Ex No: 1a

INSTALLATION AND CONFIGURATION OF LINUX

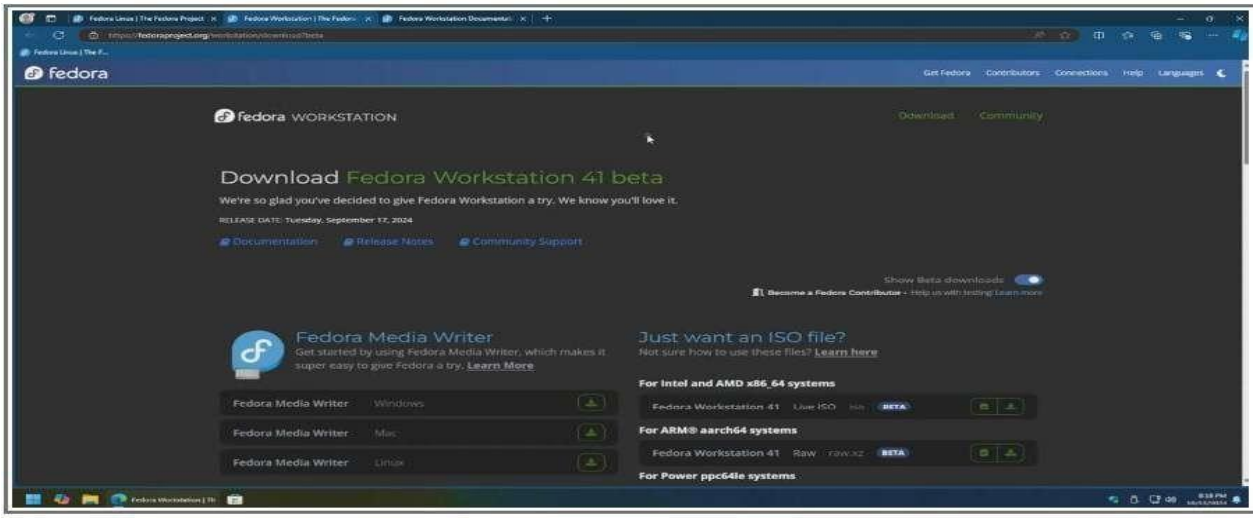
AIM:

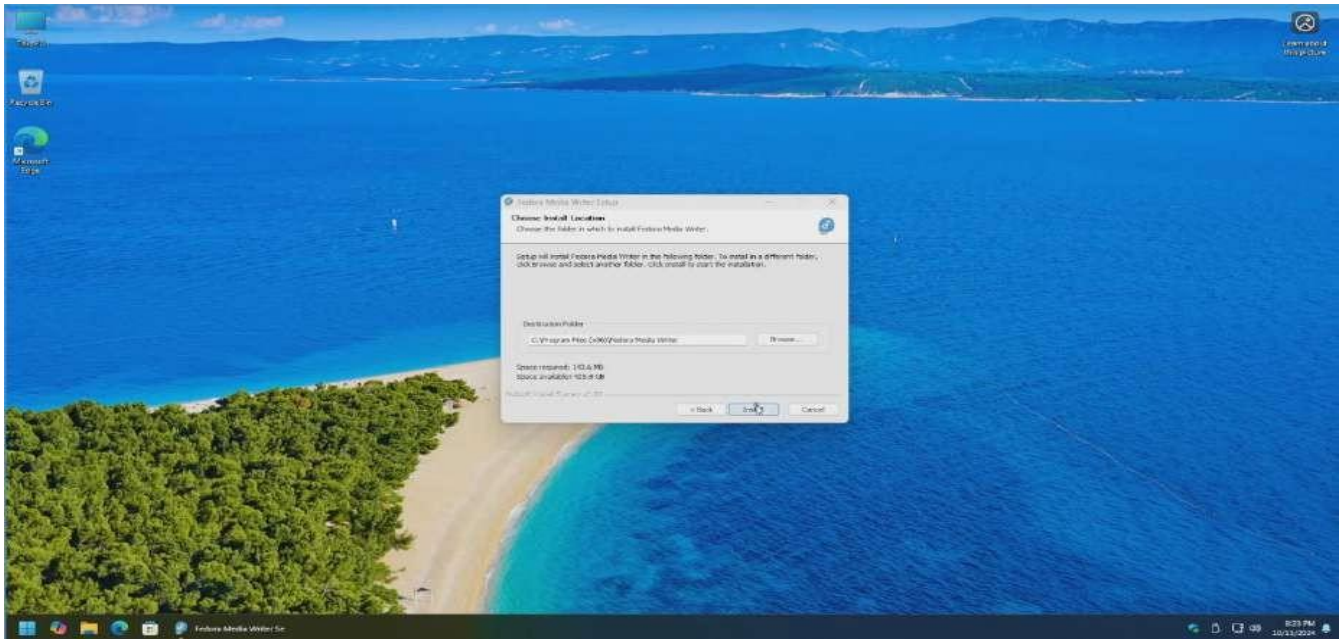
To install and configure Linux operating system in a Virtual Machine.

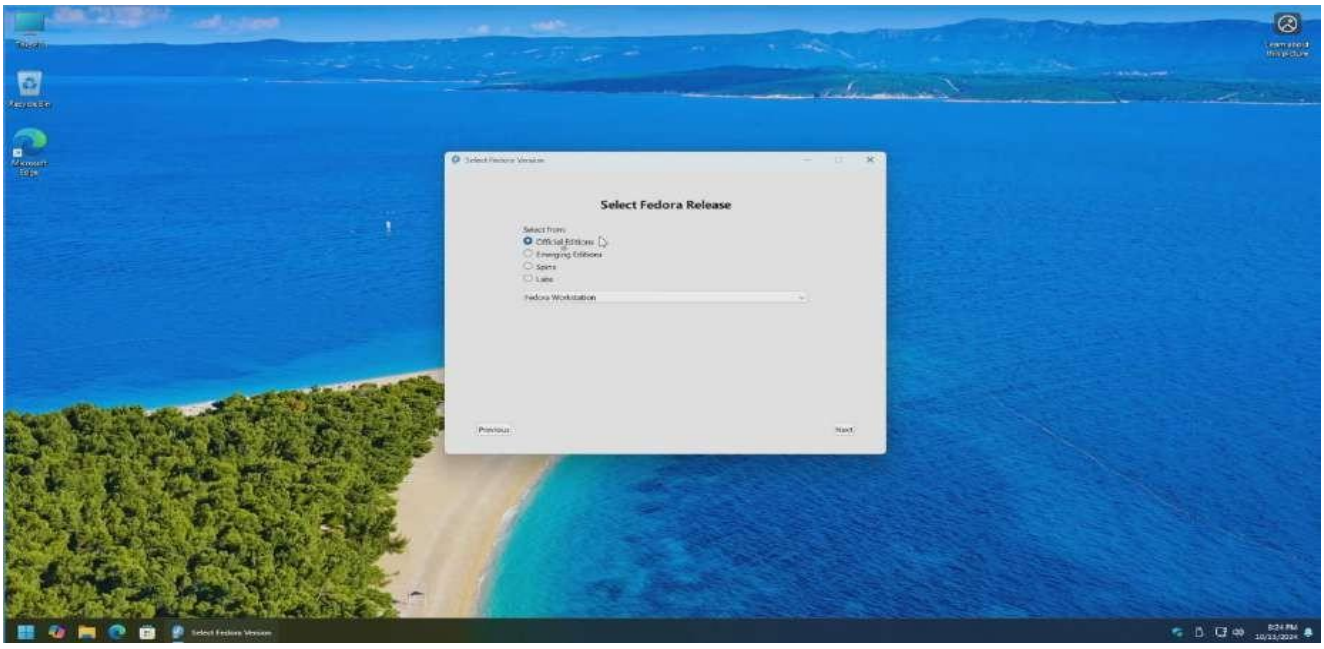
INSTALLATION/CONFIGURATION STEPS:

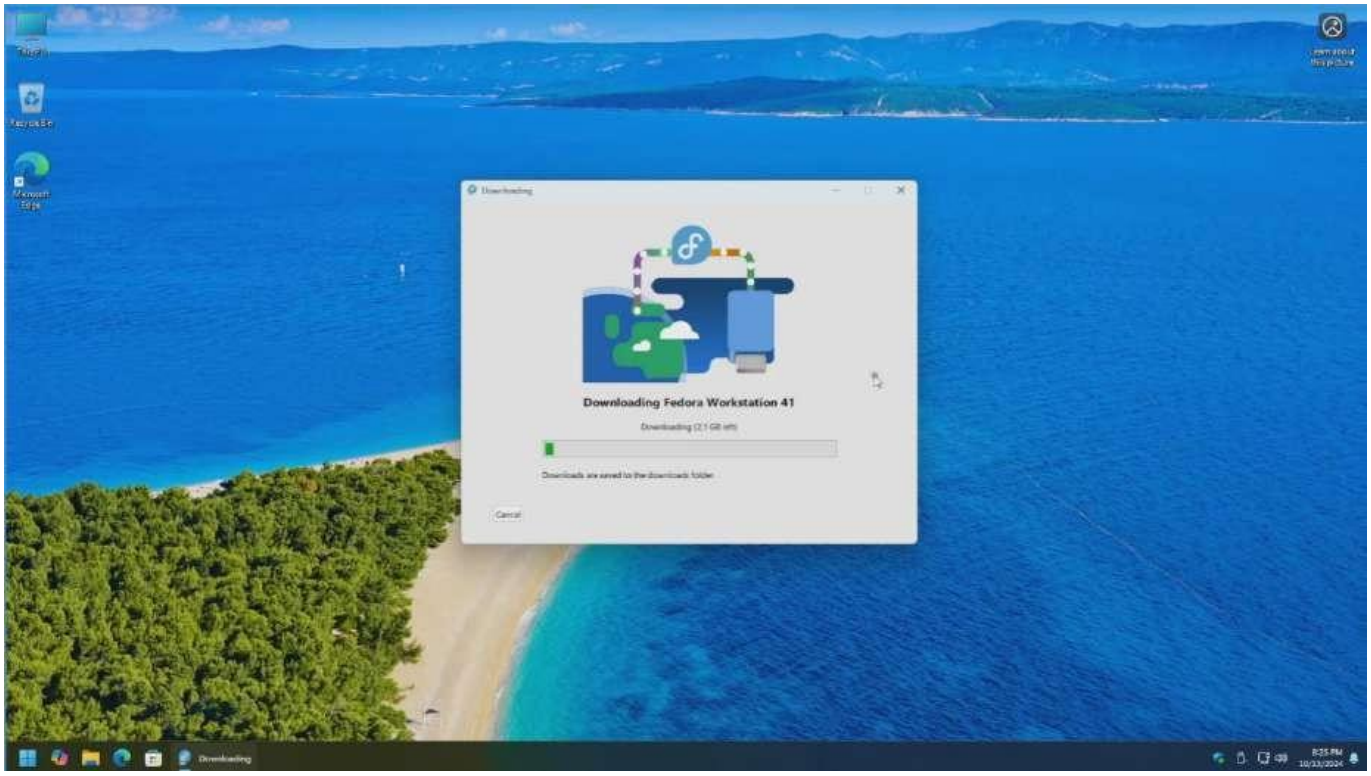
1. Install the required packages for virtualization dnf install xen virt-manager qemu libvirt
2. Configure xend to start up on boot systemctl enable virt-manager. service
3. Reboot the machine Reboot
4. Create a Virtual machine by first running virt-manager virt-manager &
5. Click on File and then click to connect to localhost
6. In the base menu, right-click on the localhost (QEMU) to create a new VM 7. Select Linux ISO image
8. Choose puppy-linux.iso then the kernel version
9. Select CPU and RAM limits
10. Create default disk image to 8 GB
11. Click finish to create the new VM with PuppyLinux.

