

## Experiment-5

Implement ps, top, kill command with their options. Installing, updating and removing software by apt-get command.

Approach-

Use the ps, top, and kill commands to monitor and manage processes, applying appropriate options to display, sort, and terminate them. Manage software using apt-get by installing, updating, and removing packages with suitable options.

```
vboxuser@ubuntu:~$ ps
  PID TTY          TIME CMD
  5556 pts/0    00:00:00 bash
 25872 pts/0    00:00:00 vim
 26345 pts/0    00:00:00 bash
 26391 pts/0    00:00:00 ps
vboxuser@ubuntu:~$ ps aux
USER          PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root             1   0.1  0.3 23444 14336 ?        Ss   18:23   0:17 /usr/lib/systemd/systemd --system --deserialize=73 splash
root             2   0.0  0.0      0     0 ?        S    18:23   0:00 [kthreadd]
root             3   0.0  0.0      0     0 ?        S    18:23   0:00 [pool_workqueue_release]
root             4   0.0  0.0      0     0 ?        I<   18:23   0:00 [kworker/R-rcu_o]
root             5   0.0  0.0      0     0 ?        I<   18:23   0:00 [kworker/R-rcu_p]
root             6   0.0  0.0      0     0 ?        I<   18:23   0:00 [kworker/R-slub_]
root             7   0.0  0.0      0     0 ?        I<   18:23   0:00 [kworker/R-netns]
root            10   0.0  0.0      0     0 ?        I<   18:23   0:00 [kworker/0:0H-events_highpri]
root            11   0.0  0.0      0     0 ?        I    18:23   0:01 [kworker/u8:0-events_unbound]
root            12   0.0  0.0      0     0 ?        I<   18:23   0:00 [kworker/R-mm_pg]
root            13   0.0  0.0      0     0 ?        I    18:23   0:00 [rcu_tasks_kthread]
root            14   0.0  0.0      0     0 ?        I    18:23   0:00 [rcu_tasks_rude_kthread]
root            15   0.0  0.0      0     0 ?        I    18:23   0:00 [rcu_tasks_trace_kthread]
root            16   0.0  0.0      0     0 ?        S    18:23   0:00 [ksoftirqd/0]
root            17   0.0  0.0      0     0 ?        I    18:23   0:01 [rcu_preempt]
root            18   0.0  0.0      0     0 ?        S    18:23   0:00 [migration/0]
root            19   0.0  0.0      0     0 ?        S    18:23   0:00 [idle_inject/0]
root            20   0.0  0.0      0     0 ?        S    18:23   0:00 [cpuhp/0]
root            21   0.0  0.0      0     0 ?        S    18:23   0:00 [cpuhp/1]
root            22   0.0  0.0      0     0 ?        S    18:23   0:00 [idle_inject/1]
root            23   0.0  0.0      0     0 ?        S    18:23   0:00 [migration/1]
root            24   0.0  0.0      0     0 ?        S    18:23   0:00 [ksoftirqd/1]
root            26   0.0  0.0      0     0 ?        I<   18:23   0:00 [kworker/1:0H-kblockd]
root            27   0.0  0.0      0     0 ?        S    18:23   0:00 [cpuhp/2]
root            28   0.0  0.0      0     0 ?        S    18:23   0:00 [idle_inject/2]
root            29   0.0  0.0      0     0 ?        S    18:23   0:00 [migration/2]
root            30   0.0  0.0      0     0 ?        S    18:23   0:00 [ksoftirqd/2]
root            32   0.0  0.0      0     0 ?        I<   18:23   0:00 [kworker/2:0H-events_highpri]
root            33   0.0  0.0      0     0 ?        S    18:23   0:00 [cpuhp/3]
root            34   0.0  0.0      0     0 ?        S    18:23   0:00 [idle_inject/3]
root            35   0.0  0.0      0     0 ?        S    18:23   0:00 [migration/3]
```

```

vivekku+ 26345 0.0 0.1 11124 5248 pts/0 S 21:31 0:00 -bash
root 26366 0.0 0.0 0 0 ? I 21:35 0:00 [kworker/u8:1]
vivekku+ 26392 300 0.1 13748 4608 pts/0 R+ 21:37 0:00 ps aux
vboxuser@ubuntu:~$ ps -e
  PID TTY          TIME CMD
    1 ?        00:00:17 systemd
    2 ?        00:00:00 kthreadd
    3 ?        00:00:00 pool_workqueue_release
    4 ?        00:00:00 kworker/R-rcu_g
    5 ?        00:00:00 kworker/R-rcu_p
    6 ?        00:00:00 kworker/R-slub_
    7 ?        00:00:00 kworker/R-netns
   10 ?        00:00:00 kworker/0:0H-events_highpri
   11 ?        00:00:01 kworker/u8:0-events_unbound
   12 ?        00:00:00 kworker/R-nm_pe
   13 ?        00:00:00 rcu_tasks_kthread
   14 ?        00:00:00 rcu_tasks_rude_kthread
   15 ?        00:00:00 rcu_tasks_trace_kthread
   16 ?        00:00:00 ksoftirqd/0
   17 ?        00:00:01 rcu_preempt
   18 ?        00:00:00 migration/0
   19 ?        00:00:00 idle_inject/0
   20 ?        00:00:00 cpuhp/0
   21 ?        00:00:00 cpuhp/1
   22 ?        00:00:00 idle_inject/1
   23 ?        00:00:00 migration/1
   24 ?        00:00:00 ksoftirqd/1
   26 ?        00:00:00 kworker/1:0H-kblockd
   27 ?        00:00:00 cpuhp/2
   28 ?        00:00:00 idle_inject/2
   29 ?        00:00:00 migration/2
   30 ?        00:00:00 ksoftirqd/2
   32 ?        00:00:00 kworker/2:0H-events_highpri
   33 ?        00:00:00 cpuhp/3
   34 ?        00:00:00 idle_inject/3
   35 ?        00:00:00 migration/3
   36 ?        00:00:00 ksoftirqd/3
   38 ?        00:00:00 kworker/3:0H-events_highpri
   39 ?        00:00:00 kdevtmpfs

