FILE SYSTEM IN OPERATING SYSTEM

OS have

windows - NTFS

MS-DOS - FAT

LINUX - extended file System

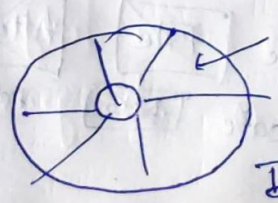
Big data - zfs file system

An OS kernel, there is a module to handle file management which is called File System.

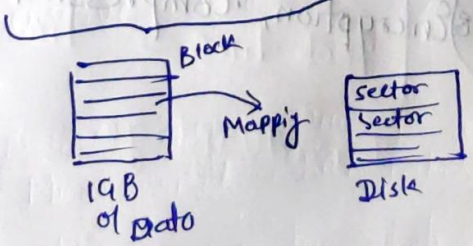
file system is s/w that manage the files.

✓ How the data will be stored.
✓ How the data will be fetched.

User - files - folder/directory - file System



Disk.



fn of file System

file have some attributes,
files have some operation

- ✓ Creation of file
- ✓ deletion of file
- ✓ truc Ate of file
- ✓ ~~right~~ write to file
- ✓ Modify to file.

file ⇒ It is collection of related information

File attributes

1) Name
2) Extension (type)
3) Identifier
4) Location
5) Size
6) Modified date, created date
7) Protection, Permission
8) Encryption, Compression.

operations performed by File System

1) Creating
2) Rename
3) Writing
4) Deleting
5) Reading
6) Truncating
7) Repositioning.

Delete ~~File~~ ~~Attribute~~
truncate ~~File~~ ~~Attribute~~ ✓

File Allocation Methods

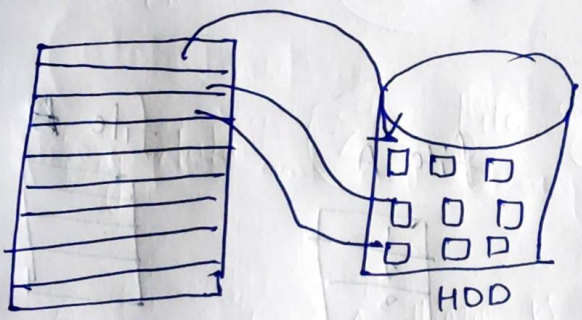
- Contiguous
- Non Contiguous
  - linked list allocation
  - Indexed allocation.

LC command
C_n
C+_

touch
CAT
LC
MKDIR

Disk Structure

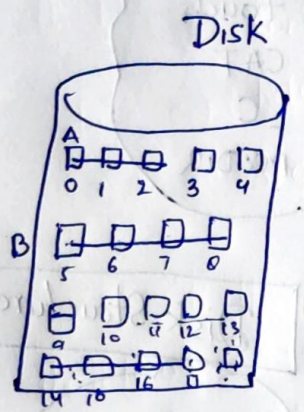
platter
Surface
Sector
track



File
logically
division

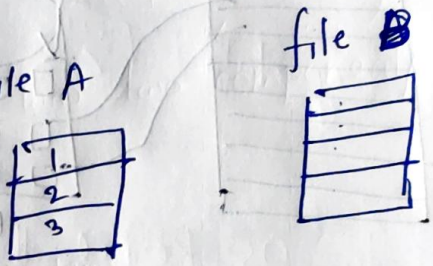
Purpose
→ efficient Disk utilization.
→ Access should be faster

Contiguous Allocation



Directory

file	start	length
A	0	3
B	6	5
C	14	4



Advantage –

- easy to implement.
- excellent Read Performance
  - Sequential access
  - Direct access

Seek time → time to reach desired track

Disadvantage –

- disk will become fragmentated.
- difficult to grow file.

A file management system is used for file maintenance operations.

It is a type of software that manages data files in a computer system.

Computer users store programs and data in files.

