

# CC Assignment - 1

**Roll no:** 333029

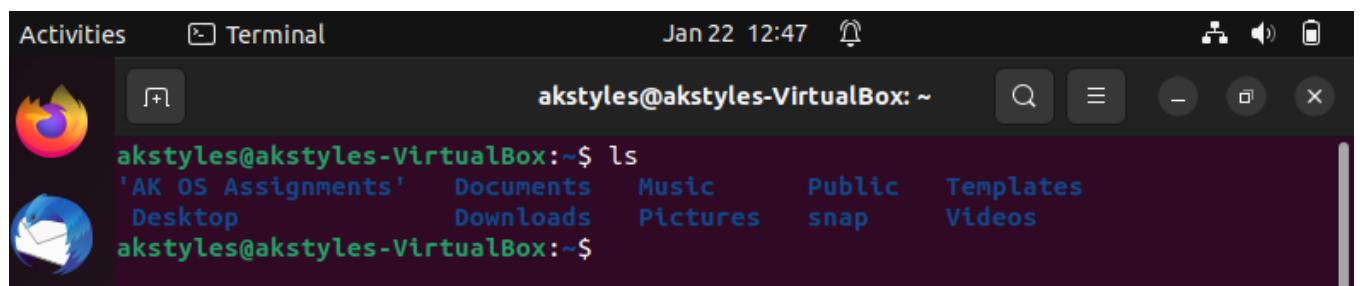
**GR no:** 22010567

**Name:** Atharva Mukund Kulkarni

**Batch:** C2

**Aim:** Study Linux Commands

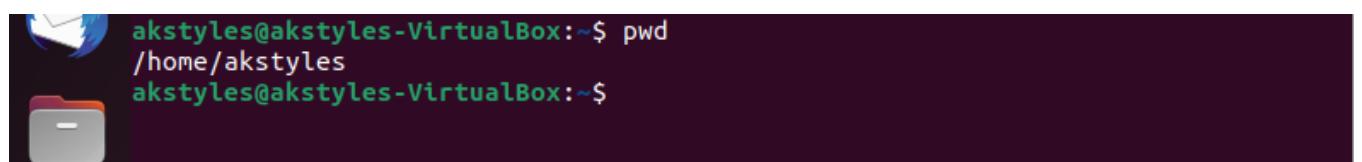
01. ls — The most frequently used command in Linux to list directories



A screenshot of a Linux desktop environment. At the top, there is a header bar with icons for Activities, Terminal, date and time (Jan 22 12:47), and system status. Below the header is a terminal window titled 'Terminal'. The terminal window shows a command-line session:

```
akstyles@akstyles-VirtualBox:~$ ls
'AK OS Assignments'  Documents  Music      Public    Templates
Desktop              Downloads  Pictures   snap      Videos
akstyles@akstyles-VirtualBox:~$
```

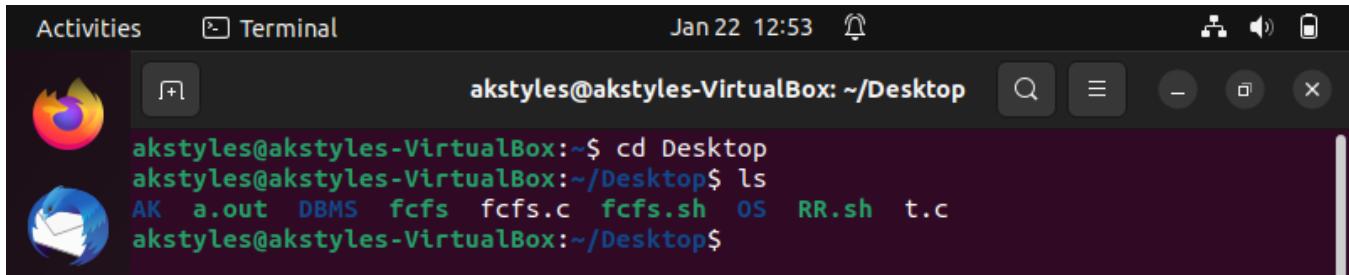
02. pwd — Print working directory command in Linux



A screenshot of a Linux desktop environment. At the top, there is a header bar with icons for Activities, Terminal, date and time (Jan 22 12:47), and system status. Below the header is a terminal window titled 'Terminal'. The terminal window shows a command-line session:

```
akstyles@akstyles-VirtualBox:~$ pwd
/home/akstyles
akstyles@akstyles-VirtualBox:~$
```

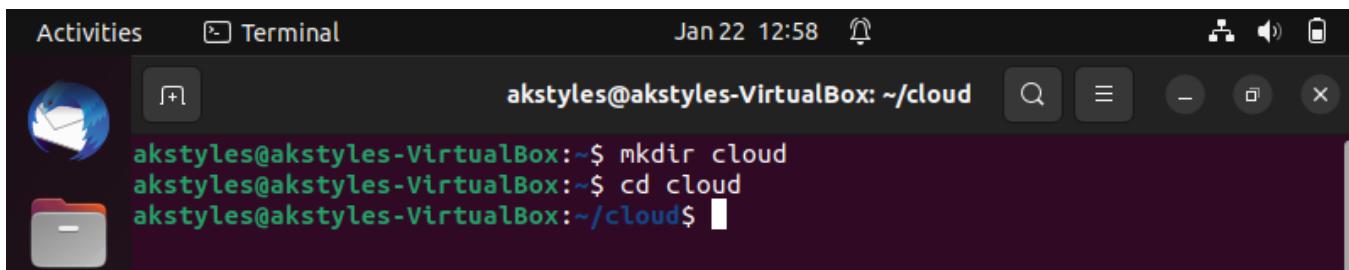
### 03. cd — Linux command to navigate through directories



A screenshot of a Linux desktop environment showing a terminal window. The terminal window title is "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/Desktop$ cd Desktop
akstyles@akstyles-VirtualBox:~/Desktop$ ls
AK a.out DBMS fcfs fcfs.c fcfs.sh OS RR.sh t.c
akstyles@akstyles-VirtualBox:~/Desktop$
```

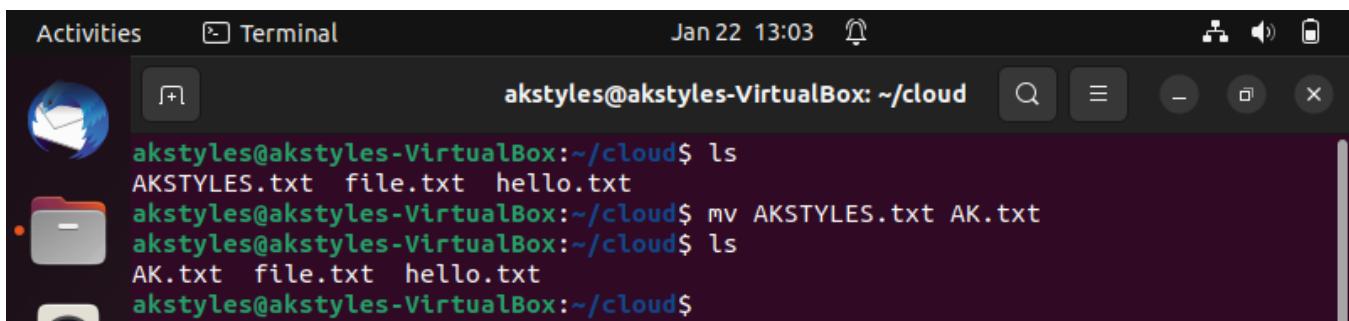
### 04. mkdir — Command used to create directories in Linux



A screenshot of a Linux desktop environment showing a terminal window. The terminal window title is "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ mkdir cloud
akstyles@akstyles-VirtualBox:~/cloud$ cd cloud
akstyles@akstyles-VirtualBox:~/cloud$
```

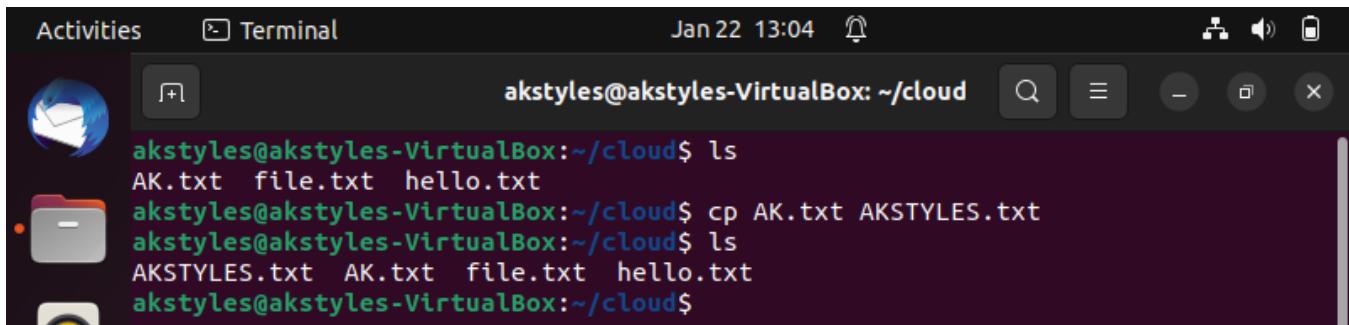
### 05. mv — Move or rename files in Linux



A screenshot of a Linux desktop environment showing a terminal window. The terminal window title is "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ ls
AKSTYLES.txt file.txt hello.txt
akstyles@akstyles-VirtualBox:~/cloud$ mv AKSTYLES.txt AK.txt
akstyles@akstyles-VirtualBox:~/cloud$ ls
AK.txt file.txt hello.txt
akstyles@akstyles-VirtualBox:~/cloud$
```

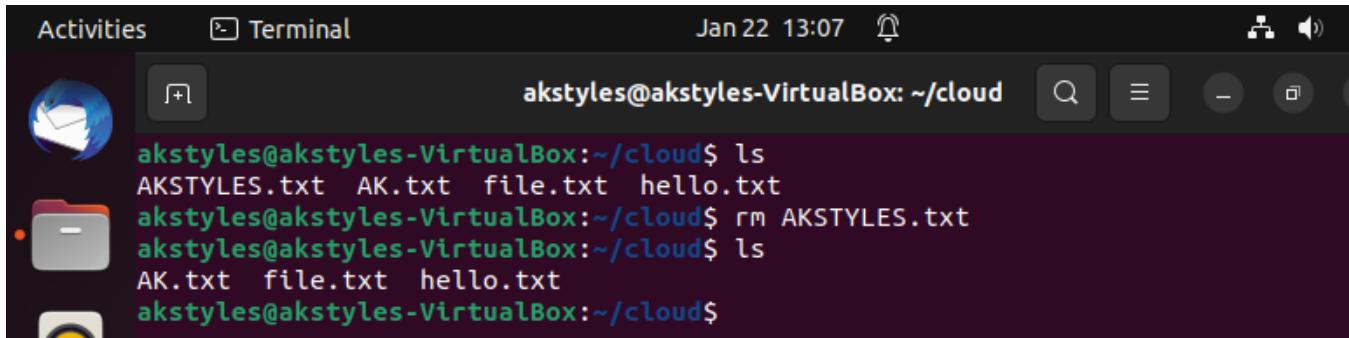
### 06. cp — Similar usage as mv but for copying files in Linux



A screenshot of a Linux desktop environment showing a terminal window. The terminal window title is "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ ls
AK.txt file.txt hello.txt
akstyles@akstyles-VirtualBox:~/cloud$ cp AK.txt AKSTYLES.txt
akstyles@akstyles-VirtualBox:~/cloud$ ls
AKSTYLES.txt AK.txt file.txt hello.txt
akstyles@akstyles-VirtualBox:~/cloud$
```

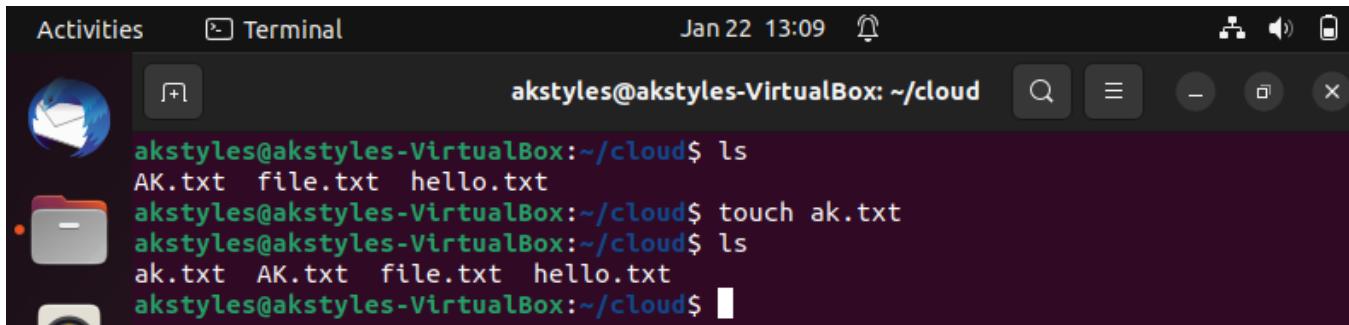
## 07. rm — Delete files or directories



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

```
akstyles@akstyles-VirtualBox:~/cloud$ ls
AKSTYLES.txt AK.txt file.txt hello.txt
akstyles@akstyles-VirtualBox:~/cloud$ rm AKSTYLES.txt
akstyles@akstyles-VirtualBox:~/cloud$ ls
AK.txt file.txt hello.txt
akstyles@akstyles-VirtualBox:~/cloud$
```

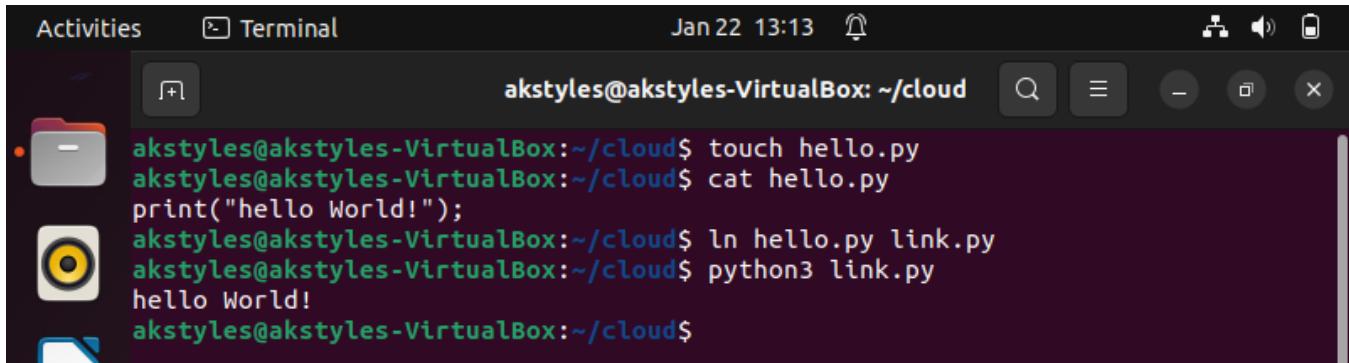
## 08. touch — Create blank/empty files



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

```
akstyles@akstyles-VirtualBox:~/cloud$ ls
AK.txt file.txt hello.txt
akstyles@akstyles-VirtualBox:~/cloud$ touch ak.txt
akstyles@akstyles-VirtualBox:~/cloud$ ls
ak.txt AK.txt file.txt hello.txt
akstyles@akstyles-VirtualBox:~/cloud$
```

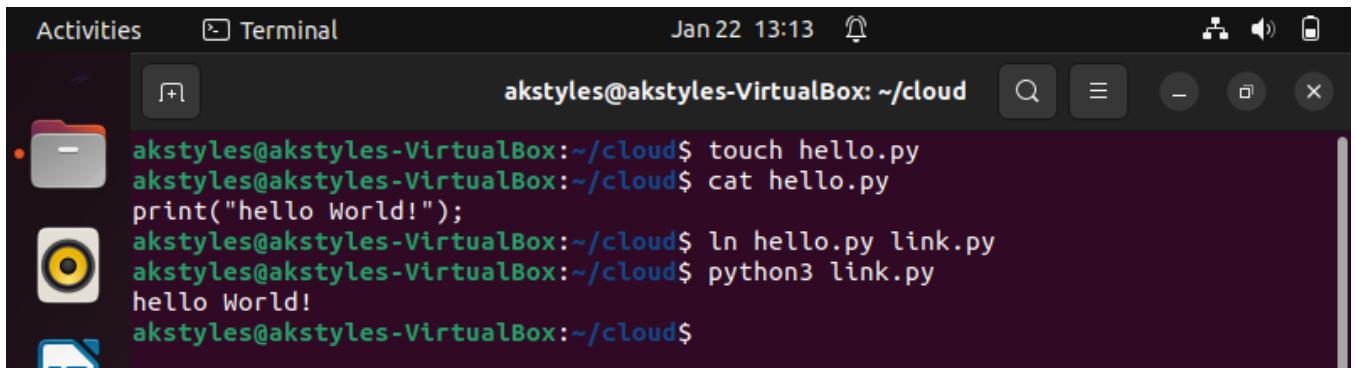
## 09. ln — Create symbolic links (shortcuts) to other files



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

```
akstyles@akstyles-VirtualBox:~/cloud$ touch hello.py
akstyles@akstyles-VirtualBox:~/cloud$ cat hello.py
print("Hello World!");
akstyles@akstyles-VirtualBox:~/cloud$ ln hello.py link.py
akstyles@akstyles-VirtualBox:~/cloud$ python3 link.py
Hello World!
akstyles@akstyles-VirtualBox:~/cloud$
```