```

```

3596 ?      00:00:00 xdg-desktop-por
3597 ?      00:00:00 snapd-desktop-i
3710 ?      00:00:02 tracker-miner-f
3712 ?      00:00:00 xdg-desktop-por
3713 ?      00:00:00 snapd-desktop-i
3753 ?      00:00:00 gsd-xsettings
3768 ?      00:00:00 gjs
3791 ?      00:00:00 xdg-desktop-por
3815 ?      00:00:00 ibus-x11
3832 ?      00:00:00 mutter-x11-fram
3834 ?      00:00:00 VBoxClient
3836 ?      00:00:00 VBoxClient
3861 ?      00:00:00 VBoxClient
3862 ?      00:00:00 VBoxClient
3968 ?      00:00:00 update-notifier
5488 ?      00:00:00 gvfsd-recent
5542 ?      00:00:00 gnome-terminal
5543 ?      00:00:00 gnome-terminal
5549 ?      00:00:14 gnome-terminal-
5556 pts/0   00:00:00 bash
5585 ?      00:00:11 update-manager
5772 ?      00:00:04 nautilus
25872 pts/0   00:00:00 vim
25875 ?      00:00:00 nvim
26198 ?      00:00:01 gjs
26345 pts/0   00:00:00 bash
26425 pts/0   00:00:00 ps
vboxuser@ubuntu:~$ ps -p 10
PID TTY      TIME CMD
  10 ?        00:00:00 kworker/0:0H-events_highpri
vboxuser@ubuntu:~$ ps -p 200
PID TTY      TIME CMD
vboxuser@ubuntu:~$ ps -p 26425
PID TTY      TIME CMD
vboxuser@ubuntu:~$ ps -p 1
PID TTY      TIME CMD
    1 ?        00:00:17 systemd
vboxuser@ubuntu:~$

