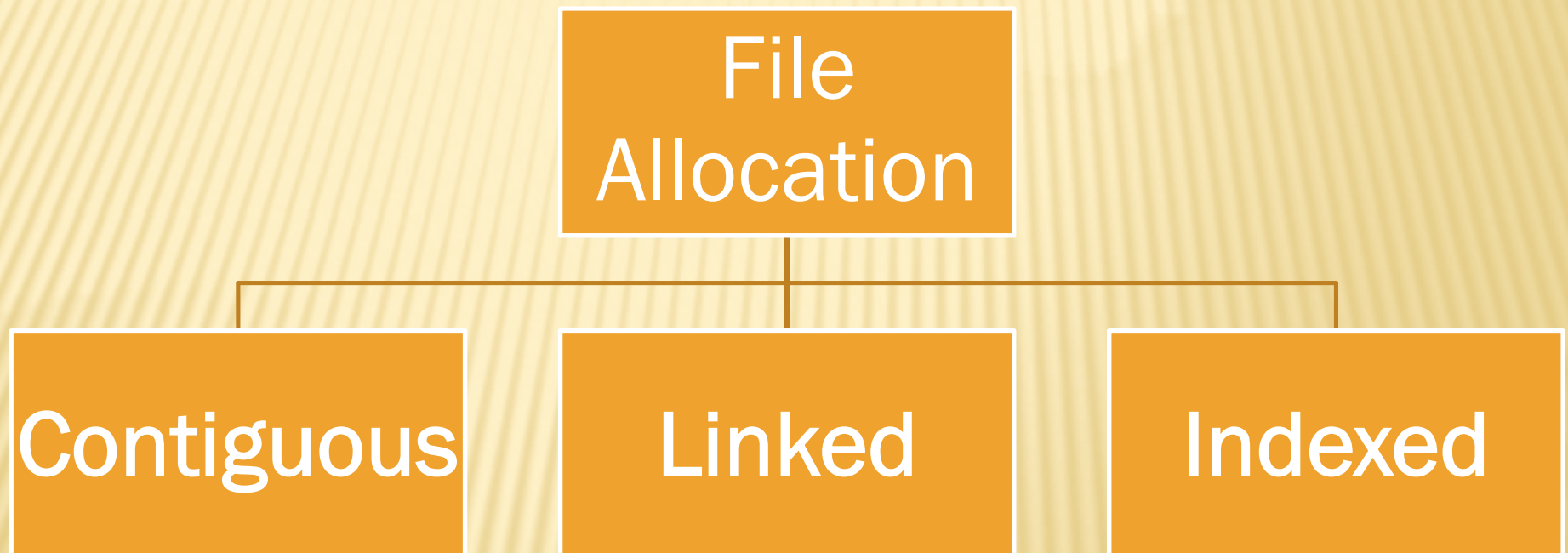


By Mohamed Loey

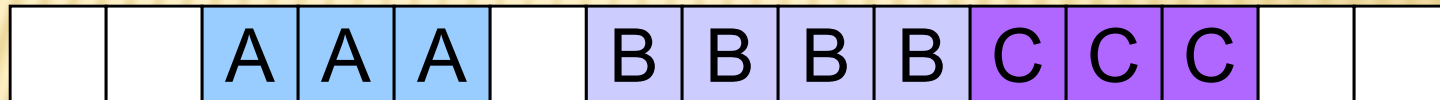
FILE ALLOCATION & SPACE MANAGEMENT

FILE ALLOCATION TYPES