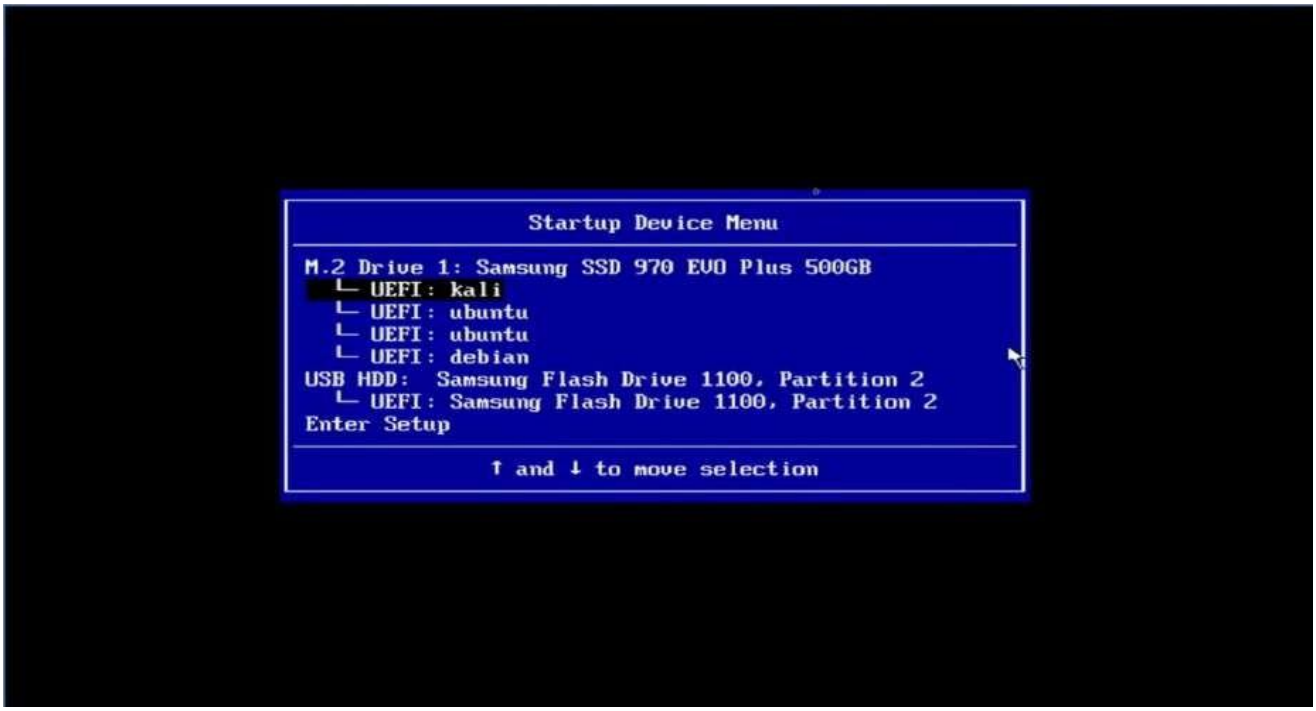
OUTPUT:



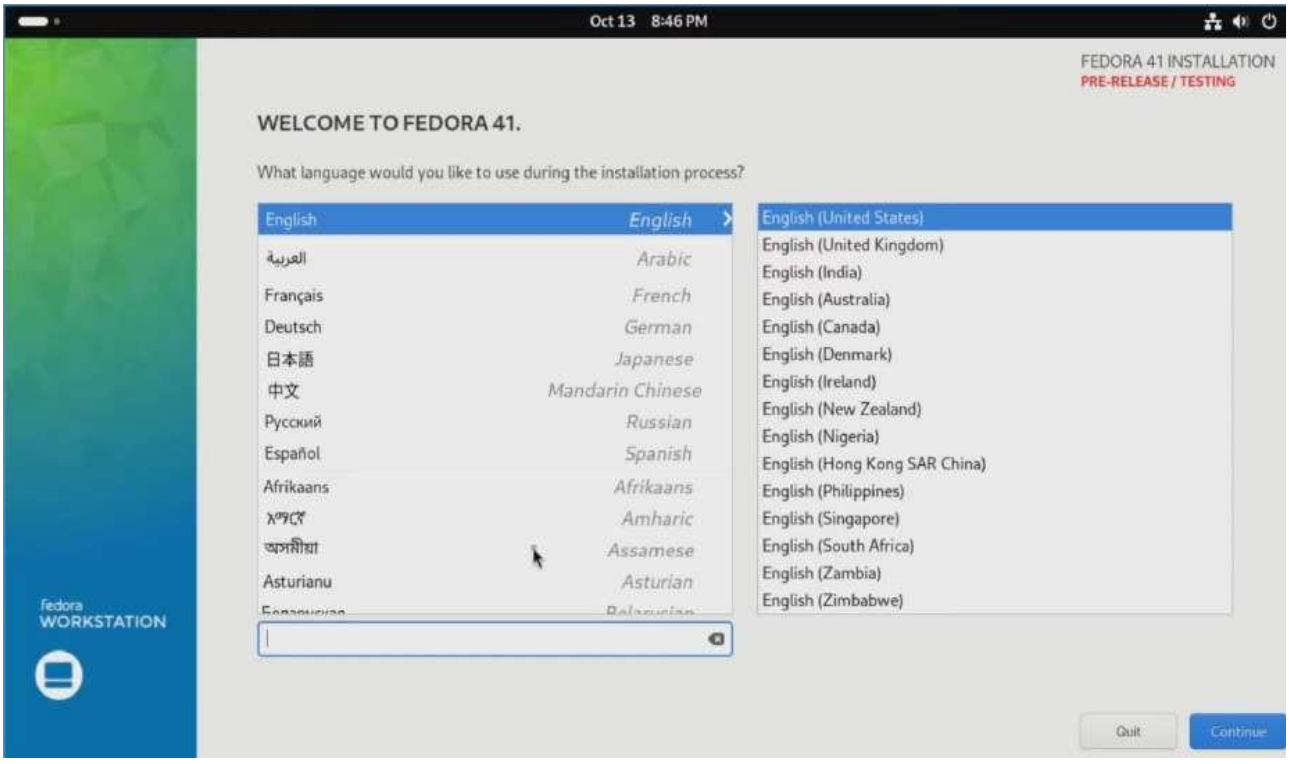

Choose Install Location
Choose the folder in which to install Fedora Media Writer.
Setup will install Fedora Media Writer in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
Browse...
Space required: 142.6 MB
Space available: 103.9 GB
< Back
Install
Cancel

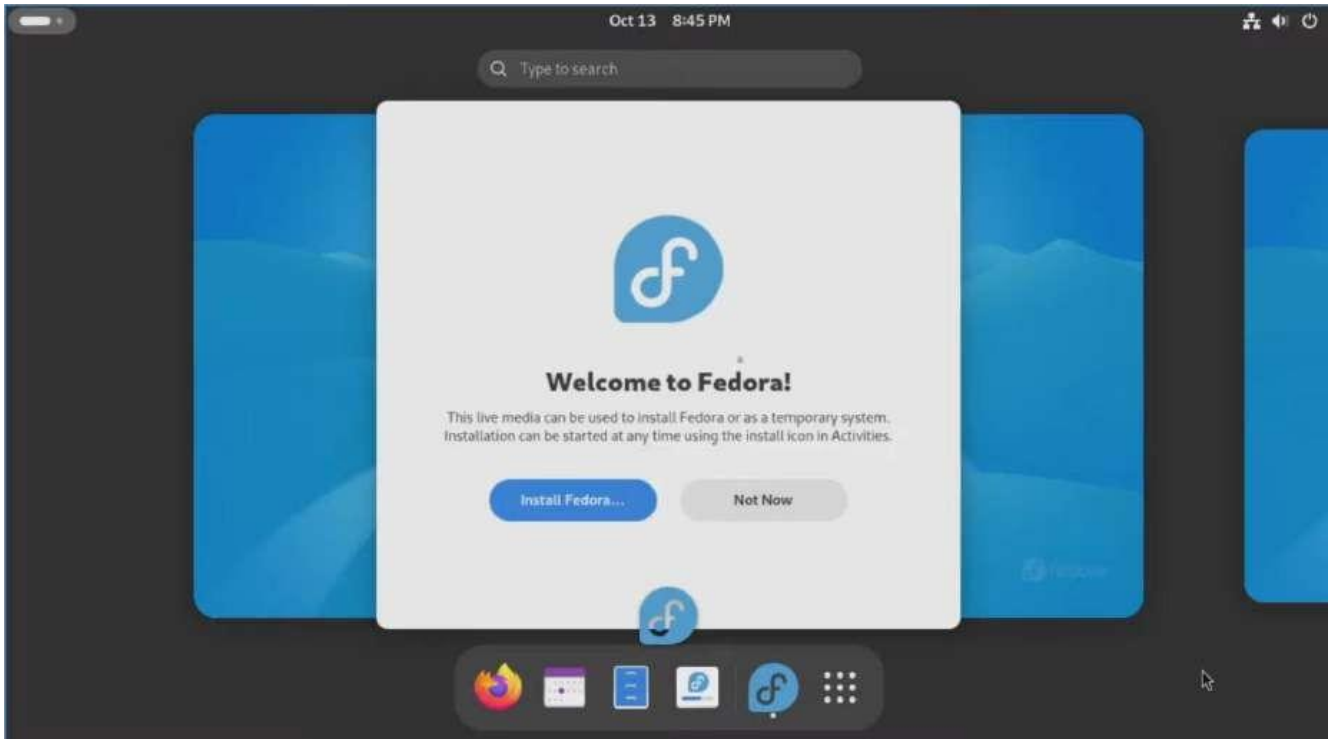

Select Fedora Release
Select from:
Official Editions
Emerging Editions
Spins
Labs
Fedora Workstation
Previous
Next


Downloading Fedora Workstation 41


Startup Device Menu
M.2 Drive 1: Samsung SSD 970 EVO Plus 500GB
└ UEFI: kali
└ UEFI: ubuntu
└ UEFI: ubuntu
└ UEFI: debian
USB HDD: Samsung Flash Drive 1100, Partition 2
└ UEFI: Samsung Flash Drive 1100, Partition 2
Enter Setup
↑ and ↓ to move selection


GRUB version 2.12
Start Fedora-Workstation-Live 41_Beta
*Test this media & start Fedora-Workstation-Live 41_Beta
Troubleshooting -->
Use the ▲ and ▼ keys to select which entry is highlighted.
Press enter to boot the selected OS, `e' to edit the commands before booting or `c' for a command-line.


Oct 13 8:46 PM
FEDORA 41 INSTALLATION
PRE-RELEASE / TESTING
WELCOME TO FEDORA 41.
What language would you like to use during the installation process?
English
العربية
Français
Deutsch
日本語
中文
Русский
Español
Afrikaans
አማርኛ
অসমীয়া
Asturianu
English
Arabic
French
German
Japanese
Mandarin Chinese
Russian
Spanish
Afrikaans
Amharic
Assamese
Asturian
English (United States)
English (United Kingdom)
English (India)
English (Australia)
English (Canada)
English (Denmark)
English (Ireland)
English (New Zealand)
English (Nigeria)
English (Hong Kong SAR China)
English (Philippines)
English (Singapore)
English (South Africa)
English (Zambia)
English (Zimbabwe)
Fedora
WORKSTATION
Quit
Continue



RESULT:

Thus, the Linux OS is Installed and Configured.

Ex No: 1b

BASIC LINUX COMMANDS

1.1 GENERAL PURPOSE COMMANDS

1. The 'date' command:

The date command displays the current date with day of week, month, day, time (24 hours clock) and the year. SYNTAX: $ date

The date command can also be used with following format.

Format	Purpose	Example
+ %m	To display only month	$ date + %m
+ %h	To display month name	$ date + %h
+ %d	To display day of month	$ date + %d
+ %y	To display last two digits of the year	$ date + %y
+ %H	To display Hours	$ date + %H
+ %M	To display Minutes	$ date + %M
+ %S	To display Seconds	$ date + %S

2. The echo'command:

The echo command is used to print the message on the screen. SYNTAX: $ echo

EXAMPLE: $ echo “God is Great”

3. The ‘cal’ command:

The cal command displays the specified month or year calendar. SYNTAX: $ cal [month] [year]

EXAMPLE: $ cal Jan 2012

4. The ‘bc’ command:

Unix offers an online calculator and can be invoked by the command bc. SYNTAX: $ bc

EXAMPLE: bc –l 16/4

5/2

5. The ‘who’ command

The who command is used to display the data about all the users who are currently logged into the system. SYNTAX: $ who

6. The ‘who am i’ command

The who am i command displays data about login details of the user. SYNTAX: $ who am i

7. The ‘id’ command

The id command displays the numerical value corresponding to your login. SYNTAX: $ id

8. The ‘tty’ command

The tty (teletype) command is used to know the terminal name that we are using. SYNTAX: $ tty

9. The ‘clear’ command

The clear command is used to clear the screen of your terminal. SYNTAX: $ clear

10. The ‘man’ command

The man command gives you complete access to the Unix commands. SYNTAX: $ man [command]

11. The ‘ps’ command

The ps command is used to the process currently alive in the machine with the 'ps' (process status) command, which displays information about process that are alive when you run the command. 'ps;' produces a snapshot of machine activity.

