System Administration

Assignment 3

Due: 14 September 2016

Name: Kushagra Arora
Roll No: 2015049

1. **Command used** : `df --total`
   Output:

```
Filesystem      1K-blocks      Used Available Use% Mounted on
udev              6131292        12   6131280   1% /dev
tmpfs             1229388      1284   1228104   1% /run
/dev/sda2      1999639316 913454360 984586084  49% /
none                   4         0         4   0% /sys/fs/cgroup
none                5120         0      5120   0% /run/lock
none             6146936         0   6146936   0% /run/shm
none              102400         0    102400   0% /run/user
total          2013254456 913455656 998199928  48% -
```

   By this, we can conclude that the total disk space is `2013254456K(≈1.9T)`, out of which `913455656K(≈872G)` is used and `998199928K(≈952G)` is available.
   However, `913455656(used) + 998199928(available) =` 1911655584, which is less than `2013254456(total).` This is because, 5% percent space is reserved and is not available for calculations. This reserved space is for root user so that the hard drive is not used 100% and system doesn't get crashed.

2. **Command used** : `df --total -T`
   Output:

```
Filesystem     Type      1K-blocks      Used Available Use% Mounted on
udev           devtmpfs    6131292        12   6131280   1% /dev
tmpfs          tmpfs       1229388      1292   1228096   1% /run
/dev/sda2      ext4     1999639316 913454056 984586388  49% /
none           tmpfs              4         0         4   0% /sys/fs/cgroup
none           tmpfs           5120         0      5120   0% /run/lock
none           tmpfs        6146936         0   6146936   0% /run/shm
none           tmpfs         102400         0    102400   0% /run/user
total          -        2013254456 913455360 998200224  48% -
```

To check for swap space : **Command used**: swapon -s
No output since there is no swap space on the server.
Swap space is a space in hard disk used as an extension to RAM in case the RAM is full. The inactive processes are sent to swap space freeing the RAM for active processes. This is also used, in case we want to expand RAM.

3. **Command used** : `top`
   Output:

```
top - 15:49:39 up 35 days, 21:59,  5 users,  load average: 0.95, 0.97, 1.02
Tasks: 225 total,   1 running, 224 sleeping,   0 stopped,   0 zombie
%Cpu(s): 25.0 us,  0.2 sy,  0.0 ni, 74.8 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem:  12293876 total, 10830912 used,  1462964 free,    69020 buffers
KiB Swap:        0 total,        0 used,        0 free.  8275908 cached Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM     TIME+ COMMAND
22233 yesha11+  20   0 4252388 997.7m  10688 S 100.0  8.3 212:17.72 java
  663 root      39  19       0      0      0 S   0.3  0.0 409:38.90 kipmi0
28761 root      20   0       0      0      0 S   0.3  0.0   0:00.06 kworker/u3+
28834 erp       20   0   16728   1616   1104 R   0.3  0.0   0:00.16 top
    1 root      20   0   34172   3388   1424 S   0.0  0.0   0:06.76 init
    2 root      20   0       0      0      0 S   0.0  0.0   0:00.55 kthreadd
    3 root      20   0       0      0      0 S   0.0  0.0   0:09.86 ksoftirqd/0
    5 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/0:+
    7 root      20   0       0      0      0 S   0.0  0.0  13:49.95 rcu_sched
    8 root      20   0       0      0      0 S   0.0  0.0  21:01.31 rcuos/0
    9 root      20   0       0      0      0 S   0.0  0.0   5:38.86 rcuos/1
   10 root      20   0       0      0      0 S   0.0  0.0   5:01.75 rcuos/2
   11 root      20   0       0      0      0 S   0.0  0.0   4:48.59 rcuos/3
   12 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcuos/4
   13 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcuos/5
   14 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcuos/6
   15 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcuos/7
```

Line 4 in the output shows the memory utilisation at the time of running this command. The following table shows the processes using the memory.

4. **Command used** : `lspci | grep PCI`
   Output:

```
00:01.0 PCI bridge: Intel Corporation 5520/5500/X58 I/O Hub PCI Express Root Port 1 (rev 13)
00:03.0 PCI bridge: Intel Corporation 5520/5500/X58 I/O Hub PCI Express Root Port 3 (rev 13)
00:05.0 PCI bridge: Intel Corporation 5520/X58 I/O Hub PCI Express Root Port 5 (rev 13)
00:07.0 PCI bridge: Intel Corporation 5520/5500/X58 I/O Hub PCI Express Root Port 7 (rev 13)
00:08.0 PCI bridge: Intel Corporation 5520/5500/X58 I/O Hub PCI Express Root Port 8 (rev 13)
00:09.0 PCI bridge: Intel Corporation 7500/5520/5500/X58 I/O Hub PCI Express Root Port 9 (rev 13)
00:1c.0 PCI bridge: Intel Corporation 82801JI (ICH10 Family) PCI Express Root Port 1
00:1c.4 PCI bridge: Intel Corporation 82801JI (ICH10 Family) PCI Express Root Port 5
00:1e.0 PCI bridge: Intel Corporation 82801 PCI Bridge (rev 90)
06:00.0 PCI bridge: Vitesse Semiconductor VSC452 [SuperBMC] (rev 01)
```