FILE MANAGEMENT

→ Each disk is divided into one or more partitions, each partition is treated by the kernel as a separate device residing under /dev directory

- ✓ sda
- ✓ sdb
- ✓ sdc
- ⋮

} ⇒ Disk partitions contains information related to file system.

FILESYSTEM: A file system is an organized collection of regular files and directories

→ linux supports many filesystem formats like
ext2 / ext3 / ramfs / rootfs / tmpfs

→ filesystem types currently known by the kernel can be viewed /proc/filesystems

→ microsoft → FAT / FAT32 / NTFS

FILE system structure:

The basic unit for allocating space in file system is a logical block it is some multiple of contigious physical blocks on the disk on which file system resides

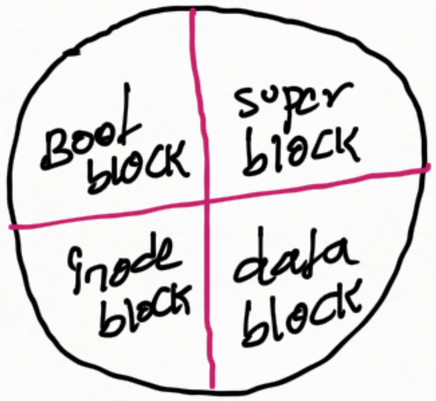
→ logical block size 1024 (or) 2048 (or) 4096 bytes

4 blocks
↳ 4 × 1024 = 4096

cat2
↳ 1024

FILE system divided into different partitions

⇒ FILE system divided into different partitions as



Boot block: This is always the first block in the file system, this block is not having any information related to filesystem rather it contains information used to boot the OS

super block: this is a block immediately after boot block it contains information about the file system

- → size of the Inode Table
- → size of the logical block in file system.

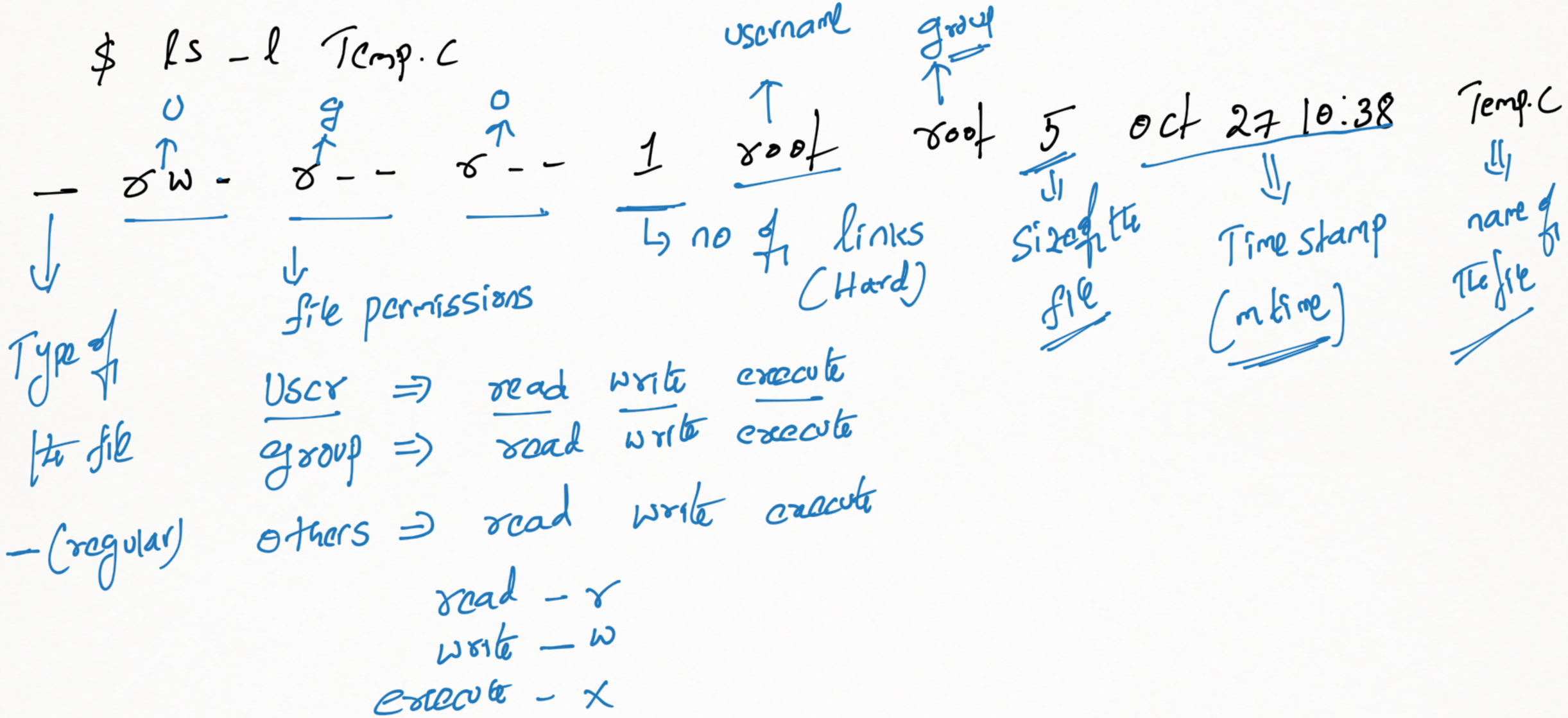
→ Inode block: each file or directory in the file system has a unique entry in the Inode table - This entry records various information about the file like type of file, owner, group, permissions, size of the file..

→ data block: majority of the space in the file system is used for blocks of data that form the files and directorys residing in the file system

→ under Linux every thing treated as file only

⇒ Linux supports various file types (7-types)

- ← (i) Regular file
d ← (ii) directory file
l ← (iii) Link file
c ← (iv) char special file } ⇒ (device drivers)
b ← (v) Block special file
p ← (vi) pipe file → (IPC)
s ← (vii) socket file → (TCP/IP)


$ ls -l Temp.c
u
g
o
username
group
- rw- r-- r-- 1 root root 5 Oct 27 10:38 Temp.c
Type of the file
file permissions
no of links (Hard)
Size of the file
Timestamp (mtime)
name of the file
- (regular)
User ⇒ read write execute
group ⇒ read write execute
others ⇒ read write execute
read - r
write - w
execute - x