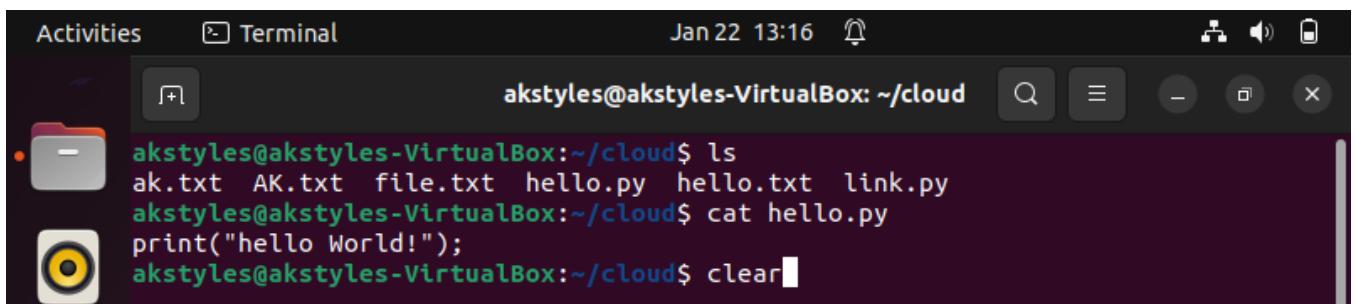
## 10. cat — Display file contents on the terminal



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title bar says "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ touch hello.py
akstyles@akstyles-VirtualBox:~/cloud$ cat hello.py
print("hello World!");
akstyles@akstyles-VirtualBox:~/cloud$ ln hello.py link.py
akstyles@akstyles-VirtualBox:~/cloud$ python3 link.py
hello World!
akstyles@akstyles-VirtualBox:~/cloud$
```

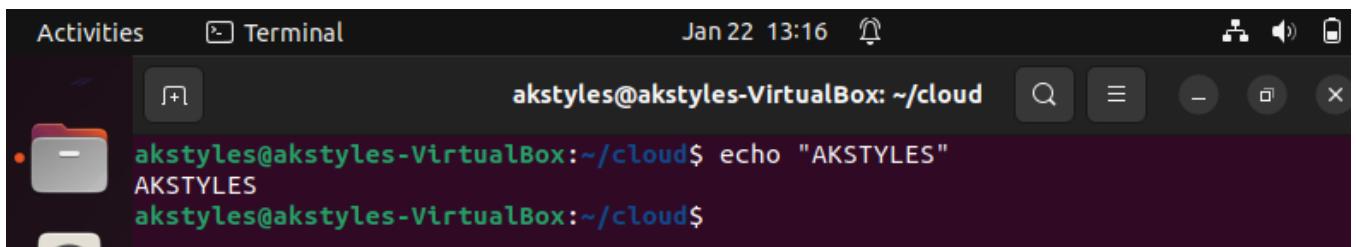
## 11. clear — Clear the terminal display



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title bar says "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ ls
ak.txt AK.txt file.txt hello.py hello.txt link.py
akstyles@akstyles-VirtualBox:~/cloud$ cat hello.py
print("hello World!");
akstyles@akstyles-VirtualBox:~/cloud$ clear
```

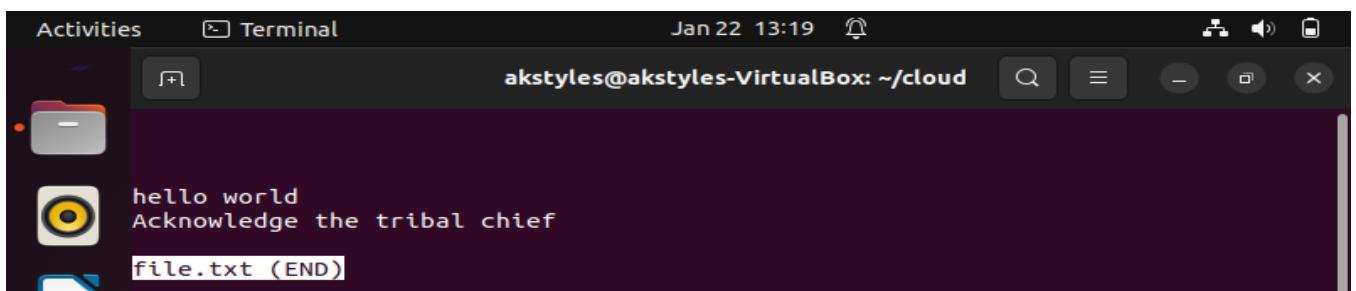
## 12. echo — Print any text that follows the command



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title bar says "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ echo "AKSTYLES"
AKSTYLES
akstyles@akstyles-VirtualBox:~/cloud$
```

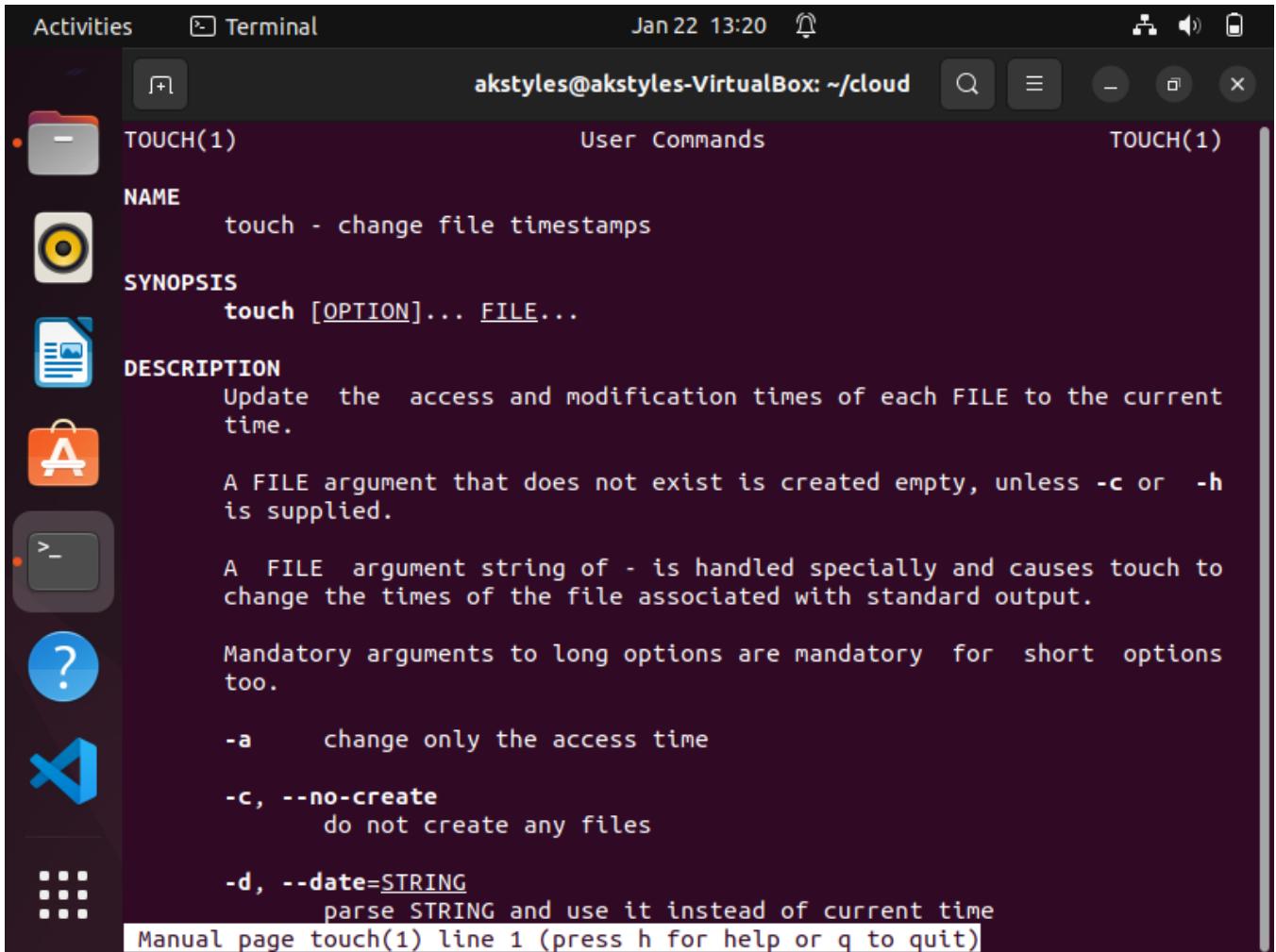
## 13. less — Linux command to display paged outputs in the terminal



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title bar says "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ less file.txt
hello world
Acknowledge the tribal chief
file.txt (END)
```

## 14. man — Access manual pages for all Linux commands



A screenshot of a Linux desktop environment showing a terminal window. The terminal title is "Terminal" and the user is "akstyles@akstyles-VirtualBox: ~/cloud". The window shows the man page for the "TOUCH(1)" command. The page includes sections for NAME, SYNOPSIS, DESCRIPTION, and options like -a, -c, -d, and --date=STRING. The terminal window has a dark theme with icons on the left.

```
TOUCH(1) User Commands TOUCH(1)

NAME
touch - change file timestamps

SYNOPSIS
touch [OPTION]... FILE...

DESCRIPTION
Update the access and modification times of each FILE to the current
time.

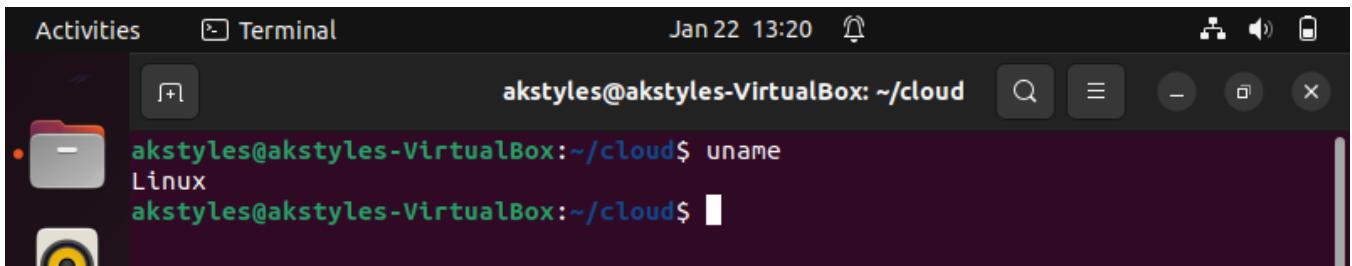
A FILE argument that does not exist is created empty, unless -c or -h
is supplied.

A FILE argument string of - is handled specially and causes touch to
change the times of the file associated with standard output.

Mandatory arguments to long options are mandatory for short options
too.

-a      change only the access time
-c, --no-create
        do not create any files
-d, --date=STRING
        parse STRING and use it instead of current time
Manual page touch(1) line 1 (press h for help or q to quit)
```

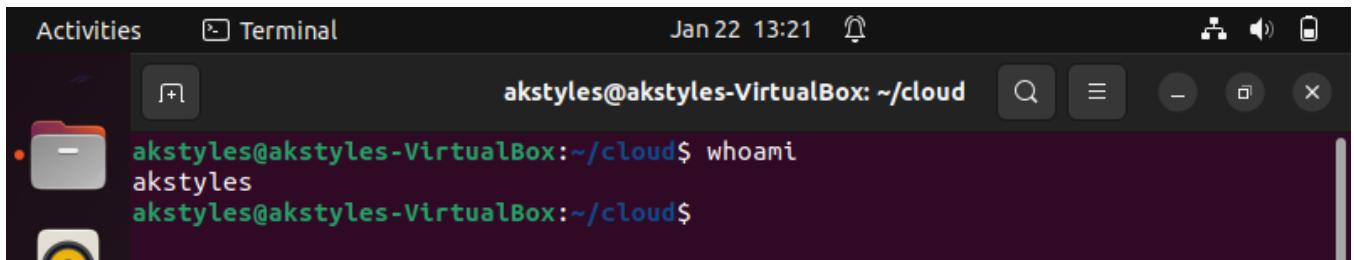
## 15. uname — Linux command to get basic information about the OS



A screenshot of a Linux desktop environment showing a terminal window. The terminal title is "Terminal" and the user is "akstyles@akstyles-VirtualBox: ~/cloud". The window shows the output of the "uname" command, which returns "Linux". The terminal window has a dark theme with icons on the left.

```
akstyles@akstyles-VirtualBox:~/cloud$ uname
Linux
akstyles@akstyles-VirtualBox:~/cloud$
```

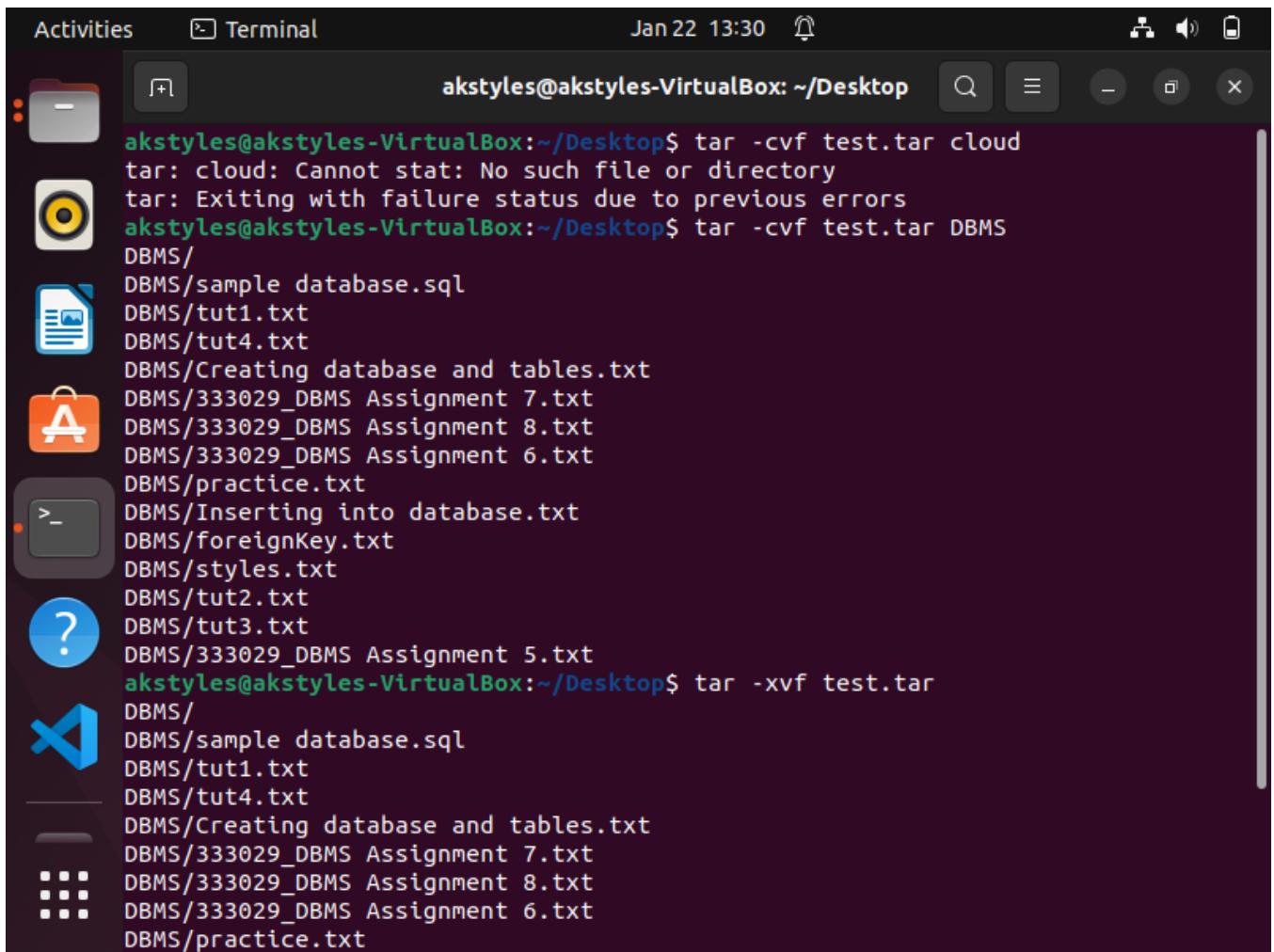
## 16. whoami — Get the active username



A screenshot of a Linux desktop environment showing a terminal window. The terminal title bar says "Terminal". The date and time are "Jan 22 13:21". The user is "akstyles@akstyles-VirtualBox: ~/cloud\$". The terminal shows the command "whoami" being run, which outputs "akstyles". The prompt then changes to "akstyles@akstyles-VirtualBox:~/cloud\$".

```
akstyles@akstyles-VirtualBox:~/cloud$ whoami
akstyles
akstyles@akstyles-VirtualBox:~/cloud$
```

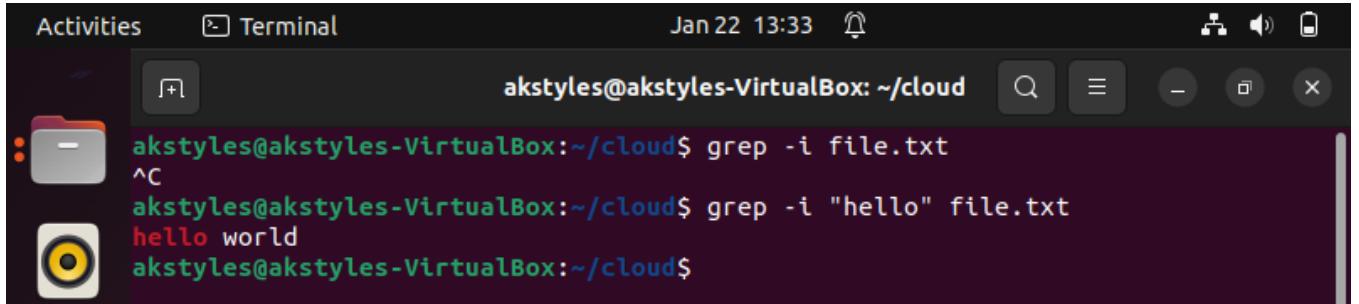
## 17. tar — Command to extract and compress files in Linux



