1. Run top cmd and observe the display, noting the information shown about CPU usage, memory usage, and the list of running processes.

```
top - 10:55:56 up  1:03,  2 users,  load average: 0.04, 0.05, 0.01
Tasks: 270 total,   2 running, 268 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.2 us,  0.1 sy,  0.0 ni, 99.3 id,  0.4 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   1741.8 total,    306.9 free,   1226.4 used,    373.9 buff/cache
MiB Swap:   2048.0 total,   2033.2 free,     14.8 used.    515.4 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5064672 342504 104832 S   0.7  19.2   0:50.28 gnome-shell
   3281 siddhar+  20   0  226056   4096   3328 R   0.3   0.2   0:00.19 top
      1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.29 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.03 kthreadd
      3 root      20   0       0      0      0 S   0.0   0.0   0:00.00 pool_workqueue_
      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
      9 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-events_highpri
     10 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/u512:0-events_unbound
     11 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-mm_pe
     12 root      20   0       0      0      0 I   0.0   0.0   0:00.01 kworker/u512:1-netns
     13 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_kthre
     14 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_rude_
     15 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_trace
     16 root      20   0       0      0      0 S   0.0   0.0   0:00.01 ksoftirqd/0
     17 root      20   0       0      0      0 R   0.0   0.0   0:00.24 rcu_preempt
     18 root      rt   0       0      0      0 S   0.0   0.0   0:00.01 migration/0
     19 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 idle_inject/0
     21 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     22 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/1
     23 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 idle_inject/1
     24 root      rt   0       0      0      0 S   0.0   0.0   0:00.36 migration/1
```

2. Press q to exit top.

```
     10 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/u512:0-events_unbound
     11 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-mm_pe
     12 root      20   0       0      0      0 I   0.0   0.0   0:00.01 kworker/u512:1-netns
     13 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_kthre
     14 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_rude_
     15 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_trace
     16 root      20   0       0      0      0 S   0.0   0.0   0:00.01 ksoftirqd/0
     17 root      20   0       0      0      0 I   0.0   0.0   0:00.24 rcu_preempt
     18 root      rt   0       0      0      0 S   0.0   0.0   0:00.01 migration/0
     19 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 idle_inject/0
     21 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     22 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/1
     23 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 idle_inject/1
     24 root      rt   0       0      0      0 S   0.0   0.0   0:00.36 migration/1
     25 root      20   0       0      0      0 S   0.0   0.0   0:00.01 ksoftirqd/1
     27 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/1:0H-events_highpri
     28 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/2
     29 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 idle_inject/2
     30 root      rt   0       0      0      0 S   0.0   0.0   0:00.37 migration/2
     31 root      20   0       0      0      0 S   0.0   0.0   0:00.01 ksoftirqd/2
[siddharrth@siddharrth ~]$
```

3. Run top again and while in top
   a. Press M to sort processes by memory

```
top - 10:58:53 up  1:06,  2 users,  load average: 0.00, 0.02, 0.00
Tasks: 270 total,   1 running, 269 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.2 us,  0.1 sy,  0.0 ni, 98.8 id,  0.9 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   1741.8 total,    294.3 free,   1237.7 used,    375.3 buff/cache
MiB Swap:   2048.0 total,   2033.2 free,     14.8 used.    504.1 avail Mem

   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  2051 siddhar+  20   0 5070744 351240 105088 S   0.3  19.7   0:51.27 gnome-shell
  2290 siddhar+  20   0 1051520 103652  42196 S   0.0   5.8   0:04.68 gnome-software
  2846 siddhar+  20   0  770508  60356  44144 S   0.3   3.4   0:05.89 gnome-terminal-
  2564 siddhar+  20   0  807212  54556  42820 S   0.0   3.1   0:00.30 gsd-xsettings
  2593 siddhar+  20   0  659184  51920  42912 S   0.0   2.9   0:00.18 ibus-x11
  2281 siddhar+  20   0  917000  43804  30596 S   0.0   2.5   0:00.32 evolution-alarm
   880 root      20   0  351796  42840  18224 S   0.0   2.4   0:00.88 firewalld
  2462 siddhar+  20   0  172048  40024  31880 S   0.0   2.2   0:00.22 Xwayland
  2332 siddhar+  20   0  390032  38852  30168 S   0.0   2.2   0:05.69 vmtoolsd
  1638 geoclue   20   0  563680  34000  14548 S   0.0   1.9   0:00.48 geoclue
  2590 siddhar+  20   0  595816  33600  19072 S   0.0   1.9   0:01.73 ibus-extension-
  2250 siddhar+  20   0  801732  31392  22916 S   0.0   1.8   0:00.33 gsd-media-keys
  2682 root      20   0  566460  30460  21172 S   0.0   1.7   0:00.56 fwupd
  2119 siddhar+  20   0 1287480  29512  20736 S   0.0   1.7   0:00.18 evolution-sourc
  2649 siddhar+  20   0  591588  29260  19332 S   0.0   1.6   0:00.18 xdg-desktop-por
  2164 siddhar+  20   0 1051460  29080  22144 S   0.0   1.6   0:00.22 evolution-calen
```

b. Press P (uppercase) to sort processes by CPU usage.

```
top - 11:00:42 up  1:07,  2 users,  load average: 0.08, 0.03, 0.01
Tasks: 270 total,   1 running, 269 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.2 us,  0.1 sy,  0.0 ni, 99.1 id,  0.7 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   1741.8 total,    290.0 free,   1241.9 used,    375.3 buff/cache
MiB Swap:   2048.0 total,   2033.2 free,     14.8 used.    499.9 avail Mem

   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  2051 siddhar+  20   0 5070744 351248 105088 S   0.7  19.7   0:52.13 gnome-shell
  3294 siddhar+  20   0  226056   4224   3328 R   0.3   0.2   0:00.29 top
     1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.29 systemd
     2 root      20   0       0      0      0 S   0.0   0.0   0:00.03 kthreadd
     3 root      20   0       0      0      0 S   0.0   0.0   0:00.00 pool_workqueue_
     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
     9 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-events_highpri
    10 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/u512:0-events_unbound
    11 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-mm_pe
    12 root      20   0       0      0      0 I   0.0   0.0   0:00.01 kworker/u512:1-netns
    13 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_kthre
    14 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_rude_
    15 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_trace
```

