LAB 1 : LEARNING BASIC LINUX COMMANDS

OS Used: Ubuntu (24.04 LTS)
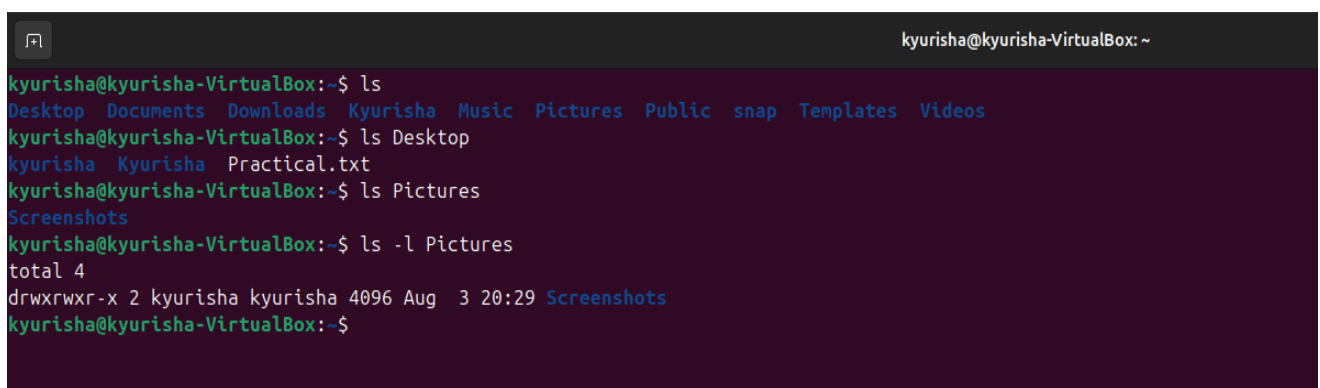
1.1 Command Name: ls

1. Syntax: ls [option] [directory]

2. Usage: The ls command lists files and directories within the file system and shows detailed information about them.

3. Commands Used:

• $ls - Lists all the unhidden files and directories within the current directory.

• $ls Desktop- Lists all the files and directories of the Desktop directory.

• $ls Pictures- displays a list of files and directories inside the "pictures" directory.

• $ls –l Pictures- Shows detailed information including permissions, number of links, owner, group, size, and modification time.
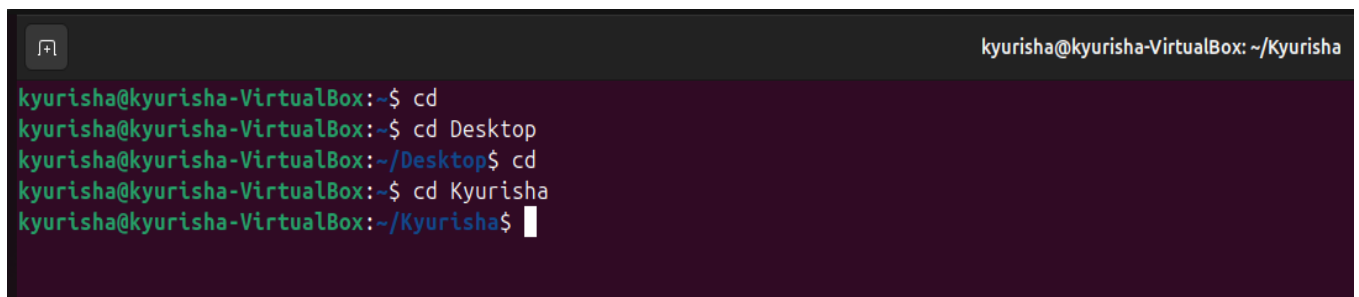
4. Output:

1.2. Command Name: cd

1. Syntax: cd [directory

2. Usage: Changes the current directory to the specified directory.

3. Commands Used:

• $cd Desktop - changes your current directory to the "desktop" directory if it exists within your current directory.

• $cd - takes you to your home directory, which is usually where you land when you first open a terminal.

• $cd Kyurisha - changes the current working directory to directory_name

4. OUTPUT:
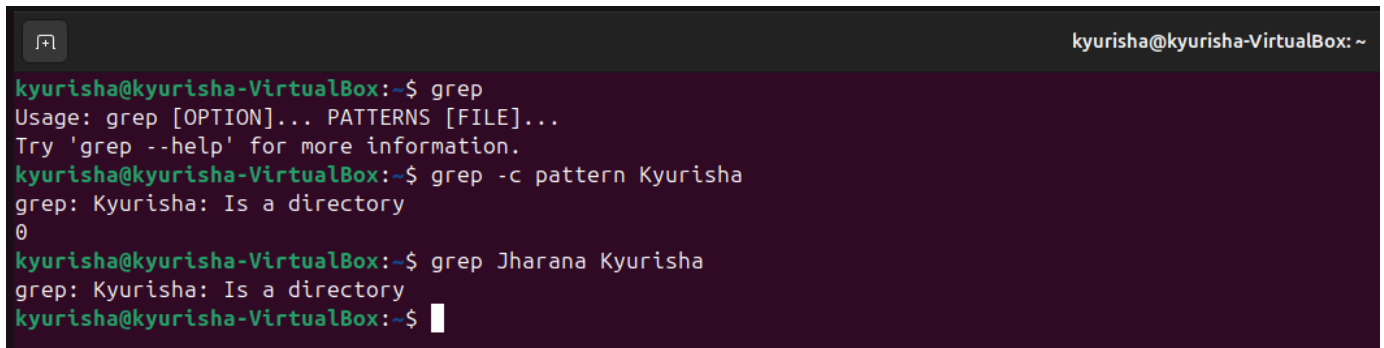

1.3. Command Name: grep

1. Syntax: grep [options] pattern [file]

2. Usage: Searches for a specified pattern within files. It prints the lines that contain the pattern.

3. Commands Used:

• $grep -c pattern Kyurisha - counts the number of lines that match the pattern.

• $grep Jharana Kyurisha - searches for the string "search_term" in the file named Kyurisha and prints the matching lines.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ grep
Usage: grep [OPTION]... PATTERNS [FILE]...
Try 'grep --help' for more information.
kyurisha@kyurisha-VirtualBox:~$ grep -c pattern Kyurisha
grep: Kyurisha: Is a directory
0
kyurisha@kyurisha-VirtualBox:~$ grep Jharana Kyurisha
grep: Kyurisha: Is a directory
kyurisha@kyurisha-VirtualBox:~$
```

1.4. Command Name: su /sudo

1. Syntax: sudo [command]

2. Usage: Allows a permitted user to execute a command as the super user or another user, as specified by the security policy.

3. Commands Used:

• $sudo apt-get update - Updates the package lists for upgrades and new package installations.

4. Output:

1.5. Command Name: pwd

1. Syntax: pwd

2. Usage: Displays the current working directory. It prints the full path to the directory you're currently in.

3. Commands Used:

- $pwd - Outputs the absolute pathname of the current working directory.

4. Output:

1.5. Command Name: mv

1. Syntax: mv [options] source destination

2. Usage: can rename files or directories without changing their location.

3. Commands Used:

• $mv Kyurisha Jharana- renames oldname.txt to newname.txt in the current directory.

• $mv Jharana Kyurisha - renames old_directory to new_directory in the current directory.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ mv
mv: missing file operand
Try 'mv --help' for more information.
kyurisha@kyurisha-VirtualBox:~$ mv Kyurisha Jharana
kyurisha@kyurisha-VirtualBox:~$ mv Jharana Kyurisha
kyurisha@kyurisha-VirtualBox:~$
```

1.7. Command Name: cp

1. Syntax: cp [options] source destination

2. Usage: Copies files and directories from one location to another.

3. Commands Used:

• $cp linux.txt Kyurisha.txt - copies linux.txt to Kyurisha.txt.