SYNTAX: $ ps EXAMPLE: $ ps

$ ps –e

$ps -aux

12. The ‘uname’ command

The uname command is used to display relevant details about the operating system on the standard output.

-m -> Displays the machine id (i.e., name of the system hardware)

-n -> Displays the name of the network node. (host name)

-r -> Displays the release number of the operating system.

-s -> Displays the name of the operating system (i.e.. system name)

-v -> Displays the version of the operating system.

-a -> Displays the details of all the above five options. SYNTAX: $ uname [option]

EXAMPLE: $ uname -a

1.2 DIRECTORY COMMANDS

1. The ‘pwd’ command:

The pwd (print working directory) command displays the current working directory. SYNTAX: $ pwd

2. The ‘mkdir’ command:

The mkdir is used to create an empty directory in a disk. SYNTAX: $ mkdir dirname

EXAMPLE: $ mkdir receee

3. The ‘rmdir’ command:

The rmdir is used to remove a directory from the disk. Before removing a directory, the directory must be empty (no files and directories).

SYNTAX: $ rmdir dirname EXAMPLE: $ rmdir receee

4. The ‘cd’ command:

The cd command is used to move from one directory to another. SYNTAX: $ cd dirname

EXAMPLE: $ cd receee

5. The ‘ls’ command:

The ls command displays the list of files in the current working directory. SYNTAX: $ ls

EXAMPLE: $ ls

$ ls –l

$ ls –a

1.3 FILE HANDLING COMMANDS

1. The ‘cat’ command:

The cat command is used to create a file. SYNTAX: $ cat > filename

EXAMPLE: $ cat > rec

2. The ‘Display contents of a file’ command:

The cat command is also used to view the contents of a specified file. SYNTAX: $ cat filename

3. The ‘cp’ command:

The cp command is used to copy the contents of one file to another and copies the file from one place to another.

SYNTAX: $ cp oldfile newfile EXAMPLE: $ cp cse ece

4. The ‘rm’ command:

The rm command is used to remove or erase an existing file SYNTAX: $ rm filename

EXAMPLE: $ rm rec

$ rm –f rec

Use option –fr to delete recursively the contents of the directory and its subdirectories.

5. The ‘mv’ command:

The mv command is used to move a file from one place to another. It removes a specified file from its original location and places it in specified location.

SYNTAX: $ mv oldfile newfile EXAMPLE: $ mv cse eee

6. The ‘file’ command:

The file command is used to determine the type of file. SYNTAX: $ file filename

EXAMPLE: $ file receee

7. The ‘wc’ command:

The wc command is used to count the number of words, lines and characters in a file. SYNTAX: $ wc filename

EXAMPLE: $ wc receee

8. The ‘Directing output to a file’ command:

The ls command lists the files on the terminal (screen). Using the redirection operator ‘>’ we can send the output to file instead of showing it on the screen.

SYNTAX: $ ls > filename EXAMPLE: $ ls > cseeee

9. The ‘pipes’ command:

The Unix allows us to connect two commands together using these pipes. A pipe (|) is an mechanism by which the output of one command can be channeled into the input of another command. SYNTAX: $ command1 | command2

EXAMPLE: $ who | wc -l

10. The ‘tee’ command:

While using pipes, we have not seen any output from a command that gets piped into another command. To save the output, which is produced in the middle of a pipe, the tee command is very useful. SYNTAX: $ command | tee filename

EXAMPLE: $ who | tee sample | wc -l

11. The ‘Metacharacters of unix’ command:

Metacharacters are special characters that are at higher and abstract level compared to most of other characters in Unix. The shell understands and interprets these metacharacters in a special way. * - Specifies number of characters

?- Specifies a single character

[ ]- used to match a whole set of file names at a command line.

! – Used to Specify Not EXAMPLE:

$ ls r** - Displays all the files whose name begins with ‘r’

$ ls ?kkk - Displays the files which are having ‘kkk’, from the second characters irrespective of the first character.

$ ls [a-m] – Lists the files whose names begins alphabets from ‘a’ to ‘m’

$ ls [!a-m] – Lists all files other than files whose names begins alphabets from ‘a’ to ‘m’

12. The ‘File permissions’ command:

File permission is the way of controlling the accessibility of file for each of three users namely Users, Groups and Others.

There are three types of file permissions are available, they are r-read

w-write

x-execute

The permissions for each file can be divided into three parts of three bits each.

First three bits	Owner of the file
Next three bits	Group to which the owner of the file belongs
Last three bits	Others

EXAMPLE: $ ls college

-rwxr-xr-- 1 Lak std 1525 jan10 12:10 college Where,

-rwx The file is readable, writable and executable by the owner of the file. Lak Specifies Owner of the file.

r-x Indicates the absence of the write permission by the Group owner of the file. Std Is the Group Owner of the file.

r-- Indicates read permissions for others.

13. The ‘chmod’ command:

The chmod command is used to set the read, write and execute permissions for all categories of users for file. SYNTAX: $ chmod category operation permission file

Category	Operation	permission
u-users	+ assign	r-read
g-group	-Remove	w-write
o-others	= assign absolutely	x-execute
a-all		

EXAMPLE:

$ chmod u –wx college

Removes write & execute permission for users for ‘college’ file.

$ chmod u +rw, g+rw college

Assigns read & write permission for users and groups for ‘college’ file.

$ chmod g=wx college

Assigns absolute permission for groups of all read, write and execute permissions for ‘college’ file.

14. The ‘Octal Notations’ command:

The file permissions can be changed using octal notations also. The octal notations for file permission are

Read permission	4
Write permission	2

EXAMPLE:

$ chmod 761 college

Execute permission	1

Assigns all permission to the owner, read and write permissions to the group and only executable permission to

the others for ‘college’ file.

1.4 GROUPING COMMANDS

1. The ‘semicolon’ command:

The semicolon(;) command is used to separate multiple commands at the command line. SYNTAX: $

command1;command2;command3... ;commandn

EXAMPLE: $ who;date

2. The ‘&&’ operator:

The ‘&&’ operator signifies the logical AND operation in between two or more valid Unix commands.It

means that only if the first command is successfully executed, then the next command will executed. SYNTAX: $ command1 && command && command3.....&&commandn EXAMPLE: $ who && date.

3. The ‘||’ operator:

The ‘||’ operator signifies the logical OR operation in between two or more valid Unix commands.It means, that only if the first command will happen to be un successfully,it will continue to execute next commands. SYNTAX: $ command1 || command || command3... ||commandn

EXAMPLE: $ who || date

1.5 FILTERS

1. The head filter

It displays the first ten lines of a file. SYNTAX: $ head filename

EXAMPLE: $ head college Display the top ten lines.

$ head -5 college Display the top five lines.

2. The tail filter

It displays ten lines of a file from the end of the file. SYNTAX: $ tail filename

EXAMPLE: $ tail college Display the last ten lines.

$tail -5 college Display the last five lines.

3. The more filter:

The pg command shows the file page by page. SYNTAX: $ ls –l | more

4. The ‘grep’ command:

This command is used to search for a particular pattern from a file or from the standard input and display those

lines on the standard output. “Grep” stands for “global search for regular expression.”

SYNTAX: $ grep [pattern] [file_name] EXAMPLE: $ cat> student

Arun cse Ram ece Kani cse

$ grep “cse” student

Arun cse Kani cse

5. The ‘sort’ command:

The sort command is used to sort the contents of a file. The sort command reports only to the screen, the actual file remains unchanged.

SYNTAX: $ sort filename EXAMPLE: $ sort college OPTIONS:

Command	Purpose
Sort –r college	Sorts and displays the file contents in reverse order
Sort –c college	Check if the file is sorted
Sort –n college	Sorts numerically
Sort –m college	Sorts numerically in reverse order

Sort –u college	Remove duplicate records
Sort –l college	Skip the column with +1 (one) option.Sorts according to second column

6. The ‘nl’ command:

The nl filter adds lines numbers to a file and it displays the file and not provides access to edit but simply displays the contents on the screen.

SYNTAX: $ nl filename EXAMPLE: $ nl college

7. The ‘cut’ command:

We can select specified fields from a line of text using cut command. SYNTAX: $ cut -c filename

EXAMPLE: $ cut -c college OPTION:

-c – Option cut on the specified character position from each line.

1.5 OTHER ESSENTIAL COMMANDS

1. free

Display amount of free and used physical and swapped memory system. synopsis- free [options]
example

[root@localhost ~]# free -t

total used free shared buff/cache available Mem: 4044380 605464 2045080 148820 1393836 3226708 Swap:

2621436 0 2621436

Total: 6665816 605464 4666516

2. top

It provides a dynamic real-time view of processes in the system. synopsis- top [options]

example [root@localhost ~]# top

top - 08:07:28 up 24 min, 2 users, load average: 0.01, 0.06, 0.23

Tasks: 211 total, 1 running, 210 sleeping, 0 stopped, 0 zombie

%Cpu(s): 0.8 us, 0.3 sy, 0.0 ni, 98.9 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st

KiB Mem : 4044380 total, 2052960 free, 600452 used, 1390968 buff/cache KiB Swap: 2621436 total, 2621436 free, 0 used. 3234820 avail Mem PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND

1105 root 20 0 175008 75700 51264 S 1.7 1.9 0:20.46 Xorg 2529 root 20 0 80444 32640 24796 S 1.0 0.8

0:02.47 gnome-term

3. ps

It reports the snapshot of current processes synopsis- ps [options]

example

[root@localhost ~]# ps -e PID TTY TIME CMD

1 ? 00:00:03 systemd

2 ? 00:00:00 kthreadd

3 ? 00:00:00 ksoftirqd/0

4. vmstat

It reports virtual memory statistics synopsis- vmstat [options] example

[root@localhost ~]# vmstat

procs -----------memory---------- ---swap-- -----io---- -system-- ------cpu r b swpd free buff cache si so bi bo

in cs us sy id wa st 0 0 0 1879368 1604 1487116 0 0 64 7 72 140 1 0 97 1 0

5. df

It displays the amount of disk space available in file-system.

Synopsis- df [options] example [root@localhost ~]# df

Filesystem 1K-blocks Used Available Use% Mounted on

devtmpfs 2010800 0 2010800 0% /dev tmpfs 2022188 148 2022040 1% /dev/shm tmpfs 2022188 1404

2020784 1% /run /dev/sda6 487652 168276 289680 37% /boot

6. ping

It is used verify that a device can communicate with another on network. PING stands for Packet Internet Groper.

synopsis- ping [options] [root@localhost ~]# ping 172.16.4.1

PING 172.16.4.1 (172.16.4.1) 56(84) bytes of data.