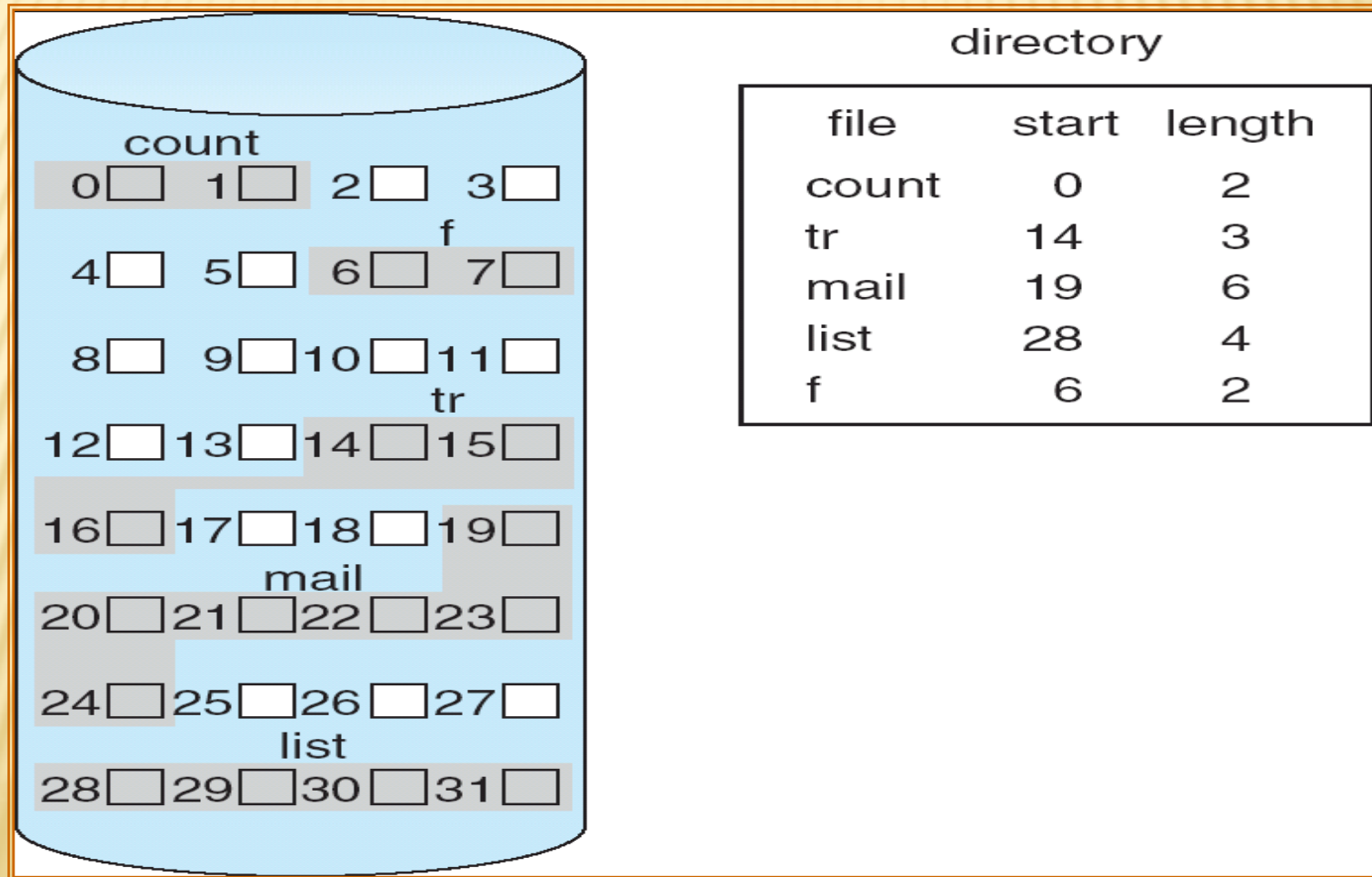


1.1 CONTIGUOUS ALLOCATION OF DISK SPACE

- ✘ Allocate each file to contiguous blocks on disk

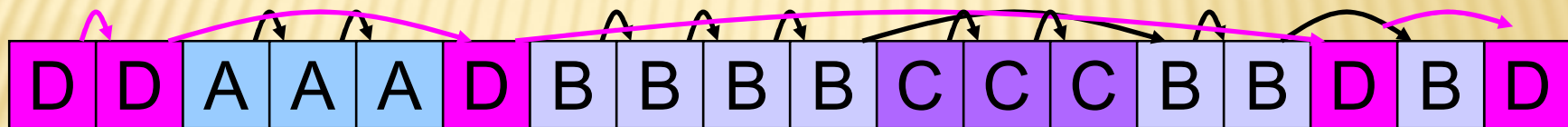


1.1 CONTIGUOUS ALLOCATION OF DISK SPACE