4. Output:

```
kyurisha@kyurisha-VirtualBox: ~/Documents
kyurisha@kyurisha-VirtualBox:~$ ls Documents
Kyurisha.txt  linux.txt
kyurisha@kyurisha-VirtualBox:~$ cd Documents
kyurisha@kyurisha-VirtualBox:~/Documents$ cp linux.txt Kyurisha.txt
kyurisha@kyurisha-VirtualBox:~/Documents$
```
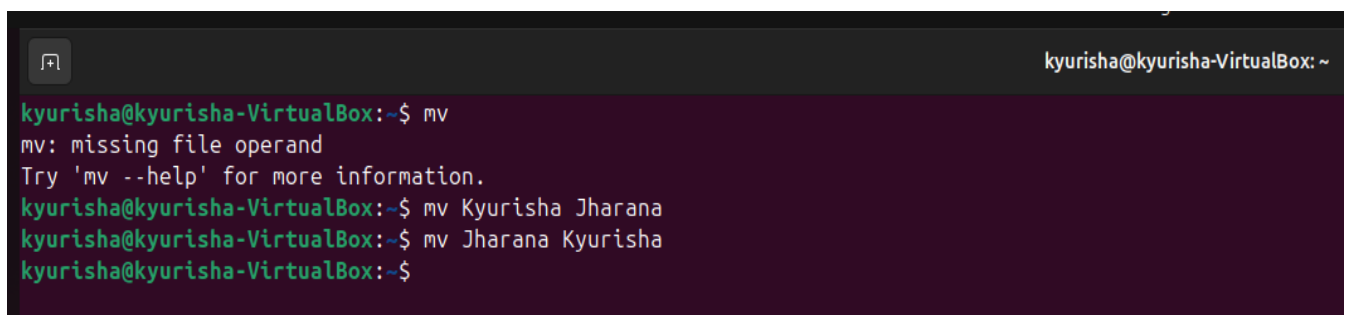
1.8 Command Name: rm

1. Syntax: rm [options] file

2. Usage: Removes files or directories. Use with caution as it deletes files permanently.

3. Commands Used:

• $rm linux.txt - Deletes the file named linux.txt.

4. Output:

```
kyurisha@kyurisha-VirtualBox: ~/Documents
kyurisha@kyurisha-VirtualBox:~$ cd Documents
kyurisha@kyurisha-VirtualBox:~/Documents$ ls
Kyurisha.txt  linux.txt
kyurisha@kyurisha-VirtualBox:~/Documents$ rm linux.txt
kyurisha@kyurisha-VirtualBox:~/Documents$
```

1.9 Command Name: mkdir
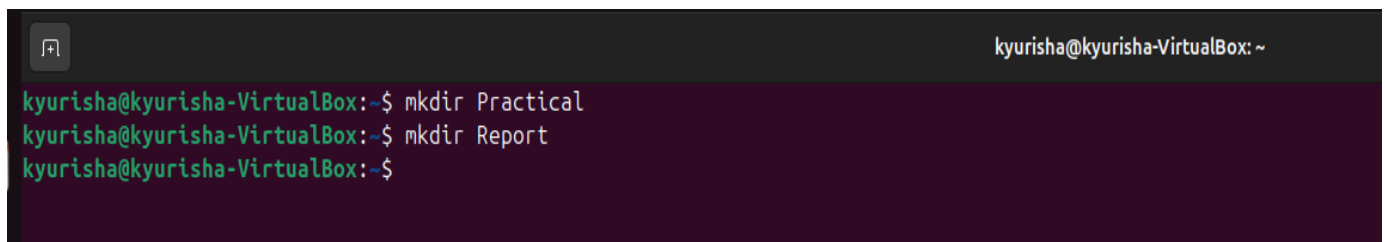
1. Syntax: mkdir [options] directory_name

2. Usage: Creates a new directory. Can create a single directory or multiple directories at once.

3. Commands Used:

• $mkdir Practical - creates a directory named Practicalin the current working directory.

4. Output:

1.10 Command Name: rmdir

1. Syntax: rmdir [options] directory_name

2. Usage: Removes empty directories. It only works on directories that are completely empty.

3. Commands Used:

• $rmdir empty_folder - Removes the directory named empty_folder if it is empty.

5. Output:

```
kyurisha@kyurisha-VirtualBox:~$ rmdir
rmdir: missing operand
Try 'rmdir --help' for more information.
kyurisha@kyurisha-VirtualBox:~$ rmdir Report
kyurisha@kyurisha-VirtualBox:~$ rmdir Practical
kyurisha@kyurisha-VirtualBox:~$
```

1.10. Command Name: chmod

1. Syntax: chmod [options] mode file...

2. Usage: used to change the permissions of files and directories.

3. Commands Used:

 • $chmod u+rwx file.txt - ensures that the owner of `myfile.txt` has full permissions: they can read, write, and execute the file.

 • $chmod g+rw myfile.txt - grants the group associated with myfile.txt the ability to read and write to the file. The group members will be able to modify the file's contents and read its data.

4. Output:

```
kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ ls -ltr
total 56
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Videos
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Public
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Music
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Downloads
drwxr-xr-x 3 kyurisha kyurisha  4096 Aug  3 20:29 Pictures
drwxr-xr-x 2 kyurisha kyurisha  4096 Aug  3 20:40 Templates
drwxrwxr-x 2 kyurisha kyurisha  4096 Aug  3 22:38 Kyurisha
drwxr-xr-x 2 kyurisha kyurisha  4096 Aug  4 15:17 Documents
-rw-rw-r-- 1 kyurisha kyurisha     0 Aug  4 19:09 newfile.txt
-rw-rw-r-- 1 kyurisha kyurisha    85 Aug  4 21:15 windows.txt
drwx------ 6 kyurisha kyurisha  4096 Aug  4 23:17 snap
-rw-rw-r-- 1 kyurisha kyurisha 10240 Aug  4 23:45 archive.tar
drwxr-xr-x 4 kyurisha kyurisha  4096 Aug  4 23:48 Desktop
kyurisha@kyurisha-VirtualBox:~$ chmod u+rwx windows.txt
kyurisha@kyurisha-VirtualBox:~$ chmod g+rw windows.txt
kyurisha@kyurisha-VirtualBox:~$ ls -ltr
total 56
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Videos
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Public
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Music
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Downloads
drwxr-xr-x 3 kyurisha kyurisha  4096 Aug  3 20:29 Pictures
drwxr-xr-x 2 kyurisha kyurisha  4096 Aug  3 20:40 Templates
drwxrwxr-x 2 kyurisha kyurisha  4096 Aug  3 22:38 Kyurisha
drwxr-xr-x 2 kyurisha kyurisha  4096 Aug  4 15:17 Documents
-rw-rw-r-- 1 kyurisha kyurisha     0 Aug  4 19:09 newfile.txt
-rwxrw-r-- 1 kyurisha kyurisha    85 Aug  4 21:15 windows.txt
drwx------ 6 kyurisha kyurisha  4096 Aug  4 23:17 snap
-rw-rw-r-- 1 kyurisha kyurisha 10240 Aug  4 23:45 archive.tar
drwxr-xr-x 4 kyurisha kyurisha  4096 Aug  4 23:48 Desktop
kyurisha@kyurisha-VirtualBox:~$
```

1.12. Command Name: cat

1. Syntax: cat [options] [file]
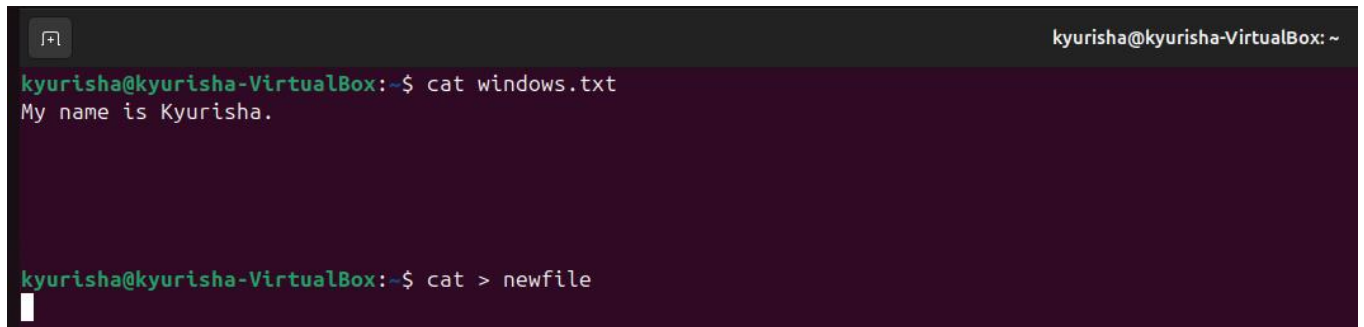
2. Usage: Concatenates and displays the contents of files. Can also be used to create files and view their contents.

3. Commands Used:

- $cat file1.txt - Displays the contents of file1.txt.

• $cat > newfile.txt - Creates a new file named newfile.txt and allows the user to input text, which is then saved in the file.