A screenshot of a Linux desktop environment showing a terminal window. The terminal title bar says "Terminal". The date and time are "Jan 22 13:30". The user is "akstyles@akstyles-VirtualBox: ~/Desktop\$". The terminal shows the command "tar -cvf test.tar cloud" being run, followed by an error message: "tar: cloud: Cannot stat: No such file or directory" and "tar: Exiting with failure status due to previous errors". Then, the command "tar -cvf test.tar DBMS" is run, listing all files in the "DBMS" directory. Finally, the command "tar -xvf test.tar" is run, extracting all files from "test.tar" back to the current directory.

```
akstyles@akstyles-VirtualBox:~/Desktop$ tar -cvf test.tar cloud
tar: cloud: Cannot stat: No such file or directory
tar: Exiting with failure status due to previous errors
akstyles@akstyles-VirtualBox:~/Desktop$ tar -cvf test.tar DBMS
DBMS/
DBMS/sample database.sql
DBMS/tut1.txt
DBMS/tut4.txt
DBMS/Creating database and tables.txt
DBMS/333029_DBMS Assignment 7.txt
DBMS/333029_DBMS Assignment 8.txt
DBMS/333029_DBMS Assignment 6.txt
DBMS/practice.txt
DBMS/Inserting into database.txt
DBMS/foreignkey.txt
DBMS/styles.txt
DBMS/tut2.txt
DBMS/tut3.txt
DBMS/333029_DBMS Assignment 5.txt
akstyles@akstyles-VirtualBox:~/Desktop$ tar -xvf test.tar
DBMS/
DBMS/sample database.sql
DBMS/tut1.txt
DBMS/tut4.txt
DBMS/Creating database and tables.txt
DBMS/333029_DBMS Assignment 7.txt
DBMS/333029_DBMS Assignment 8.txt
DBMS/333029_DBMS Assignment 6.txt
DBMS/practice.txt
```

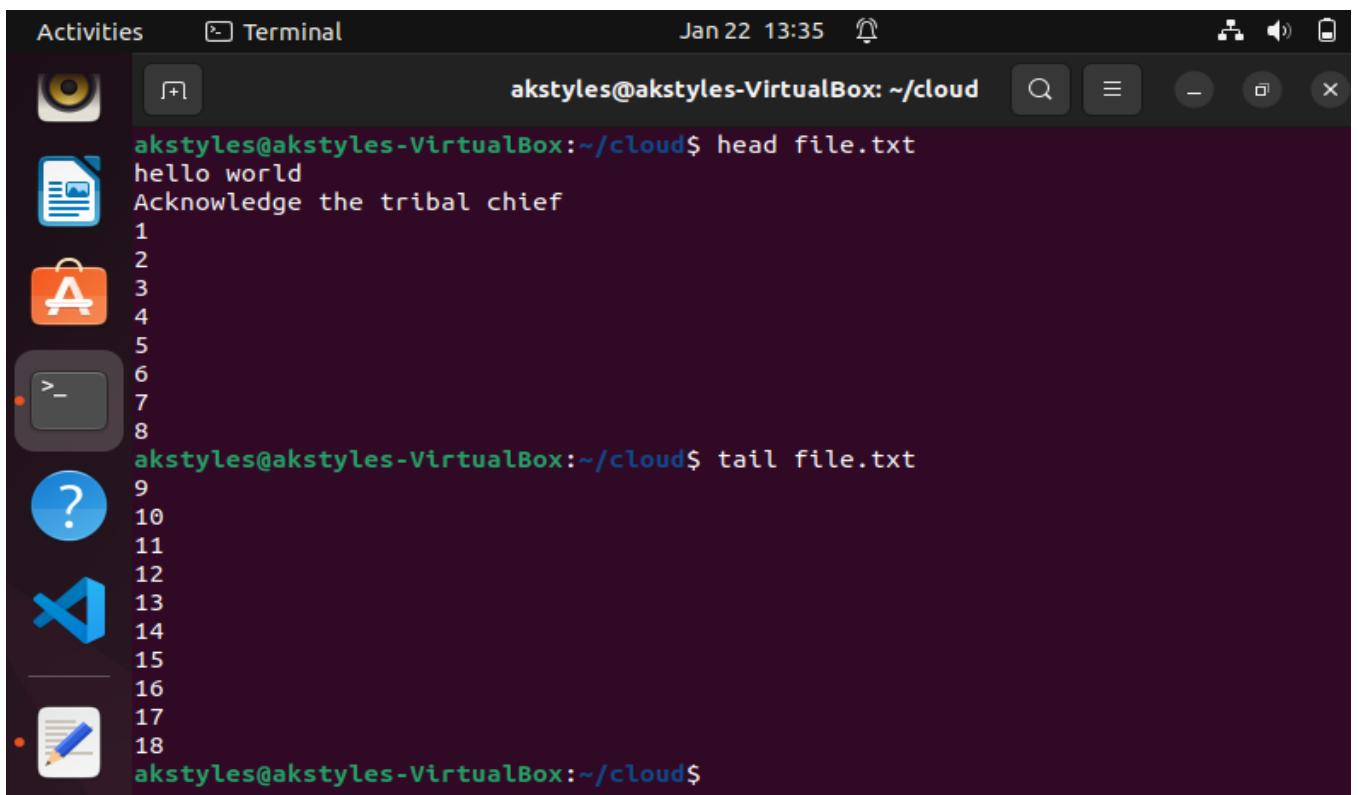
## 18. grep — Search for a string within an output



```
akstyles@akstyles-VirtualBox:~/cloud$ grep -i file.txt
^C
akstyles@akstyles-VirtualBox:~/cloud$ grep -i "hello" file.txt
hello world
akstyles@akstyles-VirtualBox:~/cloud$
```

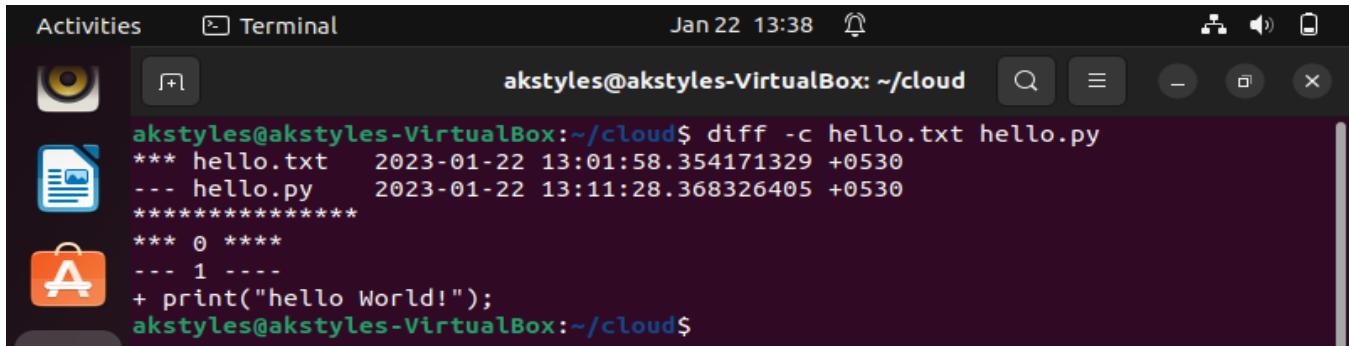
19. head — Return the specified number of lines from the top

20. tail — Return the specified number of lines from the bottom



```
akstyles@akstyles-VirtualBox:~/cloud$ head file.txt
hello world
Acknowledge the tribal chief
1
2
3
4
5
6
7
8
akstyles@akstyles-VirtualBox:~/cloud$ tail file.txt
9
10
11
12
13
14
15
16
17
18
akstyles@akstyles-VirtualBox:~/cloud$
```

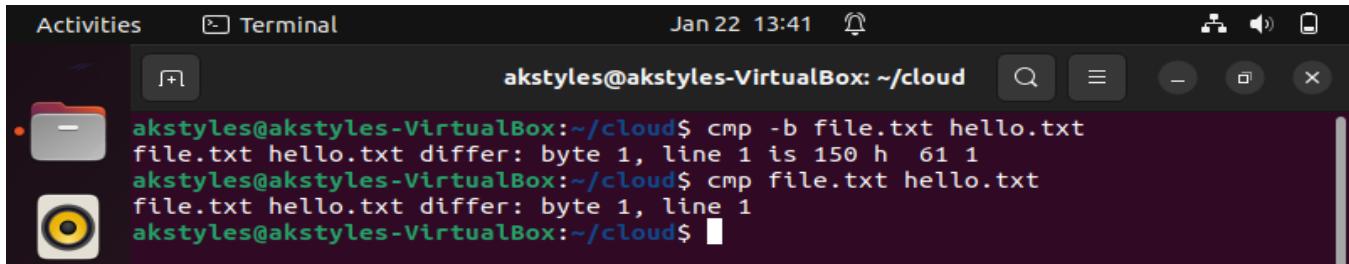
## 21. diff — Find the difference between two files



A screenshot of a Linux desktop environment showing a terminal window. The terminal title is "Terminal" and the prompt is "akstyles@akstyles-VirtualBox: ~/cloud". The command run is "diff -c hello.txt hello.py". The output shows the differences between the two files, indicating they are identical except for the timestamp and line numbers.

```
akstyles@akstyles-VirtualBox:~/cloud$ diff -c hello.txt hello.py
*** hello.txt      2023-01-22 13:01:58.354171329 +0530
--- hello.py       2023-01-22 13:11:28.368326405 +0530
*****
*** 0 ****
--- 1 -----
+ print("Hello World!");
akstyles@akstyles-VirtualBox:~/cloud$
```

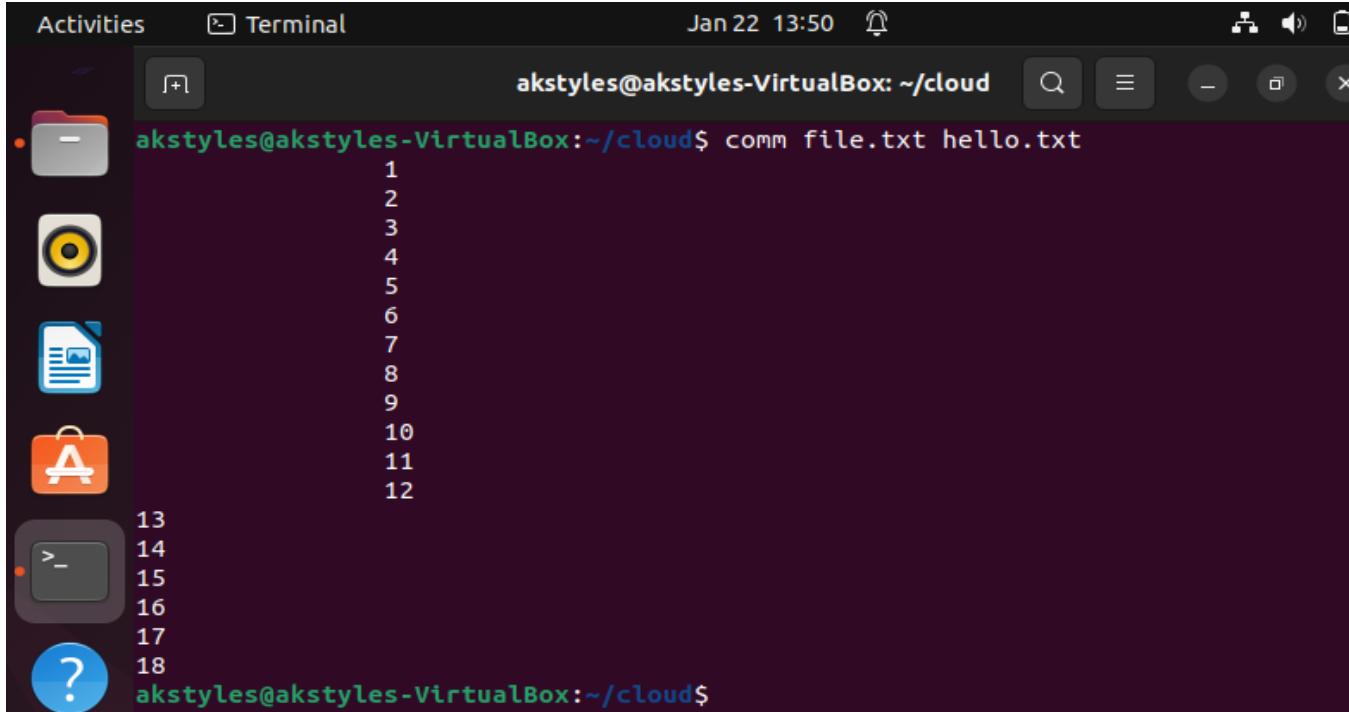
## 22. cmp — Allows you to check if two files are identical



A screenshot of a Linux desktop environment showing a terminal window. The terminal title is "Terminal" and the prompt is "akstyles@akstyles-VirtualBox: ~/cloud". The command run is "cmp -b file.txt hello.txt". The output shows that the files differ at byte 1, line 1. A second "cmp" command is run for comparison.

```
akstyles@akstyles-VirtualBox:~/cloud$ cmp -b file.txt hello.txt
file.txt hello.txt differ: byte 1, line 1 is 150 h 61 1
akstyles@akstyles-VirtualBox:~/cloud$ cmp file.txt hello.txt
file.txt hello.txt differ: byte 1, line 1
akstyles@akstyles-VirtualBox:~/cloud$
```

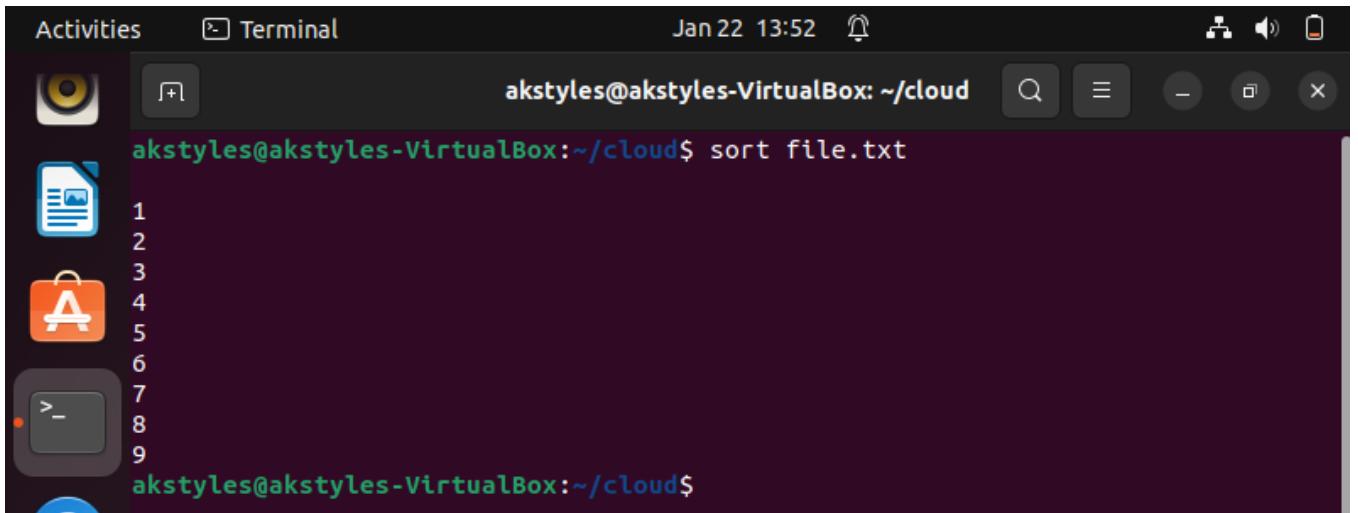
## 23. comm — Combines the functionality of diff and cmp



A screenshot of a Linux desktop environment showing a terminal window. The terminal title is "Terminal" and the prompt is "akstyles@akstyles-VirtualBox: ~/cloud". The command run is "comm file.txt hello.txt". The output shows the differences between the two files, aligned by line number.

```
akstyles@akstyles-VirtualBox:~/cloud$ comm file.txt hello.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
akstyles@akstyles-VirtualBox:~/cloud$
```