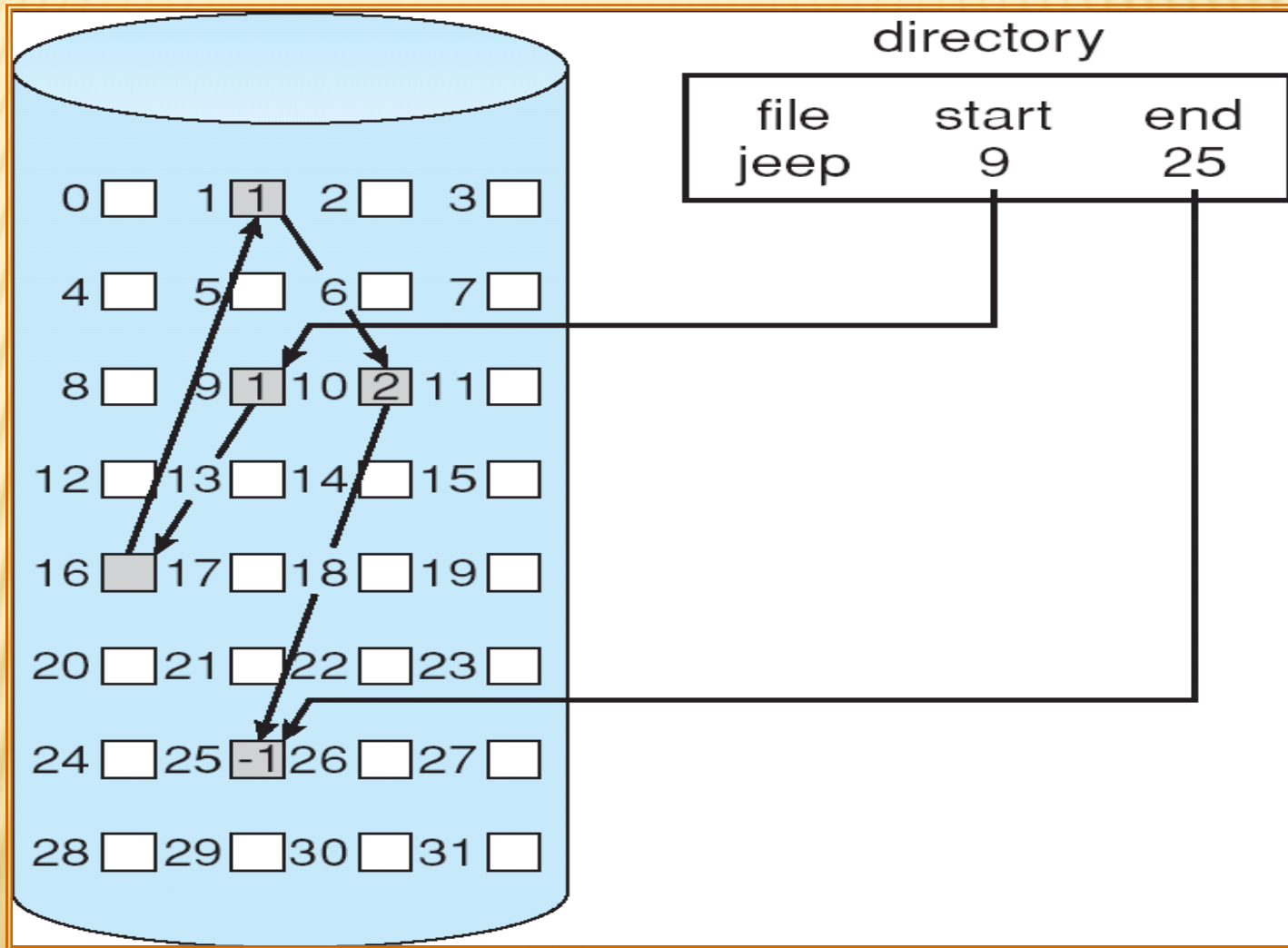


1.2 LINKED ALLOCATION

- ✘ Each file is a linked list of disk blocks: blocks may be scattered anywhere on the disk.