4. Output:

1.14. Command Name: echo

1. Syntax: echo [options] [string]

2. Usage: Displays a line of text or a variable value to the standard output. It is often used to display text or values of variables.

3. Commands Used:

• $echo "Hello World" - Prints the string "Hello World" to the terminal.

• $echo *.txt - lists only the .txt files.

4. Output:

1.15. Command Name: wc
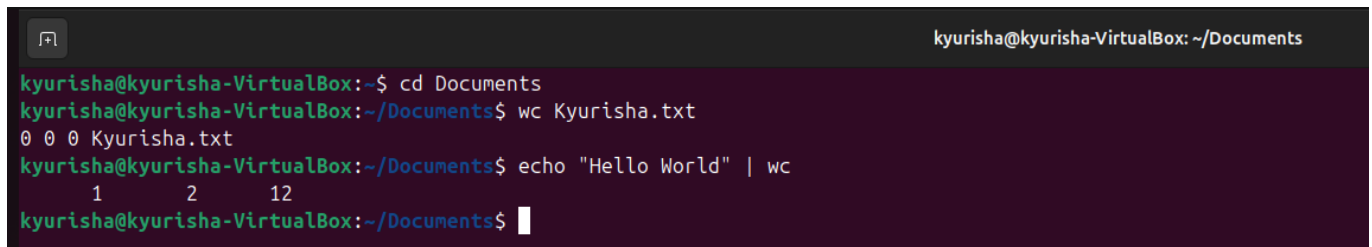
1. Syntax: wc [options] [file...]

2. Usage: Count lines, words, characters, and bytes in files or input streams. It is useful for summarizing file contents or analyzing textual data.

3. Commands Used:

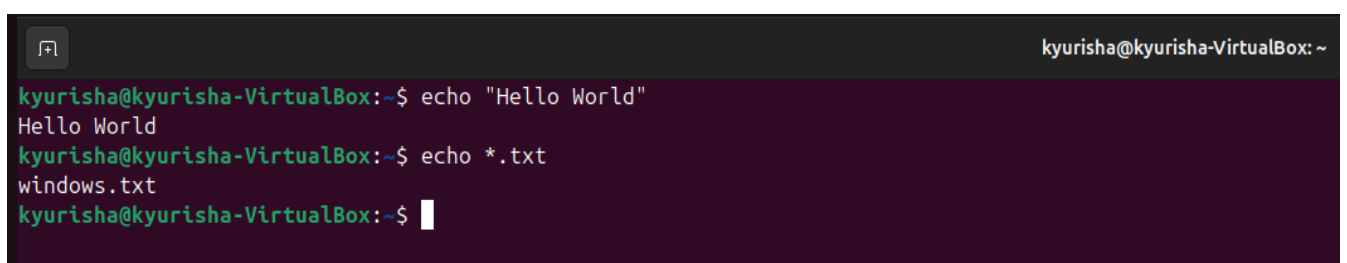• $wc Kyurisha.txt - count lines, words, and characters in a file

• $echo "Hello World" | wc - checks the number of lines, words, and characters in a simple string of text.

4. Output:


```
                                                          kyurisha@kyurisha-VirtualBox: ~/Documents
kyurisha@kyurisha-VirtualBox:~$ cd Documents
kyurisha@kyurisha-VirtualBox:~/Documents$ wc Kyurisha.txt
0 0 0 Kyurisha.txt
kyurisha@kyurisha-VirtualBox:~/Documents$ echo "Hello World" | wc
      1       2      12
kyurisha@kyurisha-VirtualBox:~/Documents$
```

1.16. Command Name: man

1. Syntax: man [command]

2. Usage: Displays the manual page for a command. It provides detailed information about command, including usage, options, and examples.

3. Commands Used:

• $man -k copy - Searches the manual page descriptions for the term copy and displays matching entries.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ man -k copy
Clone (3pm)            - recursively copy Perl datatypes
bcopy (3)              - copy byte sequence
copy_file_range (2)    - Copy a range of data from one file to another
copysign (3)           - copy sign of a number
copysignf (3)          - copy sign of a number
copysignl (3)          - copy sign of a number
cp (1)                 - copy files and directories
cpgr (8)               - copy with locking the given file to the password or group file
cpio (1)               - copy files to and from archives
cppw (8)               - copy with locking the given file to the password or group file
dd (1)                 - convert and copy a file
debconf-copydb (1)     - copy a debconf database
getunwind (2)          - copy the unwind data to caller's buffer
getutmp (3)            - copy utmp structure to utmpx, and vice versa
getutmpx (3)           - copy utmp structure to utmpx, and vice versa
install (1)            - copy files and set attributes
memccpy (3)            - copy memory area
memcpy (3)             - copy memory area
memmove (3)            - copy memory area
mempcpy (3)            - copy memory area
ntfscp (8)             - copy file to an NTFS volume.
objcopy (1)            - copy and translate object files
rsync (1)              - a fast, versatile, remote (and local) file-copying tool
scp (1)                - OpenSSH secure file copy
ssh-copy-id (1)        - use locally available keys to authorise logins on a remote machine
stpcpy (3)             - copy or catenate a string
strcat (3)             - copy or catenate a string
strcpy (3)             - copy or catenate a string
string_copying (7)     - copying strings and character sequences
va_copy (3)            - variable argument lists
wcpcpy (3)             - copy a wide-character string, returning a pointer to its end
wcpncpy (3)            - copy a fixed-size string of wide characters, returning a pointer to its end
wcscpy (3)             - copy a wide-character string
wcsncpy (3)            - copy a fixed-size string of wide characters
wmemcpy (3)            - copy an array of wide-characters
wmemmove (3)           - copy an array of wide-characters
wmempcpy (3)           - copy memory area
x86_64-linux-gnu-objcopy (1) - copy and translate object files
kyurisha@kyurisha-VirtualBox:~$
```

1.17. Command Name: history

1. Syntax: history [options] [n]

2. Usage: Displays the command history list, showing the commands previously entered in the shell session.

3. Commands Used:

- $history - Lists all the commands entered in the current shell session.
- $history 5 - Displays the last 5 commands entered.

- $history -c - Clears the command history.

- $history -a - Appends the current session's history to the history file.

4. Output:

1.18. Command Name: clear

1. Syntax: clear

2. Usage: Clears the terminal screen. It is commonly used to remove all previous commands and outputs from the view, leaving a blank screen.
3. Commands Used:

- $clear - Clears the terminal display, giving the appearance of an empty screen.

4. Output:

1.19. Command Name: touch
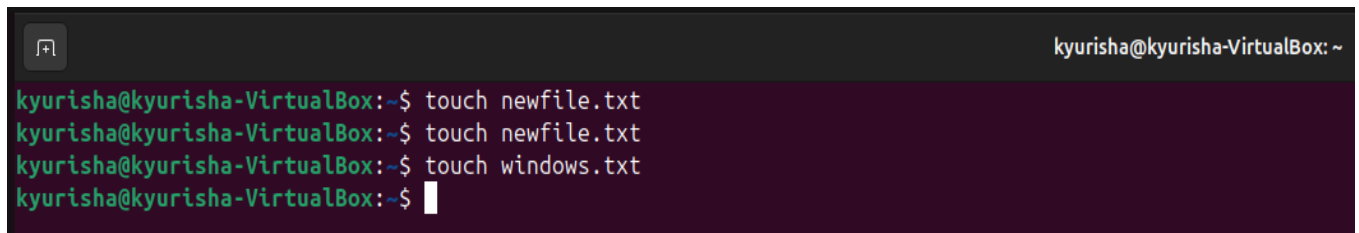
1. Syntax: touch [options] file...

2. Usage: create empty files or update the timestamps of existing files.

3. Commands Used:

• $touch filename.txt - Creates an empty file.

• $touch filename.txt - Updates timestamps of an existing file.

4. Output:


```
kyurisha@kyurisha-VirtualBox:~$ touch newfile.txt
kyurisha@kyurisha-VirtualBox:~$ touch newfile.txt
kyurisha@kyurisha-VirtualBox:~$ touch windows.txt
kyurisha@kyurisha-VirtualBox:~$
```

1.20. Command Name: locate
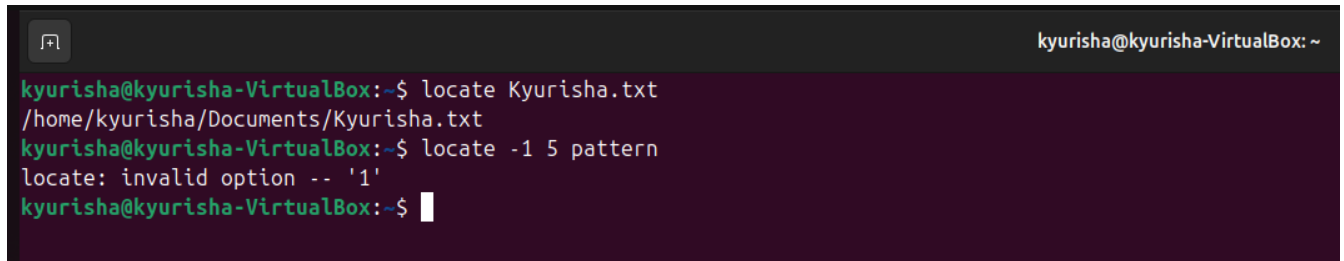
1. Syntax: locate [options] pattern

2. Usage: Searches for files and directories by name, using a pre-built database for fast lookup. It finds files whose names match the given pattern.

3. Commands Used:

• $locate file1.txt - Finds and lists paths of all files named file1.txt.

• $locate -1 5 pattern - Displays up to 10 matching results.

4. Output:


```
kyurisha@kyurisha-VirtualBox:~$ locate Kyurisha.txt
/home/kyurisha/Documents/Kyurisha.txt
kyurisha@kyurisha-VirtualBox:~$ locate -1 5 pattern
locate: invalid option -- '1'
kyurisha@kyurisha-VirtualBox:~$
```

1.21. Command Name: netstat

1. Syntax: netstat [options]

2. Usage: Displays network-related information such as network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.

3. Commands Used:

• $netstat -t - Display TCP connections.

• $netstat -u - Display UDP connections.

• $netstat -l - Displays only ports that are currently listening for incoming connections.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ netstat -t
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address          Foreign Address         State
kyurisha@kyurisha-VirtualBox:~$ netstat -u
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address          Foreign Address         State
udp        0      0 kyurisha-Virtual:bootpc _gateway:bootps         ESTABLISHED
kyurisha@kyurisha-VirtualBox:~$ netstat -1
netstat: invalid option -- '1'
usage: netstat [-vWeenNcCF] [<Af>] -r         netstat {-V|--version|-h|--help}
       netstat [-vWnNcaeol] [<Socket> ...]
       netstat { [-vWeenNac] -i | [-cnNe] -M | -s [-6tuw] }

        -r, --route             display routing table
        -i, --interfaces        display interface table
        -g, --groups            display multicast group memberships
        -s, --statistics        display networking statistics (like SNMP)
        -M, --masquerade        display masqueraded connections

        -v, --verbose           be verbose
        -W, --wide              don't truncate IP addresses
        -n, --numeric           don't resolve names
        --numeric-hosts         don't resolve host names
        --numeric-ports         don't resolve port names
        --numeric-users         don't resolve user names
        -N, --symbolic          resolve hardware names
        -e, --extend            display other/more information
        -p, --programs          display PID/Program name for sockets
        -o, --timers            display timers
        -c, --continuous        continuous listing

        -l, --listening         display listening server sockets
        -a, --all               display all sockets (default: connected)
        -F, --fib               display Forwarding Information Base (default)
        -C, --cache             display routing cache instead of FIB
        -Z, --context           display SELinux security context for sockets

  <Socket>={-t|--tcp} {-u|--udp} {-U|--udplite} {-S|--sctp} {-w|--raw}
           {-x|--unix} --ax25 --ipx --netrom
  <AF>=Use '-6|-4' or '-A <af>' or '--<af>'; default: inet
```

1.22. Command Name: df

1. Syntax: df [options] [file]

2. Usage: Reports file system disk space usage. It shows the amount of available and used disk space on the file system.

3. Commands Used:

• $df - Displays disk space usage for all mounted file systems.

• $df -h - Shows disk space usage in human-readable format (e.g., KB, MB, GB).

4. Output:


```
kyurisha@kyurisha-VirtualBox:~$ df
Filesystem      1K-blocks       Used Available Use% Mounted on
tmpfs              513580       1544    512036   1% /run
/dev/sda2       104391496   10162384  88880148  11% /
tmpfs             2567900          0   2567900   0% /dev/shm
tmpfs                5120          8      5112   1% /run/lock
tmpfs              513580        148    513432   1% /run/user/1000
/dev/sr0            52250      52250         0 100% /media/kyurisha/VBox_GAs_7.0.20
kyurisha@kyurisha-VirtualBox:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           502M  1.6M  501M   1% /run
/dev/sda2       100G  9.7G   85G  11% /
tmpfs           2.5G     0  2.5G   0% /dev/shm
tmpfs           5.0M  8.0K  5.0M   1% /run/lock
tmpfs           502M  148K  502M   1% /run/user/1000
/dev/sr0         52M   52M     0 100% /media/kyurisha/VBox_GAs_7.0.20
kyurisha@kyurisha-VirtualBox:~$
```

1.23. Command Name: du

1. Syntax: du [options] [file]

2. Usage: Estimates and displays the disk usage of files and directories. It shows the amount of disk space used by the specified files or directories.

3. Commands Used:

• $du /home/kyurisha : Displays the disk usage of /home/kyurisha and all its subdirectories.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ du /home/kyurisha
12      /home/kyurisha/.local/state/wireplumber
16      /home/kyurisha/.local/state
8       /home/kyurisha/.local/share/yelp/storage
8       /home/kyurisha/.local/share/yelp/mediakeys/v1
12      /home/kyurisha/.local/share/yelp/mediakeys
4       /home/kyurisha/.local/share/yelp/deviceidhashsalts/1
8       /home/kyurisha/.local/share/yelp/deviceidhashsalts
44      /home/kyurisha/.local/share/yelp
76      /home/kyurisha/.local/share/gvfs-metadata
12      /home/kyurisha/.local/share/keyrings
4       /home/kyurisha/.local/share/evolution/mail/trash
8       /home/kyurisha/.local/share/evolution/mail
4       /home/kyurisha/.local/share/evolution/addressbook/system/photos
100     /home/kyurisha/.local/share/evolution/addressbook/system
4       /home/kyurisha/.local/share/evolution/addressbook/trash
108     /home/kyurisha/.local/share/evolution/addressbook
4       /home/kyurisha/.local/share/evolution/memos/trash
8       /home/kyurisha/.local/share/evolution/memos
8       /home/kyurisha/.local/share/evolution/tasks/system
4       /home/kyurisha/.local/share/evolution/tasks/trash
16      /home/kyurisha/.local/share/evolution/tasks
8       /home/kyurisha/.local/share/evolution/calendar/system
4       /home/kyurisha/.local/share/evolution/calendar/trash
16      /home/kyurisha/.local/share/evolution/calendar
160     /home/kyurisha/.local/share/evolution
4       /home/kyurisha/.local/share/sounds
4       /home/kyurisha/.local/share/ibus-table
4       /home/kyurisha/.local/share/icc
204     /home/kyurisha/.local/share/Trash/files
16      /home/kyurisha/.local/share/Trash/info
224     /home/kyurisha/.local/share/Trash
4       /home/kyurisha/.local/share/applications
8       /home/kyurisha/.local/share/gnome-shell
4       /home/kyurisha/.local/share/org.gnome.TextEditor/drafts
16      /home/kyurisha/.local/share/org.gnome.TextEditor
324     /home/kyurisha/.local/share/nautilus/tags
4       /home/kyurisha/.local/share/nautilus/scripts
332     /home/kyurisha/.local/share/nautilus
4       /home/kyurisha/.local/share/gnome-settings-daemon
```
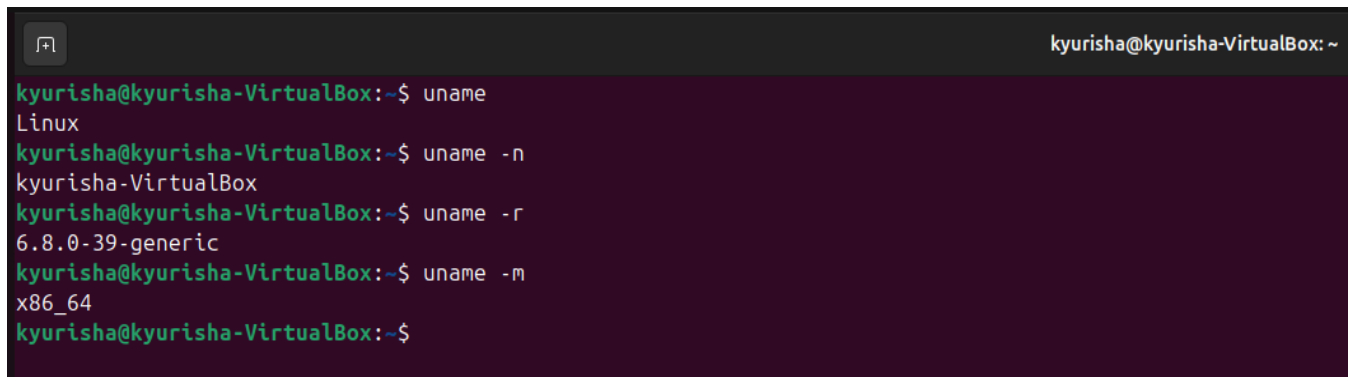
1.24 Command Name: uname

1. Syntax: uname [options]

2. Usage: Prints system information such as the kernel name, kernel release, machine name, processor type, hardware platform, and **operating system.**

3. Commands Used:

• $uname - Displays the kernel name.

• $uname -n - displays the network node hostname of the machine.

• $uname -r - displays the release version of the kernel (e.g., 6.8.0-39-generic).

• $uname -m - displays the hardware architecture of the machine.

4. Output:

1.25. Command Name: passwd

1. Syntax: passwd [options] [username]

2. Usage: Changes the password of a user account. It prompts the user to enter the current password, followed by the new password twice to confirm the change.

3. Commands Used:

• $passwd - Changes the password for the current user.

4. Output:

```
                                                         kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ passwd
Changing password for kyurisha.
Current password:
New password:
Retype new password:
passwd: password updated successfully
kyurisha@kyurisha-VirtualBox:~$
```

1.26. Command Name: useradd

1. Syntax: useradd [options] username

2. Usage: Adds a new user account to the system. This command allows for creating a new user with specific options like setting the home directory, shell, and more.

3. Commands Used:

• $useradd kyurisha - Creates a new user account named kyurisha.

4. Output:

```
                                                         kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ useradd kyurisha
useradd: user 'kyurisha' already exists
( Files )ha@kyurisha-VirtualBox:~$ useradd kriyasha
useradd: Permission denied.
useradd: cannot lock /etc/passwd; try again later.
kyurisha@kyurisha-VirtualBox:~$ sudo useradd kriyasha
[sudo] password for kyurisha:
kyurisha@kyurisha-VirtualBox:~$
```

1.27. Command Name: userdel

1. Syntax: userdel [options] username

2. Usage: Deletes a user account from the system. This command can remove user accounts and optionally their associated files and directories.

3. Commands Used:

• $userdel username - Deletes the user account named username.

4. Output:

1.28. Command Name: apt-get

1. Syntax: apt-get [options] command

2. Usage: Manages packages on Debian-based systems. It can be used to install, remove, update, and upgrade packages.

3. Commands Used:

• $sudo apt-get update - Updates the package lists for upgrades and new packages.

4. Output:

1.29. Command Name: ping

1. Syntax: ping [options] destination

2. Usage: Sends ICMP ECHO_REQUEST packets to network hosts. It is primarily used to check the availability of a host and to measure round-trip time for messages sent to the destination.

3. Commands Used:

• $ping facebook.com - Sends packets tofacebook.com and measures the response time.

4. Output:


```
                                                                      kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ ping facebook.com
PING facebook.com (163.70.146.35) 56(84) bytes of data.
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=1 ttl=51 time=37.3 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=2 ttl=51 time=34.3 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=3 ttl=51 time=27.1 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=4 ttl=51 time=27.2 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=5 ttl=51 time=33.1 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=6 ttl=51 time=27.1 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=7 ttl=51 time=34.6 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=8 ttl=51 time=29.6 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=9 ttl=51 time=26.2 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=10 ttl=51 time=31.1 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=11 ttl=51 time=33.6 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=12 ttl=51 time=27.2 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=13 ttl=51 time=62.2 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=14 ttl=51 time=36.2 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=15 ttl=51 time=26.2 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=16 ttl=51 time=43.4 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=17 ttl=51 time=27.1 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=18 ttl=51 time=31.0 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=19 ttl=51 time=43.7 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=20 ttl=51 time=29.4 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=21 ttl=51 time=38.3 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=22 ttl=51 time=30.0 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=23 ttl=51 time=27.0 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=24 ttl=51 time=30.2 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=25 ttl=51 time=27.2 ms
64 bytes from edge-star-mini-shv-01-del2.facebook.com (163.70.146.35): icmp_seq=26 ttl=51 time=27.3 ms
```

1.30. Command Name: find

1. Syntax: find [path] [expression]

2. Usage: Search for files and directories within a directory hierarchy. It allows you to search based on various criteria such as name, type, size, modification time, and more.

3. Commands Used:

• $find [path] -name "filename" - Finds files with the exact name filename. (e.g., *.txt) are supported.

• $find [path] -iname "filename" - Finds files with the name filename, ignoring case differences.

4. Output:

1.31. Command Name: head

1. Syntax: head [options] [file]

2. Usage: Displays the first few lines of a file. By default, it shows the first 10 lines.

3. Commands Used:

• $headwindows.txt - Displays the first 10 lines ofwindows.txt.

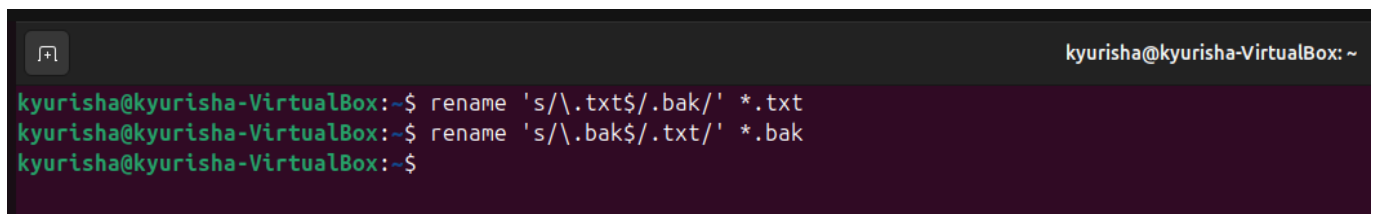**4. Output:**

1.32. Command Name: rename

1. Syntax: rename [options] expression replacement file(s)

2. Usage: Renames files by replacing parts of their names according to a specified pattern. This command can change file extensions, replace text in filenames, and more.

3. Commands Used:

• $rename' s/old/new/' filename - Replaces 'old' with 'new' in the specified filename.

• $rename 's/\.txt$/.bak/' *.txt - Changes the extension of all .txt files to .bak.

4. Output:

```
kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ rename 's/\.txt$/.bak/' *.txt
kyurisha@kyurisha-VirtualBox:~$ rename 's/\.bak$/.txt/' *.bak
kyurisha@kyurisha-VirtualBox:~$
```

1.33. Command Name: tail

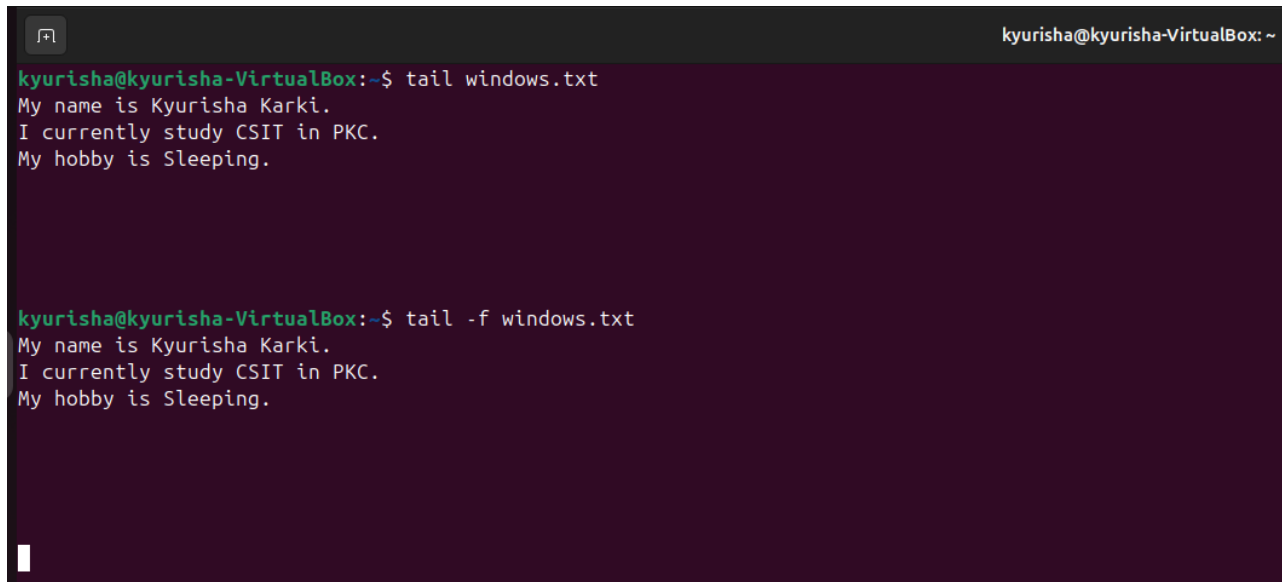**1. Syntax:** tail [options] [file]

2. Usage: Displays the last few lines of a file. By default, it shows the last 10 lines.

3. Commands Used:

• $tailwindows.txt - displays the last 10 lines ofwindows.txt.

• $tail -f windows.txt - displays new log entries as they are written to the file.

4. Output:

1.34. Command Name: tac

1. Syntax: tac [options] [file]

2. Usage: Concatenates and displays the contents of files in reverse line order. It reads each file and outputs its lines in reverse order.

3. Commands Used:

• $tac windows.txt - Displays the contents of windows.txt in reverse line order.

• $tac ls | tac - lists the files and directories in the current directory and then reverses the order of the output lines.

4. Output:

```
kyurisha@kyurisha-VirtualBox: ~

kyurisha@kyurisha-VirtualBox:~$ tac windows.txt


My hobby is Sleeping.
I currently study CSIT in PKC.
My name is Kyurisha Karki.
kyurisha@kyurisha-VirtualBox:~$ ls | tac
windows.txt
Videos
Templates
snap
Public
Pictures
newfile.txt
Music
Kyurisha
Downloads
Documents
Desktop
kyurisha@kyurisha-VirtualBox:~$
```

1.35. Command Name: comm

1. Syntax: comm [options] file1 file2

2. Usage: Compares two sorted files line by line. It outputs three columns: lines only in file1, lines only in file2, and lines common to both files.

3. Commands Used:

• $comm newfile.txt windows.txt - Compares newfile.txt and windows.txt and displays the lines unique to each and common to both.

4. Output:

```
                                                          kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ comm newfile.txt windows.txt
        My name is Kyurisha Karki.
comm: file 2 is not in sorted order
        I currently study CSIT in PKC.
        My hobby is Sleeping.



comm: input is not in sorted order
kyurisha@kyurisha-VirtualBox:~$ █
```

1.36. Command Name: cut

1. Syntax: cut [options] [file]

2. Usage: Cuts out sections from each line of files or standard input and writes the result to standard output. It is commonly used to extract columns of text data.

3. Commands Used:

 • $cut -c1-10 windows.txt - extract characters from positions 1 to 10 of each line in windows.txt.

4. Output:

```
                                                          kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ cut -c1-10 windows.txt
My name is
I currentl
My hobby i



kyurisha@kyurisha-VirtualBox:~$
```

1.37. Command Name: sort
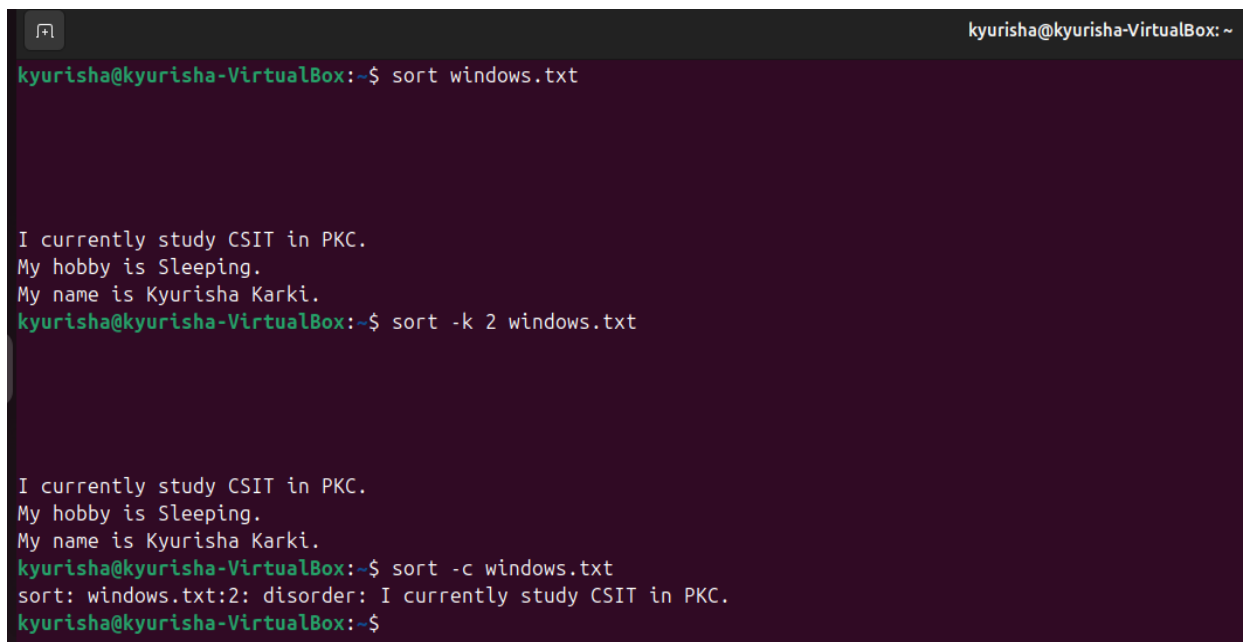
1. Syntax: sort [options] [file]

2. Usage: Sorts lines of text files. It can sort based on various criteria like alphabetical order, numerical order, and more.

3. Commands Used:

• $sort windows.txt - Sorts the lines in windows.txt alphabetically.

• $sort -k 2 windows.txt - sorts the lines of windows.txt based on the second field (or column).

• $sort -c windows.txt - checks if the lines in windows.txt are sorted in ascending order.

4. Output:

1.38. Command Name: date

1. Syntax: date [options]

2. Usage: Displays or sets the system date and time. It can format the date and time in various ways.

3. Commands Used:

• $date - Displays the current date and time.

• $date +%Y-%m-%d - Formats the date as YYYY-MM-DD.

• $date +"%H:%M:%S" - displays the current time in the format of hours, minutes, and seconds.

• $date + "%A" - Represents the full name of the weekday, such as "Sunday", "Monday", etc.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ date
Sun Aug  4 10:21:10 PM +0545 2024
kyurisha@kyurisha-VirtualBox:~$ date +"%Y-%m-%d"
2024-08-04
kyurisha@kyurisha-VirtualBox:~$ date +"%H:%M:%S"
22:22:59
kyurisha@kyurisha-VirtualBox:~$ date +"%A"
Sunday
kyurisha@kyurisha-VirtualBox:~$
```

1.39. Command Name: cal

1. Syntax: cal [options] [month] [year]

2. Usage: Displays a calendar for a specified month or year. If no arguments are provided, it displays the current month's calendar. 3. Commands Used:

• $cal - Displays the current month's calendar.

• $cal 8 2024 - Displays the calendar for August 2024.

4. Output:

1.40. Command Name: time

1. Syntax: time [command]

2. Usage: Measures the duration of time taken for a command to execute. It displays the real (wall-clock) time, user CPU time, and system CPU time used by the command.

3. Commands Used:

• $time ls -1 – shows the list of files in the current directory, with each file listed on a new line.

