

## Lab7

### Summary:

This lab helps us understand how file systems work in Linux. It talks about different FAT systems over the years, FAT-12, FAT-16, FAT-32 etc.

It then talks about decoding the Boot sector. We do this manually and then convert that into code so that it prints our required output at correct offsets.

```
● bash-4.2$ ./bsdump image
      Name:      mkdosfs
      Bytes/Sector: 512
      Sectors/Cluster: 16
      Reserved Sectors: 1
      Number of FATs: 2
      Root Directory entries: 224
      Logical sectors: 2880
      Medium descriptor: 0x00f0
      Sectors/FAT: 1
      Sectors/Track: 18
      Number of heads: 2
      Number of Hidden Sectors: 0
```

Finally we decode the root directory using the image provided and simulate a result of 'ls' for the image.

For this we used indexes in buffer and iterate through it, for the offsets with size 2, we switch the endians, that is we perform an endian swap.

Finally for the last part, fat12ls, the size is twice the size of short, that is 4. For this we need to use another swap that swaps the endian swaps.

This is the result for the last part of the lab.

```
⊙ bash-4.2$ ./fat12ls image
root dir offset: 1536
max # root dir entries: 224
Filename      Attrib  Time           Date           Size
16SEC.TXT     RHS     15:22:50       2002/11/06     331
1SEC.TXT      RH      20:44:54       2002/03/08     331
2SEC.TXT      R       11:27:32       2002/02/01     332
4SEC.TXT      H       03:04:10       2005/12/30     331
8SEC.TXT      A       21:59:58       1981/01/02     331
BIG.LOG       HS      00:00:58       2009/05/03    62559
(R)ead Only (H)idden (S)ystem (A)rchive
⊙ bash-4.2$
```