

## Chapter 12 - File-system Implementation

- Access to disks in terms of blocks
- Blocks may be read, modified and written back
- Lowest level: device drivers
- Basic operations in terms of blocks
- Organization achieved by storing data in blocks
- Logical system implements structures to organize files

1

## Chapter 12 - Contiguous Allocation

- Blocks are allocated contiguously
- Efficient: limits movement of disk heads
- Allocation strategies: Best fit and first fit
- External fragmentation
- Compaction required
- Disadvantage: Expensive to support dynamic growth of files

2

## Chapter 12 - Linked Allocation

- Solution for contiguous allocation
- Every block contains pointer to next block
- Disadvantage: Direct access is expensive
- Variation: FAT (File Allocation Table)
- FAT uses single table containing all links

3

## Chapter 12 - Indexed Allocation

- Solution to better support direct access
- Index block associated with every file
- Disadvantage: Blocks are wasted when working with small files
- Unix systems: i-nodes

4

## Chapter 12 - Managing Free Space

- Bit vectors
- Linked lists
- Grouping
- Counting