

Name: Marwin Shroff

SAP:60004200097

Div:B/B1

## OS EXPERIMENT - 1

**AIM:** Explore the internal commands of linux and Write shell scripts to do the following:

### 1. Display top 10 processes in descending order

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ echo "top 10 processes in descending order" top 10 processes in descending order

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ ps axl | head -n 10

```
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ echo "top 10 processes in descending order"
top 10 processes in descending order
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ ps axl | head -n 10
 F  UID      PID  PPID  PRI  NI   VSZ   RSS  WCHAN  STAT TTY      TIME COMMAND
 4    0        1      0   20    0  25148  5060  -       Ss   ?         0:02 /sbin/init splash
 1    0        2      0   20    0      0      0  -       S    ?         0:00 [kthreadd]
 1    0        3      2   20    0      0      0  -       I    ?         0:00 [kworker/0:0]
 1    0        4      2    0 -20    0      0  -       I<   ?         0:00 [kworker/0:0H]
 1    0        5      2   20    0      0      0  -       I    ?         0:00 [kworker/u4:0]
 1    0        6      2    0 -20    0      0  -       I<   ?         0:00 [mm_percpu_wq]
 1    0        7      2   20    0      0      0  -       S    ?         0:00 [ksoftirqd/0]
 1    0        8      2   20    0      0      0  -       I    ?         0:00 [rcu_sched]
 1    0        9      2   20    0      0      0  -       I    ?         0:00 [rcu_bh]
```

### 2. Display processes with highest memory usage.

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ ps -eo pid,ppid,cmd,%mem,%cpu --sort=%mem | head

```
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ ps -eo pid,ppid,cmd,%mem,%cpu --sort=%mem | head
  PID  PPID  CMD                                %MEM %CPU
    2     0 [kthreadd]                          0.0  0.0
    3     2 [kworker/0:0]                        0.0  0.0
    4     2 [kworker/0:0H]                      0.0  0.0
    6     2 [mm_percpu_wq]                      0.0  0.0
    7     2 [ksoftirqd/0]                       0.0  0.0
    8     2 [rcu_sched]                         0.0  0.0
    9     2 [rcu_bh]                          0.0  0.0
   10     2 [migration/0]                      0.0  0.0
   11     2 [watchdog/0]                       0.0  0.0
```

### 3. Display current logged in user and no. of users

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ who -u

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ who -u | wc -l

```
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ who -u
onworks tty7      2019-08-30 19:49  old      830 (:0)
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ who -u | wc -l
1
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$
```

**4.Display current shell, home directory, operating system type, current working directory.** onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$  
 whoami onworks onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ uname  
 Linux onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ pwd  
 /home/onworks onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ uname  
 Linux

```
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ whoami
onworks
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ uname
Linux
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ pwd
/home/onworks
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ uname
Linux
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$
```

**5.Display OS version, release number.**

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ uname -a  
 Linux onworks-Standard-PC-i440FX-PIIX-1996 4.15.0-50-generic #54~16.04.1-  
 Ubuntu SMP Wed May 8 15:50:20 UTC 2019 i686 i686 i686 GNU/Linux  
 onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ uname -r  
 4.15.0-50-generic

```
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ uname -a
Linux onworks-Standard-PC-i440FX-PIIX-1996 4.15.0-50-generic #54~16.04.1-Ubuntu SMP Wed May 8 15:50:20 UT
C 2019 i686 i686 i686 GNU/Linux
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ uname -r
4.15.0-50-generic
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$
```

**6.Illustrate the use of sort, grep, awk, etc**

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ cat > abc  
 orage  
 kiwi  
 grapes  
 mangoes  
 onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ ls  
 abc Documents examples.desktop Pictures Templates

Desktop Downloads Music Public Videos

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ sort abc

grapes

kiwi

mangoes

orage

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ sort abc>lmn.txt

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ ls

abc Documents examples.desktop Music Public Videos Desktop Downloads

lmn.txt Pictures Templates

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ cat lmn.txt

grapes

kiwi

mangoes

orage

onworks@onworks-Standard-PC-i440FX-PIIX-1996:~\$ awk '{print \$1 "\t" \$2}' abc

orage

kiwi

grapes

mangoes

```
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ cat>fruits
apple
mango
banana
grapes
orange
kiwi
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ ls
Desktop  Documents  Downloads  examples.desktop  fruits  Music  Pictures  Public  Templates  Videos
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ sort fruits
apple
banana
grapes
kiwi
mango
orange
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ sort fruits>lmn.txt
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ ls
Desktop  Downloads  fruits  Music  Public  Videos
Documents  examples.desktop  lmn.txt  Pictures  Templates
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ cat lmn.txt
apple
banana
grapes
kiwi
mango
orange
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ awk '{print $1 "\t" $2}' fruits
apple
mango
banana
grapes
orange
kiwi
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$
```

**Conclusion:**

The Linux based operating systems have a wide variety of commands or system calls that can be invoked through the command line or shell, like bash, to perform system and functions. Linux provides a more open approach to its system calls compared to other operating systems based on the UNIX philosophy. Linux based systems are developed to be able to be used only from the command line using the the terminals without the need of a GUI. Hence the commands present cater to every aspect of the system from daily use to system diagnostics.