Module 6: Advanced File system management
Assignment

1 – Create two logical volumes inside an extended partition

```
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# fdisk -l /dev/mmcblk0

Disk /dev/mmcblk0: 1977 MB, 1977614336 bytes
4 heads, 16 sectors/track, 60352 cylinders, total 3862528 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: 0x91d7fd22

        Device Boot      Start         End      Blocks   Id  System
/dev/mmcblk0p1            2048      392672      195312+  83  Linux
/dev/mmcblk0p2          392673     1369235      488281+  83  Linux
/dev/mmcblk0p3         1369236     3862527     1246646    5  Extended
/dev/mmcblk0p5         1371284     1957221      292969   83  Linux
/dev/mmcblk0p6         1959270     2154582       97656+  83  Linux
/dev/mmcblk0p7         2156631     2449599      146484+  83  Linux
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# lsblk /dev/mmcblk0
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
mmcblk0     179:0    0   1.9G  0 disk
├─mmcblk0p1 179:1    0 190.8M  0 part
├─mmcblk0p2 179:2    0 476.9M  0 part
├─mmcblk0p3 179:3    0     1K  0 part
├─mmcblk0p5 179:5    0 286.1M  0 part
├─mmcblk0p6 179:6    0  95.4M  0 part
└─mmcblk0p7 179:7    0 143.1M  0 part
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# pvcreate /dev/mmcblk0p5 /dev/mmcblk0p6
  Physical volume "/dev/mmcblk0p5" successfully created
  Physical volume "/dev/mmcblk0p6" successfully created
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# pvdisplay /dev/mmcblk0p5
  "/dev/mmcblk0p5" is a new physical volume of "286.10 MiB"
  --- NEW Physical volume ---
  PV Name               /dev/mmcblk0p5
  VG Name
  PV Size               286.10 MiB
```

```
  Allocatable           NO
  PE Size               0
  Total PE              0
  Free PE               0
  Allocated PE          0
  PV UUID               KMiHXD-YIka-mpQM-Y04p-4Tt7-8adu-FGXK5e

root@akmtir-ThinkPad-T400:/home/akmtir# pvs
  PV           VG   Fmt  Attr PSize   PFree
  /dev/mmcblk0p5      lvm2 a--  286.10m 286.10m
  /dev/mmcblk0p6      lvm2 a--   95.37m  95.37m
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# vgcreate vg1 /dev/mmcblk0p5 /dev/mmcblk0p6
  Volume group "vg1" successfully created
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# vgdisplay vg1
  --- Volume group ---
  VG Name               vg1
  System ID
  Format                lvm2
  Metadata Areas        2
  Metadata Sequence No  1
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                0
  Open LV               0
  Max PV                0
  Cur PV                2
  Act PV                2
  VG Size               376.00 MiB
  PE Size               4.00 MiB
  Total PE              94
  Alloc PE / Size       0 / 0
  Free  PE / Size       94 / 376.00 MiB
  VG UUID               T9blyq-7cRZ-vrri-HIAi-np6O-qfRm-rjIT8G

root@akmtir-ThinkPad-T400:/home/akmtir# vgdisplay -v vg1
    Using volume group(s) on command line
    Finding volume group "vg1"
  --- Volume group ---
  VG Name               vg1
  System ID
  Format                lvm2
  Metadata Areas        2
  Metadata Sequence No  1
  VG Access             read/write
```

```
  VG Status             resizable
  MAX LV                0
  Cur LV                0
  Open LV               0
  Max PV                0
  Cur PV                2
  Act PV                2
  VG Size               376.00 MiB
  PE Size               4.00 MiB
  Total PE              94
  Alloc PE / Size       0 / 0
  Free  PE / Size       94 / 376.00 MiB
  VG UUID               T9blyq-7cRZ-vrri-HIAi-np6O-qfRm-rjIT8G

  --- Physical volumes ---
  PV Name               /dev/mmcblk0p5
  PV UUID               KMiHXD-YIka-mpQM-Y04p-4Tt7-8adu-FGXK5e
  PV Status             allocatable
  Total PE / Free PE    71 / 71

  PV Name               /dev/mmcblk0p6
  PV UUID               hObb3l-rBLP-xSqD-cKa3-2ENQ-tnOO-yglkhg
  PV Status             allocatable
  Total PE / Free PE    23 / 23

root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# vgs
  VG   #PV #LV #SN Attr   VSize   VFree
  vg1    2   0   0 wz--n- 376.00m 376.00m
root@akmtir-ThinkPad-T400:/home/akmtir# lvcreate -L 150M -n lvm1 vg1
  Rounding up size to full physical extent 152.00 MiB
  Logical volume "lvm1" created
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# lvcreate -L 150M -n lvm2 vg1
  Rounding up size to full physical extent 152.00 MiB
  Logical volume "lvm2" created
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# lvs
  LV   VG   Attr      LSize   Pool Origin Data%  Move Log Copy%  Convert
  lvm1 vg1  -wi-a---- 152.00m
  lvm2 vg1  -wi-a---- 152.00m
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# ls -l /dev/vg1/
total 0
lrwxrwxrwx 1 root root 7 May 16 00:10 lvm1 -> ../dm-0
lrwxrwxrwx 1 root root 7 May 16 00:10 lvm2 -> ../dm-1
root@akmtir-ThinkPad-T400:/home/akmtir# ls -l /dev | grep dm-
```

```
brw-rw----  1 root disk      252,   0 May 16 00:10 dm-0
brw-rw----  1 root disk      252,   1 May 16 00:10 dm-1
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# mkfs.ext4 /dev/vg1/lvm1
mke2fs 1.42.9 (4-Feb-2014)
Discarding device blocks: done
Filesystem label=
OS type: Linux
Block size=1024 (log=0)
Fragment size=1024 (log=0)
Stride=0 blocks, Stripe width=0 blocks
38912 inodes, 155648 blocks
7782 blocks (5.00%) reserved for the super user
First data block=1
Maximum filesystem blocks=67371008
19 block groups
8192 blocks per group, 8192 fragments per group
2048 inodes per group
Superblock backups stored on blocks:
        8193, 24577, 40961, 57345, 73729

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done

root@akmtir-ThinkPad-T400:/home/akmtir# mkdir lvm1
root@akmtir-ThinkPad-T400:/home/akmtir#
root@akmtir-ThinkPad-T400:/home/akmtir# mount -t ext4 /dev/vg1/lvm1 lvm1/
root@akmtir-ThinkPad-T400:/home/akmtir# ls -lah lvm1/
total 33K
drwxr-xr-x  3 root   root   1.0K May 16 00:17 .
drwx------ 54 akmtir akmtir  20K May 16 00:18 ..
drwx------  2 root   root    12K May 16 00:17 lost+found
root@akmtir-ThinkPad-T400:/home/akmtir#
```