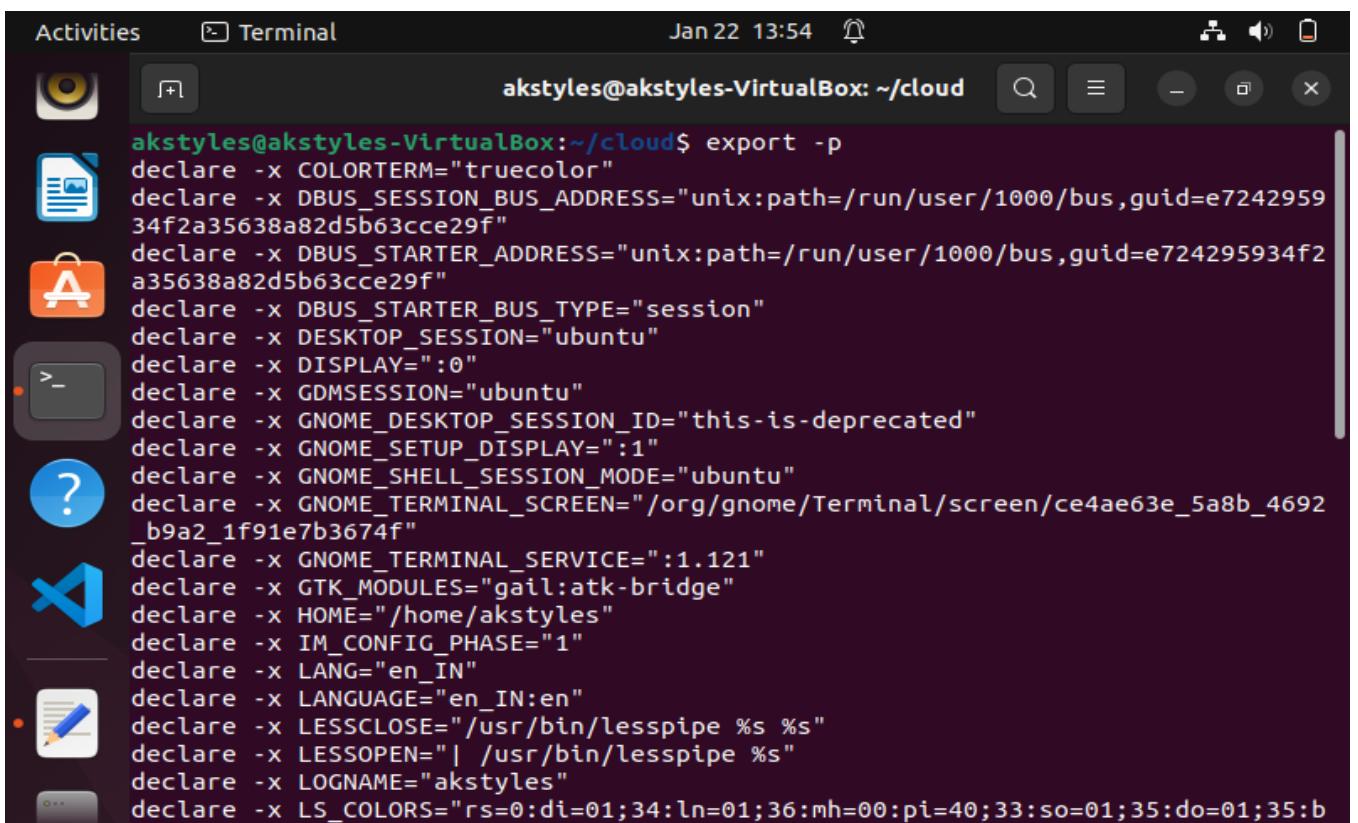
## 24. sort — Linux command to sort the content of a file while outputting



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title bar says "akstyles@akstyles-VirtualBox: ~/cloud". The terminal content shows the command "sort file.txt" being run, followed by the sorted numbers 1 through 9. The desktop background features a dark theme with various application icons in the dock.

```
akstyles@akstyles-VirtualBox:~/cloud$ sort file.txt
1
2
3
4
5
6
7
8
9
akstyles@akstyles-VirtualBox:~/cloud$
```

## 25. export — Export environment variables in Linux

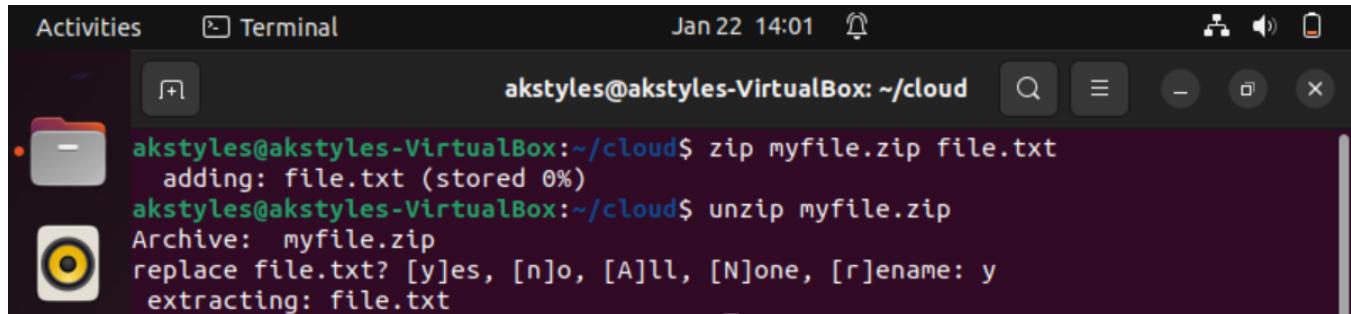


A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title bar says "akstyles@akstyles-VirtualBox: ~/cloud". The terminal content shows the command "export -p" being run, followed by a long list of environment variables and their values. The desktop background features a dark theme with various application icons in the dock.

```
akstyles@akstyles-VirtualBox:~/cloud$ export -p
declare -x COLORTERM="truecolor"
declare -x DBUS_SESSION_BUS_ADDRESS="unix:path=/run/user/1000/bus,guid=e724295934f2a35638a82d5b63cce29f"
declare -x DBUS_STARTER_ADDRESS="unix:path=/run/user/1000/bus,guid=e724295934f2a35638a82d5b63cce29f"
declare -x DBUS_STARTER_BUS_TYPE="session"
declare -x DESKTOP_SESSION="ubuntu"
declare -x DISPLAY=":0"
declare -x GDMSESSION="ubuntu"
declare -x GNOME_DESKTOP_SESSION_ID="this-is-deprecated"
declare -x GNOME_SETUP_DISPLAY=":1"
declare -x GNOME_SHELL_SESSION_MODE="ubuntu"
declare -x GNOME_TERMINAL_SCREEN="/org/gnome/Terminal/screen/ce4ae63e_5a8b_4692_b9a2_1f91e7b3674f"
declare -x GNOME_TERMINAL_SERVICE=:1.121
declare -x GTK_MODULES="gail:atk-bridge"
declare -x HOME="/home/akstyles"
declare -x IM_CONFIG_PHASE="1"
declare -x LANG="en_IN"
declare -x LANGUAGE="en_IN:en"
declare -x LESSCLOSE="/usr/bin/lesspipe %s %s"
declare -x LESSOPEN="| /usr/bin/lesspipe %s"
declare -x LOGNAME="akstyles"
declare -x LS_COLORS="rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:b
```

26. zip — Zip files in Linux

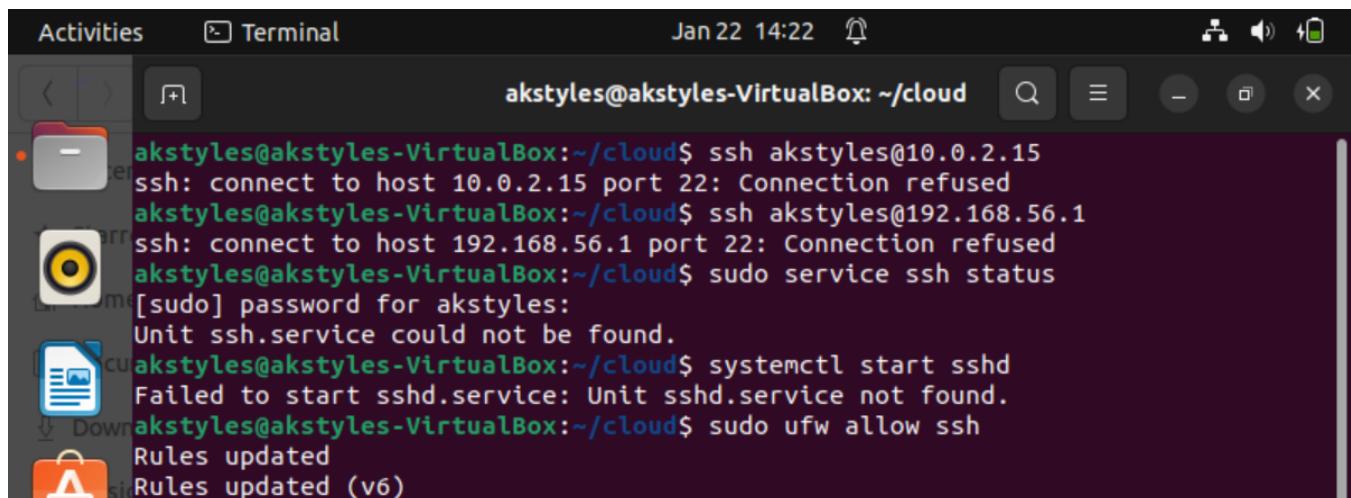
27. unzip — Unzip files in Linux



A screenshot of a Linux desktop environment showing a terminal window. The terminal title is "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ zip myfile.zip file.txt
    adding: file.txt (stored 0%)
akstyles@akstyles-VirtualBox:~/cloud$ unzip myfile.zip
Archive: myfile.zip
replace file.txt? [y]es, [n]o, [A]ll, [N]one, [r]ename: y
extracting: file.txt
```

28. ssh — Secure Shell command in Linux

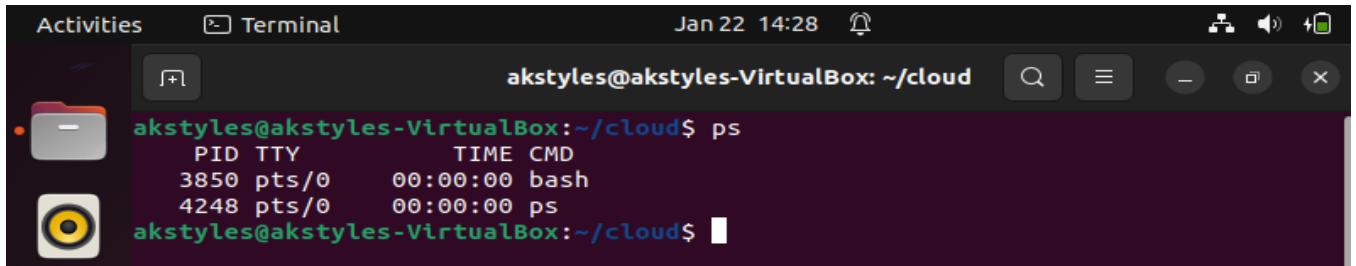


A screenshot of a Linux desktop environment showing a terminal window. The terminal title is "Terminal" and the command line shows:

```
akstyles@akstyles-VirtualBox:~/cloud$ ssh akstyles@10.0.2.15
ssh: connect to host 10.0.2.15 port 22: Connection refused
akstyles@akstyles-VirtualBox:~/cloud$ ssh akstyles@192.168.56.1
ssh: connect to host 192.168.56.1 port 22: Connection refused
akstyles@akstyles-VirtualBox:~/cloud$ sudo service ssh status
[sudo] password for akstyles:
Unit ssh.service could not be found.
akstyles@akstyles-VirtualBox:~/cloud$ systemctl start sshd
Failed to start sshd.service: Unit sshd.service not found.
akstyles@akstyles-VirtualBox:~/cloud$ sudo ufw allow ssh
Rules updated
akstyles@akstyles-VirtualBox:~/cloud$ sudo ufw allow ssh
Rules updated (v6)
```

29. service — Linux command to start and stop services

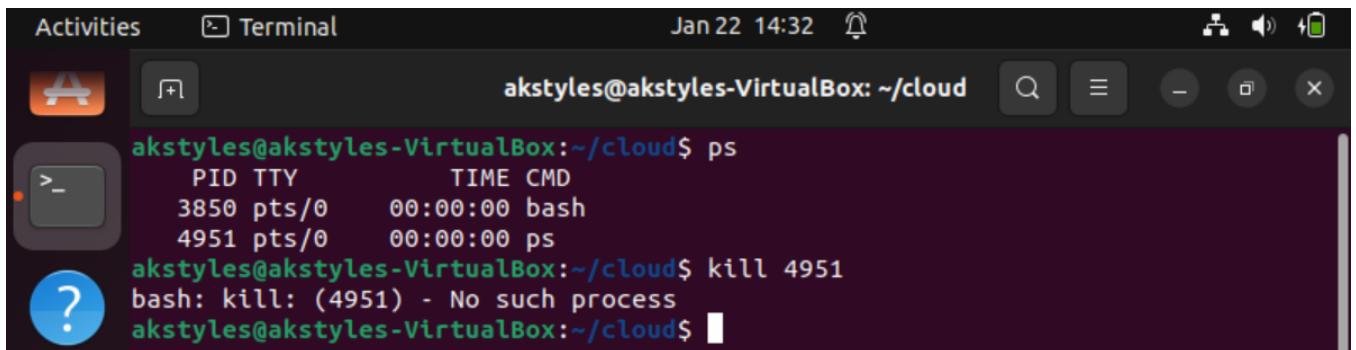
30. ps — Display active processes



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command prompt is "akstyles@akstyles-VirtualBox: ~/cloud\$". The terminal displays the output of the "ps" command:

```
akstyles@akstyles-VirtualBox:~/cloud$ ps
 PID TTY      TIME CMD
 3850 pts/0    00:00:00 bash
 4248 pts/0    00:00:00 ps
akstyles@akstyles-VirtualBox:~/cloud$
```

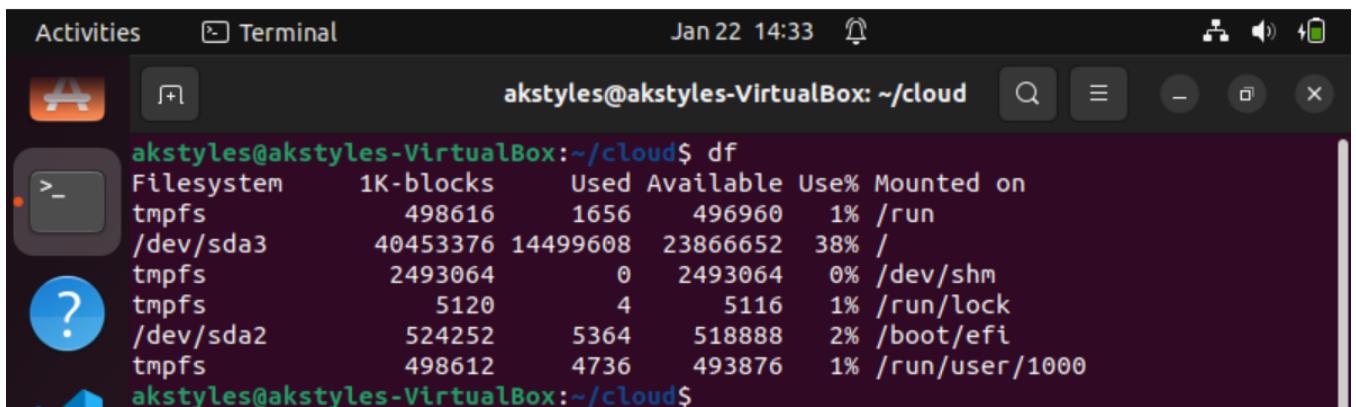
31. kill and killall — Kill active processes by process ID or name



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command prompt is "akstyles@akstyles-VirtualBox: ~/cloud\$". The terminal displays the output of the "ps" command followed by the execution of the "kill" command:

```
akstyles@akstyles-VirtualBox:~/cloud$ ps
 PID TTY      TIME CMD
 3850 pts/0    00:00:00 bash
 4951 pts/0    00:00:00 ps
akstyles@akstyles-VirtualBox:~/cloud$ kill 4951
bash: kill: (4951) - No such process
akstyles@akstyles-VirtualBox:~/cloud$
```

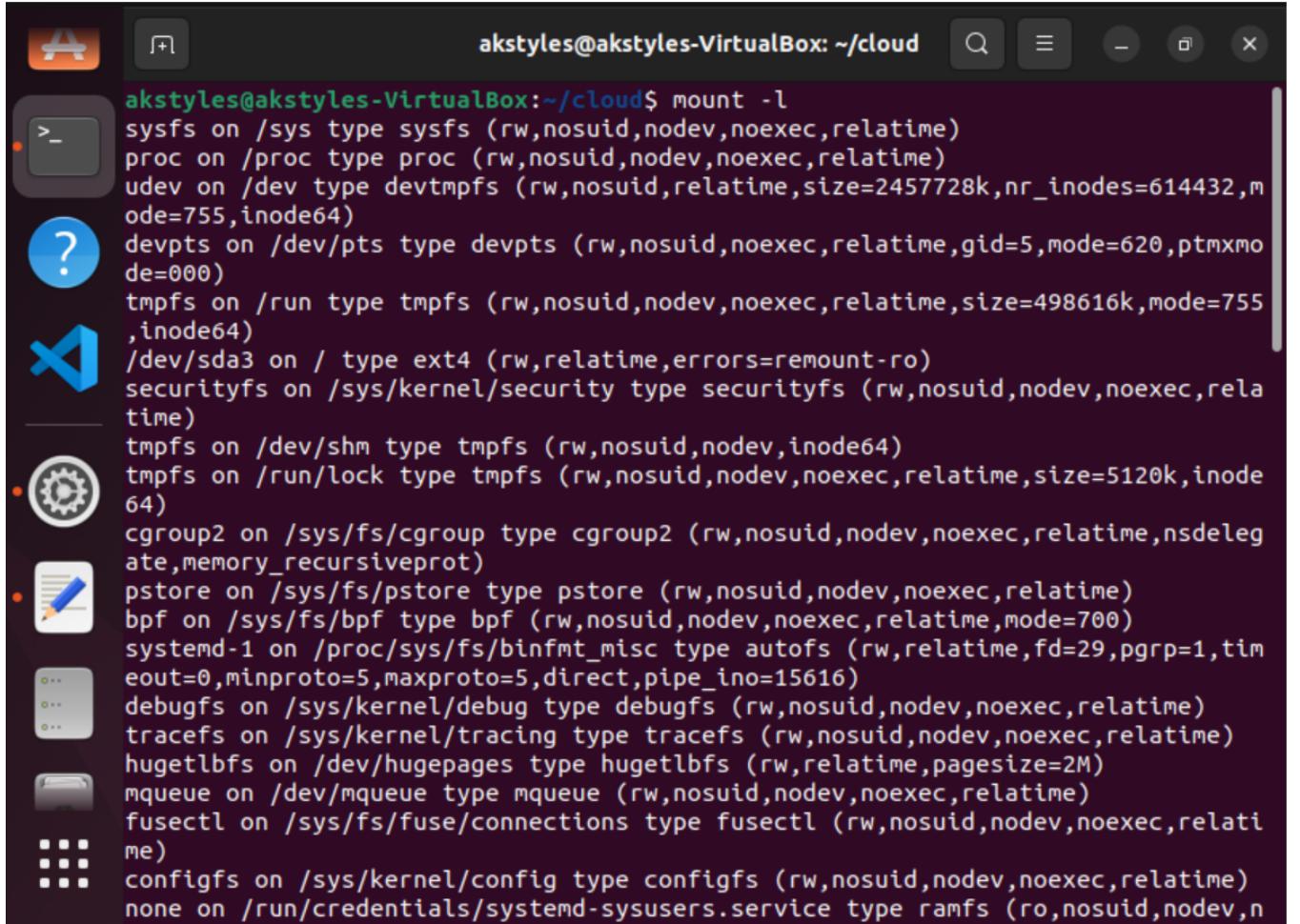
32. df — Display disk filesystem information



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command prompt is "akstyles@akstyles-VirtualBox: ~/cloud\$". The terminal displays the output of the "df" command:

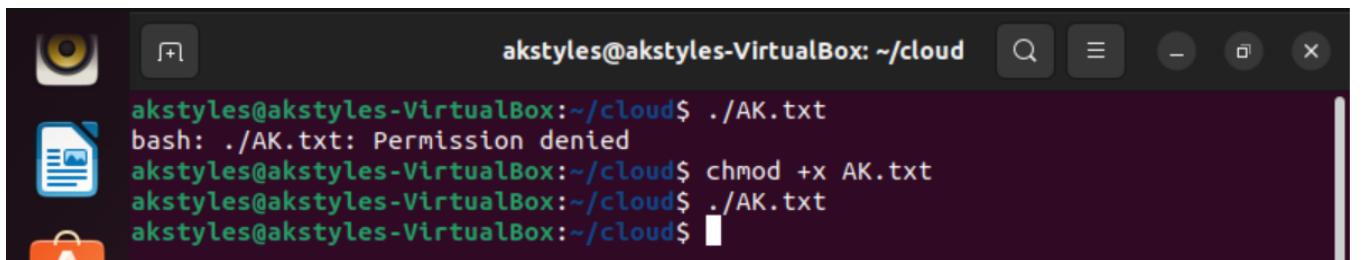
```
akstyles@akstyles-VirtualBox:~/cloud$ df
Filesystem 1K-blocks Used Available Use% Mounted on
tmpfs 498616 1656 496960 1% /run
/dev/sda3 40453376 14499608 23866652 38% /
tmpfs 2493064 0 2493064 0% /dev/shm
tmpfs 5120 4 5116 1% /run/lock
/dev/sda2 524252 5364 518888 2% /boot/efi
tmpfs 498612 4736 493876 1% /run/user/1000
akstyles@akstyles-VirtualBox:~/cloud$
```

33. mount — Mount file systems in Linux



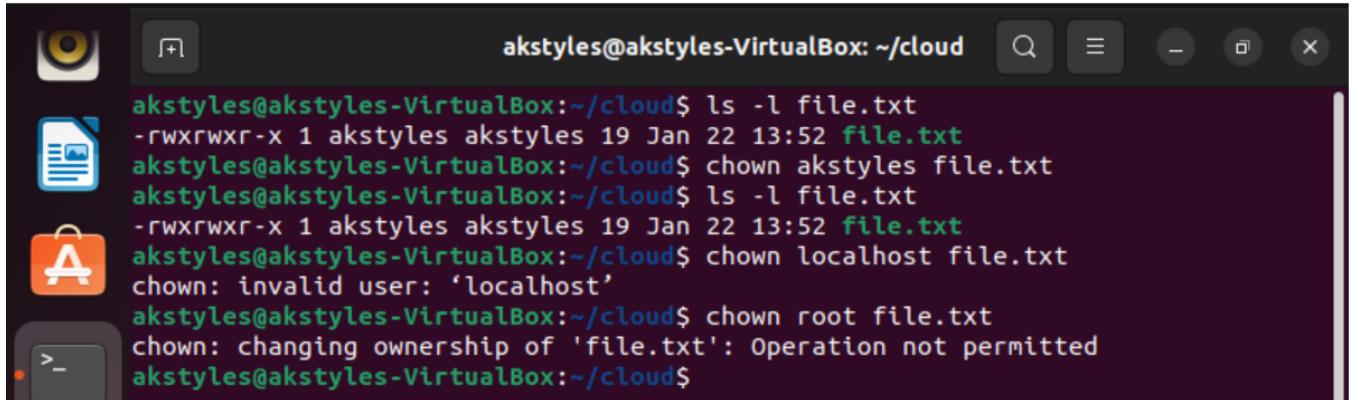
```
akstyles@akstyles-VirtualBox: ~/cloud$ mount -l
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,nosuid,relatime,size=2457728k,nr_inodes=614432,mode=755,inode64)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
tmpfs on /run type tmpfs (rw,nosuid,nodev,noexec,relatime,size=498616k,mode=755,inode64)
/dev/sda3 on / type ext4 (rw,relatime,errors=remount-ro)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev,inode64)
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,size=5120k,inode64)
cgroup2 on /sys/fs/cgroup type cgroup2 (rw,nosuid,nodev,noexec,relatime,nsdelegate,memory_recursiveprot)
pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime)
bpf on /sys/fs/bpf type bpf (rw,nosuid,nodev,noexec,relatime,mode=700)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=29,pgroup=1,timeo=0,minproto=5,maxproto=5,direct,pipe_ino=15616)
debugfs on /sys/kernel/debug type debugfs (rw,nosuid,nodev,noexec,relatime)
tracefs on /sys/kernel/tracing type tracefs (rw,nosuid,nodev,noexec,relatime)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime,pagesize=2M)
mqueue on /dev/mqueue type mqueue (rw,nosuid,nodev,noexec,relatime)
fusectl on /sys/fs/fuse/connections type fusectl (rw,nosuid,nodev,noexec,relatime)
configfs on /sys/kernel/config type configfs (rw,nosuid,nodev,noexec,relatime)
none on /run/credentials/systemd-sysusers.service type ramfs (ro,nosuid,nodev,n
```

### 34. chmod — Command to change file permissions



```
akstyles@akstyles-VirtualBox: ~/cloud$ ./AK.txt
bash: ./AK.txt: Permission denied
akstyles@akstyles-VirtualBox: ~/cloud$ chmod +x AK.txt
akstyles@akstyles-VirtualBox: ~/cloud$ ./AK.txt
akstyles@akstyles-VirtualBox: ~/cloud$
```

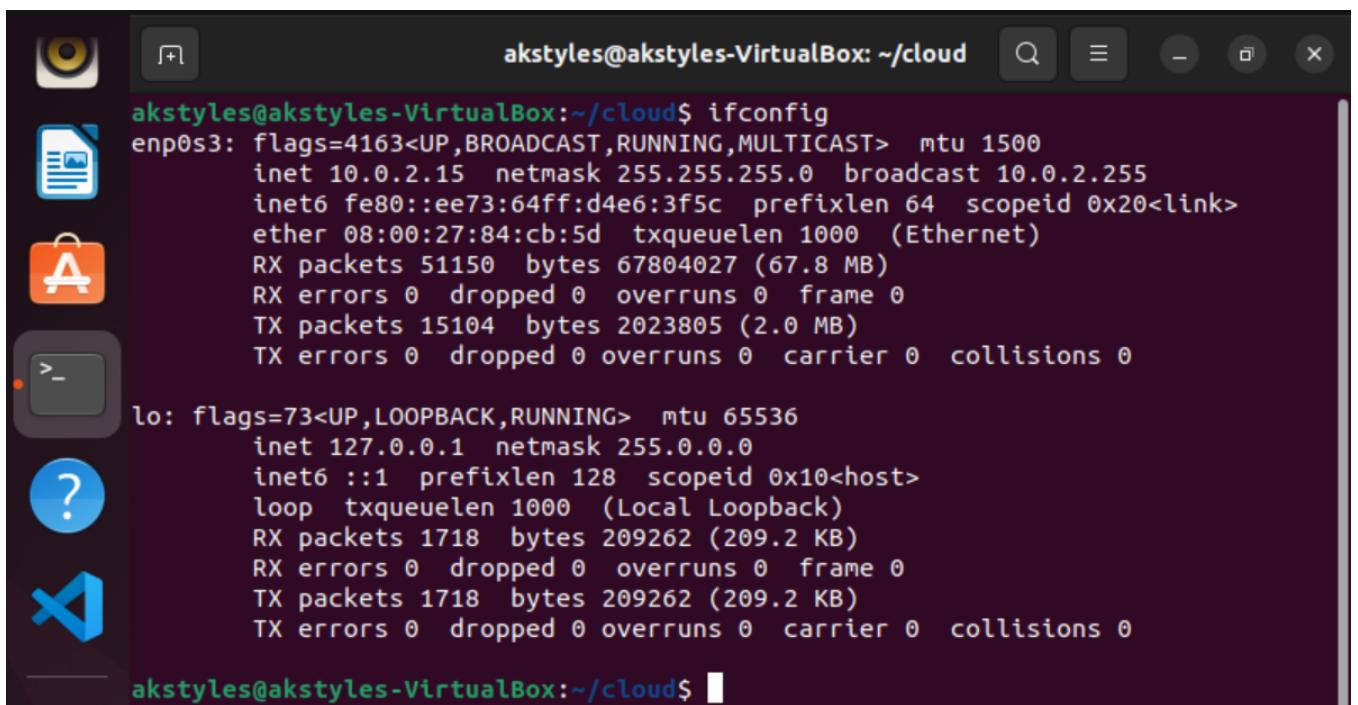
### 35. chown — Command for granting ownership of files or folders



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:

```
akstyles@akstyles-VirtualBox:~/cloud$ ls -l file.txt
-rwxrwxr-x 1 akstyles akstyles 19 Jan 22 13:52 file.txt
akstyles@akstyles-VirtualBox:~/cloud$ chown akstyles file.txt
akstyles@akstyles-VirtualBox:~/cloud$ ls -l file.txt
-rwxrwxr-x 1 akstyles akstyles 19 Jan 22 13:52 file.txt
akstyles@akstyles-VirtualBox:~/cloud$ chown localhost file.txt
chown: invalid user: 'localhost'
akstyles@akstyles-VirtualBox:~/cloud$ chown root file.txt
chown: changing ownership of 'file.txt': Operation not permitted
akstyles@akstyles-VirtualBox:~/cloud$
```

### 36. ifconfig — Display network interfaces and IP addresses

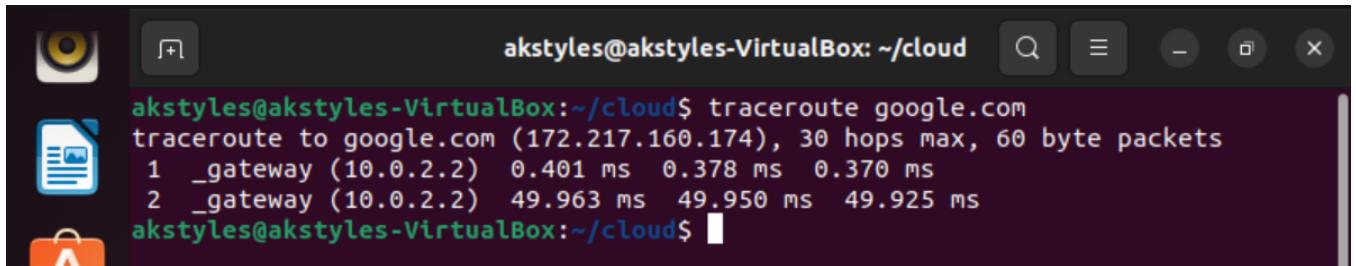


A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window has a dark background and contains the output of the `ifconfig` command:

```
akstyles@akstyles-VirtualBox:~/cloud$ 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::ee73:64ff:d4e6:3f5c prefixlen 64 scopeid 0x20<link>
                ether 08:00:27:84:cb:5d txqueuelen 1000 (Ethernet)
                  RX packets 51150 bytes 67804027 (67.8 MB)
                  RX errors 0 dropped 0 overruns 0 frame 0
                  TX packets 15104 bytes 2023805 (2.0 MB)
                  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 1718 bytes 209262 (209.2 KB)
                  RX errors 0 dropped 0 overruns 0 frame 0
                  TX packets 1718 bytes 209262 (209.2 KB)
                  TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

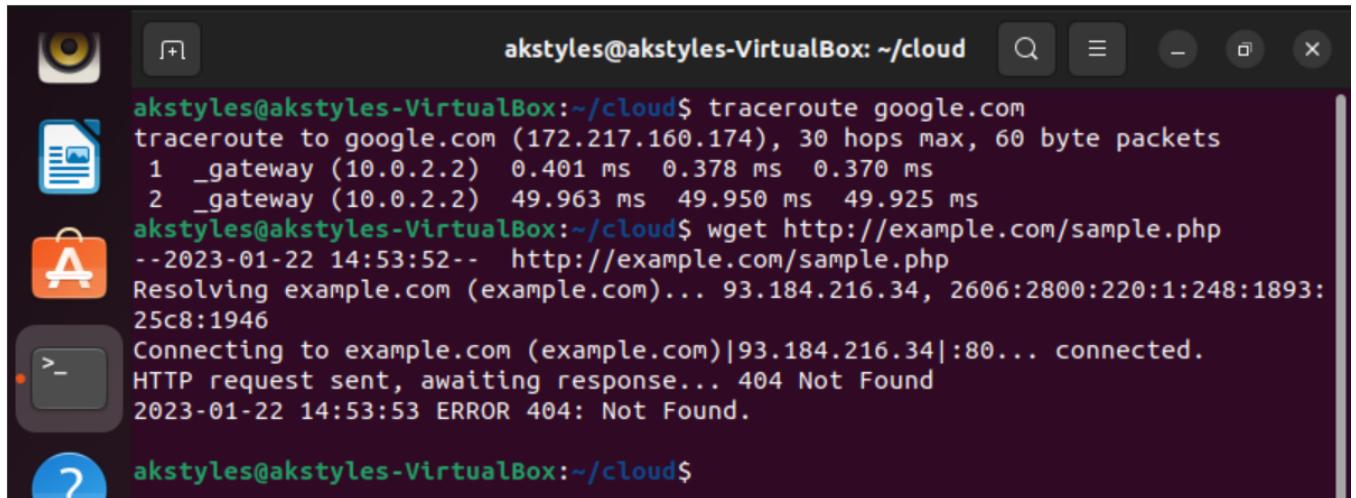
### 37. traceroute — Trace all the network hops to reach the destination



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:

```
akstyles@akstyles-VirtualBox:~/cloud$ traceroute google.com
traceroute to google.com (172.217.160.174), 30 hops max, 60 byte packets
 1 _gateway (10.0.2.2)  0.401 ms  0.378 ms  0.370 ms
 2 _gateway (10.0.2.2)  49.963 ms  49.950 ms  49.925 ms
akstyles@akstyles-VirtualBox:~/cloud$
```

### 38. wget — Direct download files from the internet

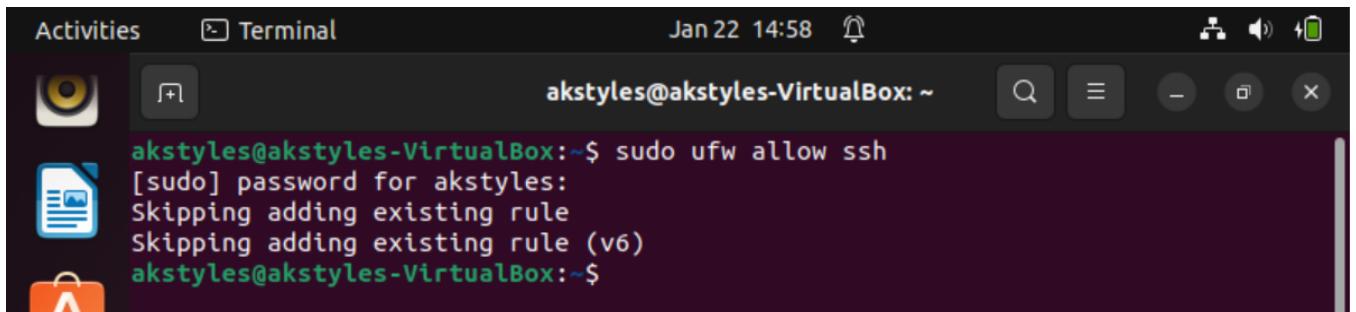


A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window has a dark background and contains the following text:

```
akstyles@akstyles-VirtualBox:~/cloud$ traceroute google.com
traceroute to google.com (172.217.160.174), 30 hops max, 60 byte packets
 1 _gateway (10.0.2.2)  0.401 ms  0.378 ms  0.370 ms
 2 _gateway (10.0.2.2)  49.963 ms  49.950 ms  49.925 ms
akstyles@akstyles-VirtualBox:~/cloud$ wget http://example.com/sample.php
--2023-01-22 14:53:52--  http://example.com/sample.php
Resolving example.com (example.com)... 93.184.216.34, 2606:2800:220:1:248:1893:
25c8:1946
Connecting to example.com (example.com)|93.184.216.34|:80... connected.
HTTP request sent, awaiting response... 404 Not Found
2023-01-22 14:53:53 ERROR 404: Not Found.

akstyles@akstyles-VirtualBox:~/cloud$
```