c. Press N (uppercase) to sort processes by PID.

```
top - 11:01:15 up  1:08,  2 users,  load average: 0.05, 0.02, 0.00
Tasks: 270 total,   2 running, 268 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.4 us,  0.1 sy,  0.0 ni, 99.2 id,  0.2 wa,  0.0 hi,  0.1 si,  0.0 st
MiB Mem :   1741.8 total,    289.0 free,   1242.9 used,    375.3 buff/cache
MiB Swap:   2048.0 total,   2033.2 free,     14.8 used.    498.9 avail Mem

   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  3297 root      20   0       0      0      0 R   0.0   0.0   0:00.02 kworker/1:3-events
  3296 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/3:1-ata_sff
  3295 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/0:1-mm_percpu_wq
  3294 siddhar+  20   0  226056   4224   3328 R   0.3   0.2   0:00.35 top
  3285 root      20   0       0      0      0 I   0.0   0.0   0:00.04 kworker/1:1-rcu_gp
  3241 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/2:0-events_power_efficient
  3226 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0-events
  3212 root      20   0       0      0      0 I   0.0   0.0   0:00.01 kworker/3:2-ata_sff
  3211 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/u517:2
  3208 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/0:2-events
  3205 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/2:2-cgroup_destroy
  3130 root      20   0       0      0      0 I   0.0   0.0   0:00.21 kworker/3:3-events_freezable
  3109 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/u513:1-events_unbound
  3091 root      20   0       0      0      0 I   0.0   0.0   0:00.35 kworker/1:2-rcu_par_gp
  3010 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/u516:2
  2981 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/u514:3
  2974 siddhar+  20   0  221328   2432   2176 S   0.0   0.1   0:00.02 less
```

d. Press T (uppercase) to sort processes by TIME+.

```
top - 11:01:45 up  1:08,  2 users,  load average: 0.03, 0.02, 0.00
Tasks: 270 total,   1 running, 269 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.4 us,  0.2 sy,  0.0 ni, 98.8 id,  0.6 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   1741.8 total,    287.1 free,   1244.8 used,    375.3 buff/cache
MiB Swap:   2048.0 total,   2033.2 free,     14.8 used.    497.0 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5070744 351224 105088 S   2.0  19.7   0:52.74 gnome-shell
    833 root      20   0  383696  10376   7168 S   0.0   0.6   0:06.91 vmtoolsd
   2846 siddhar+  20   0  770508  60356  44144 S   0.3   3.4   0:06.13 gnome-terminal-
   2332 siddhar+  20   0  393844  42428  30168 S   0.0   2.4   0:05.91 vmtoolsd
   2290 siddhar+  20   0 1051520 103652  42196 S   0.0   5.8   0:04.68 gnome-software
      1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.29 systemd
   2122 siddhar+   9 -11  331064  18496   8448 S   0.0   1.0   0:01.99 pipewire
   2590 siddhar+  20   0  595816  33600  19072 S   0.0   1.9   0:01.73 ibus-extension-
     41 root      20   0       0      0      0 I   0.0   0.0   0:01.62 kworker/u514:0-events_un
   2560 siddhar+  20   0  600332  12968   6400 S   0.0   0.7   0:01.23 ibus-daemon
    811 polkitd   20   0 2714724  27296  19288 S   0.0   1.5   0:01.21 polkitd
    880 root      20   0  351796  42840  18224 S   0.0   2.4   0:00.88 firewalld
     57 root      20   0       0      0      0 S   0.0   0.0   0:00.76 kcompactd0
     38 root      20   0       0      0      0 I   0.0   0.0   0:00.69 kworker/3:0-events_freez
     59 root      39  19       0      0      0 S   0.0   0.0   0:00.69 khugepaged
   1970 siddhar+  20   0   24656  14484  10752 S   0.0   0.8   0:00.58 systemd
   2915 root      20   0       0      0      0 I   0.0   0.0   0:00.57 kworker/1:0-rcu_par_gp
   2682 root      20   0  566460  30460  21172 S   0.0   1.7   0:00.56 fwupd
```

4. While in top

   a. Press l to toggle first line (load summary line)

```
Tasks: 267 total,   1 running, 266 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.7/1.4     2[||
MiB Mem : 72.5/1741.8   [|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:  0.7/2048.0   [|

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2846 siddhar+  20   0  770508  60380  44144 S   0.7   3.4   0:07.39 gnome-terminal-
   2332 siddhar+  20   0  392664  41356  30168 S   0.0   2.3   0:07.06 vmtoolsd
   2290 siddhar+  20   0 1051520 105700  42196 S   0.0   5.9   0:04.69 gnome-software
   2122 siddhar+   9 -11  331064  18496   8448 S   0.0   1.0   0:02.14 pipewire
   3294 siddhar+  20   0  226084   4224   3328 R   1.4   0.2   0:02.11 top
   2590 siddhar+  20   0  595816  33600  19072 S   0.0   1.9   0:01.77 ibus-extension-
   2560 siddhar+  20   0  600332  12968   6400 S   0.7   0.7   0:01.54 ibus-daemon
   1970 siddhar+  20   0   24656  14484  10752 S   0.0   0.8   0:00.58 systemd
   2632 siddhar+  20   0  375240   6784   6144 S   0.0   0.4   0:00.51 ibus-engine-sim
   2172 siddhar+  20   0  532460  13924   8448 S   0.0   0.8   0:00.39 goa-identity-se
   2123 siddhar+   9 -11  546904  15872  11008 S   0.0   0.9   0:00.36 wireplumber
   2250 siddhar+  20   0  801732  33440  22916 S   0.0   1.9   0:00.33 gsd-media-keys
   2281 siddhar+  20   0  917000  43804  30596 S   0.0   2.5   0:00.32 evolution-alarm
   2564 siddhar+  20   0  807212  54556  42820 S   0.0   3.1   0:00.30 gsd-xsettings
   1998 siddhar+  20   0    6724   4224   2304 S   0.0   0.2   0:00.29 dbus-broker
   2274 siddhar+  20   0  611136  18904  10624 S   0.0   1.1   0:00.29 gsd-smartcard
   2253 siddhar+  20   0  666220  28912  20612 S   0.0   1.6   0:00.26 gsd-power
```

