

Output:-

- Adam is working in an IT company. He has been given a task to reduce the load of a system by killing some of the processes running in the LINUX operating system. Which commands will he use to complete the given task with the help of the following operation?

- Kill Processes by name

```
himani@DELL: $ ps -ef
UID      PID  PPID  C STIME TTY      TIME CMD
root      1    0  0 13:55 ?    00:00:00 /sbin/init
root      2    1  0 13:55 ?    00:00:00 /init
root      8    2  0 13:55 ?    00:00:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
root     44    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-journald
root     96    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-udevd
systemd+ 106    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-resolved
systemd+ 107    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-timesyncd
root    156    1  0 13:55 ?    00:00:00 /usr/sbin/cron -f -P
message+ 157    1  0 13:55 ?    00:00:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
root    177    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-logind
root    181    1  0 13:55 ?    00:00:00 /usr/libexec/wsl-pro-service -v
root    199    1  0 13:55 hvc0   00:00:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
syslog   217    1  0 13:55 ?    00:00:00 /usr/sbin/rsyslogd -n -iNONE
root    225    1  0 13:55 tty1   00:00:00 /sbin/agetty -o -p -- \u --noclear - linux
root    267    1  0 13:55 ?    00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-signal
root    349    2  0 13:55 pts/1   00:00:00 /bin/login -f
himani   395    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd --user
himani   397   395  0 13:55 ?    00:00:00 (sd-pam)
himani   458   349  0 13:55 pts/1   00:00:00 -bash
root    747    2  0 14:08 ?    00:00:00 /init
root    749   747  0 14:08 ?    00:00:00 /init
himani   754   749  0 14:08 pts/0   00:00:00 -bash
root    773    2  0 14:09 ?    00:00:00 /init
root    775   773  0 14:09 ?    00:00:00 /init
himani   778   775  0 14:09 pts/2   00:00:00 -bash
root    793    2  0 14:09 ?    00:00:00 /init
root    795   793  0 14:09 ?    00:00:00 /init
himani   798   795  0 14:09 pts/3   00:00:00 -bash
root    813    2  0 14:09 ?    00:00:00 /init
root    815   813  0 14:09 ?    00:00:00 /init
himani   819   815  0 14:09 pts/4   00:00:00 -bash
himani   844   754  0 14:11 pts/0   00:00:00 ps -ef
himani@DELL: $ pkill himani
himani@DELL: $ ps -ef|himani
himani: command not found
```

- Kill a single process at a time with the given process ID

```
himani@DELL: $ ps -ef
UID      PID  PPID  C STIME TTY      TIME CMD
root      1    0  0 13:55 ?    00:00:00 /sbin/init
root      2    1  0 13:55 ?    00:00:00 /init
root      8    2  0 13:55 ?    00:00:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
root     44    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-journald
root     96    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-udevd
systemd+ 106    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-resolved
systemd+ 107    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-timesyncd
root    156    1  0 13:55 ?    00:00:00 /usr/sbin/cron -f -P
message+ 157    1  0 13:55 ?    00:00:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
root    177    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-logind
root    181    1  0 13:55 ?    00:00:00 /usr/libexec/wsl-pro-service -vv
root    199    1  0 13:55 hvc0   00:00:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
syslog   217    1  0 13:55 ?    00:00:00 /usr/sbin/rsyslogd -n -iNONE
root    225    1  0 13:55 tty1   00:00:00 /sbin/agetty -o -p -- \u --noclear - linux
root    267    1  0 13:55 ?    00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-signal
root    349    2  0 13:55 pts/1   00:00:00 /bin/login -f
himani   395    1  0 13:55 ?    00:00:00 /usr/lib/systemd/systemd --user
himani   397   395  0 13:55 ?    00:00:00 (sd-pam)
himani   458   349  0 13:55 pts/1   00:00:00 -bash
root    773    2  0 14:09 ?    00:00:00 /init
root    775   773  0 14:09 ?    00:00:00 /init
himani   778   775  0 14:09 pts/2   00:00:00 -bash
root    793    2  0 14:09 ?    00:00:00 /init
root    795   793  0 14:09 ?    00:00:00 /init
himani   798   795  0 14:09 pts/3   00:00:00 -bash
root    813    2  0 14:09 ?    00:00:00 /init
root    815   813  0 14:09 ?    00:00:00 /init
himani   819   815  0 14:09 pts/4   00:00:00 -bash
himani   982   778  0 14:28 pts/2   00:00:00 ps -ef
himani@DELL: $ sleep 300 &
[1] 983
himani@DELL: $ kill 983
himani@DELL: $ ps -ef|983
983: command not found
[1]+  Terminated                  sleep 300
himani@DELL: $
```