64 bytes from 172.16.4.1: icmp_seq=1 ttl=64 time=0.328 ms 64 bytes from 172.16.4.1: icmp_seq=2 ttl=64 time=0.228 ms

64 bytes from 172.16.4.1: icmp_seq=3 ttl=64 time=0.264 ms 64 bytes from 172.16.4.1: icmp_seq=4 ttl=64 time=0.312 ms

--- 172.16.4.1 ping statistics ---

4 packets transmitted, 4 received, 0% packet loss, time 3000ms rtt min/avg/max/mdev = 0.228/0.283/0.328/0.039 ms

7. ifconfig

It is used configure network interface. synopsis- ifconfig [options]

example

root@localhost ~]# ifconfig

enp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500 inet 172.16.6.102 netmask

255.255.252.0 broadcast 172.16.7.255 inet6 fe80::4a0f:cfff:fe6d:6057 prefixlen 64 scopeid 0x20<link> ether 48:0f:cf:6d:60:57 txqueuelen 1000 (Ethernet)

RX packets 23216 bytes 2483338 (2.3 MiB)

RX errors 0 dropped 5 overruns 0 frame 0

TX packets 1077 bytes 107740 (105.2 KiB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0 8. traceroute

It tracks the route the packet takes to reach the destination. synopsis- traceroute [options] example

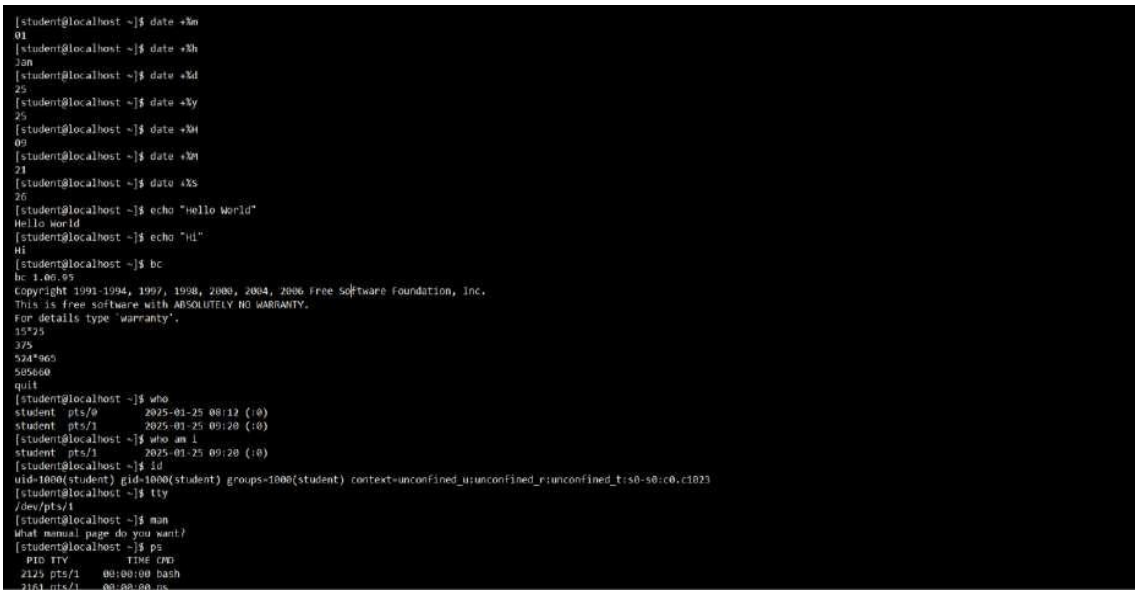
[root@localhost ~]# traceroute www.rajalakshmi.org

traceroute to www.rajalakshmi.org (220.227.30.51), 30 hops max, 60 byte packets 1 gateway (172.16.4.1)

0.299 ms 0.297 ms 0.327 ms 2

220.225.219.38 (220.225.219.38) 6.185 ms 6.203 ms 6.189 ms

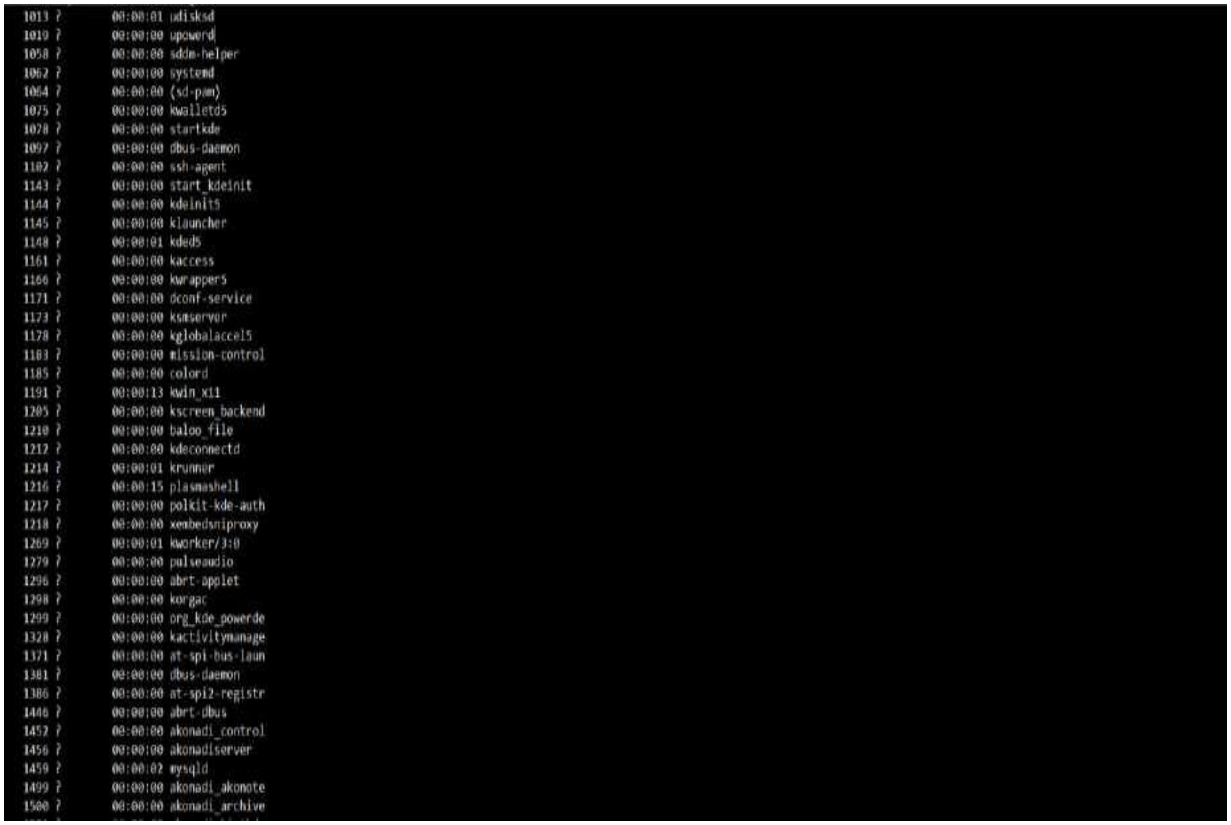
OUTPUT:

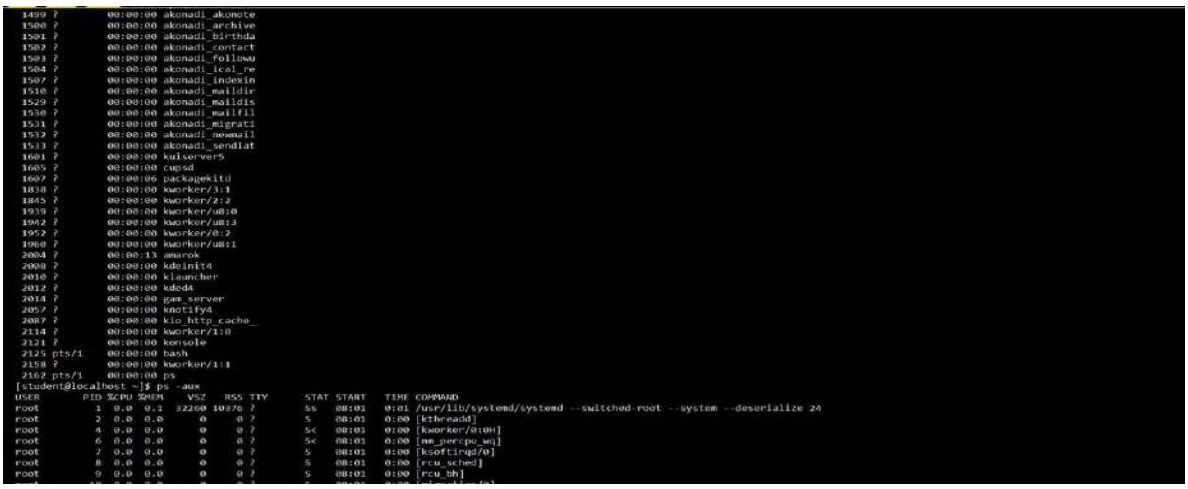

[student@localhost ~]$ date +%m
01
[student@localhost ~]$ date +%h
Jan
[student@localhost ~]$ date +%d
25
[student@localhost ~]$ date +%y
25
[student@localhost ~]$ date +%H
09
[student@localhost ~]$ date +%M
21
[student@localhost ~]$ date +%S
26
[student@localhost ~]$ echo "Hello World"
Hello World
[student@localhost ~]$ echo "Hi"
Hi
[student@localhost ~]$ bc
bc 1.06.95
Copyright 1991-1994, 1997, 1998, 2000, 2004, 2006 Free Software Foundation, Inc.
This is free software with ABSOLUTELY NO WARRANTY.
For details type `warranty'.
15*25
375
524*965
505660
quit
[student@localhost ~]$ who
student :pts/0 2025-01-25 08:12 (:0)
student :pts/1 2025-01-25 09:20 (:0)
[student@localhost ~]$ who am i
student :pts/1 2025-01-25 09:20 (:0)
[student@localhost ~]$ id
uid=1000(student) gid=1000(student) groups=1000(student) context=unconfined_u:unconfined_r:unconfined_t:s0-s0:c0.c1023
[student@localhost ~]$ tty
/dev/pts/1
[student@localhost ~]$ man
What manual page do you want?
[student@localhost ~]$ ps
PID TTY TIME CMD
2125 pts/1 00:00:00 bash