   b. Press t- swap the CPU displays to simple ASCII graphs that show the percentage of usage for each CPU

```
top - 11:03:07 up  1:10,  2 users,  load average: 0.00, 0.01, 0.00
MiB Mem :   1741.8 total,    287.1 free,   1244.8 used,    375.3 buff/cache
MiB Swap:   2048.0 total,   2033.2 free,     14.8 used.    497.0 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5064696 351224 105088 S   1.3  19.7   0:54.26 gnome-shell
```

   c. Press "t" again to change the graph display to solid block characters

```
top - 11:03:28 up  1:10,  2 users,  load average: 0.00, 0.01, 0.00
Tasks: 270 total,   1 running, 269 sleeping,   0 stopped,   0 zombie
%Cpu(s):  1.6 us,  0.3 sy,  0.0 ni, 97.9 id,  0.1 wa,  0.2 hi,  0.0 si,  0.0 st
MiB Mem :   1741.8 total,    286.9 free,   1245.0 used,    375.5 buff/cache
MiB Swap:   2048.0 total,   2033.2 free,     14.8 used.    496.8 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5070744 355340 105088 S   6.3  19.9   0:54.62 gnome-shell
    833 root      20   0  383696  10376   7168 S   4.0   0.6   0:07.12 vmtoolsd
   2846 siddhar+  20   0  770508  60356  44144 S   0.3   3.4   0:06.31 gnome-terminal-
   2122 siddhar+   9 -11  331224  18496   8448 S   4.7   1.0   0:02.13 pipewire
   3130 root      20   0       0      0      0 I   0.3   0.0   0:00.23 kworker/3:3-mm_percpu_wq
   2124 siddhar+   9 -11  334008  16024   8072 S   0.3   0.9   0:00.19 pipewire-pulse
```

d. Press "t" once more to remove the CPU display and task summary line completely.

```
top - 11:03:47 up  1:10,  2 users,  load average: 0.00, 0.01, 0.00
Tasks: 270 total,   1 running, 269 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.8/0.5    1[||
MiB Mem :   1741.8 total,    286.1 free,   1245.7 used,    375.4 buff/cache
MiB Swap:   2048.0 total,   2033.2 free,     14.8 used.    496.1 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5070728 355260 105088 S   3.1  19.9   0:54.83 gnome-shell
   2332 siddhar+  20   0  390084  38612  30168 S   1.0   2.2   0:06.08 vmtoolsd
```

e. Press m to cycle the memory and swap memory lines through different display options.

```
top - 11:04:25 up  1:11,  2 users,  load average: 0.00, 0.01, 0.00
Tasks: 269 total,   1 running, 268 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.8/0.0    1[|                                                          ]
MiB Mem : 71.5/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||   ]
MiB Swap:  0.7/2048.0   [|                                                          ]

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5064680 355388 105088 S   1.6  19.9   0:55.43 gnome-shell
    833 root      20   0  383696  10376   7168 S   0.0   0.6   0:07.18 vmtoolsd
   2846 siddhar+  20   0  770508  60124  44144 S   1.6   3.4   0:06.40 gnome-terminal-
   2332 siddhar+  20   0  390576  39124  30168 S   0.0   2.2   0:06.12 vmtoolsd
   2290 siddhar+  20   0 1051520 103652  42196 S   0.0   5.8   0:04.69 gnome-software
      1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.29 systemd
   2122 siddhar+   9 -11  331064  18496   8448 S   0.0   1.0   0:02.14 pipewire
   2590 siddhar+  20   0  595816  33600  19072 S   0.0   1.9   0:01.76 ibus-extension-
     41 root      20   0       0      0      0 I   0.0   0.0   0:01.64 kworker/u514:0-events_unbound
   2560 siddhar+  20   0  600332  12968   6400 S   1.6   0.7   0:01.36 ibus-daemon
    811 polkitd   20   0 2714724  27296  19288 S   0.0   1.5   0:01.21 polkitd
    880 root      20   0  351796  42840  18224 S   0.0   2.4   0:00.88 firewalld
   3294 siddhar+  20   0  226056   4224   3328 R   1.6   0.2   0:00.83 top
     57 root      20   0       0      0      0 S   0.0   0.0   0:00.76 kcompactd0
     38 root      20   0       0      0      0 I   0.0   0.0   0:00.71 kworker/3:0-events_freezable_pwr_ef
     59 root      39  19       0      0      0 S   0.0   0.0   0:00.69 khugepaged
   1970 siddhar+  20   0   24656  14484  10752 S   0.0   0.8   0:00.58 systemd
   2915 root      20   0       0      0      0 I   0.0   0.0   0:00.57 kworker/1:0-rcu_par_gp
   2682 root      20   0  566460  30460  21172 S   0.0   1.7   0:00.56 fwupd
    804 dbus      20   0    8088   5552   2304 S   0.0   0.3   0:00.53 dbus-broker
```

