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File Systems

- from Tanenbaum (Page 401 - 423) ^{2nd edition}

Reasons for file system

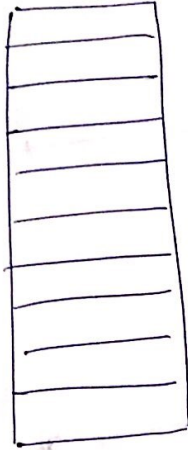
- 1) to store a large amount of data
- 2) retrieve the information after processing
- 3) access a particular state of information by different processes.

File structure

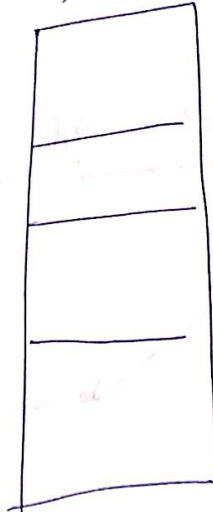
3 types -

File structure

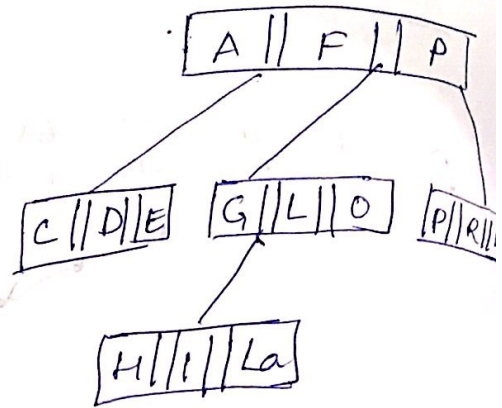
Byte Sequence



Record sequence

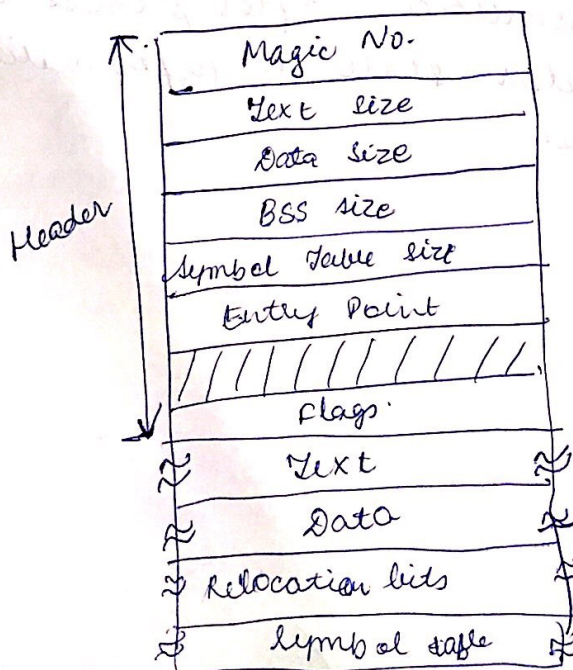


Tree



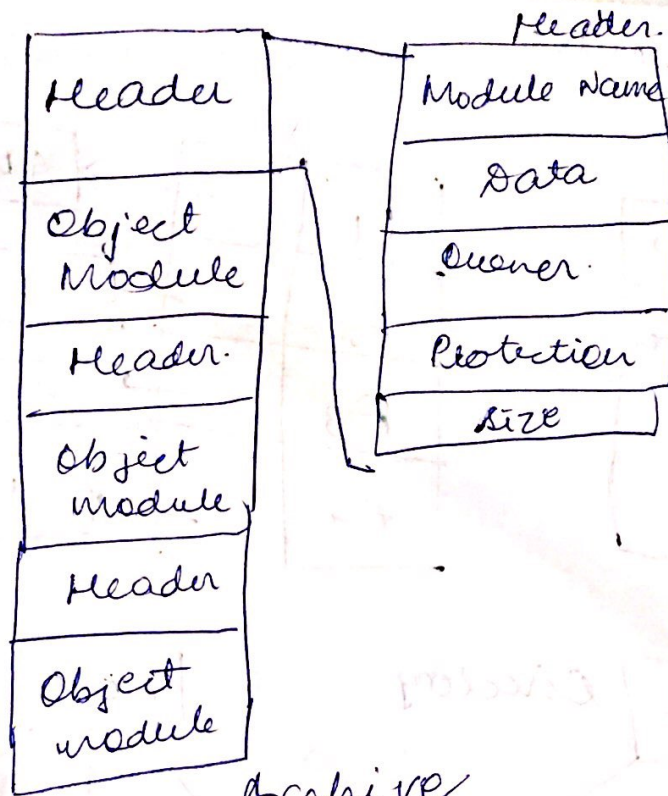
File Types

- Regular Files (contains user info.)
- Directories (system files for maintaining structure of the file system)
- Character Special (related to input-output and used for modelling serial I/O such as printers, terminals, network etc)
- Block Special File (used to model disks)



Executable File

If no magic no.
then normal user
file



File Access

- Sequential File Access
- Random Access of Files

Advantages of Sequential File Access

- 1) the program can be executed smoothly by getting only the start location of the program.

Random access of files requires pointers.

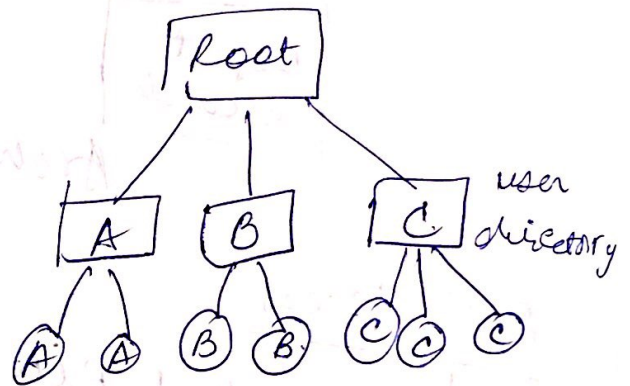
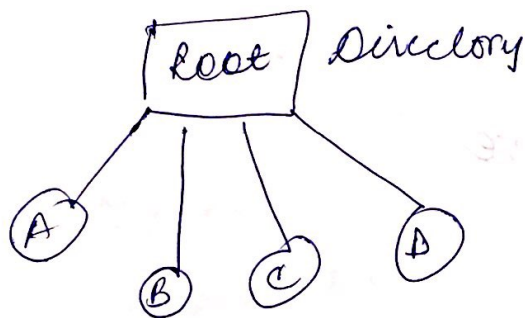
Problem of sequential file access - we need to know the size and address of start location

So,

Directory structure

F1	Attributes
F2	Attributes
F3	"
F4	"

F1		Attributes
F2		"
F3		"
F4		"



single directory
shared by all users