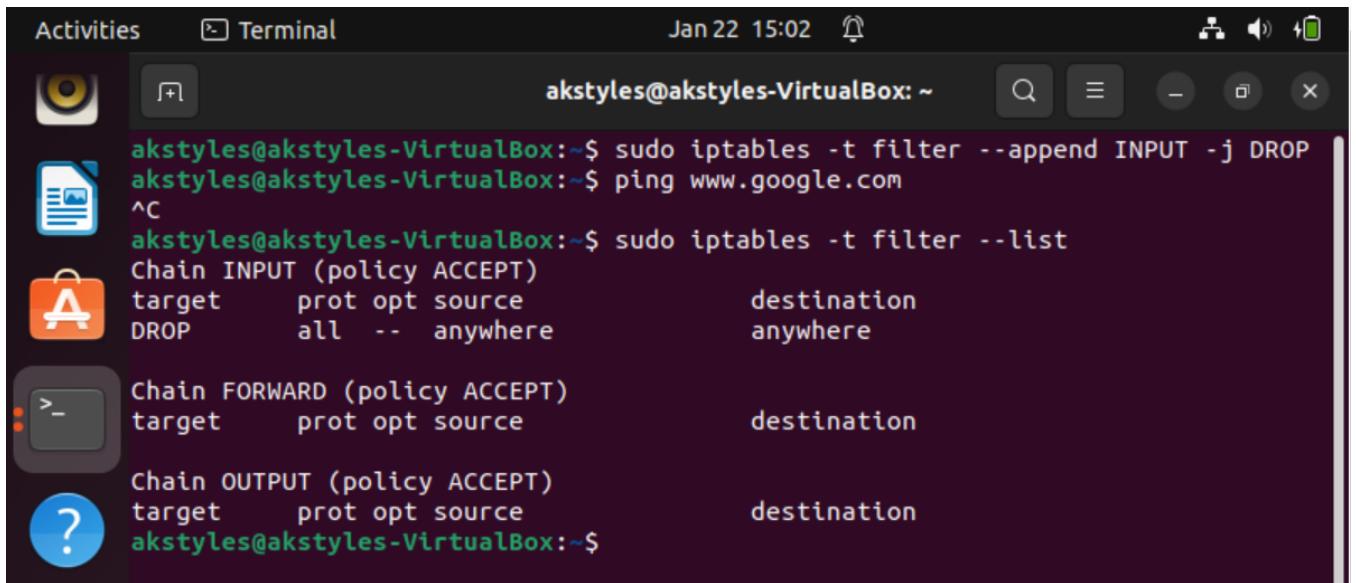
### 39. ufw — Firewall command



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:

```
Activities Terminal Jan 22 14:58
akstyles@akstyles-VirtualBox:~$ sudo ufw allow ssh
[sudo] password for akstyles:
Skipping adding existing rule
Skipping adding existing rule (v6)
akstyles@akstyles-VirtualBox:~$
```

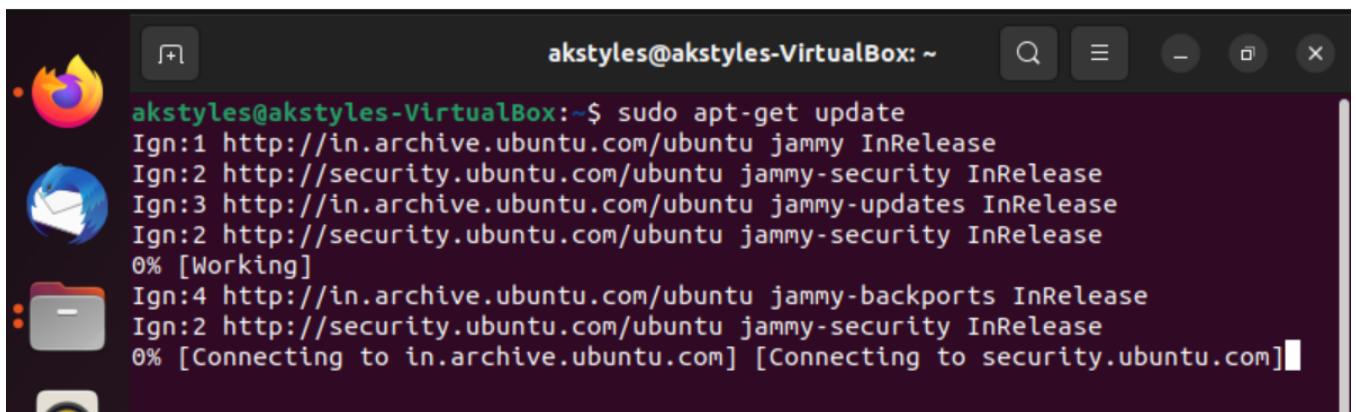
### 40. iptables — Base firewall for all other firewall utilities to interface with



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:

```
akstyles@akstyles-VirtualBox:~$ sudo iptables -t filter --append INPUT -j DROP
akstyles@akstyles-VirtualBox:~$ ping www.google.com
^C
akstyles@akstyles-VirtualBox:~$ sudo iptables -t filter --list
Chain INPUT (policy ACCEPT)
target     prot opt source               destination
DROP       all  --  anywhere             anywhere
Chain FORWARD (policy ACCEPT)
target     prot opt source               destination
Chain OUTPUT (policy ACCEPT)
target     prot opt source               destination
akstyles@akstyles-VirtualBox:~$
```

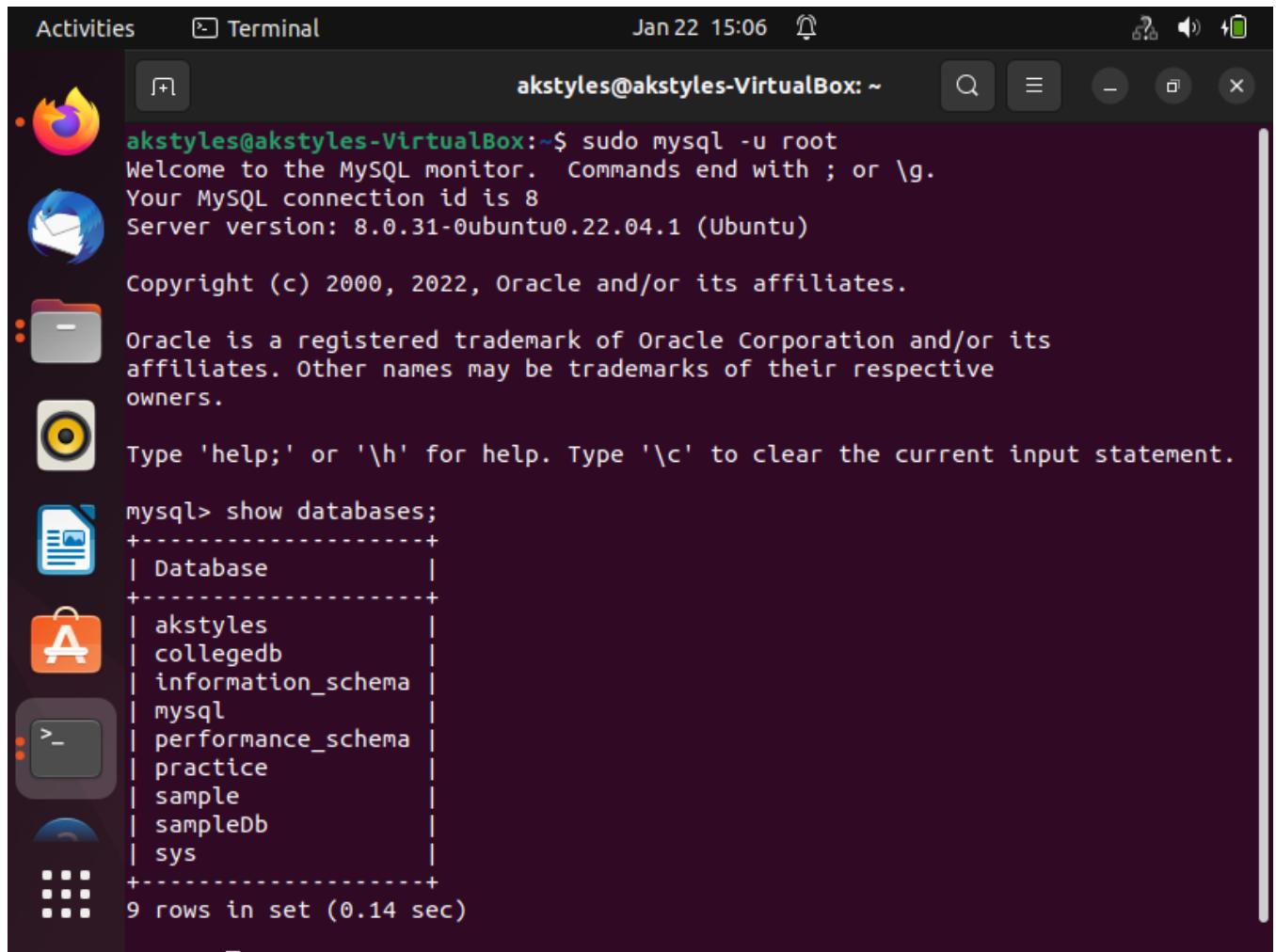
41. apt, pacman, yum, rpm — Package managers depending on the distro



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:

```
akstyles@akstyles-VirtualBox:~$ sudo apt-get update
Ign:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Ign:2 http://security.ubuntu.com/ubuntu jammy-security InRelease
Ign:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease
Ign:2 http://security.ubuntu.com/ubuntu jammy-security InRelease
0% [Working]
Ign:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Ign:2 http://security.ubuntu.com/ubuntu jammy-security InRelease
0% [Connecting to in.archive.ubuntu.com] [Connecting to security.ubuntu.com]
```

42. sudo — Command to escalate privileges in Linux



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the subtitle is "akstyles@akstyles-VirtualBox: ~". The terminal shows the following MySQL session:

```
akstyles@akstyles-VirtualBox:~$ sudo mysql -u root
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.31-0ubuntu0.22.04.1 (Ubuntu)

Copyright (c) 2000, 2022, Oracle and/or its affiliates.

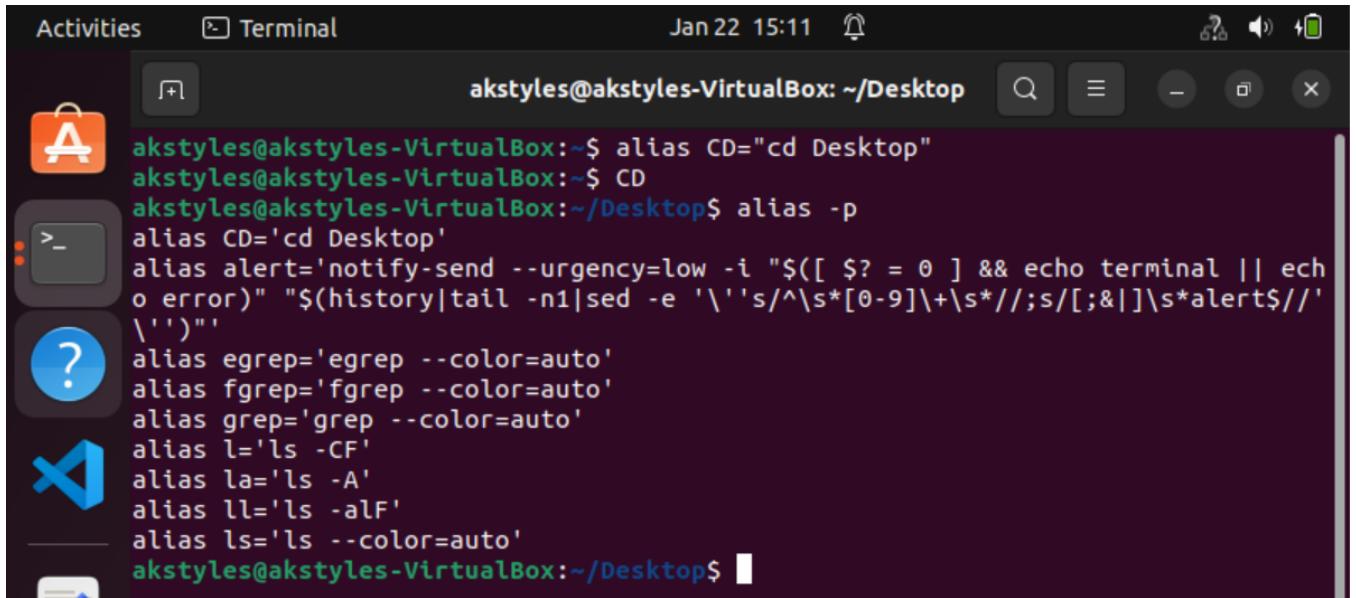
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+--------------------+
| Database           |
+----+
| akstyles          |
| collegedb         |
| information_schema |
| mysql              |
| performance_schema |
| practice           |
| sample             |
| sampleDb           |
| sys                |
+----+
9 rows in set (0.14 sec)
```

#### 43. cal — View a command-line calendar

```
August 2001
Su Mo Tu We Th Fr Sa
      1  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 31
```

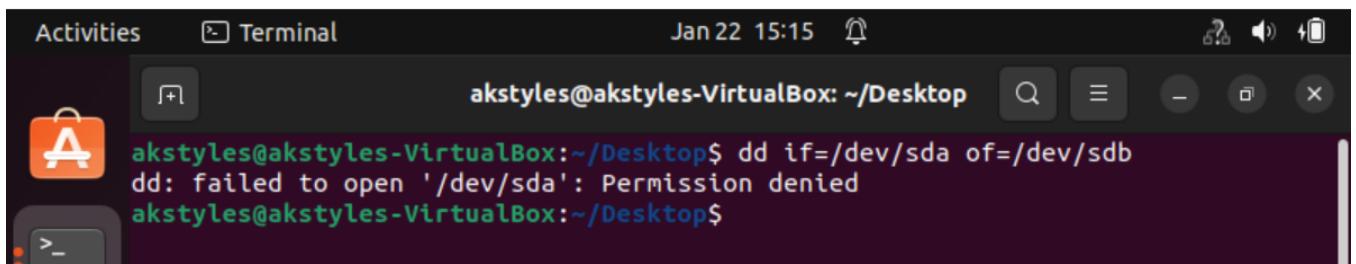
#### 44. alias — Create custom shortcuts for your regularly used commands



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command line shows the user's .bashrc file being viewed. The file contains various alias definitions for commands like CD, alert, egrep, fgrep, grep, l, la, ll, and ls.

```
akstyles@akstyles-VirtualBox:~$ alias CD="cd Desktop"
akstyles@akstyles-VirtualBox:~$ CD
akstyles@akstyles-VirtualBox:~/Desktop$ alias -p
alias CD='cd Desktop'
alias alert='notify-send --urgency=low -i "$( [ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[;&|]\s*alert$\'\'')"
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -alF'
alias ls='ls --color=auto'
akstyles@akstyles-VirtualBox:~/Desktop$
```

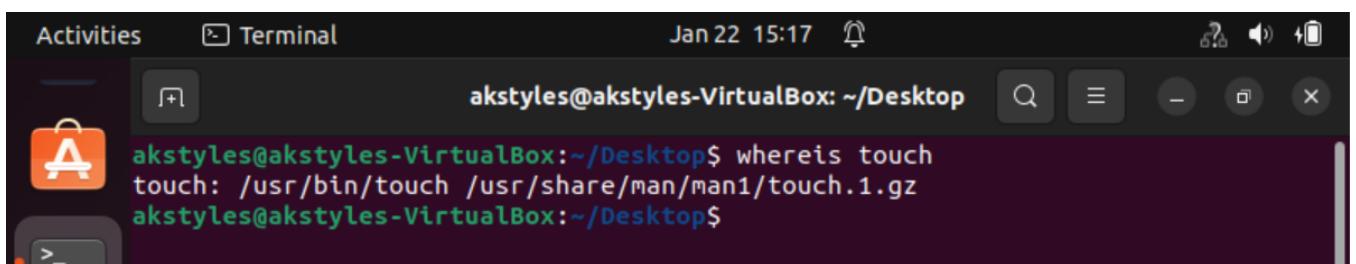
45. dd — Majorly used for creating bootable USB sticks



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command line shows the user attempting to run the dd command to copy from /dev/sda to /dev/sdb, which fails due to permission denied.

```
akstyles@akstyles-VirtualBox:~/Desktop$ dd if=/dev/sda of=/dev/sdb
dd: failed to open '/dev/sda': Permission denied
akstyles@akstyles-VirtualBox:~/Desktop$
```