• $time sleep 5 - Measures the time taken to run the sleep command for 2 seconds.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ time ls -1
Desktop
Documents
Downloads
Kyurisha
Music
newfile.txt
Pictures
Public
snap
Templates
Videos
windows.txt

real    0m0.004s
user    0m0.002s
sys     0m0.002s
kyurisha@kyurisha-VirtualBox:~$ time sleep 2

real    0m2.044s
user    0m0.000s
sys     0m0.004s
kyurisha@kyurisha-VirtualBox:~$
```

1.41. Command Name: host

1. Syntax: host [options] [name]

2. Usage: Performs DNS lookups and provides information about IP addresses, domain names, and other network information.

3. Commands Used:

• $host google.com - Displays the IP address and DNS information for google.com.

• $host google.com 8.8.8.8 - queries Google's DNS server for information about google.com.

4. Output:

1.42. Command Name: wget

1. Syntax: wget [options] [URL]

2. Usage: Retrieves files from the web using HTTP, HTTPS, and FTP protocols. It can download files recursively, resume downloads, and download multiple files simultaneously.

3. Commands Used:

• $wget http://google.com/windows.zip - Downloads file.zip from the specified URL.

4. Output:

1.43. Command Name: id
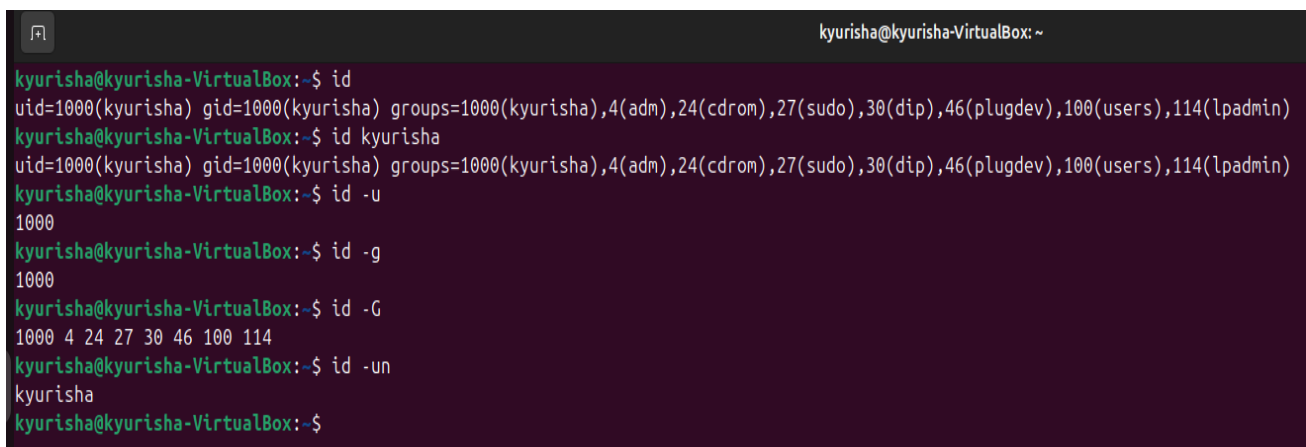
1. Syntax: id [options] [username]

2. Usage: Displays user identity information including user ID (UID), group ID (GID), and the groups to which the user belongs.

3. Commands Used:

 • $id - Displays the UID, GID, and groups for the current user.

 • $id kyurisha - Displays the UID, GID, and groups for the specified username.

 • $id -u - Prints the user ID (UID) of the user.

 • $id -G - Prints the group IDs (GIDs) of the groups the user belongs to.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ id
uid=1000(kyurisha) gid=1000(kyurisha) groups=1000(kyurisha),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),100(users),114(lpadmin)
kyurisha@kyurisha-VirtualBox:~$ id kyurisha
uid=1000(kyurisha) gid=1000(kyurisha) groups=1000(kyurisha),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),100(users),114(lpadmin)
kyurisha@kyurisha-VirtualBox:~$ id -u
1000
kyurisha@kyurisha-VirtualBox:~$ id -g
1000
kyurisha@kyurisha-VirtualBox:~$ id -G
1000 4 24 27 30 46 100 114
kyurisha@kyurisha-VirtualBox:~$ id -un
kyurisha
kyurisha@kyurisha-VirtualBox:~$
```

1.44. Command Name: ps
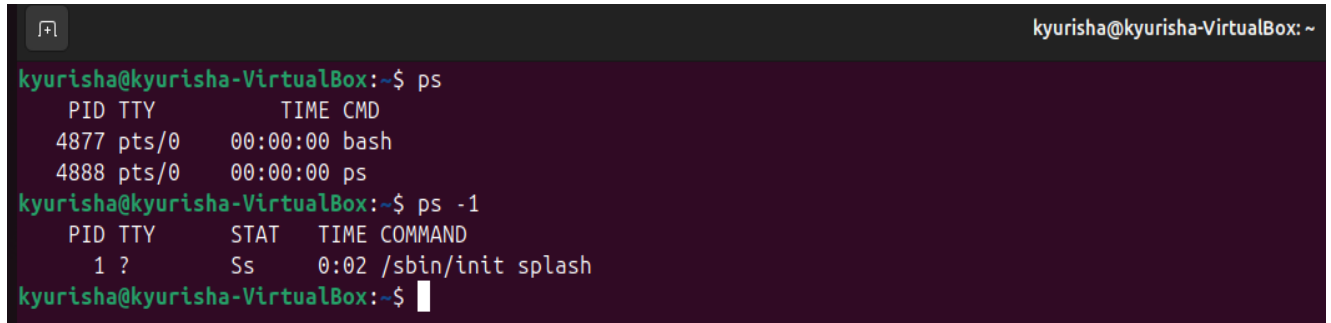
1. Syntax: ps [options]

2. Usage: Displays information about the currently running processes. It provides a snapshot of the current processes along with details like PID, TTY, time, and command name.

3. Commands Used:

• $ps - Displays information about processes in the current shell session.
• $ps -l -Displays a detailed, long-format list of processes with additional fields for in-depth information.

 4. Output:

1.45. Command Name: top

1. Syntax: top [options]

2. Usage: Provides a dynamic, real-time view of system processes. It displays information about CPU and memory usage, running processes, and system load.

3. Commands Used:

• $top - Displays the default real-time view of system processes.

4. Output:

```
                                                      kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ top

top - 22:49:12 up  1:20,  1 user,  load average: 0.17, 0.18, 0.14
Tasks: 228 total,   1 running, 227 sleeping,   0 stopped,   0 zombie
%Cpu(s):  2.8 us,  1.1 sy,  0.0 ni, 96.0 id,  0.0 wa,  0.0 hi,  0.1 si,  0.0 st
MiB Mem :   5015.4 total,   3134.1 free,   1187.6 used,    960.1 buff/cache
MiB Swap:   4096.0 total,   4096.0 free,      0.0 used.   3827.9 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2090 kyurisha  20   0 5070336 459912 144532 S  15.5   9.0   7:57.47 gnome-shell
   4922 kyurisha  20   0  702760  60292  48712 S   3.3   1.2   0:00.96 gnome-terminal-
   2800 kyurisha  20   0  218748   3100   2816 S   0.7   0.1   0:16.96 VBoxClient
     78 root      20   0       0      0      0 I   0.3   0.0   0:00.80 kworker/u12:3-events_unbound
    849 message+  20   0   12204   6912   4480 S   0.3   0.1   0:02.09 dbus-daemon
   1868 kyurisha  20   0   11084   6784   4608 S   0.3   0.1   0:01.55 dbus-daemon
   2180 kyurisha  20   0  216488  58932  48320 S   0.3   1.1   0:04.67 Xwayland
   2790 kyurisha  20   0  218232   2972   2688 S   0.3   0.1   0:06.17 VBoxClient
      1 root      20   0   23004  13920   9440 S   0.0   0.3   0:02.28 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.01 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_g
      5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_p
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-slub_
      7 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-netns
     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   0:00.11 kworker/u8:0-ext4-rsv-conversion
     12 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-mm_pe
     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
```

1.46. Command Name: kill

1. Syntax: kill [options]

2. Usage: Sends a signal to a process, usually to terminate it. By default, it sends the SIGTERM signal, but other signals can also be specified.

