SA Assignment 2

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A1) Total 85143692 KB
      Used 4783808 KB
      Available 79094135 KB

5% (by default) of the filesystem is reserved for cases where the filesystem fills up to prevent serious problems. It is reserved for the root user and hence the system still works it every thing gets filled up.

http://superuser.com/questions/249837/why-is-used-available-disk-space-always-less-than-total-disk-space

http://serverfault.com/questions/315181/df-says-disk-is-full-but-it-is-not

```
root@ubuntu:/# df --total
Filesystem                  1K-blocks    Used Available Use% Mounted on
/dev/mapper/ubuntu--vg-root  12733792 3390420   8786456  28% /
none                                4       0         4   0% /sys/fs/cgroup
udev                         25752044       4  25752040   1% /dev
tmpfs                         5152636    1124   5151512   1% /run
none                             5120       0      5120   0% /run/lock
none                         25763180       0  25763180   0% /run/shm
none                           102400       0    102400   0% /run/user
/dev/mapper/ubuntu--vg-home  15393544 1353448  13343704  10% /home
/dev/sda1                      240972   38812    189719  17% /boot
total                        85143692 4783808  79094135   6% -
root@ubuntu:/# 83,877,943
```


A2)
Filesystems - ext2 , ext4 , tempfs , devtempfs

```
root@ubuntu:/# df -T
Filesystem                  Type      1K-blocks    Used Available Use% Mounted on
/dev/mapper/ubuntu--vg-root ext4       12733792 3414296   8762580  29% /
none                        tmpfs             4       0         4   0% /sys/fs/cgroup
udev                        devtmpfs   25752044       4  25752040   1% /dev
tmpfs                       tmpfs       5152636    1124   5151512   1% /run
none                        tmpfs          5120       0      5120   0% /run/lock
none                        tmpfs      25763180       0  25763180   0% /run/shm
none                        tmpfs        102400       0    102400   0% /run/user
/dev/mapper/ubuntu--vg-home ext4       15393544 1353448  13343704  10% /home
/dev/sda1                   ext2         240972   38812    189719  17% /boot
```

A3)
Frequency of ram - 1333 MHz
For DDR3 1333MHz： max transfer rate - 10.6 GB/s

Transfer rate = ram clock rate * 64 / 8 bytes/seconds

http://www.transcend-info.com/Support/FAQ-292


```
sudo lshw –short –C memory
```

A4)
Command - top or htop

```
KiB Mem:  51526360 total,  2624256 used, 48902104 free,   203212
buffers
KiB Swap:   303100 total,        0 used,   303100 free. 1215260
cached Mem
```

```
top - 22:52:16 up 2 days,  7:53,  2 users,  load average: 0.91, 0.93, 0.93
Tasks: 261 total,   3 running, 258 sleeping,   0 stopped,   0 zombie
%Cpu(s):  6.0 us,  0.6 sy,  0.0 ni, 93.4 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem:  51526360 total,  2624256 used, 48902104 free,   203212 buffers
KiB Swap:   303100 total,        0 used,   303100 free.  1215260 cached Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM     TIME+ COMMAND
14384 root      20   0 1172264 253444  13016 S  95.0  0.5 112:04.70 node
14332 mongodb   20   0 1327448 332372 290392 S   6.6  0.6   6:50.51 mongod
14875 root      20   0 1212536 280552  12820 R   5.3  0.5   5:57.40 node
  918 debian-+  20   0  250716   6376   5416 S   1.3  0.0   3:15.45 transmission-da
    7 root      20   0       0      0      0 R   0.7  0.0   1:16.25 rcu_sched
    9 root      20   0       0      0      0 S   0.7  0.0   1:10.75 rcuos/0
15350 root      20   0   25072   3180   2552 R   0.7  0.0   0:00.05 top
12386 root      20   0  561588  14248   6644 S   0.3  0.0   1:14.46 python
12535 root      20   0       0      0      0 S   0.3  0.0   0:12.79 kworker/0:0
15174 viki      20   0  271100   4992   2964 S   0.3  0.0   0:00.40 sshd
    1 root      20   0   33768   4264   2608 S   0.0  0.0   0:09.12 init
    2 root      20   0       0      0      0 S   0.0  0.0   0:00.13 kthreadd
    3 root      20   0       0      0      0 S   0.0  0.0   2:03.87 ksoftirqd/0
    5 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/0:0H
    8 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcu_bh
   10 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcuob/0
   11 root      rt   0       0      0      0 S   0.0  0.0   0:01.52 migration/0
   12 root      rt   0       0      0      0 S   0.0  0.0   0:05.66 watchdog/0
   13 root      rt   0       0      0      0 S   0.0  0.0   0:14.81 watchdog/1
   14 root      rt   0       0      0      0 S   0.0  0.0   0:01.59 migration/1
   15 root      20   0       0      0      0 S   0.0  0.0   0:01.66 ksoftirqd/1
   16 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/1:0
   17 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/1:0H
   18 root      20   0       0      0      0 S   0.0  0.0   0:12.85 rcuos/1
   19 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcuob/1
   20 root      rt   0       0      0      0 S   0.0  0.0   0:13.85 watchdog/2
   21 root      rt   0       0      0      0 S   0.0  0.0   0:01.39 migration/2
   22 root      20   0       0      0      0 S   0.0  0.0   0:01.71 ksoftirqd/2
   24 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/2:0H
   25 root      20   0       0      0      0 S   0.0  0.0   0:08.53 rcuos/2
   26 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcuob/2
   27 root      rt   0       0      0      0 S   0.0  0.0   0:13.81 watchdog/3
   28 root      rt   0       0      0      0 S   0.0  0.0   0:01.49 migration/3
   29 root      20   0       0      0      0 S   0.0  0.0   0:01.51 ksoftirqd/3
   30 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/3:0
   31 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/3:0H
   32 root      20   0       0      0      0 S   0.0  0.0   0:06.18 rcuos/3
   33 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcuob/3
```