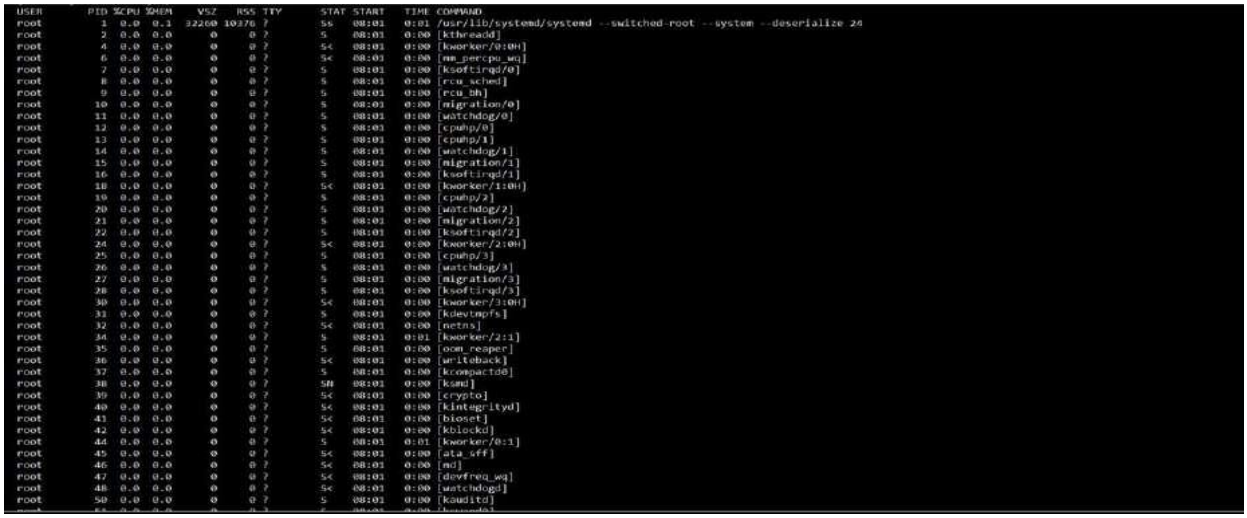

[student@localhost ~]$ ps
PID TTY TIME CMD
2125 pts/1 00:00:00 bash
2161 pts/1 00:00:00 ps
[student@localhost ~]$ ps -e
PID TTY TIME CMD
1 ? 00:00:01 systemd
2 ? 00:00:00 kthreadd
4 ? 00:00:00 kworker/0:0H
6 ? 00:00:00 mm_percpu_wq
7 ? 00:00:00 ksoftirqd/0
8 ? 00:00:00 rcu_sched
9 ? 00:00:00 rcu_bh
10 ? 00:00:00 migration/0
11 ? 00:00:00 watchdog/0
12 ? 00:00:00 cpuhp/0
13 ? 00:00:00 cpuhp/1
14 ? 00:00:00 watchdog/1
15 ? 00:00:00 migration/1
16 ? 00:00:00 ksoftirqd/1
18 ? 00:00:00 kworker/1:0H
19 ? 00:00:00 cpuhp/2
20 ? 00:00:00 watchdog/2
21 ? 00:00:00 migration/2
22 ? 00:00:00 ksoftirqd/2
24 ? 00:00:00 kworker/2:0H
25 ? 00:00:00 cpuhp/3
26 ? 00:00:00 watchdog/3
27 ? 00:00:00 migration/3
28 ? 00:00:00 ksoftirqd/3
30 ? 00:00:00 kworker/3:0H
31 ? 00:00:00 kdevtmpfs
32 ? 00:00:00 netns
34 ? 00:00:01 kworker/2:1
35 ? 00:00:00 oom_reaper
36 ? 00:00:00 writeback
37 ? 00:00:00 kcompactd0
38 ? 00:00:00 ksmd
39 ? 00:00:00 crypto
40 ? 00:00:00 kintegrityd
41 ? 00:00:00 bioset
42 ? 00:00:00 kblockd
44 ? 00:00:01 kworker/0:1

```
   44 ?        00:00:01 kworker/0:1
   45 ?        00:00:00 ata_sff
   46 ?        00:00:00 md
   47 ?        00:00:00 devfreq_wq
   48 ?        00:00:00 watchdogd
   50 ?        00:00:00 kauditd
   51 ?        00:00:00 kswapd0
   52 ?        00:00:00 bioset
   99 ?        00:00:00 kthrotld
  100 ?        00:00:00 acpi_thermal_pm
  101 ?        00:00:00 scsi_eh_0
  102 ?        00:00:00 scsi_tmf_0
  103 ?        00:00:00 scsi_eh_1
  104 ?        00:00:00 scsi_tmf_1
  105 ?        00:00:00 scsi_eh_2
  106 ?        00:00:00 scsi_tmf_2
  107 ?        00:00:00 scsi_eh_3
  108 ?        00:00:00 scsi_tmf_3
  109 ?        00:00:00 scsi_eh_4
  110 ?        00:00:00 scsi_tmf_4
  115 ?        00:00:00 dm_bufio_cache
  116 ?        00:00:00 ipv6_addrconf
  150 ?        00:00:00 bioset
  151 ?        00:00:00 bioset
  209 ?        00:00:01 kworker/1:2
  355 ?        00:00:00 kworker/0:1H
  357 ?        00:00:00 kworker/1:1H
  363 ?        00:00:00 kworker/3:1H
  366 ?        00:00:00 i915/signal:0
  367 ?        00:00:00 i915/signal:1
  368 ?        00:00:00 i915/signal:2
  369 ?        00:00:00 i915/signal:4
  391 ?        00:00:00 kworker/2:1H
  428 ?        00:00:00 kdmflush
  429 ?        00:00:00 bioset
  441 ?        00:00:00 kdmflush
  442 ?        00:00:00 bioset
  459 ?        00:00:00 jbd2/dm-0-8
  460 ?        00:00:00 ext4-rsv-conver
  544 ?        00:00:00 systemd-journal
  573 ?        00:00:00 systemd-udevd
  612 ?        00:00:00 irq/32-mei_me
  652 ?        00:00:00 jbd2/sda6-8
```

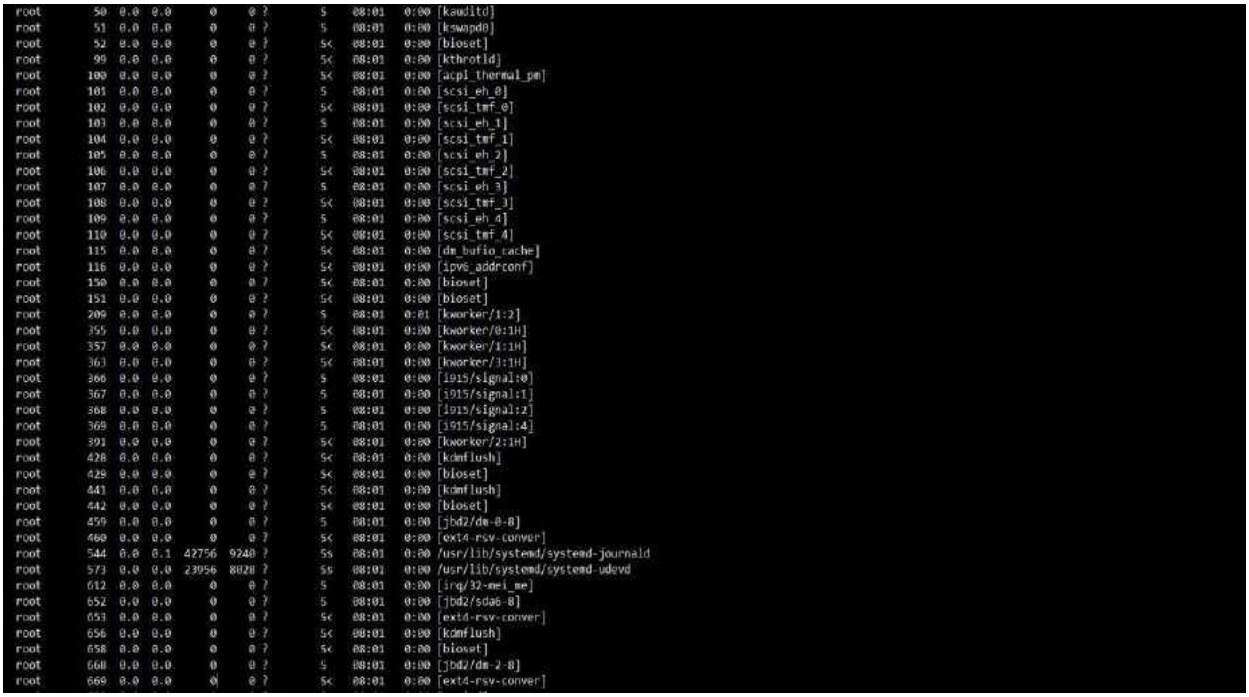
```
  460 ?        00:00:00 ext4-rsv-conver
  544 ?        00:00:00 systemd-journal
  573 ?        00:00:00 systemd-udevd
  612 ?        00:00:00 irq/32-mei_me
  652 ?        00:00:00 jbd2/sda6-8
  653 ?        00:00:00 ext4-rsv-conver
  656 ?        00:00:00 kdmflush
  658 ?        00:00:00 bioset
  668 ?        00:00:00 jbd2/dm-2-8
  669 ?        00:00:00 ext4-rsv-conver
  692 ?        00:00:00 rpciod
  693 ?        00:00:00 xprtiod
  695 ?        00:00:00 auditd
  714 ?        00:00:00 alsactl
  715 ?        00:00:00 mcelog
  716 ?        00:00:00 ModemManager
  718 ?        00:00:00 sssd
  719 ?        00:03:15 avahi-daemon
  720 ?        00:00:00 irqbalance
  721 ?        00:00:00 dbus-daemon
  723 ?        00:00:00 avahi-daemon
  727 ?        00:00:00 gssproxy
  735 ?        00:00:00 rsyslogd
  736 ?        00:00:00 smartd
  738 ?        00:00:00 firewalld
  743 ?        00:00:00 rtkit-daemon
  748 ?        00:00:00 abrtd
  753 ?        00:00:00 chronyd
  764 ?        00:00:00 sssd_be
  768 ?        00:00:00 abrt-dump-journ
  769 ?        00:00:00 abrt-dump-journ
  770 ?        00:00:00 abrt-dump-journ
  771 ?        00:00:00 sssd_nss
  772 ?        00:00:00 accounts-daemon
  773 ?        00:00:00 systemd-logind
  788 ?        00:00:00 NetworkManager
  789 ?        00:00:00 polkitd
  820 ?        00:00:00 crond
  821 ?        00:00:00 atd
  823 ?        00:00:00 sddm
  884 tty1     00:00:13 Xorg
 1013 ?        00:00:01 udisksd
 1019 ?        00:00:00 upowerd
 1050 ?        00:00:00 sddm-helper
```


1013 ? 00:00:01 udisksd
1019 ? 00:00:00 upowerd
1058 ? 00:00:00 sddm-helper
1062 ? 00:00:00 systemd
1064 ? 00:00:00 (sd-pam)
1075 ? 00:00:00 kwalletd5
1078 ? 00:00:00 startkde
1097 ? 00:00:00 dbus-daemon
1102 ? 00:00:00 ssh-agent
1143 ? 00:00:00 start_kdeinit
1144 ? 00:00:00 kdeinit5
1145 ? 00:00:00 klauncher
1148 ? 00:00:01 kded5
1161 ? 00:00:00 kaccess
1166 ? 00:00:00 kwrapper5
1171 ? 00:00:00 dconf-service
1173 ? 00:00:00 ksmserver
1178 ? 00:00:00 kglobalaccel5
1183 ? 00:00:00 mission-control
1185 ? 00:00:00 colord
1191 ? 00:00:13 kwin_x11
1205 ? 00:00:00 kscreen_backend
1210 ? 00:00:00 baloo_file
1212 ? 00:00:00 kdeconnectd
1214 ? 00:00:01 krunner
1216 ? 00:00:15 plasmashell
1217 ? 00:00:00 polkit-kde-auth
1218 ? 00:00:00 xembedsniproxy
1269 ? 00:00:01 kworker/3:0
1279 ? 00:00:00 pulseaudio
1296 ? 00:00:00 abrt-applet
1298 ? 00:00:00 korgac
1299 ? 00:00:00 org_kde_powerde
1328 ? 00:00:00 kactivitymanage
1371 ? 00:00:00 at-spi-bus-laun
1381 ? 00:00:00 dbus-daemon
1386 ? 00:00:00 at-spi2-registr
1446 ? 00:00:00 abrt-dbus
1452 ? 00:00:00 akonadi_control
1456 ? 00:00:00 akonadiserver
1459 ? 00:00:02 mysqld
1499 ? 00:00:00 akonadi_akonote
1500 ? 00:00:00 akonadi_archive