- Kill a process based on the process name

```
himani@DELL: $ ps -ef
UID      PID  PPID  C STIME TTY      TIME CMD
root      1      0 13:55 ?    00:00:00 /sbin/init
root      2      1 0 13:55 ?    00:00:00 /init
root      8      2 0 13:55 ?    00:00:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
root     44      1 0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-journald
root     96      1 0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-udevd
systemd+ 106      1 0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-resolved
systemd+ 107      1 0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-timesyncd
root    156      1 0 13:55 ?    00:00:00 /usr/sbin/cron -f -P
message+ 157      1 0 13:55 ?    00:00:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
root    177      1 0 13:55 ?    00:00:00 /usr/lib/systemd/systemd-logind
root    181      1 0 13:55 ?    00:00:00 /usr/libexec/wsl-pro-service -vv
root    199      1 0 13:55 hvc0  00:00:00 /sbin/getty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
syslog   217      1 0 13:55 ?    00:00:00 /usr/sbin/rsyslogd -n -iNONE
root    225      1 0 13:55 tty1  00:00:00 /sbin/getty -o -p -- \u --noclear - linux
root    267      1 0 13:55 ?    00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-signal
root    349      2 0 13:55 pts/1  00:00:00 /bin/login -f
himani   395      1 0 13:55 ?    00:00:00 /usr/lib/systemd/systemd --user
himani   397   395 0 13:55 ?    00:00:00 (sd-pam)
himani   458   349 0 13:55 pts/1  00:00:00 -bash
root    773      2 0 14:09 ?    00:00:00 /init
root    775   773 0 14:09 ?    00:00:00 /init
himani   778   775 0 14:09 pts/2  00:00:00 -bash
root    793      2 0 14:09 ?    00:00:00 /init
root    795   793 0 14:09 ?    00:00:00 /init
himani   798   795 0 14:09 pts/3  00:00:00 -bash
root    813      2 0 14:09 ?    00:00:00 /init
root    815   813 0 14:09 ?    00:00:00 /init
himani   819   815 0 14:09 pts/4  00:00:00 -bash
himani   963   778 0 14:27 pts/2  00:00:00 sleep 300
himani   964   778 0 14:27 pts/2  00:00:00 sleep 300
himani   967   778 0 14:27 pts/2  00:00:00 sleep 300
himani   968   778 0 14:27 pts/2  00:00:00 sleep 300
himani   969   778 0 14:27 pts/2  00:00:00 sleep 300
himani   970   778 0 14:27 pts/2  00:00:00 sleep 300
himani   971   778 0 14:27 pts/2  00:00:00 sleep 300
himani   973   778 0 14:27 pts/2  00:00:00 ps -ef
himani@DELL: $ ps -ef |grep sleep
himani   963   778 0 14:27 pts/2  00:00:00 sleep 300
himani   964   778 0 14:27 pts/2  00:00:00 sleep 300
himani   967   778 0 14:27 pts/2  00:00:00 sleep 300
himani   968   778 0 14:27 pts/2  00:00:00 sleep 300
himani   969   778 0 14:27 pts/2  00:00:00 sleep 300
himani   970   778 0 14:27 pts/2  00:00:00 sleep 300
himani   971   778 0 14:27 pts/2  00:00:00 sleep 300
himani   975   778 0 14:27 pts/2  00:00:00 grep --color=auto sleep
himani@DELL: $ killall sleep
[1]  Terminated      sleep 300
[2]  Terminated      sleep 300
[3]  Terminated      sleep 300
[4]  Terminated      sleep 300
[5]  Terminated      sleep 300
[6]- Terminated      sleep 300
[7]+ Terminated      sleep 300
himani@DELL: $
```

2. Write a program for process creation using C

- **Orphan Process**

```
himani@DELL:~$ gcc orphan.c -o orphan./orphan
/usr/bin/ld: cannot open output file orphan./orphan: No such file or directory
collect2: error: ld returned 1 exit status
himani@DELL:~$ gcc orphan.c -o orphan
himani@DELL:~$ ./orphan
Parent Process exiting
himani@DELL:~$ Child Process
PID: 2638
PPID: 775
ps -ef|grep orphan
himani      2646      778  0 14:46 pts/2    00:00:00 grep --color=auto orphan
himani@DELL:~$
```

- **Zombie Process**

```
himani@DELL:~$ nano zombie
himani@DELL:~$ nano zombie.c
himani@DELL:~$ gcc zombie.c -o zombie
himani@DELL:~$ ./zombie
Child process exiting
ps Parent process running
himani@DELL:~$ ps -el|grep Z
F S  UID      PID      PPID     C PRI  NI ADDR SZ WCHAN   TTY          TIME CMD
himani@DELL:~$
```

3. Create the process using fork 0 system call

- Child Process creation
- Parent Process creation

```
himani@DELL:~$ nano fork.c
himani@DELL:~$ gcc fork.c -o fork
himani@DELL:~$ ./fork
Parent Process
PID: 2751
Child PID: 2752
Child Process
PID: 2752
PPID: 775
himani@DELL:~$
```

- PID and PPID

```
himani@DELL:~$ sleep 300&
[1] 2754
himani@DELL:~$ ps -ef|grep sleep
himani    2754    778  0 14:57 pts/2    00:00:00 sleep 300
himani    2758    778  0 14:58 pts/2    00:00:00 grep --color=auto sleep
himani@DELL:~$ kill 2754
himani@DELL:~$ killall sleep
sleep: no process found
[1]+  Terminated                  sleep 300
himani@DELL:~$
```