f. Press c – to toggle the command name and full command line.

```
top - 11:04:50 up  1:12,  2 users,  load average: 0.00, 0.00, 0.00
Tasks: 268 total,   2 running, 266 sleeping,   0 stopped,   0 zombie
%Cpu(s):   2.0/0.0    2[||                                                           ]
MiB Mem : 72.0/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||    ]
MiB Swap:  0.7/2048.0   [|                                                           ]

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5064680 355384 105088 S   5.3  19.9   0:55.66 /usr/bin/gnome-shell
    833 root      20   0  383696  10376   7168 S   0.0   0.6   0:07.20 /usr/bin/vmtoolsd
   2846 siddhar+  20   0  770508  60252  44144 S   2.6   3.4   0:06.45 /usr/libexec/gnome-terminal-server
   2332 siddhar+  20   0  392764  41300  30168 S   0.0   2.3   0:06.17 /usr/bin/vmtoolsd -n vmusr --blockFd 3 --uinputFd 4
   2290 siddhar+  20   0 1051520 103652  42196 S   0.0   5.8   0:04.69 /usr/bin/gnome-software --gapplication-service
      1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.29 /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
   2122 siddhar+   9 -11  331064  18496   8448 S   0.0   1.0   0:02.14 /usr/bin/pipewire
   2590 siddhar+  20   0  595816  33600  19072 S   0.0   1.9   0:01.76 /usr/libexec/ibus-extension-gtk3
     41 root      20   0       0      0      0 I   0.0   0.0   0:01.64 [kworker/u514:0-events_unbound]
   2560 siddhar+  20   0  600332  12968   6400 S   0.0   0.7   0:01.36 ibus-daemon --panel disable -r --xim
    811 polkitd   20   0 2714724  27296  19288 S   0.0   1.5   0:01.21 /usr/lib/polkit-1/polkitd --no-debug
   3294 siddhar+  20   0  226084   4224   3328 R   0.0   0.2   0:00.89 top
    880 root      20   0  351796  42840  18224 S   0.0   2.4   0:00.88 /usr/bin/python3 -s /usr/sbin/firewalld --nofork --nopid
     57 root      20   0       0      0      0 S   0.0   0.0   0:00.77 [kcompactd0]
     38 root      20   0       0      0      0 I   0.0   0.0   0:00.71 [kworker/3:0-events_freezable_pwr_ef]
```

5. While in top
a. Press d – to change the delay time to 2.0 and back to 3.0

```
top - 11:05:14 up  1:12,  2 users,  load average: 0.12, 0.03, 0.01
Tasks: 268 total,   1 running, 267 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.5/0.1    1[
MiB Mem : 71.5/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:  0.7/2048.0   [|
Change delay from 2.0 to 3
    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5070728 355420 105088 S   1.5  19.9   0:55.98 /usr/bin/gnome-shell
    833 root      20   0  383696  10376   7168 S   0.0   0.6   0:07.23 /usr/bin/vmtoolsd
   2846 siddhar+  20   0  770508  60252  44144 S   0.0   3.4   0:06.48 /usr/libexec/gnome-terminal-server
   2332 siddhar+  20   0  391236  39840  30168 S   0.0   2.2   0:06.22 /usr/bin/vmtoolsd -n vmusr --blockFd 3 --uinputFd 4
   2290 siddhar+  20   0 1051520 103652  42196 S   0.0   5.8   0:04.69 /usr/bin/gnome-software --gapplication-service
      1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.29 /usr/lib/systemd/systemd rhgb --switched-root --system
   2122 siddhar+   9 -11  331064  18496   8448 S   0.0   1.0   0:02.14 /usr/bin/pipewire
   2590 siddhar+  20   0  595816  33600  19072 S   0.0   1.9   0:01.76 /usr/libexec/ibus-extension-gtk3
     41 root      20   0       0      0      0 I   0.0   0.0   0:01.64 [kworker/u514:0-events_unbound]
   2560 siddhar+  20   0  600332  12968   6400 S   0.5   0.7   0:01.37 ibus-daemon --panel disable -r --xim
    811 polkitd   20   0 2714724  27296  19288 S   0.0   1.5   0:01.21 /usr/lib/polkit-1/polkitd --no-debug
```

b. Press f to change the columns to be displayed in top result (select/unselect using d)

```
Fields Management for window 1:Def, whose current sort field is TIME+
    Navigate with Up/Dn, Right selects for move then <Enter> or Left commits,
    'd' or <Space> toggles display, 's' sets sort.  Use 'q' or <Esc> to end!

* PID     = Process Id              WCHAN    = Sleeping in Function
* USER    = Effective User Name     Flags    = Task Flags <sched.h>
* PR      = Priority                CGROUPS  = Control Groups
* NI      = Nice Value              SUPGIDS  = Supp Groups IDs
* VIRT    = Virtual Image (KiB)     SUPGRPS  = Supp Groups Names
* RES     = Resident Size (KiB)     TGID     = Thread Group Id
* SHR     = Shared Memory (KiB)     OOMa     = OOMEM Adjustment
* S       = Process Status          OOMs     = OOMEM Score current
* %CPU    = CPU Usage               ENVIRON  = Environment vars
* %MEM    = Memory Usage (RES)      vMj      = Major Faults delta
* TIME+   = CPU Time, hundredths    vMn      = Minor Faults delta
* COMMAND = Command Name/Line       USED     = Res+Swap Size (KiB)
  PPID    = Parent Process pid      nsIPC    = IPC namespace Inode
  UID     = Effective User Id       nsMNT    = MNT namespace Inode
  RUID    = Real User Id            nsNET    = NET namespace Inode
  RUSER   = Real User Name          nsPID    = PID namespace Inode
  SUID    = Saved User Id           nsUSER   = USER namespace Inode
  SUSER   = Saved User Name         nsUTS    = UTS namespace Inode
  GID     = Group Id                LXC      = LXC container name
* GROUP   = Group Name              RSan     = RES Anonymous (KiB)
  PGRP    = Process Group Id        RSfd     = RES File-based (KiB)
  TTY     = Controlling Tty         RSlk     = RES Locked (KiB)
  TPGID   = Tty Process Grp Id      RSsh     = RES Shared (KiB)
  SID     = Session Id              CGNAME   = Control Group name
```

```
top - 11:05:50 up  1:13,  2 users,  load average: 0.07, 0.03, 0.01
Tasks: 268 total,   1 running, 267 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.4/0.2    1[                                                                              ]
MiB Mem : 71.8/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||    ]
MiB Swap:  0.7/2048.0   [|                                                                             ]

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND                                                         GROUP
 2051 siddhar+  20   0 5070744 355420 105088 S   1.3  19.9   0:56.53 /usr/bin/gnome-shell                                            siddhar+
  833 root      20   0  383696  10376   7168 S   0.0   0.6   0:07.25 /usr/bin/vmtoolsd                                               root
 2846 siddhar+  20   0  770508  60252  44144 S   0.3   3.4   0:06.56 /usr/libexec/gnome-terminal-server                              siddhar+
 2332 siddhar+  20   0  392664  41248  30168 S   0.0   2.3   0:06.27 /usr/bin/vmtoolsd -n vmusr --blockFd 3 --uinputFd 4             siddhar+
 2290 siddhar+  20   0 1051520 103652  42196 S   0.0   5.8   0:04.69 /usr/bin/gnome-software --gapplication-service                  siddhar+
    1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.29 /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31  root
 2122 siddhar+   9 -11  331064  18496   8448 S   0.0   1.0   0:02.14 /usr/bin/pipewire                                               siddhar+
 2590 siddhar+  20   0  595816  33600  19072 S   0.0   1.9   0:01.76 /usr/libexec/ibus-extension-gtk3                                siddhar+
   41 root      20   0       0      0      0 I   0.0   0.0   0:01.64 [kworker/u514:0-events_unbound]                                 root
 2560 siddhar+  20   0  600332  12968   6400 S   0.0   0.7   0:01.39 ibus-daemon --panel disable -r --xim                            siddhar+
```