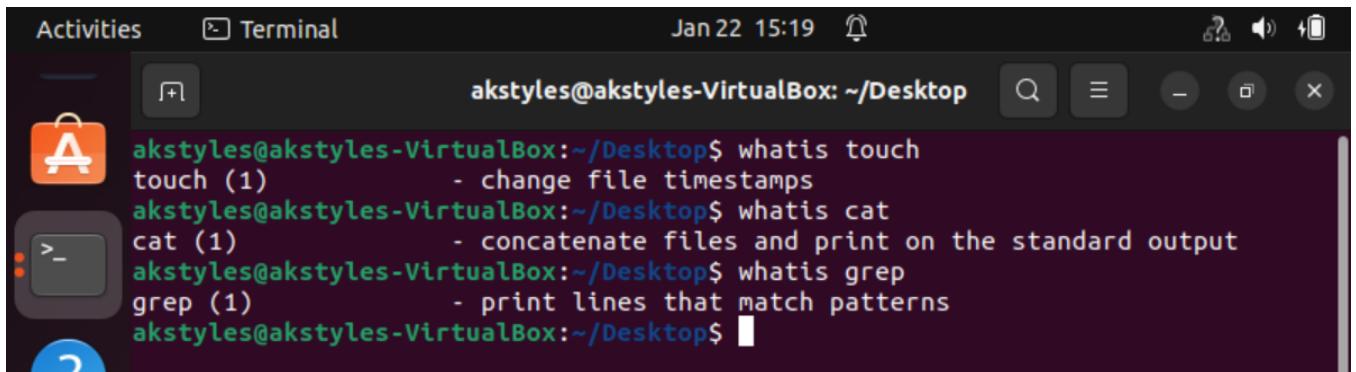
46. whereis — Locate the binary, source, and manual pages for a command



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command line shows the user running the whereis command for the touch command, which outputs the binary location at /usr/bin/touch and the manual page location at /usr/share/man/man1/touch.1.gz.

```
akstyles@akstyles-VirtualBox:~/Desktop$ whereis touch
touch: /usr/bin/touch /usr/share/man/man1/touch.1.gz
akstyles@akstyles-VirtualBox:~/Desktop$
```

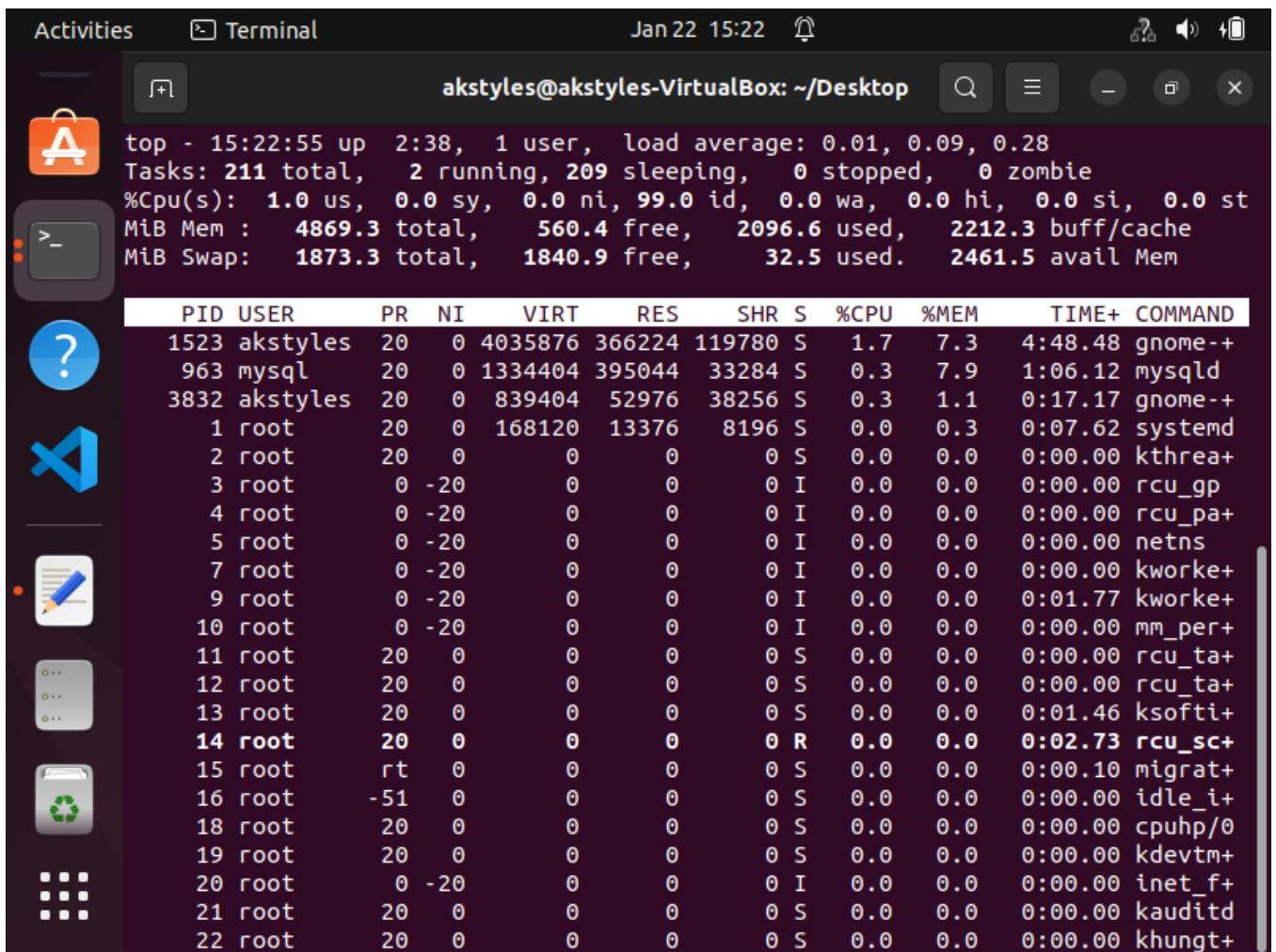
47. whatis — Find what a command is used for



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "akstyles@akstyles-VirtualBox: ~/Desktop". The terminal shows the following command-line session:

```
akstyles@akstyles-VirtualBox:~/Desktop$ whatis touch
touch (1)          - change file timestamps
akstyles@akstyles-VirtualBox:~/Desktop$ whatis cat
cat (1)           - concatenate files and print on the standard output
akstyles@akstyles-VirtualBox:~/Desktop$ whatis grep
grep (1)          - print lines that match patterns
akstyles@akstyles-VirtualBox:~/Desktop$
```

## 48. top — View active processes live with their system usage

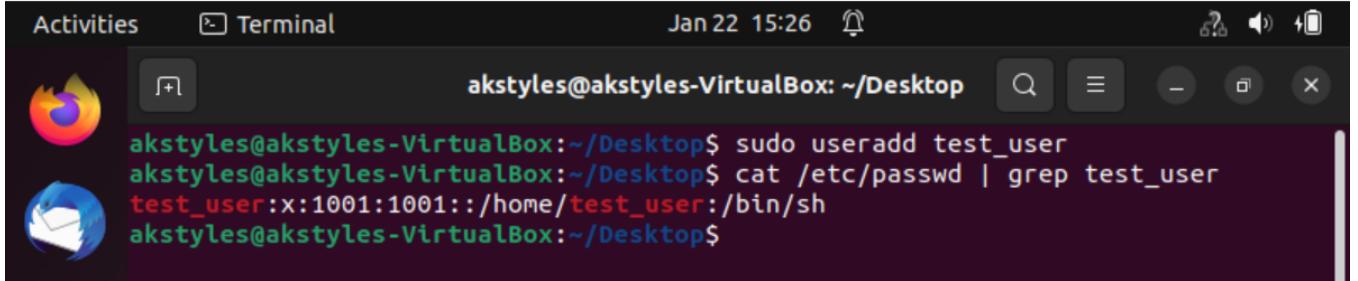


A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "akstyles@akstyles-VirtualBox: ~/Desktop". The terminal shows the output of the "top" command:

```
top - 15:22:55 up 2:38, 1 user, load average: 0.01, 0.09, 0.28
Tasks: 211 total, 2 running, 209 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.0 us, 0.0 sy, 0.0 ni, 99.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 4869.3 total, 560.4 free, 2096.6 used, 2212.3 buff/cache
MiB Swap: 1873.3 total, 1840.9 free, 32.5 used. 2461.5 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1523	akstyles	20	0	4035876	366224	119780	S	1.7	7.3	4:48.48	gnome+-
963	mysql	20	0	1334404	395044	33284	S	0.3	7.9	1:06.12	mysqld
3832	akstyles	20	0	839404	52976	38256	S	0.3	1.1	0:17.17	gnome+-
1	root	20	0	168120	13376	8196	S	0.0	0.3	0:07.62	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthrea+
3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_gp
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_pa+
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kwork+
9	root	0	-20	0	0	0	I	0.0	0.0	0:01.77	kwork+
10	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_per+
11	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_ta+
12	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_ta+
13	root	20	0	0	0	0	S	0.0	0.0	0:01.46	ksofti+
14	root	20	0	0	0	0	R	0.0	0.0	0:02.73	rcu_sc+
15	root	rt	0	0	0	0	S	0.0	0.0	0:00.10	migrat+
16	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_i+
18	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
19	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtm+
20	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	inet_f+
21	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kauditfd
22	root	20	0	0	0	0	S	0.0	0.0	0:00.00	khungt+

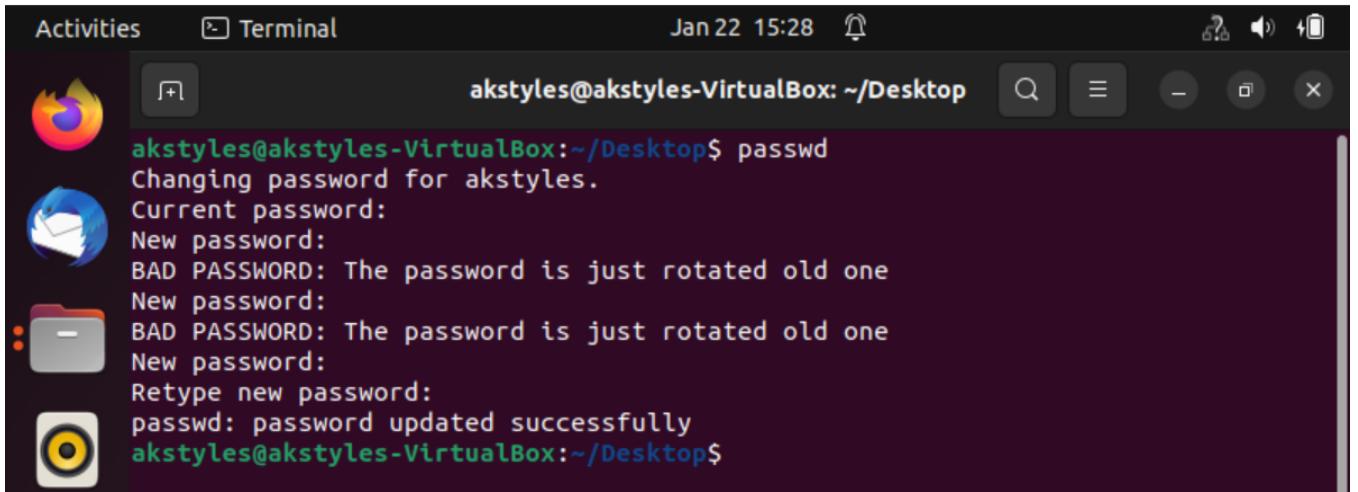
## 49. useradd and usermod — Add new user or change existing users data



A screenshot of a Linux desktop environment showing a terminal window. The terminal window title is "Terminal" and the command line shows the following output:

```
akstyles@akstyles-VirtualBox:~/Desktop$ sudo useradd test_user
akstyles@akstyles-VirtualBox:~/Desktop$ cat /etc/passwd | grep test_user
test_user:x:1001:1001::/home/test_user:/bin/sh
akstyles@akstyles-VirtualBox:~/Desktop$
```

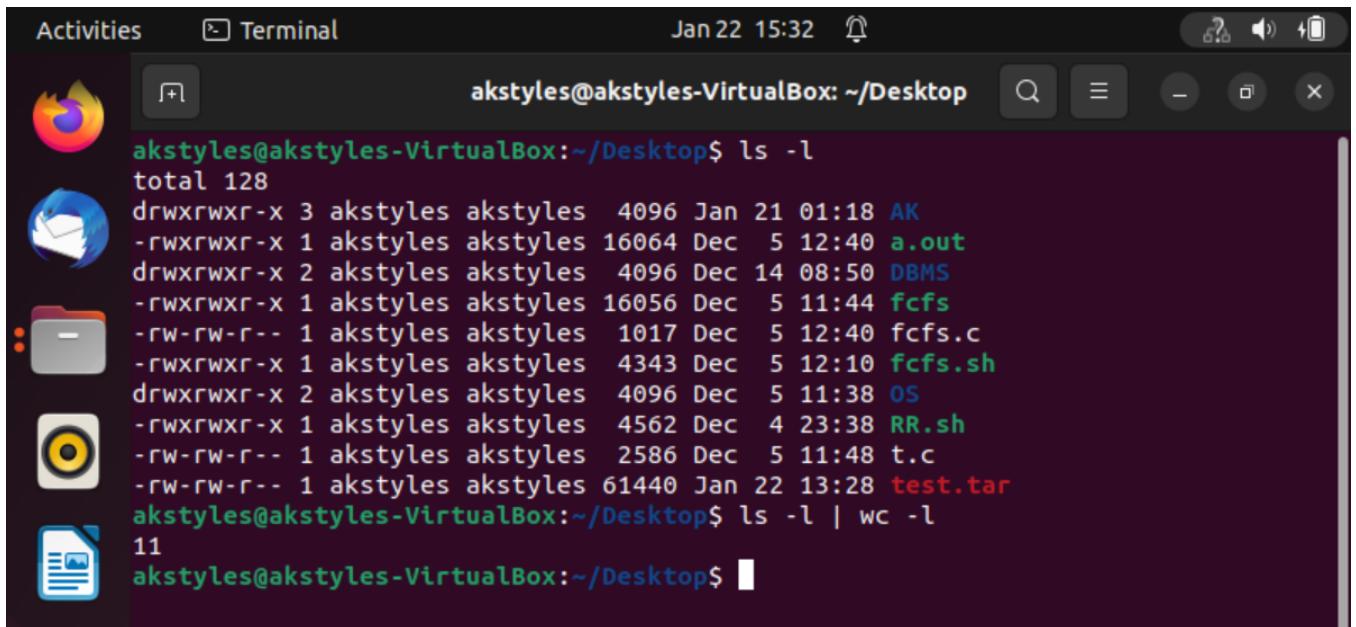
## 50. passwd — Create or update passwords for existing users



A screenshot of a Linux desktop environment showing a terminal window. The terminal window title is "Terminal" and the command line shows the following output:

```
akstyles@akstyles-VirtualBox:~/Desktop$ passwd
Changing password for akstyles.
Current password:
New password:
BAD PASSWORD: The password is just rotated old one
New password:
BAD PASSWORD: The password is just rotated old one
New password:
Retype new password:
passwd: password updated successfully
akstyles@akstyles-VirtualBox:~/Desktop$
```

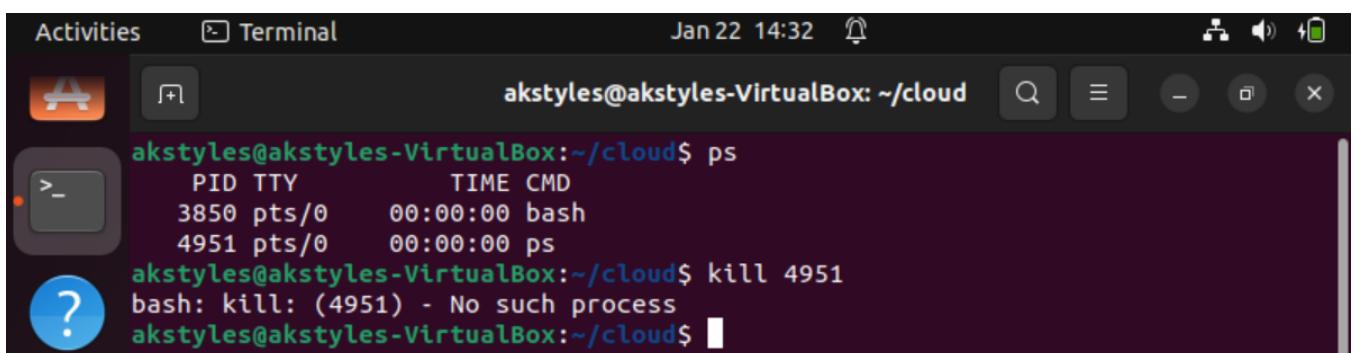
## 51. ls -l | wc -l — Command to get the count of the files present into the directory.



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command prompt is "akstyles@akstyles-VirtualBox: ~/Desktop\$". The user has run the command "ls -l" which lists 128 files in the current directory. Then they run "ls -l | wc -l" to count the number of files, which is 11. The terminal window is part of a larger desktop interface with icons for a browser, file manager, and other applications.