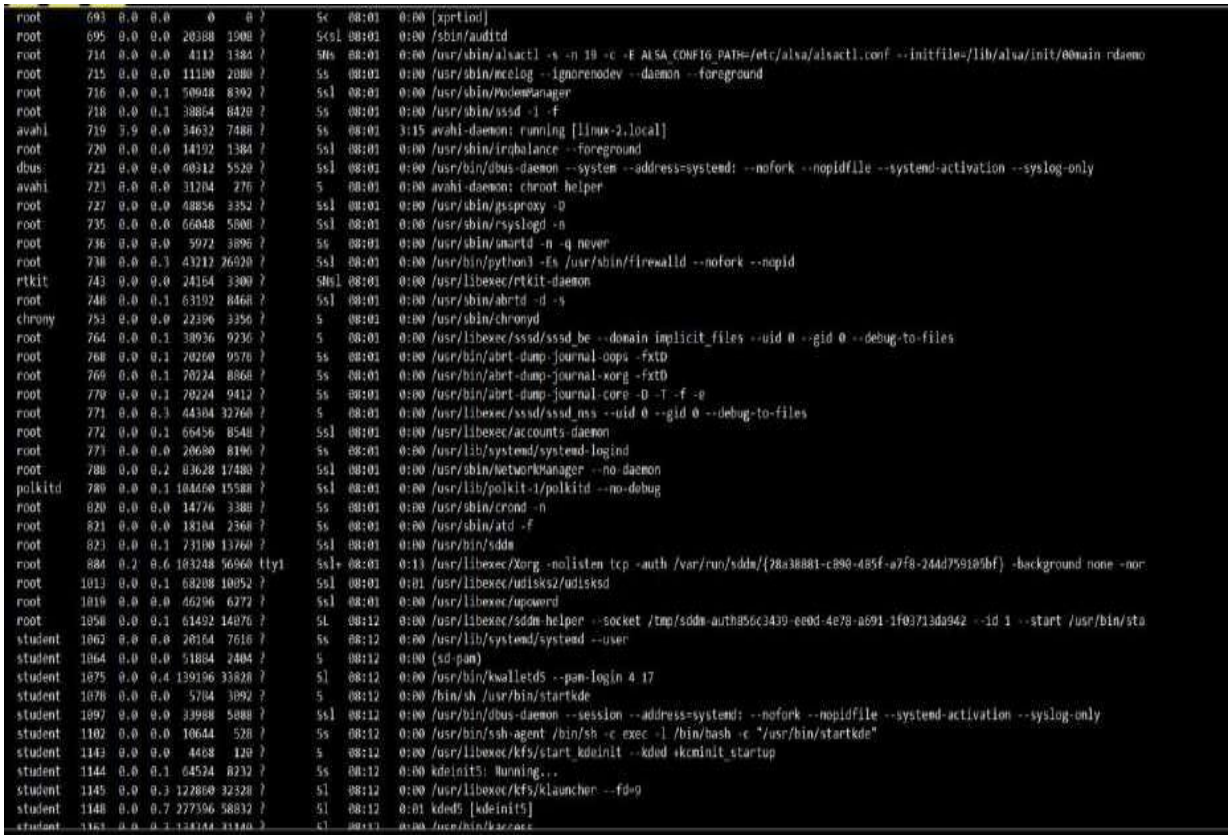

1499 ? 00:00:00 akonadi_akonote
1500 ? 00:00:00 akonadi_archive
1501 ? 00:00:00 akonadi_birthda
1502 ? 00:00:00 akonadi_contact
1503 ? 00:00:00 akonadi_followu
1504 ? 00:00:00 akonadi_ical_re
1507 ? 00:00:00 akonadi_indexin
1510 ? 00:00:00 akonadi_maildir
1529 ? 00:00:00 akonadi_maildis
1530 ? 00:00:00 akonadi_mailfil
1531 ? 00:00:00 akonadi_migrati
1532 ? 00:00:00 akonadi_newmail
1533 ? 00:00:00 akonadi_sendlat
1601 ? 00:00:00 kulserver5
1605 ? 00:00:00 cupsd
1607 ? 00:00:00 packagekitd
1838 ? 00:00:00 kworker/3:1
1845 ? 00:00:00 kworker/2:2
1919 ? 00:00:00 kworker/u8:0
1942 ? 00:00:00 kworker/u8:3
1952 ? 00:00:00 kworker/0:2
1960 ? 00:00:00 kworker/u8:1
2004 ? 00:00:13 amarok
2008 ? 00:00:00 kdeinit4
2010 ? 00:00:00 klauncher
2012 ? 00:00:00 kded4
2014 ? 00:00:00 gam_server
2057 ? 00:00:00 knotify4
2087 ? 00:00:00 klo_http_cache_
2114 ? 00:00:00 kworker/1:0
2121 ? 00:00:00 konsole
2125 pts/1 00:00:00 bash
2158 ? 00:00:00 kworker/1:1
2162 pts/1 00:00:00 ps
[student@localhost ~]$ ps -aux
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
root 1 0.0 0.1 32260 10376 ? Ss 08:01 0:01 /usr/lib/systemd/systemd --switched-root --system --deserialize 24
root 2 0.0 0.0 0 0 ? S 08:01 0:00 [kthreadd]
root 4 0.0 0.0 0 0 ? S< 08:01 0:00 [kworker/0:0H]
root 6 0.0 0.0 0 0 ? S< 08:01 0:00 [mm_percpu_wq]
root 7 0.0 0.0 0 0 ? S 08:01 0:00 [ksoftirqd/0]
root 8 0.0 0.0 0 0 ? S 08:01 0:00 [rcu_sched]
root 9 0.0 0.0 0 0 ? S 08:01 0:00 [rcu_bh]