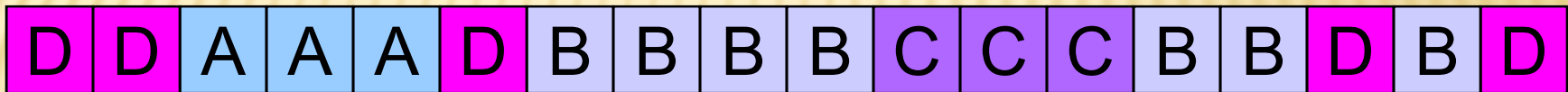


1.2 LINKED ALLOCATION

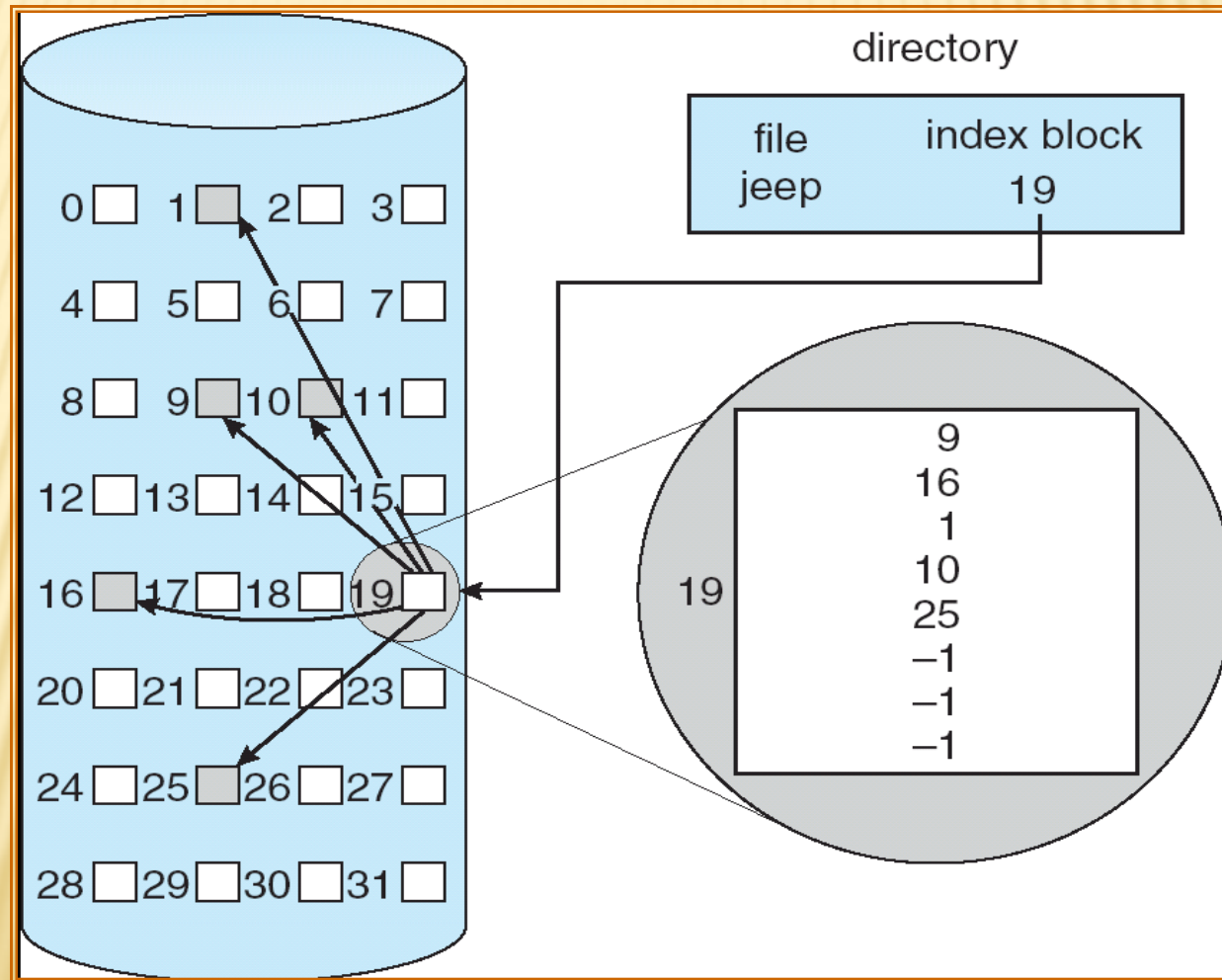


1.3 INDEXED ALLOCATION

- ✘ Brings all pointers together into the index block.