```
akstyles@akstyles-VirtualBox:~/Desktop$ ls -l
total 128
drwxrwxr-x 3 akstyles akstyles 4096 Jan 21 01:18 AK
-rwxrwxr-x 1 akstyles akstyles 16064 Dec 5 12:40 a.out
drwxrwxr-x 2 akstyles akstyles 4096 Dec 14 08:50 DBMS
-rwxrwxr-x 1 akstyles akstyles 16056 Dec 5 11:44 fcfs
-rw-rw-r-- 1 akstyles akstyles 1017 Dec 5 12:40 fcfs.c
-rwxrwxr-x 1 akstyles akstyles 4343 Dec 5 12:10 fcfs.sh
drwxrwxr-x 2 akstyles akstyles 4096 Dec 5 11:38 OS
-rwxrwxr-x 1 akstyles akstyles 4562 Dec 4 23:38 RR.sh
-rw-rw-r-- 1 akstyles akstyles 2586 Dec 5 11:48 t.c
-rw-rw-r-- 1 akstyles akstyles 61440 Jan 22 13:28 test.tar
akstyles@akstyles-VirtualBox:~/Desktop$ ls -l | wc -l
11
akstyles@akstyles-VirtualBox:~/Desktop$
```

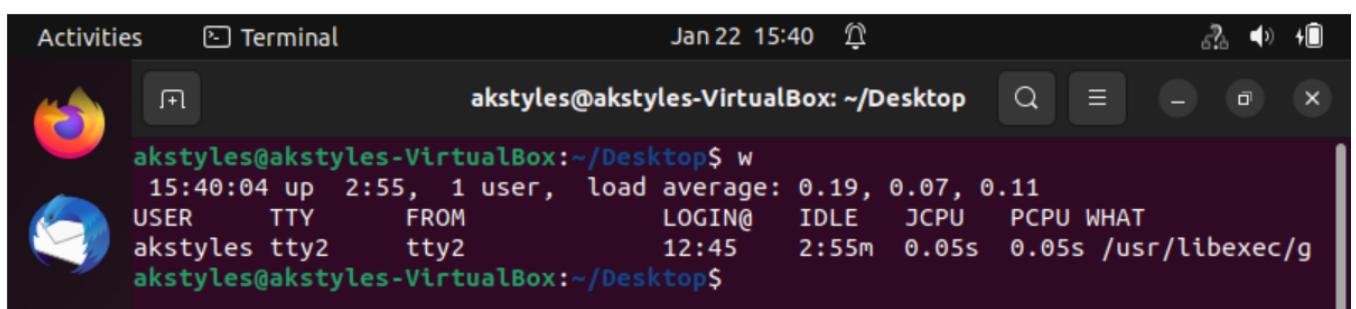
52. kill --Command to kill the process (PID)



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command prompt is "akstyles@akstyles-VirtualBox: ~/cloud\$". The user has run the command "ps" to list processes, showing two entries: "bash" and "ps". Then they run "kill 4951" but receive an error message "bash: kill: (4951) - No such process". The terminal window is part of a larger desktop interface with icons for a browser, file manager, and other applications.

```
akstyles@akstyles-VirtualBox:~/cloud$ ps
  PID TTY      TIME CMD
 3850 pts/0    00:00:00 bash
 4951 pts/0    00:00:00 ps
akstyles@akstyles-VirtualBox:~/cloud$ kill 4951
bash: kill: (4951) - No such process
akstyles@akstyles-VirtualBox:~/cloud$
```

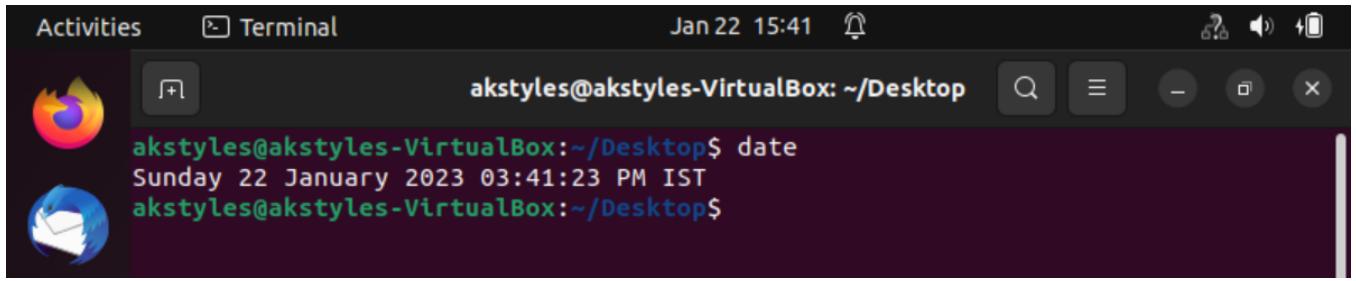
53. w -- to check how many users logged into the linux



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command prompt is "akstyles@akstyles-VirtualBox: ~/Desktop\$". The user has run the command "w" to check who is currently logged in. The output shows one user, "akstyles", is logged in via "tty2" at "12:45" with a session time of "2:55m". The terminal window is part of a larger desktop interface with icons for a browser, file manager, and other applications.

```
akstyles@akstyles-VirtualBox:~/Desktop$ w
15:40:04 up 2:55, 1 user, load average: 0.19, 0.07, 0.11
USER   TTY      FROM          LOGIN@    IDLE   JCPU   PCPU WHAT
akstyles  tty2     tty2        12:45    2:55m  0.05s  0.05s /usr/libexec/g
akstyles@akstyles-VirtualBox:~/Desktop$
```

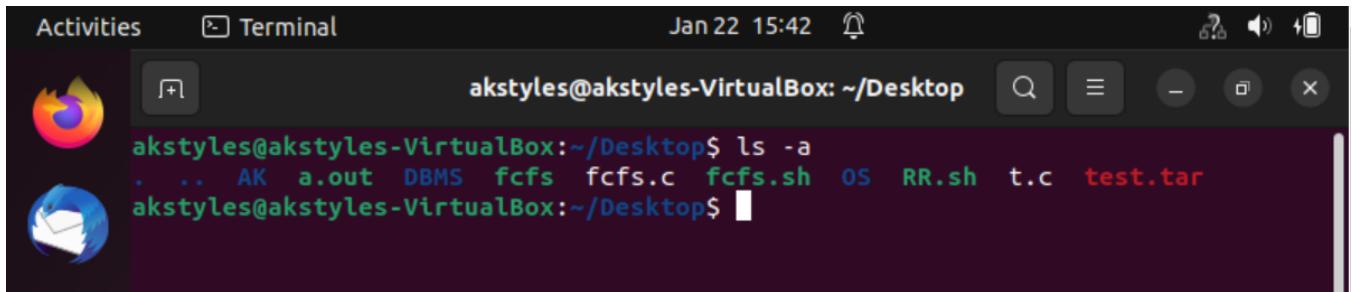
54. date -- used to check the current date, time in linux



A screenshot of a Linux desktop environment, likely Ubuntu. At the top, there's a dock with icons for Activities, Terminal, Dash, Home, and others. Below the dock is a system tray with icons for battery, signal, and volume. The main area shows a terminal window titled "Terminal" with the command "date" entered. The output shows the date and time as "Sunday 22 January 2023 03:41:23 PM IST".

```
akstyles@akstyles-VirtualBox:~/Desktop$ date
Sunday 22 January 2023 03:41:23 PM IST
akstyles@akstyles-VirtualBox:~/Desktop$
```

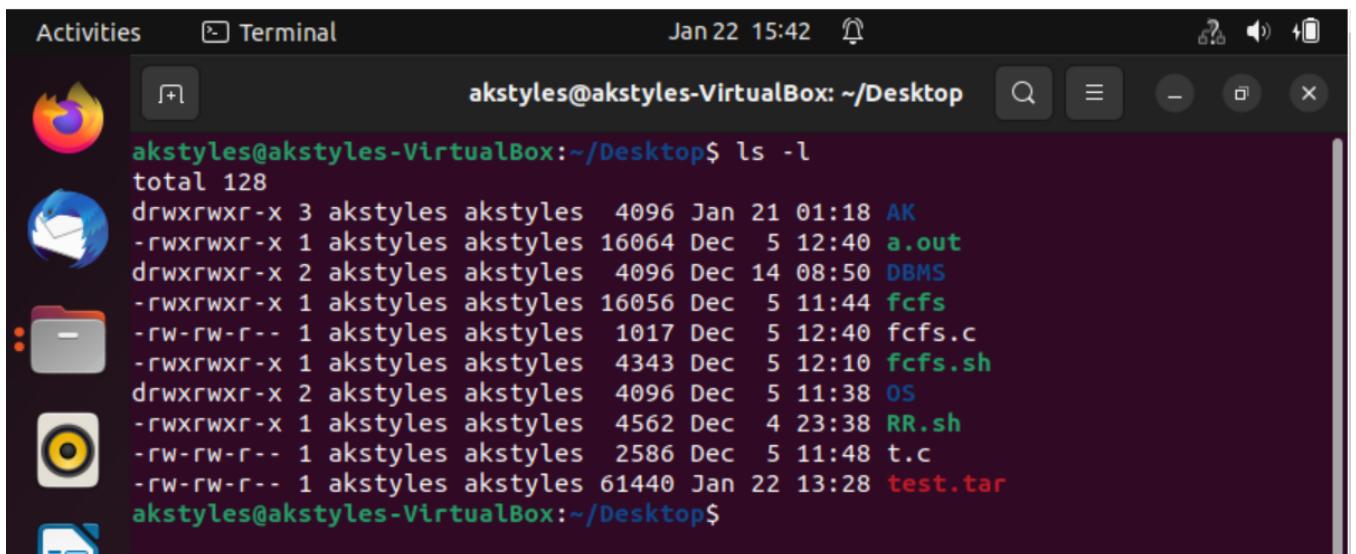
55. ls -a --List the hidden files in the directory (hidden files are denoted as ..)



A screenshot of a Linux desktop environment, likely Ubuntu. At the top, there's a dock with icons for Activities, Terminal, Dash, Home, and others. Below the dock is a system tray with icons for battery, signal, and volume. The main area shows a terminal window titled "Terminal" with the command "ls -a" entered. The output lists several files, including hidden ones like ".." and ".AK".

```
akstyles@akstyles-VirtualBox:~/Desktop$ ls -a
. .. AK a.out DBMS fcfs fcfs.c fcfs.sh OS RR.sh t.c test.tar
akstyles@akstyles-VirtualBox:~/Desktop$
```

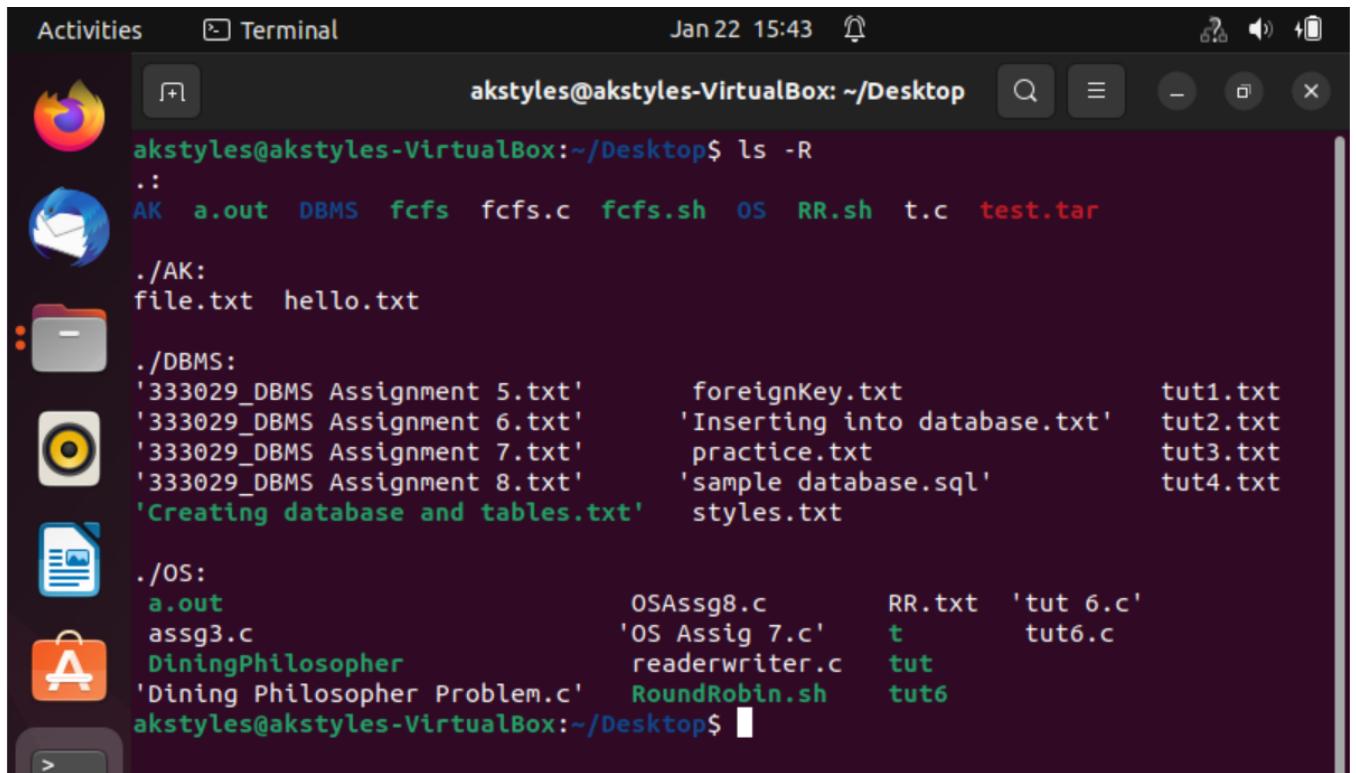
56. ls -l --Use to check the permissions on all the files



A screenshot of a Linux desktop environment, likely Ubuntu. At the top, there's a dock with icons for Activities, Terminal, Dash, Home, and others. Below the dock is a system tray with icons for battery, signal, and volume. The main area shows a terminal window titled "Terminal" with the command "ls -l" entered. The output displays a detailed list of file permissions, owners, and modification dates for various files on the desktop.

```
akstyles@akstyles-VirtualBox:~/Desktop$ ls -l
total 128
drwxrwxr-x 3 akstyles akstyles 4096 Jan 21 01:18 AK
-rwxrwxr-x 1 akstyles akstyles 16064 Dec 5 12:40 a.out
drwxrwxr-x 2 akstyles akstyles 4096 Dec 14 08:50 DBMS
-rwxrwxr-x 1 akstyles akstyles 16056 Dec 5 11:44 fcfs
-rw-rw-r-- 1 akstyles akstyles 1017 Dec 5 12:40 fcfs.c
-rwxrwxr-x 1 akstyles akstyles 4343 Dec 5 12:10 fcfs.sh
drwxrwxr-x 2 akstyles akstyles 4096 Dec 5 11:38 OS
-rwxrwxr-x 1 akstyles akstyles 4562 Dec 4 23:38 RR.sh
-rw-rw-r-- 1 akstyles akstyles 2586 Dec 5 11:48 t.c
-rw-rw-r-- 1 akstyles akstyles 61440 Jan 22 13:28 test.tar
akstyles@akstyles-VirtualBox:~/Desktop$
```

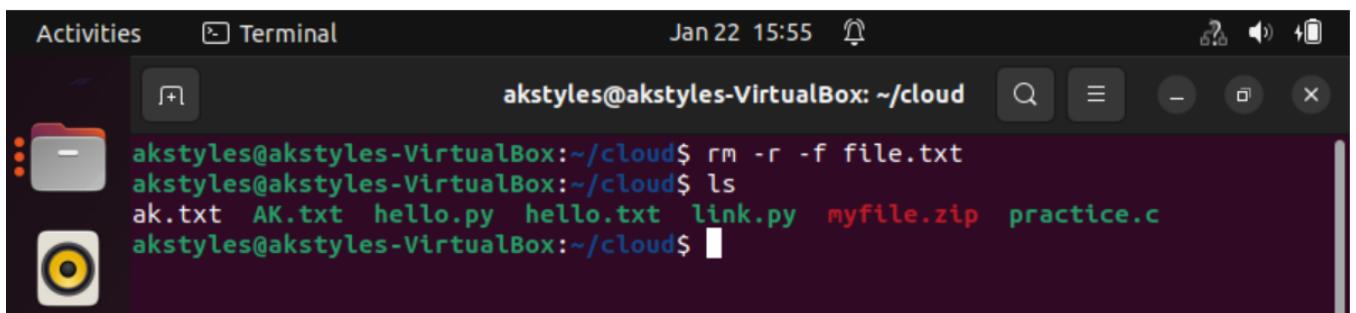
57. ls -R -- used to list information about files and directories within the file system.



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command prompt is "akstyles@akstyles-VirtualBox: ~/Desktop\$". The user has run the command "ls -R" which lists files and directories in the current directory and its subdirectories. The output shows various files and directories including "a.out", "DBMS", "fcfs", "fcfs.c", "fcfs.sh", "OS", "RR.sh", "t.c", "test.tar", and several database-related files like "Assignment 5.txt", "Assignment 6.txt", etc.

```
akstyles@akstyles-VirtualBox:~/Desktop$ ls -R
..
AK  a.out  DBMS  fcfs  fcfs.c  fcfs.sh  OS  RR.sh  t.c  test.tar
./AK:
file.txt  hello.txt
./DBMS:
'333029_DBMS Assignment 5.txt'      foreignKey.txt          tut1.txt
'333029_DBMS Assignment 6.txt'      'Inserting into database.txt'  tut2.txt
'333029_DBMS Assignment 7.txt'      practice.txt          tut3.txt
'333029_DBMS Assignment 8.txt'      'sample database.sql'    tut4.txt
'Creating database and tables.txt'   styles.txt
./OS:
a.out                      OSAssg8.c      RR.txt  'tut 6.c'
assg3.c                    'OS Assig 7.c'  t       tut6.c
DiningPhilosopher          readerwriter.c  tut
'Dining Philosopher Problem.c' RoundRobin.sh  tut6
akstyles@akstyles-VirtualBox:~/Desktop$
```

58. rm -rf -- remove directory with the files



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window title is "Terminal" and the command prompt is "akstyles@akstyles-VirtualBox: ~/cloud\$". The user has run the command "rm -r -f file.txt" to remove the "file.txt" file from the current directory. After removing it, they run "ls" to list the remaining files: "ak.txt", "AK.txt", "hello.py", "hello.txt", "link.py", "myfile.zip", and "practice.c".

```
akstyles@akstyles-VirtualBox:~/cloud$ rm -r -f file.txt
akstyles@akstyles-VirtualBox:~/cloud$ ls
ak.txt  AK.txt  hello.py  hello.txt  link.py  myfile.zip  practice.c
akstyles@akstyles-VirtualBox:~/cloud$
```

**Conclusion:** In this assignment we studied different types of linux commands.