c. Press z to change color of the display.


```
top - 11:07:39 up  1:14,  2 users,  load average: 0.01, 0.02, 0.00
Tasks: 268 total,   1 running, 267 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.8/0.0    1[|
MiB Mem : 71.8/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:  0.7/2048.0   [|

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
 2051 siddhar+  20   0 5070728 355396 105088 S   2.4  19.9   0:57.59 gnome-shell
  833 root      20   0  383696  10376   7168 S   0.0   0.6   0:07.43 vmtoolsd
 2846 siddhar+  20   0  770508  60380  44144 S   0.0   3.4   0:06.72 gnome-terminal-
 2332 siddhar+  20   0  392664  41248  30168 S   0.0   2.3   0:06.53 vmtoolsd
 2290 siddhar+  20   0 1051520 103652  42196 S   0.0   5.8   0:04.69 gnome-software
    1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.29 systemd
 2122 siddhar+   9 -11  331064  18496   8448 S   0.0   1.0   0:02.14 pipewire
 2590 siddhar+  20   0  595816  33600  19072 S   0.0   1.9   0:01.76 ibus-extension-
   41 root      20   0       0      0      0 I   0.0   0.0   0:01.64 kworker/u514:0-events_unbound
 2560 siddhar+  20   0  600332  12968   6400 S   0.0   0.7   0:01.42 ibus-daemon
 3294 siddhar+  20   0  226084   4224   3328 R   0.0   0.2   0:01.28 top
  811 polkitd   20   0 2714724  27296  19288 S   0.0   1.5   0:01.21 polkitd
  880 root      20   0  351796  42840  18224 S   0.0   2.4   0:00.88 firewalld
   57 root      20   0       0      0      0 S   0.0   0.0   0:00.77 kcompactd0
   38 root      20   0       0      0      0 I   0.0   0.0   0:00.73 kworker/3:0-events_freezable_pwr_ef
   59 root      39  19       0      0      0 S   0.0   0.0   0:00.69 khugepaged
```

d. Press n – to list n number of lines (e.g. press n and then enter 10 to display only 10 lines)

i. Press = to get the normal display back

6. While in top
   a. Press u – and give the username to filter the process by username (press u -enter root to see all processes run by root etc)

   b. Press o to enter the filter option
      i. Type COMMAND=yourProcessname and press enter

1. COMMAND=sleep

```
top - 11:18:56 up  1:26,  2 users,  load average: 0.05, 0.05, 0.00
Tasks: 266 total,   1 running, 265 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.2/0.2    0[                                                     ]
MiB Mem : 72.6/1741.8  [||||||||||||||||||||||||||||||||||||||||||||||||||||||]
MiB Swap:  0.7/2048.0  [|                                                    ]

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
```

2. COMMAND=gnome

```
top - 11:20:01 up  1:27,  2 users,  load average: 0.29, 0.10, 0.02
Tasks: 266 total,   1 running, 265 sleeping,   0 stopped,   0 zombie
%Cpu(s):   1.6/0.3    2[||
MiB Mem : 72.5/1741.8  [|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:  0.7/2048.0  [|
  scroll coordinates: y = 1/266 (tasks), x = 1/12 (fields)
    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5064680 355236 105088 S   1.5  19.9   1:07.88 gnome-shell
   2846 siddhar+  20   0  770508  60300  44144 S   0.2   3.4   0:08.09 gnome-terminal-
   2290 siddhar+  20   0 1051520 105700  42196 S   0.0   5.9   0:04.70 gnome-software
   2034 siddhar+  20   0  734872  18616  13824 S   0.0   1.0   0:00.21 gnome-session-b
   2100 siddhar+  20   0  586520  19200  16000 S   0.0   1.1   0:00.15 gnome-shell-cal
   1988 siddhar+  20   0  452924   8336   5760 S   0.0   0.5   0:00.05 gnome-keyring-d
   2001 siddhar+  20   0  513148  17312  13312 S   0.0   1.0   0:00.05 gnome-session-b
   2033 siddhar+  20   0  303800   7496   4992 S   0.0   0.4   0:00.01 gnome-session-c
```