A5)
Yes i have a Swap and 296 MB is allotted
The partitions are listed below

```
root@ubuntu:/# lsblk
NAME                          MAJ:MIN RM    SIZE RO TYPE MOUNTPOINT
sda                             8:0    0   97.7G  0 disk
├─sda1                          8:1    0    243M  0 part /boot
├─sda2                          8:2    0      1K  0 part
├─sda3                          8:3    0   89.7G  0 part
│ ├─ubuntu--vg-root (dm-0)    252:0    0   12.4G  0 lvm  /
│ └─ubuntu--vg-home (dm-2)    252:2    0     15G  0 lvm  /home
└─sda5                          8:5    0    7.8G  0 part
  ├─ubuntu--vg-root (dm-0)    252:0    0   12.4G  0 lvm  /
  ├─ubuntu--vg-swap_1 (dm-1) 252:1    0    296M  0 lvm  [SWAP]
  └─ubuntu--vg-home (dm-2)    252:2    0     15G  0 lvm  /home
sr0                            11:0    1   1024M  0 rom
```

A6)
Renaming a big file takes small time is it just updates in the file allocation table.
On writing a huge file it writes all the bits in hard drive which is slow

A7)

Commands:
lspci , dmidecode

```
lspci -vvv

sudo dmidecode --type slot
```

```
divam@divam-desktop:~$ sudo dmidecode --type slot
# dmidecode 2.12
SMBIOS 2.6 present.

Handle 0x0020, DMI type 9, 17 bytes
System Slot Information
     Designation: IJ31
     Type: x1 PCI Express x1
     Current Usage: Available
     Length: Short
     ID: 1
     Characteristics:
         3.3 V is provided
         Opening is shared
         PME signal is supported
     Bus Address: 0000:00:1c.0

Handle 0x0021, DMI type 9, 17 bytes
```

```
System Slot Information
     Designation: IJ32
     Type: x1 PCI Express x1
     Current Usage: Available
     Length: Short
     ID: 2
     Characteristics:
          3.3 V is provided
          Opening is shared
          PME signal is supported
     Bus Address: 0000:00:1c.4

Handle 0x0022, DMI type 9, 17 bytes
System Slot Information
     Designation: IJ311
     Type: 32-bit PCI
     Current Usage: Available
     Length: Short
     ID: 3
     Characteristics:
          3.3 V is provided
          Opening is shared
          PME signal is supported
     Bus Address: 0000:00:1e.0

Handle 0x004B, DMI type 9, 17 bytes
System Slot Information
     Designation: IJ41
     Type: x16 PCI Express x16
     Current Usage: In Use
     Length: Long
     ID: 0
     Characteristics:
          3.3 V is provided
          Opening is shared
          PME signal is supported
     Bus Address: 0000:00:03.0
```

A8)
```
root@ubuntu:/home/viki# fdisk -l

Disk /dev/sda: 104.9 GB, 104857600000 bytes
255 heads, 63 sectors/track, 12748 cylinders, total 204800000
sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x000dca9d


divam@divam-desktop:~$ sudo smartctl -i /dev/sda

Rotation Rate:     7200 rpm
```

A9)
command sudo badblocks -v /dev/sdxn

http://linuxpoison.blogspot.in/2008/01/howto-check-disk-drive-for-errors-and.html


```
divam@divam-desktop:~$ sudo badblocks -v /dev/sda1
Checking blocks 0 to 102399
Checking for bad blocks (read-only test): done
Pass completed, 0 bad blocks found. (0/0/0 errors)
```

A10)
```
sudo dmidecode --type 2
```


```
divam@divam-desktop:~$ sudo dmidecode --type 2
# dmidecode 2.12
SMBIOS 2.6 present.

Handle 0x0002, DMI type 2, 15 bytes
Base Board Information
    Manufacturer: Intel Corporation
    Product Name: DH55TC
    Version: AAE70932-302
    Serial Number: BTTC107002JP
    Asset Tag: To be filled by O.E.M.
    Features:
        Board is a hosting board
        Board is replaceable
    Location In Chassis: To be filled by O.E.M.
    Chassis Handle: 0x0003
    Type: Motherboard
    Contained Object Handles: 0
```