
ubuntu@Ubu:~/Desktop$ vi greekfile.txt
ubuntu@Ubu:~/Desktop$ sed 's/unix/linux/' greekfile.txt
Devops is a software methodology that combines software development and IT operations
To improves continous collaboration, automation, and contiinuous delivery of software
It promotes strong communication
It promotes s
ubuntu@Ubu:~/Desktop$ sed 's/unix/linux/2' greekfile.txt
Devops is a software methodology that combines software development and IT operations
To improves continous collaboration, automation, and contiinuous delivery of software
It promotes strong communication
It promotes s
ubuntu@Ubu:~/Desktop$ sed 's/unix/linux/g' greekfile.txt
Devops is a software methodology that combines software development and IT operations
To improves continous collaboration, automation, and contiinuous delivery of software
It promotes strong communication
It promotes s
ubuntu@Ubu:~/Desktop$
```

40) Calculate and print the mean , median , sum, use some statistics

```
Apr 24 07:14
ubuntu@Ubu:~/Desktop$ vi data.txt
ubuntu@Ubu:~/Desktop$ cat data.txt
10
20
30
40
50
60
70
80
ubuntu@Ubu:~/Desktop$ awk '{sum += $1} END {print "sum: ", sum}' data.txt
sum: 360
ubuntu@Ubu:~/Desktop$ awk '{sum += $1; count++} END {print "Average: ", sum/count}' data.txt
Average: 45
ubuntu@Ubu:~/Desktop$ awk 'BEGIN {min = 9999999; max = -9999999} {$1 < min} min = $1; if ($1 > max) max = $1} END {print "min:", min, "max:", max}' data.txt
min: 10 max: 80
ubuntu@Ubu:~/Desktop$
```

41) create a symbolic link

```
ubuntu@Ubu:~/Desktop$ ln -s
ln: missing file operand
Try 'ln --help' for more information.
ubuntu@Ubu:~/Desktop$ ln -s /path/original/path/for/symlink
ubuntu@Ubu:~/Desktop$ ls
data1.txt  data4.txt  data.txt   etc.tar    lalithaa  sci      test1     test2.txt
data3.txt  data5.txt  employee.txt greekfile.txt lal.txt   symlink  test1.txt
ubuntu@Ubu:~/Desktop$
```

42) update system packages in linux

```
! ubuntu@Ubu:~/Desktop$ sudo apt update
[sudo] password for ubuntu:
Hit:1 http://in.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://in.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:3 http://in.archive.ubuntu.com/ubuntu noble-backports InRelease
Get:4 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1,026 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [223 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [964 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [198 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1,057 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [267 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [782 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [147 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [931 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [190 kB]
Get:15 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [833 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [181 kB]
Fetched 7,052 kB in 15s (471 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
110 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@Ubu:~/Desktop$
```