3. COMMAND=kworker

```
top - 11:20:26 up  1:27,  2 users,  load average: 0.26, 0.11, 0.02
Tasks: 267 total,   1 running, 266 sleeping,   0 stopped,   0 zombie
%Cpu(s):   2.1/0.2    2[||
MiB Mem : 72.5/1741.8   [|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:  0.7/2048.0   [|
  scroll coordinates: y = 11/267 (tasks), x = 1/12 (fields)
    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
     41 root      20   0       0      0      0 I   0.0   0.0   0:01.66 kworker/u514:0-events_unbound
     38 root      20   0       0      0      0 I   0.0   0.0   0:00.85 kworker/3:0-events_freezable_pwr_ef
     44 root      20   0       0      0      0 I   0.0   0.0   0:00.35 kworker/u514:2-events_unbound
   3130 root      20   0       0      0      0 I   0.0   0.0   0:00.32 kworker/3:3-mm_percpu_wq
     40 root      20   0       0      0      0 I   0.0   0.0   0:00.23 kworker/u513:0-events_unbound
   3297 root      20   0       0      0      0 I   0.0   0.0   0:00.22 kworker/1:3-mm_percpu_wq
    661 root      20   0       0      0      0 I   0.0   0.0   0:00.20 kworker/u513:3-events_unbound
     70 root       0 -20       0      0      0 I   0.0   0.0   0:00.13 kworker/3:1H-kblockd
    286 root       0 -20       0      0      0 I   0.0   0.0   0:00.08 kworker/1:1H-xfs-log/dm-0
    243 root       0 -20       0      0      0 I   0.0   0.0   0:00.07 kworker/2:1H-kblockd
    282 root       0 -20       0      0      0 I   0.0   0.0   0:00.07 kworker/0:1H-kblockd
   2814 root       0 -20       0      0      0 I   0.0   0.0   0:00.02 kworker/2:2H-kblockd
     12 root      20   0       0      0      0 I   0.0   0.0   0:00.01 kworker/u512:1-netns
   3329 root      20   0       0      0      0 I   0.0   0.0   0:00.01 kworker/3:1-ata_sff
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_g
```

ii. Type %CPU>anyvalue and press enter

```
top - 11:21:28 up  1:28,  2 users,  load average: 0.09, 0.09, 0.02
Tasks: 267 total,   1 running, 266 sleeping,   0 stopped,   0 zombie
%Cpu(s):   1.0/0.3    1[|
MiB Mem : 72.7/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:  0.7/2048.0   [|
  scroll coordinates: y = 1/267 (tasks), x = 1/12 (fields)
    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2051 siddhar+  20   0 5064696 355304 105088 S   0.9  19.9   1:10.32 gnome-shell
   2846 siddhar+  20   0  770700  60556  44144 S   0.2   3.4   0:08.43 gnome-terminal-
    833 root      20   0  383696  10376   7168 S   0.0   0.6   0:08.11 vmtoolsd
   2332 siddhar+  20   0  392664  41356  30168 S   0.0   2.3   0:07.43 vmtoolsd
   2290 siddhar+  20   0 1051520 105700  42196 S   0.0   5.9   0:04.70 gnome-software
   3294 siddhar+  20   0  226084   4224   3328 R   0.0   0.2   0:02.64 top
```

iii. Type %MEM=anyvalue and press enter

```
top - 11:22:07 up  1:29,  2 users,  load average: 0.05, 0.08, 0.01
Tasks: 267 total,   1 running, 266 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.3/0.2    1[
MiB Mem :  72.7/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:   0.7/2048.0   [|
  scroll coordinates: y = 5/267 (tasks), x = 1/12 (fields)
   PID USER       PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  2290 siddhar+   20   0 1051520 105700  42196 S   0.0   5.9   0:04.70 gnome-software
   811 polkitd    20   0 2714724  27296  19288 S   0.0   1.5   0:01.22 polkitd
  2202 root       20   0  241708   9600   8320 S   0.0   0.5   0:00.46 sssd_kcm
   655 root       20   0   37136   9472   7936 S   0.0   0.5   0:00.32 systemd-journal
  2281 siddhar+   20   0  917000  43804  30596 S   0.0   2.5   0:00.32 evolution-alarm
  2227 siddhar+   20   0 2931704  27212  20096 S   0.0   1.5   0:00.15 gjs
  2367 siddhar+   20   0 2931688  25952  20096 S   0.0   1.5   0:00.14 gjs
   831 root       20   0  448768   8612   5888 S   0.0   0.5   0:00.09 upowerd
  1988 siddhar+   20   0  452924   8336   5760 S   0.0   0.5   0:00.05 gnome-keyring-d
   817 root       20   0  448276   8160   5632 S   0.0   0.5   0:00.04 switcheroo-cont
  1011 root       20   0   16756   9088   7936 S   0.0   0.5   0:00.04 sshd
  2068 siddhar+   20   0  452576   9052   6400 S   0.0   0.5   0:00.04 gvfsd
  2192 siddhar+   20   0  450068   8908   6272 S   0.0   0.5   0:00.03 gvfs-gphoto2-vo
  2199 siddhar+   20   0  448284   8064   5504 S   0.0   0.5   0:00.03 gvfs-goa-volume
  2237 siddhar+   20   0  522128   8280   5632 S   0.0   0.5   0:00.03 gsd-a11y-settin
  2073 siddhar+   20   0  379916   8320   5632 S   0.0   0.5   0:00.01 gvfsd-fuse
  1992 siddhar+   20   0  374144   9656   5120 S   0.0   0.5   0:00.00 gdm-wayland-ses
  2596 siddhar+   20   0  449028   8836   6272 S   0.0   0.5   0:00.00 ibus-portal
```