3. Commands Used:

• $kill 1234 - Sends the SIGTERM signal to the process with PID 1234.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ kill
kill: usage: kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill -l [sigspec]
kyurisha@kyurisha-VirtualBox:~$ kill 1234
bash: kill: (1234) - Operation not permitted
kyurisha@kyurisha-VirtualBox:~$ kill 5678
bash: kill: (5678) - No such process
kyurisha@kyurisha-VirtualBox:~$
```

1.47. Command Name: pkill

1. Syntax: pkill [options]

2. Usage: Sends a specified signal to processes based on a matching pattern, such as the process name. It is useful for terminating multiple processes at once.

3. Commands Used:

• $pkill kyurisha - terminates all processes with the name "kyurisha".

• $pkill -9 kyurisha - terminates the processes without allowing them to clean up or handle the signal.

• $pkill -l kyurisha - lists signal names and their corresponding numbers.

4. Output:

```
kyurisha@kyurisha-VirtualBox:~$ pkill kyurisha
kyurisha@kyurisha-VirtualBox:~$ pkill -9 kyurisha
kyurisha@kyurisha-VirtualBox:~$ pkill -l kyurisha
pkill: invalid option -- 'l'

Usage:
 pkill [options] <pattern>

Options:
 -<sig>                signal to send (either number or name)
 -H, --require-handler    match only if signal handler is present
 -q, --queue <value>      integer value to be sent with the signal
 -e, --echo               display what is killed
 -c, --count              count of matching processes
 -f, --full               use full process name to match
 -g, --pgroup <PGID,...>  match listed process group IDs
 -G, --group <GID,...>    match real group IDs
 -i, --ignore-case        match case insensitively
 -n, --newest             select most recently started
 -o, --oldest             select least recently started
 -O, --older <seconds>    select where older than seconds
 -P, --parent <PPID,...>  match only child processes of the given parent
 -s, --session <SID,...>  match session IDs
     --signal <sig>       signal to send (either number or name)
 -t, --terminal <tty,...> match by controlling terminal
 -u, --euid <ID,...>      match by effective IDs
 -U, --uid <ID,...>       match by real IDs
 -x, --exact              match exactly with the command name
 -F, --pidfile <file>     read PIDs from file
```

1.48. Command Name: killall

1. Syntax: killall [options]

2. Usage: Sends a signal to all processes with a specified name. By default, it sends the SIGTERM signal but can be customized to send other signals.

3. Commands Used:

• $killall -9 firefox: terminates the processes without allowing them to perform any cleanup operations.

4. Output:


```
kyurisha@kyurisha-VirtualBox:~$ pstree -s | grep firefox
    |         |              |-firefox-+-Isolated Web Co---19*[{Isolated Web Co}]
    |         |              |         `-88*[{firefox}]
kyurisha@kyurisha-VirtualBox:~$ killall -9 firefox
kyurisha@kyurisha-VirtualBox:~$ pstree -s | grep firefox
kyurisha@kyurisha-VirtualBox:~$
```

1.49. Command Name: bg

1. Syntax: bg [job_spec]

2. Usage: Resumes a suspended job in the background, allowing the shell prompt to be used while the job continues running.

3. Commands Used:

• $bg - Resumes the most recently suspended job in the background.

• $bg %1 - Resumes the job with job ID 1 in the background.

4. Output:


```
kyurisha@kyurisha-VirtualBox:~$ sleep 1000
^Z
[1]+  Stopped                 sleep 1000
kyurisha@kyurisha-VirtualBox:~$ bg %1
[1]+ sleep 1000 &
kyurisha@kyurisha-VirtualBox:~$
```
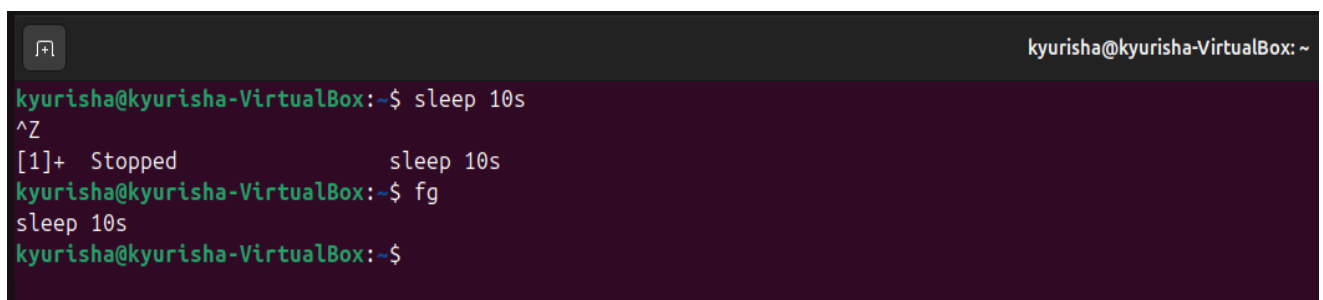
1.50. Command Name: fg

1. Syntax: fg [job_spec]

2. Usage: Brings a background job to the foreground, allowing it to interact with the terminal. It resumes a suspended job in the foreground.

3. Commands Used:

• $fg - Brings the most recently suspended or backgrounded job to the foreground.

4. Output:

1.51. Command Name: tar

1. Syntax: tar [options] [archive-file] [file or directory]

2. Usage: Archives multiple files and directories into a single file (commonly called a tarball). It can also compress and extract these archives.

3. Commands Used:

• $tar -cvf kyurisha.tar kyurisha- Creates an archive named kyurisha.tar containing kyurisha and the contents of directory.

• $tar -xvfkyurisha.tar - Extracts the contents of kyurisha.tar.

4. Output:

```
                                                           kyurisha@kyurisha-VirtualBox: ~/Desktop
kyurisha@kyurisha-VirtualBox:~$ cd Desktop
kyurisha@kyurisha-VirtualBox:~/Desktop$ ls
kyurisha  Kyurisha
kyurisha@kyurisha-VirtualBox:~/Desktop$ tar -cvf kyurisha.tar kyurisha
kyurisha/
kyurisha@kyurisha-VirtualBox:~/Desktop$ ls
kyurisha  Kyurisha  kyurisha.tar
kyurisha@kyurisha-VirtualBox:~/Desktop$ tar -xvf kyurisha.tar
kyurisha/
kyurisha@kyurisha-VirtualBox:~/Desktop$
```

1.52. Command Name: gzip

1. Syntax: gzip [options] [file]

2. Usage: Compresses files using the GNU zip (gzip) compression algorithm. It typically creates a file with a .gz extension.

3. Commands Used:

• $gzip windows.txt – Compresses windows.txt and creates windows.txt.gz.

4. Output:

```
                                                           kyurisha@kyurisha-VirtualBox: ~
kyurisha@kyurisha-VirtualBox:~$ ls -ltr
total 56
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Videos
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Public
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Music
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Downloads
drwxr-xr-x 3 kyurisha kyurisha  4096 Aug  3 20:29 Pictures
drwxr-xr-x 2 kyurisha kyurisha  4096 Aug  3 20:40 Templates
drwxrwxr-x 2 kyurisha kyurisha  4096 Aug  3 22:38 Kyurisha
drwxr-xr-x 2 kyurisha kyurisha  4096 Aug  4 15:17 Documents
-rw-rw-r-- 1 kyurisha kyurisha     0 Aug  4 19:09 newfile.txt
-rwxrw-r-- 1 kyurisha kyurisha    85 Aug  4 21:15 windows.txt
drwx------ 6 kyurisha kyurisha  4096 Aug  4 23:17 snap
-rw-rw-r-- 1 kyurisha kyurisha 10240 Aug  4 23:45 archive.tar
drwxr-xr-x 4 kyurisha kyurisha  4096 Aug  4 23:48 Desktop
kyurisha@kyurisha-VirtualBox:~$ gzip windows.txt
kyurisha@kyurisha-VirtualBox:~$ ls -ltr
total 56
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Videos
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Public
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Music
drwxr-xr-x 2 kyurisha kyurisha  4096 Jul 27 17:25 Downloads
drwxr-xr-x 3 kyurisha kyurisha  4096 Aug  3 20:29 Pictures
drwxr-xr-x 2 kyurisha kyurisha  4096 Aug  3 20:40 Templates
drwxrwxr-x 2 kyurisha kyurisha  4096 Aug  3 22:38 Kyurisha
drwxr-xr-x 2 kyurisha kyurisha  4096 Aug  4 15:17 Documents
-rw-rw-r-- 1 kyurisha kyurisha     0 Aug  4 19:09 newfile.txt
-rwxrw-r-- 1 kyurisha kyurisha   110 Aug  4 21:15 windows.txt.gz
drwx------ 6 kyurisha kyurisha  4096 Aug  4 23:17 snap
-rw-rw-r-- 1 kyurisha kyurisha 10240 Aug  4 23:45 archive.tar
drwxr-xr-x 4 kyurisha kyurisha  4096 Aug  4 23:48 Desktop
kyurisha@kyurisha-VirtualBox:~$
```