```



```
root      26479      2  0 21:41 ?        00:00:00 [kworker/u8:2]
vivekku+  26488    26345 99 21:43 pts/0    00:00:00 ps -ef
vboxuser@ubuntu:~$ top
```

```
top - 21:44:17 up 3:20, 1 user, load average: 0.13, 0.14, 0.08
Tasks: 221 total, 1 running, 219 sleeping, 1 stopped, 0 zombie
%Cpu(s):  0.4 us,  0.1 sy,  0.0 ni, 99.4 id,  0.0 wa,  0.0 hi,  0.1 si,  0.0 st
MiB Mem : 3915.4 total, 203.1 free, 1519.7 used, 2521.0 buff/cache
MiB Swap:  0.0 total,  0.0 free,  0.0 used, 2395.8 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3088	vivekku+	20	0	5100948	476332	148152	S	3.6	11.9	3:51.23	gnome-shell
11	root	20	0	0	0	0	I	0.3	0.0	0:01.47	kworker/u8:0-events_unbound
35	root	rt	0	0	0	0	S	0.3	0.0	0:00.65	migration/3
3538	vivekku+	20	0	245440	7168	6656	S	0.3	0.2	0:02.67	ibus-engine-sim
5549	vivekku+	20	0	712424	61152	48192	S	0.3	1.5	0:19.38	gnome-terminal-
26503	vivekku+	20	0	14528	5888	3712	R	0.3	0.1	0:00.09	top
1	root	20	0	23444	14336	9472	S	0.0	0.4	0:17.78	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
12	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-nm_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
15	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthread
16	root	20	0	0	0	0	S	0.0	0.0	0:00.09	ksoftirqd/0
17	root	20	0	0	0	0	I	0.0	0.0	0:01.20	rcu_preempt
18	root	rt	0	0	0	0	S	0.0	0.0	0:00.03	migration/0
19	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_inject/0
20	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
21	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1
22	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_inject/1
23	root	rt	0	0	0	0	S	0.0	0.0	0:00.64	migration/1
24	root	20	0	0	0	0	S	0.0	0.0	0:00.20	ksoftirqd/1
26	root	0	-20	0	0	0	I	0.0	0.0	0:00.75	kworker/1:0H-kblockd
3205	vivekku+	20	0	2671300	26636	22016	S	0.0	0.7	0:00.13	gjs
3212	vivekku+	20	0	397340	11948	6912	S	0.0	0.3	0:07.52	ibus-daemon
3219	vivekku+	20	0	392200	6400	6016	S	0.0	0.2	0:00.05	gsd-a11y-settin

```
26 root      0 -20      0      0      0 I  0.0  0.0  0:00.76 kworker/1:0H-kblockd
27 root      20  0      0      0      0 S  0.0  0.0  0:00.00 cpuhp/2
```