    iv. Type !USER=root and press enter

```
top - 11:22:49 up  1:29,  2 users,  load average: 0.02, 0.06, 0.01
Tasks: 267 total,   2 running, 265 sleeping,   0 stopped,   0 zombie
%Cpu(s):   0.3/0.2    0[||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Mem :  72.7/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:   0.7/2048.0   [|
  scroll coordinates: y = 1/267 (tasks), x = 1/12 (fields)
   PID USER       PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  2051 siddhar+   20      5064696 355300 105088 S   0.2  19.9   1:11.82 gnome-shell
  2846 siddhar+   20       770956  60684  44144 S   0.1   3.4   0:08.64 gnome-terminal-
  2332 siddhar+   20       392664  41356  30168 S         2.3   0:07.55 vmtoolsd
  2290 siddhar+   20      1051520 105700  42196 S         5.9   0:04.70 gnome-software
  3294 siddhar+   20       226084   4224   3328 R   0.2         0:02.76 top
  2122 siddhar+    9 -11   331064  18496   8448 S         1.0   0:02.14 pipewire
  2560 siddhar+   20       600332  12968   6400 S         0.7   0:01.98 ibus-daemon
  2590 siddhar+   20       595816  33600  19072 S         1.9   0:01.81 ibus-extension-
   811 polkitd    20      2714724  27296  19288 S         1.5   0:01.22 polkitd
  2632 siddhar+   20       375240   6784   6144 S         0.4   0:00.69 ibus-engine-sim
  1970 siddhar+   20        24656  14484  10752 S         0.8   0:00.58 systemd
   804 dbus       20         8088   5552   2304 S         0.3   0:00.53 dbus-broker
  1638 geoclue    20       563680  34000  14548 S         1.9   0:00.48 geoclue
  2172 siddhar+   20       532460  13924   8448 S         0.8   0:00.41 goa-identity-se
  2123 siddhar+    9 -11   546904  15872  11008 S         0.9   0:00.36 wireplumber
  2250 siddhar+   20       801732  33440  22016 S         1.0   0:00.33 gsd-media-keys
```

    v. Type USER=username and press enter

```
top - 11:23:51 up  1:31,  2 users,  load average: 0.10, 0.08, 0.02
Tasks: 268 total,   1 running, 267 sleeping,   0 stopped,   0 zombie
%Cpu(s):   1.7/0.3    2[||
MiB Mem :  72.8/1741.8   [||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
MiB Swap:   0.7/2048.0   [|
  scroll coordinates: y = 3/268 (tasks), x = 1/12 (fields)
   PID USER     PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   833 root     20      383696  10376   7168 S   0.0   0.6   0:08.27 vmtoolsd
     1 root     20      174056  15644  10820 S         0.9   0:02.31 systemd
    41 root     20                            I               0:01.66 kworker/u514:0-writeback
   880 root     20      351796  42840  18224 S         2.4   0:00.88 firewalld
    38 root     20                            I               0:00.87 kworker/3:0-events_freezable_pwr_ef
    57 root     20                            S               0:00.77 kcompactd0
    59 root     39  19                        S               0:00.70 khugepaged
  2682 root     20      566460  30460  21172 S         1.7   0:00.57 fwupd
  1074 root     20      165580   5752   4728 S         0.3   0:00.47 rsyslogd
  2202 root     20      241708   9600   8320 S         0.5   0:00.46 sssd_kcm
    44 root     20                            I               0:00.39 kworker/u514:2-events_unbound
    30 root     rt                            S               0:00.37 migration/2
    24 root     rt                            S               0:00.36 migration/1
   986 root     20      476484  22716  17736 S         1.3   0:00.36 NetworkManager
```

7. While in top

    a. Press k – to kill a process (create sleep process to run bg and kill it)

```
top - 11:26:36 up  1:33,  2 users,  load average: 0.12, 0.12, 0.04
Tasks: 284 total,   2 running, 282 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.3 us,  0.2 sy,  0.0 ni, 99.3 id,  0.1 wa,  0.1 hi,  0.1 si,  0.0 st
MiB Mem :   1741.8 total,    119.8 free,   1269.3 used,    521.7 buff/cache
MiB Swap:   2048.0 total,   2038.7 free,      9.3 used.    472.5 avail Mem

   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  3956 siddhar+  20   0 4962020 297328 123120 S   1.3  16.7   0:04.56 gnome-shell
  4161 siddhar+  20   0  388284  39716  32804 S   0.3   2.2   0:00.19 vmtoolsd
  4509 siddhar+  20   0  775376  54892  42304 S   0.3   3.1   0:00.54 gnome-terminal-
     1 root      20   0  174056  15644  10820 S   0.0   0.9   0:02.47 systemd
     2 root      20   0       0      0      0 S   0.0   0.0   0:00.04 kthreadd
     3 root      20   0       0      0      0 S   0.0   0.0   0:00.00 pool_workqueue_
     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
     9 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-events_hig
    10 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/u512:0-events_u
```

b. Enter signal 15 and 9 and check

```
top - 19:25:03 up 3 min,  2 users,  load average: 0.10, 0.09, 0.03
Tasks: 277 total,   1 running, 276 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.3 us,  0.1 sy,  0.0 ni, 98.8 id,  0.7 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   1741.8 total,    103.7 free,   1238.5 used,    573.3 buff/cache
MiB Swap:   2048.0 total,   2047.7 free,      0.3 used.    503.2 avail Mem
Send pid 3037 signal [15/sigterm] 15
   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  3043 siddhar+  20   0  374724   8060   5504 S   0.0   0.5   0:00.00 gvfsd-metadata
  3042 siddhar+  20   0  226056   4224   3328 R   0.0   0.2   0:00.07 top
  3037 siddhar+  20   0  220952   1792   1792 S   0.0   0.1   0:00.00 sleep
  2988 siddhar+  20   0  224112   5504   3584 S   0.0   0.3   0:00.02 bash
  2970 siddhar+  20   0  766668  54740  42372 S   0.3   3.1   0:00.37 gnome-terminal-
  2909 root      20   0  566460  31124  21940 S   0.0   1.7   0:00.31 fwupd
  2884 siddhar+  20   0  375240   6912   6272 S   0.0   0.4   0:00.02 ibus-engine-sim
  2869 siddhar+  20   0  591536  29212  21252 S   0.0   1.6   0:00.09 xdg-desktop-por
  2860 root      20   0       0      0      0 I   0.0   0.0   0:00.00 kworker/u514:4-events_unbound
  2858 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/u517:2
  2830 siddhar+  20   0  449028   8928   6400 S   0.0   0.5   0:00.00 ibus-portal
  2826 siddhar+  20   0  659412  61656  52344 S   0.0   3.5   0:00.15 ibus-x11
```