2 – Create a softlink for the file /software/sample

```
[root@server1 softLinks]#
[root@server1 softLinks]# pwd
/home/akmtir/softLinks
[root@server1 softLinks]# ls -lhi /software/sample
161627 -rw-r--r--. 1 root root 0 May 15 18:21 /software/sample
[root@server1 softLinks]#
[root@server1 softLinks]# ln -s /software/sample soft-link-sample
```

[root@server1 softLinks]# l**s -lhi**
total 0
480009 lrwxrwxrwx. 1 root root 16 May 15 18:22 ***soft-link-sample -> /software/sample***
[root@server1 softLinks]#

3 – Set hostname for your system as LinuxAdmin

[root@server1 ~]#
[root@server1 ~]# hostname
server1.example.com
[root@server1 ~]#
[root@server1 ~]# **hostnamectl set-hostname LinuxAdmin.example.com**
[root@server1 ~]#
[root@server1 ~]# hostname
linuxadmin.example.com
[root@server1 ~]#

4 – Set an IP address and gateway for your system (CentOS7)

[root@server1 ~]#
[root@server1 ~]# **vi /etc/sysconfig/network-scripts/ifcfg-enp0s3**
[root@server1 ~]#
[root@server1 ~]# **cat /etc/sysconfig/network-scripts/ifcfg-enp0s3**
TYPE="Ethernet"
BOOTPROTO="static"
DEFROUTE="yes"
IPV4_FAILURE_FATAL="no"
IPV6INIT=no
IPV6_AUTOCONF="yes"
IPV6_DEFROUTE="yes"
IPV6_PEERDNS="yes"
IPV6_PEERROUTES="yes"
IPV6_FAILURE_FATAL="no"
IPV6_ADDR_GEN_MODE="stable-privacy"
NAME="enp0s3"
UUID="242dafd8-331e-49ec-bc24-e4e4bdeed4ae"
DEVICE="enp0s3"
ONBOOT="yes"
PEERDNS=yes
PEERROUTES=yes
IPADDR=192.168.1.22
NETMASK=255.255.255.0
GATEWAY=192.168.1.1
DNS1=8.8.8.8
[root@server1 ~]#
[root@server1 ~]#

[root@server1 ~]# **ip a s enp0s3**
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether 08:00:27:c0:3a:57 brd ff:ff:ff:ff:ff:ff
    inet 1**92.168.1.22/24** brd 192.168.1.255 scope global enp0s3
       valid_lft forever preferred_lft forever
[root@server1 ~]#

[root@server1 ~]#
[root@server1 ~]# **dig www.edureka.co**

; <<>> DiG 9.9.4-RedHat-9.9.4-37.el7 <<>> www.edureka.co
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 36276
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;www.edureka.co.   IN   A

;; ANSWER SECTION:
www.edureka.co. ***59*** ***IN*** ***A*** ***52.10.187.101***

;; Query time: 64 msec
;; SERVER: 8.8.8.8#53(8.8.8.8)
;; WHEN: Mon May 15 18:11:25 CEST 2017
;; MSG SIZE rcvd: 59

[root@server1 ~]#

5 – List out the packages required for quotas and install it

[root@server1 ~]#
[root@server1 ~]# **rpm -qa | grep quota**
quota-4.01-14.el7.x86_64
quota-nls-4.01-14.el7.noarch
[root@server1 ~]#