```
vboxuser@ubuntu:~$ top -o %MEM
```

```
top - 21:52:11 up 3:28, 1 user, load average: 0.07, 0.11, 0.09
Tasks: 221 total, 1 running, 218 sleeping, 2 stopped, 0 zombie
%Cpu(s):  0.2 us,  0.1 sy,  0.0 ni, 99.2 id,  0.5 wa,  0.0 hi,  0.1 si,  0.0 st
MiB Mem : 3915.4 total, 203.2 free, 1518.3 used, 2522.3 buff/cache
MiB Swap:  0.0 total,  0.0 free,  0.0 used, 2397.1 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3088	vivekku+	20	0	5100964	476196	148152	S	1.3	11.9	4:17.58	gnome-shell
5772	vivekku+	20	0	2356948	234612	117648	S	0.0	5.9	0:05.05	nautilus
5585	vivekku+	30	10	844420	208920	107652	S	0.0	5.2	0:11.11	update-manager
3832	vivekku+	20	0	1393752	89732	68192	S	0.0	2.2	0:00.32	mutter-x11-fram
3753	vivekku+	20	0	622632	75484	61076	S	0.0	1.9	0:00.26	gsd-xsettings
26198	vivekku+	20	0	2945924	65944	50628	S	0.0	1.6	0:01.17	gjs
5549	vivekku+	20	0	712424	61152	48192	S	0.0	1.5	0:23.97	gnome-terminal-
3306	vivekku+	20	0	823216	59676	46236	S	0.0	1.5	0:00.29	evolution-alarm
3508	vivekku+	20	0	216552	59136	48584	S	0.0	1.5	0:00.28	Xwayland
3195	vivekku+	20	0	1272128	43008	34944	S	0.0	1.1	0:00.23	evolution-sourc
3712	vivekku+	20	0	713144	41360	31384	S	0.0	1.0	0:00.33	xdg-desktop-por
26100	root	20	0	577600	39684	34036	S	0.0	1.0	0:02.01	fwupd
800	root	20	0	1543148	35532	21760	S	0.0	0.9	0:05.99	snapsd
3968	vivekku+	20	0	504240	33368	25944	S	0.0	0.8	0:00.61	update-notifier
3713	vivekku+	20	0	429636	30356	21760	S	0.0	0.8	0:00.26	snapsd-desktop-i
3408	vivekku+	20	0	430148	29448	18260	S	0.0	0.7	0:03.51	ibus-extension-
3502	vivekku+	20	0	834092	29440	25728	S	0.0	0.7	0:00.16	evolution-addre
5543	vivekku+	20	0	467588	28544	21376	S	0.0	0.7	0:00.12	gnome-terminal-
3710	vivekku+	39	19	956312	28052	18628	S	0.0	0.7	0:02.95	tracker-miner-f
3768	vivekku+	20	0	2663152	27188	22144	S	0.0	0.7	0:00.08	gjs
3205	vivekku+	20	0	2671300	26636	22016	S	0.0	0.7	0:00.13	gjs
3791	vivekku+	20	0	426432	26216	19432	S	0.0	0.7	0:00.16	xdg-desktop-por
3236	vivekku+	20	0	750280	25220	21508	S	0.0	0.6	0:00.36	gsd-media-keys
1210	root	20	0	126684	24960	15232	S	0.0	0.6	0:00.13	unattended-upgr
3815	vivekku+	20	0	275788	24556	17964	S	0.0	0.6	0:00.14	ibus-x11
3471	vivekku+	20	0	899404	24320	21120	S	0.0	0.6	0:00.12	evolution-calen
3241	vivekku+	20	0	605924	24088	20248	S	0.0	0.6	0:00.22	gsd-power
3379	vivekku+	20	0	628928	24064	20608	S	0.0	0.6	0:00.04	goa-daemon

```
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
3088 vivekku+ 20 0 5098660 476188 148152 S 6.6 11.9 4:27.73 gnome-shell
5772 vivekku+ 20 0 2356948 234740 117648 S 0.0 5.9 0:05.10 nautilus
5585 vivekku+ 30 10 844420 208920 107652 S 0.0 5.2 0:11.11 update-manager
3832 vivekku+ 20 0 1393752 89732 68192 S 0.0 2.2 0:00.32 mutter-x11-frag
3753 vivekku+ 20 0 622632 75484 61076 S 0.0 1.9 0:00.26 gsd-xsettings
26198 vivekku+ 20 0 2945924 65936 50628 S 0.0 1.6 0:01.24 gjs
5549 vivekku+ 20 0 712424 61152 48192 S 1.0 1.5 0:25.23 gnome-terminal-
3306 vivekku+ 20 0 823216 59676 46236 S 0.0 1.5 0:00.29 evolution-alarm
3508 vivekku+ 20 0 216552 59136 48584 S 0.0 1.5 0:00.28 Xwayland
3195 vivekku+ 20 0 1272128 43008 34944 S 0.0 1.1 0:00.23 evolution-sourc
3712 vivekku+ 20 0 713144 41360 31384 S 0.0 1.0 0:00.33 xdg-desktop-por