c. Kill the top process itself

```
%Cpu(s):  0.2 us,  0.0 sy,  0.0 ni, 99.2 id,  0.6 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   1741.8 total,     92.9 free,   1249.2 used,    573.4 buff/cache
MiB Swap:   2048.0 total,   2047.7 free,      0.3 used.    492.5 avail Mem
Send pid 3042 signal [15/sigterm] 15
   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  3043 siddhar+  20   0  374724   8060   5504 S   0.0   0.5   0:00.01 gvfsd-metadata
  3042 siddhar+  20   0  226056   4224   3328 R   0.0   0.2   0:00.09 top
  2988 siddhar+  20   0  224112   5504   3584 S   0.0   0.3   0:00.02 bash
  2970 siddhar+  20   0  766924  54828  42372 S   0.1   3.1   0:00.44 gnome-terminal-
  2909 root      20   0  566460  31124  21940 S   0.0   1.7   0:00.31 fwupd
  2884 siddhar+  20   0  375240   6912   6272 S   0.0   0.4   0:00.03 ibus-engine-sim
  2869 siddhar+  20   0  591536  29212  21252 S   0.0   1.6   0:00.09 xdg-desktop-por
  2860 root      20   0       0      0      0 I   0.0   0.0   0:00.01 kworker/u514:4-events_unbound
  2858 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/u517:2
  2830 siddhar+  20   0  449028   8928   6400 S   0.0   0.5   0:00.00 ibus-portal
  2826 siddhar+  20   0  659412  61656  52344 S   0.0   3.5   0:00.15 ibus-x11
  2823 siddhar+  20   0  595884  33012  20704 S   0.0   1.9   0:01.04 ibus-extension-
  2822 siddhar+  20   0  449080   6912   6400 S   0.0   0.4   0:00.00 ibus-dconf
  2813 siddhar+  20   0  807240  61400  51828 S   0.0   3.4   0:00.16 gsd-xsettings
  2809 siddhar+  20   0  674440  11496   6656 S   0.0   0.6   0:00.14 ibus-daemon
  2737 siddhar+  20   0  896360  29892  24704 S   0.0   1.7   0:00.09 xdg-desktop-por
  2732 root      20   0    2652   1664   1664 S   0.0   0.1   0:00.00 fusermount
  2724 siddhar+  20   0  743788   8616   5888 S   0.0   0.5   0:00.02 xdg-document-po
  2716 siddhar+  20   0  836444  17544  11392 S   0.0   1.0   0:00.07 xdg-desktop-por
  2708 siddhar+  20   0  171804  47296  39452 S   0.0   2.7   0:00.10 Xwayland
  2664 siddhar+  20   0  599480  22016  17280 S   0.0   1.2   0:00.04 gsd-printer
  2601 siddhar+  20   0 2866152  28712  21120 S   0.0   1.6   0:00.09 gjs
  2578 siddhar+  20   0  389992  41948  33372 S   0.1   2.4   0:00.57 vmtoolsd
  2548 siddhar+  20   0  665844  30468  22276 S   0.0   1.7   0:00.15 gsd-wacom
  2542 siddhar+  20   0  671468   9420   6528 S   0.0   0.5   0:00.02 gsd-usb-protect
  2534 siddhar+  20   0  530676  11464   8320 S   0.0   0.6   0:00.02 gsd-sound
  2527 siddhar+  20   0  611136  22380  14080 S   0.0   1.3   0:00.06 gsd-smartcard
  2522 siddhar+  20   0  678240  12552   8960 S   0.0   0.7   0:00.04 gsd-sharing
  2515 siddhar+  20   0  956136  90244  47800 S   0.0   5.1   0:02.99 gnome-software
  2508 siddhar+  20   0  448044   7892   5376 S   0.0   0.4   0:00.01 gsd-screensaver
[1]+  Terminated              sleep 300
[siddharrth@siddharrth ~]$
```

8. Create a process with nice value
   a. nice -n 10 sleep 100 & and Run ps -eo pid,nice,cmd | grep sleep

```
[siddharrth@siddharrth ~]$ nice -n 10 sleep 100
^Z
[1]+  Stopped                 nice -n 10 sleep 100
[siddharrth@siddharrth ~]$ ps -eo pid,nice,cmd | grep sleep
   3063   10 sleep 100
   3069    0 grep --color=auto sleep
[siddharrth@siddharrth ~]$
```

   b. nice -n 8 cat and Run ps -eo pid,nice,cmd | grep cat

```
[siddharrth@siddharrth ~]$ nice -n 8 cat
^Z
[2]+  Stopped                 nice -n 8 cat
[siddharrth@siddharrth ~]$ ps -eo pid,nice,cmd | grep cat
   2462    0 /usr/bin/gjs /usr/share/gnome-shell/org.gnome.Shell.Notifications
   2499    0 /usr/libexec/gsd-print-notifications
   2515    0 /usr/bin/gnome-software --gapplication-service
   3074    8 cat
   3080    0 grep --color=auto cat
[siddharrth@siddharrth ~]$
```

   c. nice -n -9 seq 20 (become root) and Run ps -eo pid,nice,cmd | grep seq

```
[siddharrth@siddharrth ~]$ su
Password:
[root@siddharrth siddharrth]# nice -n -9 seq 20
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
[root@siddharrth siddharrth]# ps -eo pid,nice,cmd | grep seq
   3132    0 grep --color=auto seq
[root@siddharrth siddharrth]#
```

9. Change the nice value of a running process using – renice niceval pidofprocess

```
[root@siddharrth siddharrth]# sleep 300 &
[1] 3143
[root@siddharrth siddharrth]# renice 9 3143
3143 (process ID) old priority 0, new priority 9
[root@siddharrth siddharrth]#
```

10. Check the change using ps -f pidofprocess.

```
[root@siddharrth siddharrth]# ps -f 3143
UID          PID    PPID  C STIME TTY      STAT   TIME CMD
root        3143    3097  0 19:32 pts/0    SN     0:00 sleep 300
[root@siddharrth siddharrth]#
```