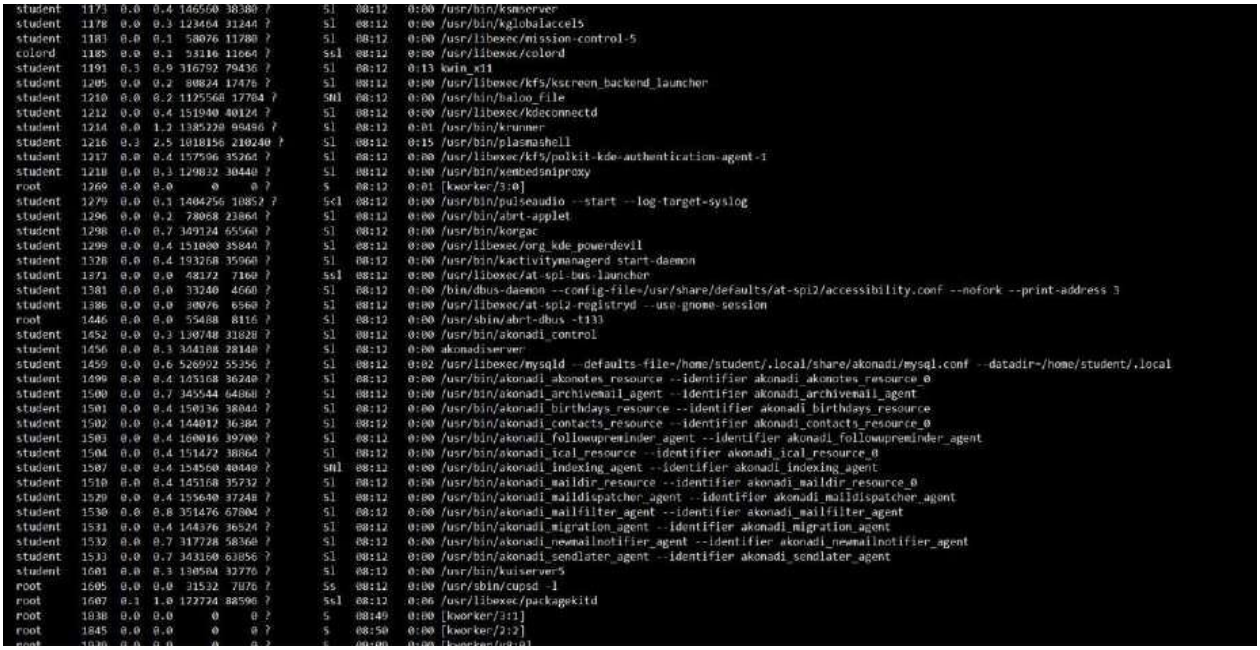
```
USER        PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root          1  0.0  0.1  32260 10376 ?        Ss   08:01   0:01 /usr/lib/systemd/systemd --switched-root --system --deserialize 24
root          2  0.0  0.0      0     0 ?        S    08:01   0:00 [kthreadd]
root          4  0.0  0.0      0     0 ?        S<   08:01   0:00 [kworker/0:0H]
root          6  0.0  0.0      0     0 ?        S<   08:01   0:00 [mm_percpu_wq]
root          7  0.0  0.0      0     0 ?        S    08:01   0:00 [ksoftirqd/0]
root          8  0.0  0.0      0     0 ?        S    08:01   0:00 [rcu_sched]
root          9  0.0  0.0      0     0 ?        S    08:01   0:00 [rcu_bh]
root         10  0.0  0.0      0     0 ?        S    08:01   0:00 [migration/0]
root         11  0.0  0.0      0     0 ?        S    08:01   0:00 [watchdog/0]
root         12  0.0  0.0      0     0 ?        S    08:01   0:00 [cpuhp/0]
root         13  0.0  0.0      0     0 ?        S    08:01   0:00 [cpuhp/1]
root         14  0.0  0.0      0     0 ?        S    08:01   0:00 [watchdog/1]
root         15  0.0  0.0      0     0 ?        S    08:01   0:00 [migration/1]
root         16  0.0  0.0      0     0 ?        S    08:01   0:00 [ksoftirqd/1]
root         18  0.0  0.0      0     0 ?        S<   08:01   0:00 [kworker/1:0H]
root         19  0.0  0.0      0     0 ?        S    08:01   0:00 [cpuhp/2]
root         20  0.0  0.0      0     0 ?        S    08:01   0:00 [watchdog/2]
root         21  0.0  0.0      0     0 ?        S    08:01   0:00 [migration/2]
root         22  0.0  0.0      0     0 ?        S    08:01   0:00 [ksoftirqd/2]
root         24  0.0  0.0      0     0 ?        S<   08:01   0:00 [kworker/2:0H]
root         25  0.0  0.0      0     0 ?        S    08:01   0:00 [cpuhp/3]
root         26  0.0  0.0      0     0 ?        S    08:01   0:00 [watchdog/3]
root         27  0.0  0.0      0     0 ?        S    08:01   0:00 [migration/3]
root         28  0.0  0.0      0     0 ?        S    08:01   0:00 [ksoftirqd/3]
root         30  0.0  0.0      0     0 ?        S<   08:01   0:00 [kworker/3:0H]
root         33  0.0  0.0      0     0 ?        S    08:01   0:00 [kdevtmpfs]
root         32  0.0  0.0      0     0 ?        S<   08:01   0:00 [netns]
root         34  0.0  0.0      0     0 ?        S    08:01   0:01 [kworker/2:1]
root         35  0.0  0.0      0     0 ?        S    08:01   0:00 [oom_reaper]
root         36  0.0  0.0      0     0 ?        S<   08:01   0:00 [writeback]
root         37  0.0  0.0      0     0 ?        S    08:01   0:00 [kcompactd0]
root         38  0.0  0.0      0     0 ?        SN   08:01   0:00 [ksmd]
root         39  0.0  0.0      0     0 ?        S<   08:01   0:00 [crypto]
root         40  0.0  0.0      0     0 ?        S<   08:01   0:00 [kintegrityd]
root         41  0.0  0.0      0     0 ?        S<   08:01   0:00 [bioset]
root         42  0.0  0.0      0     0 ?        S<   08:01   0:00 [kblockd]
root         44  0.0  0.0      0     0 ?        S    08:01   0:01 [kworker/0:1]
root         45  0.0  0.0      0     0 ?        S<   08:01   0:00 [ata_sff]
root         46  0.0  0.0      0     0 ?        S<   08:01   0:00 [md]
root         47  0.0  0.0      0     0 ?        S<   08:01   0:00 [devfreq_wq]
root         48  0.0  0.0      0     0 ?        S<   08:01   0:00 [watchdogd]
root         50  0.0  0.0      0     0 ?        S    08:01   0:00 [kauditd]
```



```
root         50  0.0  0.0      0     0 ?        S    08:01   0:00 [kauditd]
root         51  0.0  0.0      0     0 ?        S    08:01   0:00 [kswapd0]
root         52  0.0  0.0      0     0 ?        S<   08:01   0:00 [bioset]
root         99  0.0  0.0      0     0 ?        S<   08:01   0:00 [kthrotld]
root        100  0.0  0.0      0     0 ?        S<   08:01   0:00 [acpi_thermal_pm]
root        101  0.0  0.0      0     0 ?        S    08:01   0:00 [scsi_eh_0]
root        102  0.0  0.0      0     0 ?        S<   08:01   0:00 [scsi_tmf_0]
root        103  0.0  0.0      0     0 ?        S    08:01   0:00 [scsi_eh_1]
root        104  0.0  0.0      0     0 ?        S<   08:01   0:00 [scsi_tmf_1]
root        105  0.0  0.0      0     0 ?        S    08:01   0:00 [scsi_eh_2]
root        106  0.0  0.0      0     0 ?        S<   08:01   0:00 [scsi_tmf_2]
root        107  0.0  0.0      0     0 ?        S    08:01   0:00 [scsi_eh_3]
root        108  0.0  0.0      0     0 ?        S<   08:01   0:00 [scsi_tmf_3]
root        109  0.0  0.0      0     0 ?        S    08:01   0:00 [scsi_eh_4]
root        110  0.0  0.0      0     0 ?        S<   08:01   0:00 [scsi_tmf_4]
root        115  0.0  0.0      0     0 ?        S<   08:01   0:00 [dm_bufio_cache]
root        116  0.0  0.0      0     0 ?        S<   08:01   0:00 [ipv6_addrconf]
root        150  0.0  0.0      0     0 ?        S<   08:01   0:00 [bioset]
root        151  0.0  0.0      0     0 ?        S<   08:01   0:00 [bioset]
root        209  0.0  0.0      0     0 ?        S    08:01   0:01 [kworker/1:2]
root        355  0.0  0.0      0     0 ?        S<   08:01   0:00 [kworker/0:1H]
root        357  0.0  0.0      0     0 ?        S<   08:01   0:00 [kworker/1:1H]
root        363  0.0  0.0      0     0 ?        S<   08:01   0:00 [kworker/3:1H]
root        366  0.0  0.0      0     0 ?        S    08:01   0:00 [i915/signal:0]
root        367  0.0  0.0      0     0 ?        S    08:01   0:00 [i915/signal:1]
root        368  0.0  0.0      0     0 ?        S    08:01   0:00 [i915/signal:2]
root        369  0.0  0.0      0     0 ?        S    08:01   0:00 [i915/signal:4]
root        391  0.0  0.0      0     0 ?        S<   08:01   0:00 [kworker/2:1H]
root        428  0.0  0.0      0     0 ?        S<   08:01   0:00 [kdmflush]
root        429  0.0  0.0      0     0 ?        S<   08:01   0:00 [bioset]
root        441  0.0  0.0      0     0 ?        S<   08:01   0:00 [kdmflush]
root        442  0.0  0.0      0     0 ?        S<   08:01   0:00 [bioset]
root        459  0.0  0.0      0     0 ?        S    08:01   0:00 [jbd2/dm-0-8]
root        460  0.0  0.0      0     0 ?        S<   08:01   0:00 [ext4-rsv-conver]
root        544  0.0  0.1  42756  9248 ?        Ss   08:01   0:00 /usr/lib/systemd/systemd-journald
root        573  0.0  0.0  23956  8028 ?        Ss   08:01   0:00 /usr/lib/systemd/systemd-udevd
root        612  0.0  0.0      0     0 ?        S    08:01   0:00 [irq/32-mei_me]
root        652  0.0  0.0      0     0 ?        S    08:01   0:00 [jbd2/sda6-8]
root        653  0.0  0.0      0     0 ?        S<   08:01   0:00 [ext4-rsv-conver]
root        656  0.0  0.0      0     0 ?        S<   08:01   0:00 [kdmflush]
root        658  0.0  0.0      0     0 ?        S<   08:01   0:00 [bioset]
root        660  0.0  0.0      0     0 ?        S    08:01   0:00 [jbd2/dm-2-8]
root        669  0.0  0.0      0     0 ?        S<   08:01   0:00 [ext4-rsv-conver]
```



```
root         693  0.0  0.0      0     0 ?        S<   08:01   0:00 [xprtiod]
root         695  0.0  0.0  20388  1908 ?        S<sl 08:01   0:00 /sbin/auditd
root         714  0.0  0.0   4112  1384 ?        SNs  08:01   0:00 /usr/sbin/alsactl -s -n 19 -c -E ALSA_CONFIG_PATH=/etc/alsa/alsactl.conf --initfile=/lib/alsa/init/00main rdaemo
root         715  0.0  0.0  11100  2080 ?        Ss   08:01   0:00 /usr/sbin/mcelog --ignorenodev --daemon --foreground
root         716  0.0  0.1  50948  8392 ?        Ssl  08:01   0:00 /usr/sbin/ModemManager
root         718  0.0  0.1  38864  8420 ?        Ss   08:01   0:00 /usr/sbin/sssd -i -f
avahi        719  3.9  0.0  34632  7488 ?        Ss   08:01   3:15 avahi-daemon: running [linux-2.local]
root         720  0.0  0.0  14192  1384 ?        Ssl  08:01   0:00 /usr/sbin/irqbalance --foreground
dbus         721  0.0  0.0  40312  5520 ?        Ssl  08:01   0:00 /usr/bin/dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
avahi        723  0.0  0.0  31204   276 ?        S    08:01   0:00 avahi-daemon: chroot helper
root         727  0.0  0.0  48856  3352 ?        Ssl  08:01   0:00 /usr/sbin/gssproxy -D
root         735  0.0  0.0  66048  5800 ?        Ssl  08:01   0:00 /usr/sbin/rsyslogd -n
root         736  0.0  0.0   5972  3896 ?        Ss   08:01   0:00 /usr/sbin/smartd -n -q never
root         738  0.0  0.3  43212 26920 ?        Ssl  08:01   0:00 /usr/bin/python3 -Es /usr/sbin/firewalld --nofork --nopid
rtkit        743  0.0  0.0  24164  3300 ?        SNsl 08:01   0:00 /usr/libexec/rtkit-daemon
root         748  0.0  0.1  63192  8468 ?        Ssl  08:01   0:00 /usr/sbin/abrtd -d -s
chrony       753  0.0  0.0  22396  3356 ?        S    08:01   0:00 /usr/sbin/chronyd
root         764  0.0  0.1  38936  9236 ?        S    08:01   0:00 /usr/libexec/sssd/sssd_be --domain implicit_files --uid 0 --gid 0 --debug-to-files
root         768  0.0  0.1  70260  9576 ?        Ss   08:01   0:00 /usr/bin/abrt-dump-journal-oops -fxtD
root         769  0.0  0.1  70224  8868 ?        Ss   08:01   0:00 /usr/bin/abrt-dump-journal-xorg -fxtD
root         770  0.0  0.1  70224  9412 ?        Ss   08:01   0:00 /usr/bin/abrt-dump-journal-core -D -T -f -e
root         771  0.0  0.3  44384 32760 ?        S    08:01   0:00 /usr/libexec/sssd/sssd_nss --uid 0 --gid 0 --debug-to-files
root         772  0.0  0.1  66456  8548 ?        Ssl  08:01   0:00 /usr/libexec/accounts-daemon
root         773  0.0  0.0  20680  8196 ?        Ss   08:01   0:00 /usr/lib/systemd/systemd-logind
root         788  0.0  0.2  83628 17480 ?        Ssl  08:01   0:00 /usr/sbin/NetworkManager --no-daemon
polkitd      789  0.0  0.1 184460 15588 ?        Ssl  08:01   0:00 /usr/lib/polkit-1/polkitd --no-debug
root         820  0.0  0.0  14776  3388 ?        Ss   08:01   0:00 /usr/sbin/crond -n
root         821  0.0  0.0  18184  2368 ?        Ss   08:01   0:00 /usr/sbin/atd -f
root         823  0.0  0.1  73100 13760 ?        Ssl  08:01   0:00 /usr/bin/sddm
root         884  0.2  0.6 183248 56960 tty1     Ssl+ 08:01   0:13 /usr/libexec/Xorg -nolisten tcp -auth /var/run/sddm/{28a38881-c890-485f-a7f8-244d759105bf} -background none -nor
root        1013  0.0  0.1  68208 10052 ?        Ssl  08:01   0:01 /usr/libexec/udisks2/udisksd
root        1019  0.0  0.0  46296  6272 ?        Ssl  08:01   0:00 /usr/libexec/upowerd
root        1050  0.0  0.1  61492 14076 ?        SL   08:12   0:00 /usr/libexec/sddm-helper --socket /tmp/sddm-auth856c3439-ee0d-4e78-a691-1f03713da942 --id 1 --start /usr/bin/sta
student     1062  0.0  0.0  20164  7616 ?        Ss   08:12   0:00 /usr/lib/systemd/systemd --user
student     1064  0.0  0.0  51884  2404 ?        S    08:12   0:00 (sd-pam)
student     1075  0.0  0.4 139196 33828 ?        Sl   08:12   0:00 /usr/bin/kwalletd5 --pam-login 4 17
student     1078  0.0  0.0   5784  3092 ?        S    08:12   0:00 /bin/sh /usr/bin/startkde
student     1097  0.0  0.0  33988  5088 ?        Ssl  08:12   0:00 /usr/bin/dbus-daemon --session --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
student     1102  0.0  0.0  10644   528 ?        Ss   08:12   0:00 /usr/bin/ssh-agent /bin/sh -c exec -l /bin/bash -c "/usr/bin/startkde"
student     1143  0.0  0.0   4468   120 ?        S    08:12   0:00 /usr/libexec/kf5/start_kdeinit --kded +kcminit_startup
student     1144  0.0  0.1  64524  8232 ?        Ss   08:12   0:00 kdeinit5: Running...
student     1145  0.0  0.3 122860 32328 ?        Sl   08:12   0:00 /usr/libexec/kf5/klauncher --fd=9
student     1148  0.0  0.7 277396 58832 ?        Sl   08:12   0:01 kded5 [kdeinit5]
student     1163  0.0  0.3 134144 31140 ?        Sl   08:12   0:00 /usr/bin/kaccess
```



```
student     1173  0.0  0.4 146560 38380 ?        Sl   08:12   0:00 /usr/bin/ksmserver
student     1178  0.0  0.3 123464 31244 ?        Sl   08:12   0:00 /usr/bin/kglobalaccel5
student     1183  0.0  0.1  58076 11780 ?        Sl   08:12   0:00 /usr/libexec/mission-control-5
colord      1185  0.0  0.1  53116 11664 ?        Ssl  08:12   0:00 /usr/libexec/colord
student     1191  0.3  0.9 316792 79436 ?        Sl   08:12   0:13 kwin_x11
student     1205  0.0  0.2  80824 17476 ?        Sl   08:12   0:00 /usr/libexec/kf5/kscreen_backend_launcher
student     1210  0.0  0.2 1125568 17704 ?       SNl  08:12   0:00 /usr/bin/baloo_file
student     1212  0.0  0.4 151940 40124 ?        Sl   08:12   0:00 /usr/libexec/kdeconnectd
student     1214  0.0  1.2 1385220 99496 ?       Sl   08:12   0:01 /usr/bin/krunner
student     1216  0.3  2.5 1018156 210240 ?      Sl   08:12   0:15 /usr/bin/plasmashell
student     1217  0.0  0.4 157596 35264 ?        Sl   08:12   0:00 /usr/libexec/kf5/polkit-kde-authentication-agent-1
student     1218  0.0  0.3 129832 30440 ?        Sl   08:12   0:00 /usr/bin/xembedsniproxy
root        1269  0.0  0.0      0     0 ?        S    08:12   0:01 [kworker/3:0]
student     1279  0.0  0.1 1404256 10852 ?       Scl  08:12   0:00 /usr/bin/pulseaudio --start --log-target=syslog
student     1296  0.0  0.2  78068 23864 ?        Sl   08:12   0:00 /usr/bin/abrt-applet
student     1298  0.0  0.7 349124 65560 ?        Sl   08:12   0:00 /usr/bin/korgac
student     1299  0.0  0.4 151000 35844 ?        Sl   08:12   0:00 /usr/libexec/org_kde_powerdevil
student     1328  0.0  0.4 193268 35960 ?        Sl   08:12   0:00 /usr/bin/kactivitymanagerd start-daemon
student     1371  0.0  0.0  48172  7160 ?        Ssl  08:12   0:00 /usr/libexec/at-spi-bus-launcher
student     1381  0.0  0.0  33240  4660 ?        Sl   08:12   0:00 /bin/dbus-daemon --config-file=/usr/share/defaults/at-spi2/accessibility.conf --nofork --print-address 3
student     1386  0.0  0.0  30076  6560 ?        Sl   08:12   0:00 /usr/libexec/at-spi2-registryd --use-gnome-session
root        1446  0.0  0.0  55488  8116 ?        Sl   08:12   0:00 /usr/sbin/abrt-dbus -t133
student     1452  0.0  0.3 130748 31828 ?        Sl   08:12   0:00 /usr/bin/akonadi_control
student     1456  0.0  0.3 344108 28140 ?        Sl   08:12   0:00 akonadiserver
student     1459  0.0  0.6 526992 55356 ?        Sl   08:12   0:02 /usr/libexec/mysqld --defaults-file=/home/student/.local/share/akonadi/mysql.conf --datadir=/home/student/.local
student     1499  0.0  0.4 145168 36240 ?        Sl   08:12   0:00 /usr/bin/akonadi_akonotes_resource --identifier akonadi_akonotes_resource_0
student     1500  0.0  0.7 345544 64868 ?        Sl   08:12   0:00 /usr/bin/akonadi_archivemail_agent --identifier akonadi_archivemail_agent
student     1501  0.0  0.4 150136 38044 ?        Sl   08:12   0:00 /usr/bin/akonadi_birthdays_resource --identifier akonadi_birthdays_resource
student     1502  0.0  0.4 144012 36384 ?        Sl   08:12   0:00 /usr/bin/akonadi_contacts_resource --identifier akonadi_contacts_resource_0
student     1503  0.0  0.4 160016 39700 ?        Sl   08:12   0:00 /usr/bin/akonadi_followupreminder_agent --identifier akonadi_followupreminder_agent
student     1504  0.0  0.4 151472 38864 ?        Sl   08:12   0:00 /usr/bin/akonadi_ical_resource --identifier akonadi_ical_resource_0
student     1507  0.0  0.4 154560 40440 ?        SNl  08:12   0:00 /usr/bin/akonadi_indexing_agent --identifier akonadi_indexing_agent
student     1510  0.0  0.4 145168 35732 ?        Sl   08:12   0:00 /usr/bin/akonadi_maildir_resource --identifier akonadi_maildir_resource_0
student     1529  0.0  0.4 155640 37248 ?        Sl   08:12   0:00 /usr/bin/akonadi_maildispatcher_agent --identifier akonadi_maildispatcher_agent
student     1530  0.0  0.8 351476 67804 ?        Sl   08:12   0:00 /usr/bin/akonadi_mailfilter_agent --identifier akonadi_mailfilter_agent
student     1531  0.0  0.4 144376 36524 ?        Sl   08:12   0:00 /usr/bin/akonadi_migration_agent --identifier akonadi_migration_agent
student     1532  0.0  0.7 317728 58368 ?        Sl   08:12   0:00 /usr/bin/akonadi_newmailnotifier_agent --identifier akonadi_newmailnotifier_agent
student     1533  0.0  0.7 343160 63856 ?        Sl   08:12   0:00 /usr/bin/akonadi_sendlater_agent --identifier akonadi_sendlater_agent
student     1601  0.0  0.3 130584 32776 ?        Sl   08:12   0:00 /usr/bin/kuiserver5
root        1605  0.0  0.0  31532  7076 ?        Ss   08:12   0:00 /usr/sbin/cupsd -l
root        1607  0.1  1.0 172724 88596 ?        Ssl  08:12   0:06 /usr/libexec/packagekitd
root        1838  0.0  0.0      0     0 ?        S    08:49   0:00 [kworker/3:1]
root        1845  0.0  0.0      0     0 ?        S    08:50   0:00 [kworker/2:2]
root        1930  0.0  0.0      0     0 ?        S    09:00   0:00 [kworker/u8:0]
```

```
root      1607  0.1  1.0 172724 88596 ?        Ssl  08:12   0:06 /usr/libexec/packagekitd
root      1838  0.0  0.0      0     0 ?        S    08:49   0:00 [kworker/3:1]
root      1845  0.0  0.0      0     0 ?        S    08:50   0:00 [kworker/2:2]
root      1939  0.0  0.0      0     0 ?        S    09:09   0:00 [kworker/u8:0]
root      1942  0.0  0.0      0     0 ?        S    09:10   0:00 [kworker/u8:3]
root      1952  0.0  0.0      0     0 ?        S    09:11   0:00 [kworker/0:2]
root      1960  0.0  0.0      0     0 ?        S    09:15   0:00 [kworker/u8:1]
student   2004  3.6  2.3 1321396 193748 ?      Sl   09:16   0:11 /usr/bin/amarok
student   2008  0.0  0.1  83180 15240 ?        Ss   09:16   0:00 kdeinit4: kdeinit4 Running...
student   2010  0.0  0.2  89312 19168 ?        S    09:16   0:00 kdeinit4: klauncher [kdeinit] --fd=9
student   2012  0.0  0.3 108896 27292 ?        S    09:16   0:00 kdeinit4: kded4 [kdeinit]
student   2014  0.0  0.0  12508  2708 ?        S    09:16   0:00 /usr/libexec/gam_server
student   2057  0.0  0.5 436824 45872 ?        Sl   09:17   0:00 /usr/bin/knotify4
student   2087  0.0  0.2  88256 22272 ?        S    09:17   0:00 /usr/libexec/kde4/kio_http_cache_cleaner
root      2114  0.0  0.0      0     0 ?        S    09:17   0:00 [kworker/1:0]
student   2121  0.3  0.6 172348 56672 ?        Rl   09:20   0:00 /usr/bin/konsole
student   2125  0.0  0.0  14500  3096 pts/1    Ss   09:20   0:00 /bin/bash
root      2158  0.0  0.0      0     0 ?        S    09:22   0:00 [kworker/1:1]
student   2163  0.0  0.0  16672  3616 pts/1    R+   09:23   0:00 ps -aux
[student@localhost ~]$ uname -m
i686
[student@localhost ~]$ uname -n
localhost.localdomain
[student@localhost ~]$ uname -r
4.11.8-300.fc26.i686+PAE
[student@localhost ~]$ uname -s
Linux
[student@localhost ~]$ uname -v
#1 SMP Thu Jun 29 20:38:21 UTC 2017
[student@localhost ~]$ uname -a
Linux localhost.localdomain 4.11.8-300.fc26.i686+PAE #1 SMP Thu Jun 29 20:38:21 UTC 2017 i686 i686 i386 GNU/Linux
[student@localhost ~]$ pwd
/home/student
[student@localhost ~]$ ls
 Desktop   Documents   Downloads   filename.sh   gowtham   karthi79  'lab 2 OS.txt'   Music   os.txt   Pictures   Public   stu   Templates   Videos   wx   wxcollege
[student@localhost ~]$ mv os.txt karthi79
[student@localhost ~]$ cat karthi79
cat: karthi79: Is a directory
[student@localhost ~]$ ls karthi79
os.txt
[student@localhost ~]$ cat os.txt
cat: os.txt: No such file or directory
[student@localhost ~]$ cd karthi79
[student@localhost karthi79]$ cat os.txt
```

```
Linux localhost.localdomain 4.11.8-300.fc26.i686+PAE #1 SMP Thu Jun 29 20:38:21 UTC 2017 i686 i686 i386 GNU/Linux
[student@localhost ~]$ pwd
/home/student
[student@localhost ~]$ ls
 Desktop   Documents   Downloads   filename.sh   gowtham   karthi79  'lab 2 OS.txt'   Music   os.txt   Pictures   Public   stu   Templates   Videos   wx   wxcollege
[student@localhost ~]$ mv os.txt karthi79
[student@localhost ~]$ cat karthi79
cat: karthi79: Is a directory
[student@localhost ~]$ ls karthi79
os.txt
[student@localhost ~]$ cat os.txt
cat: os.txt: No such file or directory
[student@localhost ~]$ cd karthi79
[student@localhost karthi79]$ cat os.txt
Hi hello, how are you?
Good Bye
[student@localhost karthi79]$ cd -
/home/student
[student@localhost ~]$ cat os.txt
cat: os.txt: No such file or directory
[student@localhost ~]$ cd karthi79
[student@localhost karthi79]$ wc os.txt
 2  7 32 os.txt
[student@localhost karthi79]$ cd -
/home/student
[student@localhost ~]$ top gowtham
top: unknown option `g'
Usage:
 top -hv | -bcHiOSs -d secs -n max -u|U user -p pid(s) -o field -w [cols]
[student@localhost ~]$ head gowtham
r
e
t
t
o
l
l
e
B
e
[student@localhost ~]$ tail gowtham
e
t
```

