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FACULTY OF ENGINEERING & TECHNOLOGY

BCS-501 Operating System

Lecturer-30

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File System

- File Types
- File Structure
- Sequential-access File
- Access Methods
- Simulation of Sequential Access on Direct-access File

File Types

file type	usual extension	function
executable	exe, com, bin or none	ready-to-run machine-language program
object	obj, o	compiled, machine language, not linked
source code	c, cc, java, pas, asm, a	source code in various languages
batch	bat, sh	commands to the command interpreter
text	txt, doc	textual data, documents
word processor	wp, tex, rtf, doc	various word-processor formats
library	lib, a, so, dll	libraries of routines for programmers
print or view	ps, pdf, jpg	ASCII or binary file in a format for printing or viewing
archive	arc, zip, tar	related files grouped into one file, sometimes compressed, for archiving or storage
multimedia	mpeg, mov, rm, mp3, avi	binary file containing audio or A/V information

File Structure

- None - sequence of words, bytes

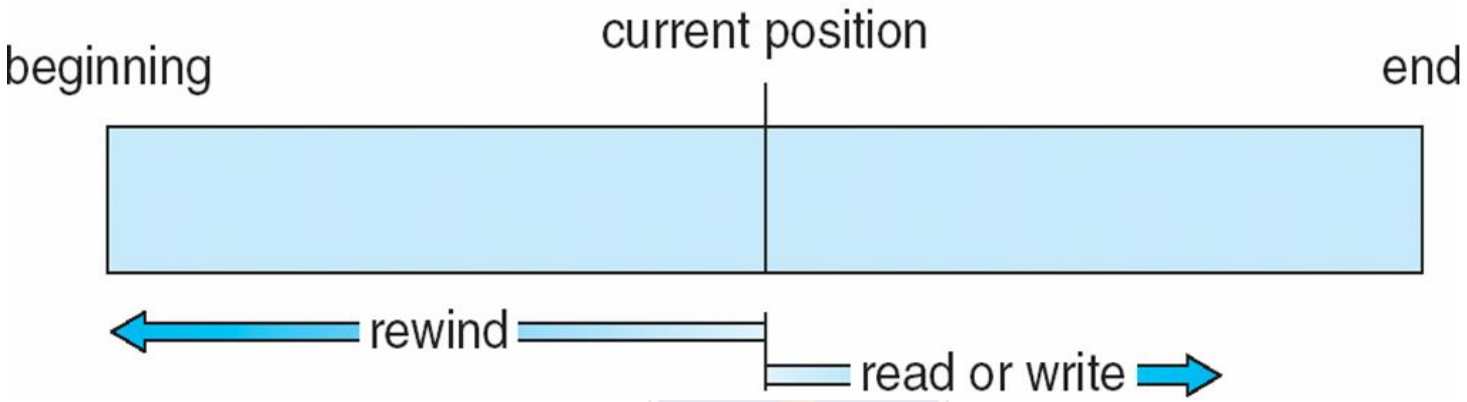
- Simple record structure
  - Lines
  - Fixed length
  - Variable length

- Complex Structures
  - Formatted document
  - Relocatable load file
  -

- Can simulate last two with first method by inserting appropriate control characters

- Who decides:
  - Operating system
  - Program

Sequential-access File



Access Methods

Sequential Access

read next
write next
reset
no read after last write
(rewrite)

Direct Access – file is fixed length logical records

read *n*
write *n*
position to *n*
read next
write next
rewrite *n*

n = relative block number

Relative block numbers allow OS to decide where file should be placed
See allocation problem

Simulation of Sequential Access on Direct-access File

sequential access	implementation for direct access
reset	$cp = 0;$
read next	*read cp*; $cp = cp + 1;$
write next	*write cp*; $cp = cp + 1;$

MCQ

A …… on free space management has the advantages that it relatively easy to find one or a contiguous group of free blocks.
A) Bit table
B) Chained Free Portion
C) Indexing
D) Free Block List

In …….. method, the file allocation table contains a separate one level index for each file, the index has one entry for each portion allocated to the file.
A) Chained allocation
B) Indexed allocation
C) Contiguous allocation
D) Variable allocation

……. are often used where very rapid access is required, where fixed length records are used, and where records are always accessed one at a time.

A) Indexed files
B) Direct files
C) Sequential files
D) Indexed Sequential files

…….. is a preallocation strategy, using variable size portions where the file allocation table needs just a single entry for each file, showing the starting block and the length of the file.
A) Chained allocation
B) Indexed allocation
C) Contiguous allocation
D) Variable allocation

Typically, …… is on an individual block basis where each block contains a pointer to the next block in the chain.
A) Chained allocation
B) Indexed allocation
C) Contiguous allocation
D) Variable allocation