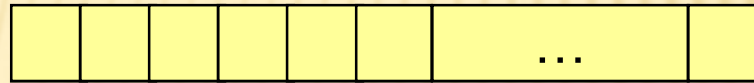
1.3 INDEXED ALLOCATION



2. FREE-SPACE MANAGEMENT



2.1 BIT-VECTOR

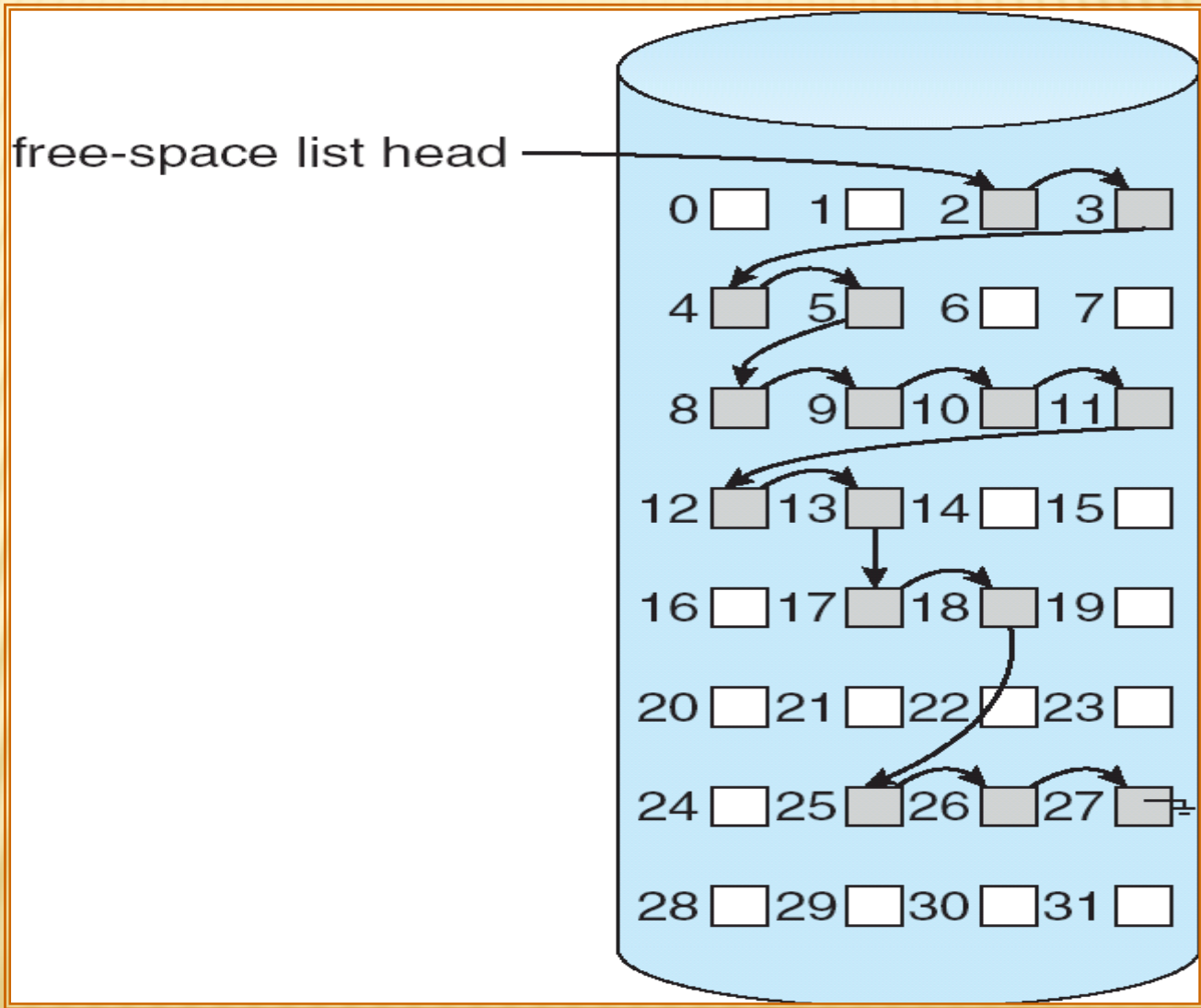


$$\text{bit}[i] = \begin{cases} 0 \Rightarrow \text{block}[i] \text{ free} \\ 1 \Rightarrow \text{block}[i] \text{ occupied} \end{cases}$$

2.2 LINKED LIST

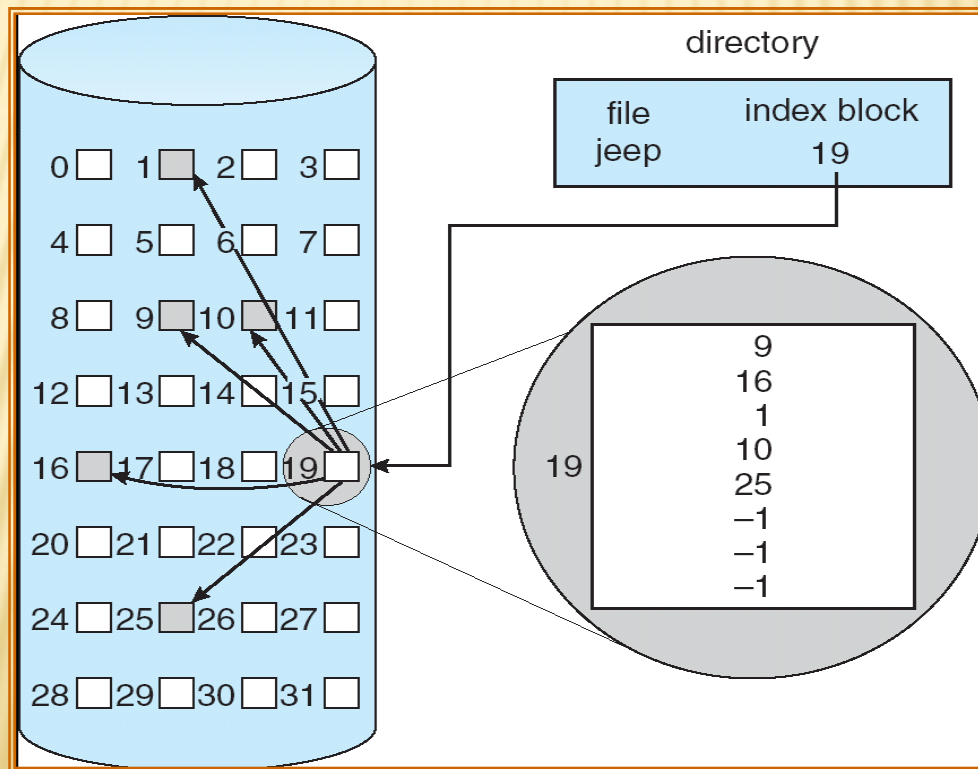
- ✘ link all the free disk blocks together, keeping a pointer to the first free block. This block contains a pointer to the next free disk block, and so on.

2.2 LINKED LIST



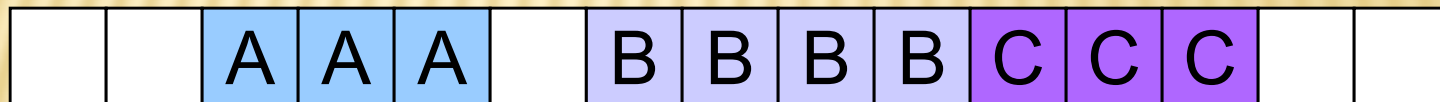
2.3 GROUPING

- ✘ Store the addresses of n free blocks in the first free block.



2.4 COUNTING

- ✗ The address of the first free block is kept and the number n of free contiguous blocks that follow the first block.
- ✗ List then consists of a disk address and a count.



(2,2)
↙ ↘
Start Length

Thank U