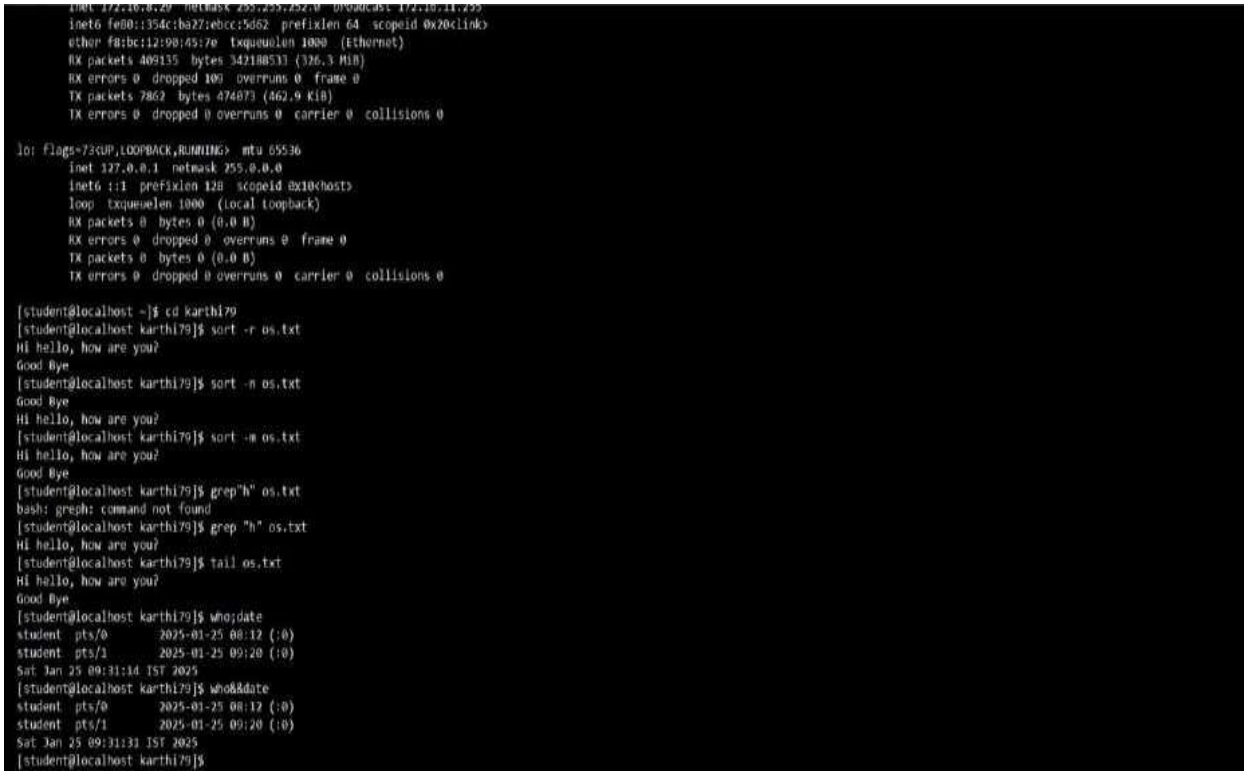
```
o
l
l
e
g
e
[student@localhost ~]$ tail gowtham
e
t
h
a
n
d
a
l
a
m
[student@localhost ~]$ ping gowtham
ping: gowtham: Name or service not known
[student@localhost ~]$ cd karthi79
[student@localhost karthi79]$ ping  os.txt
ping: os.txt: Name or service not known
[student@localhost karthi79]$ cd -
/home/student
[student@localhost ~]$ ifconfig
enp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.16.8.29  netmask 255.255.252.0  broadcast 172.16.11.255
        inet6 fe80::354c:ba27:ebcc:5d62  prefixlen 64  scopeid 0x20<link>
        ether f8:bc:12:98:45:7e  txqueuelen 1000  (Ethernet)
        RX packets 409135  bytes 342188533 (326.3 MiB)
        RX errors 0  dropped 109  overruns 0  frame 0
        TX packets 7862  bytes 474873 (462.9 KiB)
        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 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

[student@localhost karthi79]$ cd -
/home/student
[student@localhost ~]$ ifconfig
enp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.16.8.29  netmask 255.255.252.0  broadcast 172.16.11.255
        inet6 fe80::354c:ba27:ebcc:5d62  prefixlen 64  scopeid 0x20<link>
        ether f8:bc:12:98:45:7e  txqueuelen 1000  (Ethernet)
        RX packets 409135  bytes 342188533 (326.3 MiB)
        RX errors 0  dropped 109  overruns 0  frame 0
        TX packets 7862  bytes 474873 (462.9 KiB)
        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 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

[student@localhost ~]$ cd karthi79
[student@localhost karthi79]$ sort -r os.txt
Hi hello, how are you?
Good Bye
[student@localhost karthi79]$ sort -n os.txt
Good Bye
Hi hello, how are you?
[student@localhost karthi79]$ sort -m os.txt
Hi hello, how are you?
Good Bye
[student@localhost karthi79]$ grep"h" os.txt
bash: greph: command not found
[student@localhost karthi79]$ grep "h" os.txt
Hi hello, how are you?
[student@localhost karthi79]$ tall os.txt
Hi hello, how are you?
Good Bye
[student@localhost karthi79]$ who;date
student  pts/0        2025-01-25 08:12 (:0)
student  pts/1        2025-01-25 09:20 (:0)
Sat Jan 25 09:31:14 IST 2025
[student@localhost karthi79]$ who&&date
```



RESULT:

Thus, the program of basic Linux commands has been executed and the output has been verified.