26100 root 20 0 577600 39684 34036 S 0.0 1.0 0:02.02 fwupd
800 root 20 0 1543148 35532 21760 S 0.0 0.9 0:06.00 snapd
3968 vivekku+ 20 0 504240 33368 25944 S 0.0 0.8 0:00.61 update-notifier
3713 vivekku+ 20 0 429636 30356 21760 S 0.0 0.8 0:00.26 snapd-desktop-i
3408 vivekku+ 20 0 430148 29448 18260 S 0.0 0.7 0:03.54 ibus-extension-
3502 vivekku+ 20 0 834092 29440 25728 S 0.0 0.7 0:00.16 evolution-addre
3710 vivekku+ 39 19 956312 28384 18628 S 0.0 0.7 0:03.07 tracker-miner-f
3768 vivekku+ 20 0 2663152 27188 22144 S 0.0 0.7 0:00.08 gjs
3205 vivekku+ 20 0 2671300 26636 22016 S 0.0 0.7 0:00.13 gjs
3791 vivekku+ 20 0 426432 26216 19432 S 0.0 0.7 0:00.16 xdg-desktop-por
3236 vivekku+ 20 0 750280 25220 21508 S 0.0 0.6 0:00.37 gsd-media-keys
3815 vivekku+ 20 0 275788 24556 17964 S 0.0 0.6 0:00.14 ibus-x11
3471 vivekku+ 20 0 899404 24320 21120 S 0.0 0.6 0:00.12 evolution-calen
3241 vivekku+ 20 0 605924 24088 20248 S 0.0 0.6 0:00.22 gsd-power
3379 vivekku+ 20 0 628928 24064 20608 S 0.0 0.6 0:00.04 goa-daemon
13186 root 19 -1 66836 20352 19456 S 0.0 0.5 0:00.31 systemd-journal
3269 vivekku+ 20 0 495132 20180 16980 S 0.0 0.5 0:00.15 gsd-wacom
3220 vivekku+ 20 0 421572 20096 17536 S 0.0 0.5 0:00.22 gsd-color
3224 vivekku+ 20 0 420428 19520 16832 S 0.0 0.5 0:00.13 gsd-keyboard
20330 root 20 0 484032 19500 16556 S 0.0 0.5 0:00.27 NetworkManager
vboxuser@ubuntu:~$ kill -STOP 13186
bash: kill: (13186) - Operation not permitted
vboxuser@ubuntu:~$ kill -STOP 3379
vboxuser@ubuntu:~$ kill -CONT 3379
vboxuser@ubuntu:~$
```

```
Preparing to unpack .../10-initrans-tools-bin_0.142ubuntu25.5_and64.deb ...
Unpacking initrans-tools-bin (0.142ubuntu25.5) over (0.142ubuntu25.4) ...
Setting up binutils-common:amd64 (2.42-4ubuntu2.4) ...
Setting up libctf-nobfd0:amd64 (2.42-4ubuntu2.4) ...
Setting up libbframe1:amd64 (2.42-4ubuntu2.4) ...
Setting up libbinutils:amd64 (2.42-4ubuntu2.4) ...
Setting up initrans-tools-bin (0.142ubuntu25.5) ...
Setting up libctf0:amd64 (2.42-4ubuntu2.4) ...
Setting up libgprofng0:amd64 (2.42-4ubuntu2.4) ...
Setting up initrans-tools-core (0.142ubuntu25.5) ...
Setting up binutils-x86-64-linux-gnu (2.42-4ubuntu2.4) ...
Setting up initrans-tools (0.142ubuntu25.5) ...
update-initrans: deferring update (trigger activated)
Setting up binutils (2.42-4ubuntu2.4) ...
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for initrans-tools (0.142ubuntu25.5) ...
update-initrans: Generating /boot/initrd.img-6.11.0-17-generic
vboxuser@ubuntu:~$ htop
vboxuser@ubuntu:~$ sudo apt-get remove htop
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libllvm17t64 linux-headers-6.8.0-49 linux-headers-6.8.0-49-generic linux-image-6.8.0-49-generic linux-modules-6.8.0-49-generic linux-modules-extra-6.8.0-49-generic
  linux-tools-6.8.0-49 linux-tools-6.8.0-49-generic python3-netifaces
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED:
  htop
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 434 kB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 233690 files and directories currently installed.)
Removing htop (3.3.0-4build1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for desktop-file-utils (0.27-2build1) ...
vboxuser@ubuntu:~$
```