User expectations →

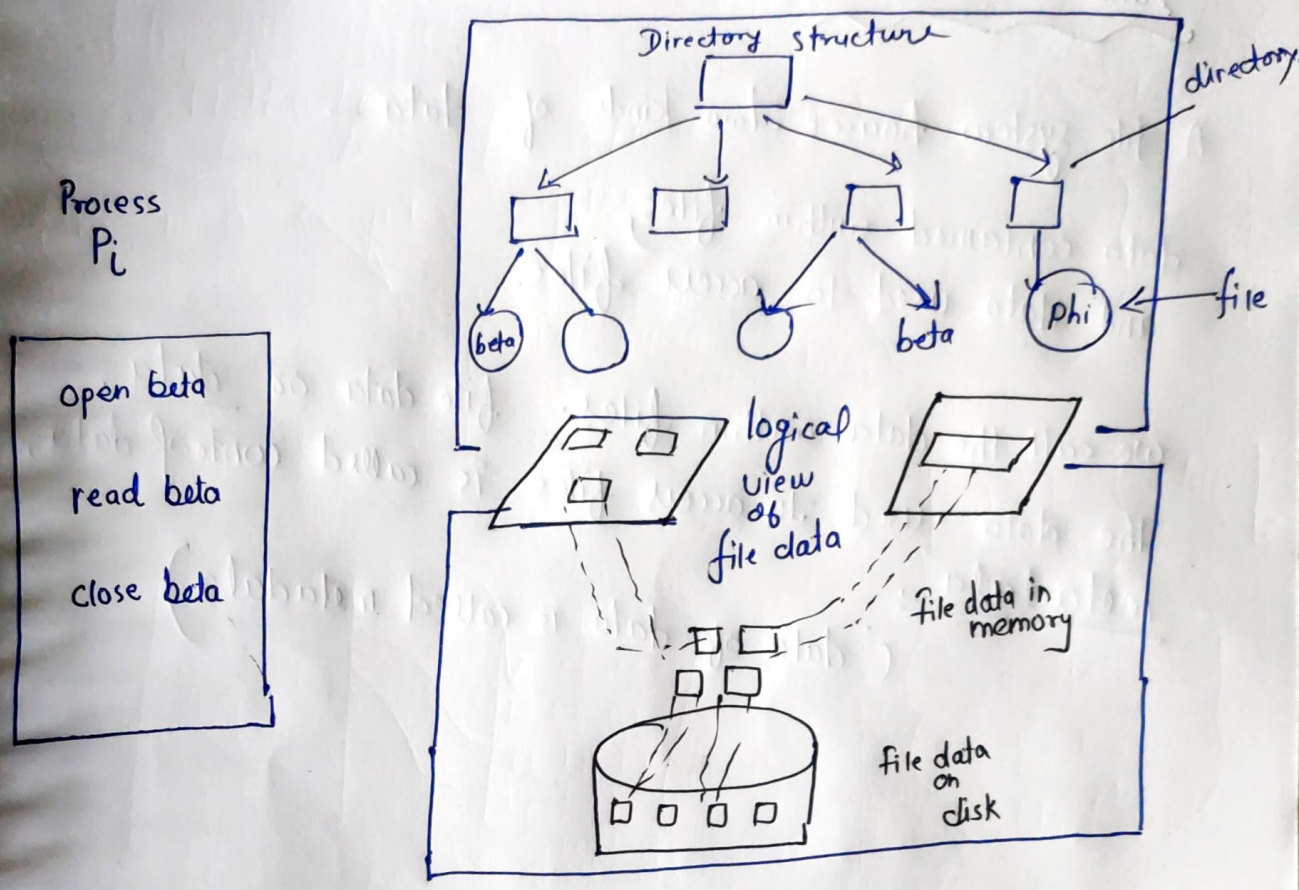
- Convenient & fast access to files.
- Reliable storage of files.
- Sharing of files with collaborators.

The resources used for storing & accessing files are I/O devices

OS organize file management into two components called file systems.

Input Output control System.

File processing — sequence of operations.
- opening a file.
- Reading data from a file.
- writing data into it.
- closing a file.



File System & IOCS

file is a collection of data with relatable information.

facilities provided by the File System: →

* Directory structures for convenient grouping of files.
* Protection of files against illegal accesses
* File sharing semantics for concurrent accesses to a file.
* Reliable storage of files.

Data & Meta Data :-

A file system houses two kinds of data -

data contained within files,
and data used to access files.

We call the data within files file data or data.
The data used to access files is called control data,
metadata.
(data of data is called metadata)