

OPERATING SYSTEMS

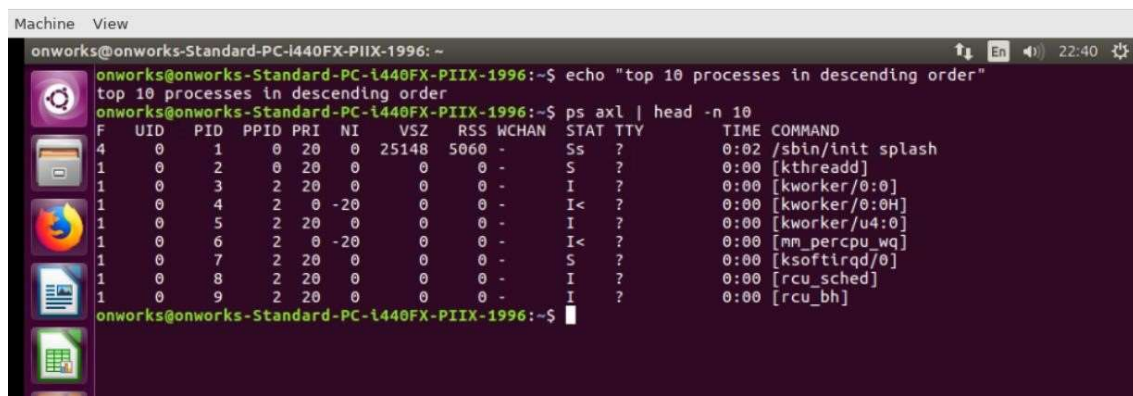
EXPERIMENT – 1

Ayush Jain | 60004200132 | SE – B2

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

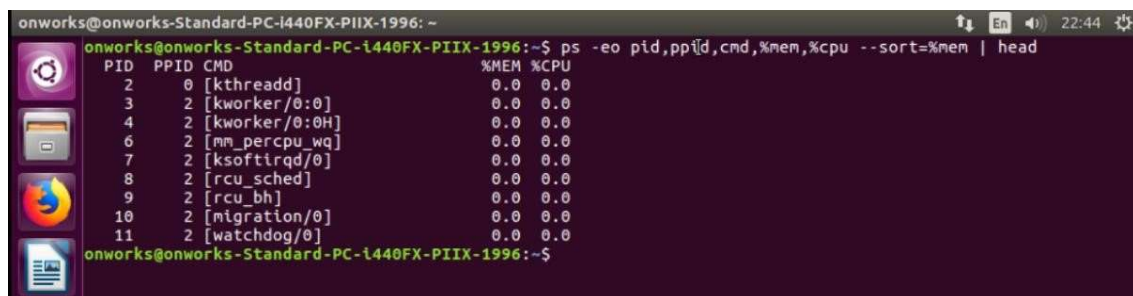


```
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ echo "top 10 processes in descending order"
top 10 processes in descending order
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ ps axl | head -n 10
 F  UID    PID  PPID  PRI  NI   VSZ   RSS WCHAN    STAT TTY      TIME COMMAND
 4    0      1      0   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     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     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]
```

ps

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
```

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: ~  
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:~$
```

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: ~  
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:~$
```

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

#54~16.04.1Ubuntu 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: ~  
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:~$
```

Illustrate the use of sort, grep, awk, etc onworks@onworks-

Standard-PC-i440FX-PIIX-1996:~\$ cat > abc orange 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
```

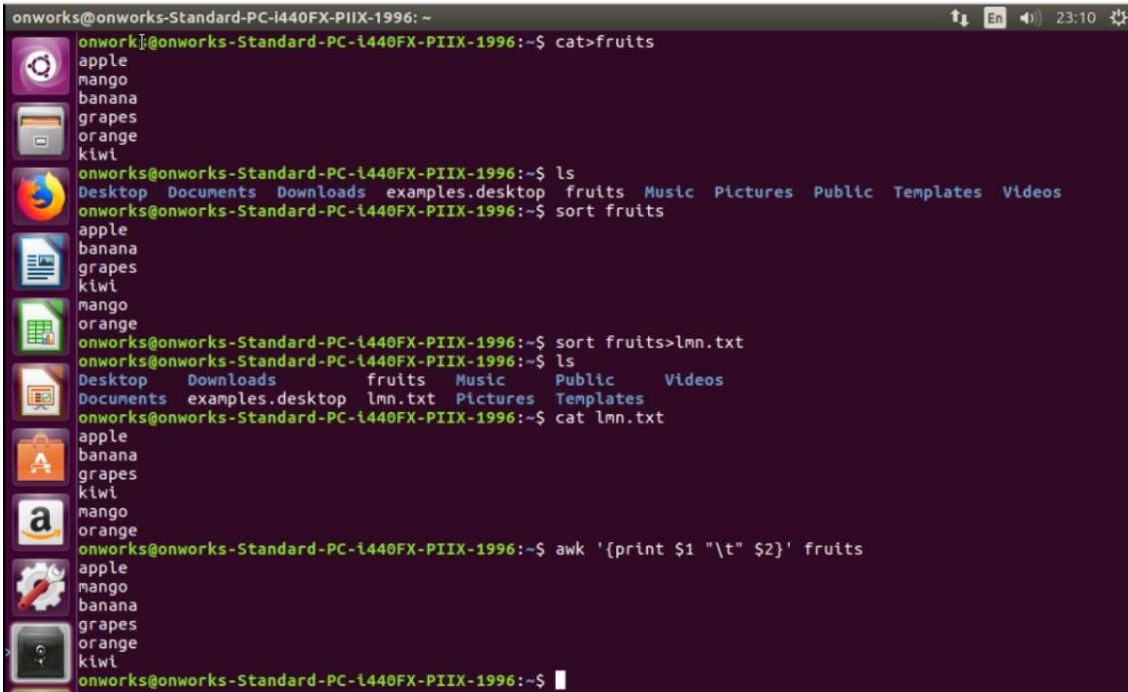
```
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$ ls abc
```

```
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: ~  
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" $2}' fruits  
apple  
mango  
banana  
grapes  
orange  
kiwi  
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$
```