



Sheet11 FILE MANAGEMENT

- 1) What is the difference between a field and a record?
- 2) What is the difference between a file and a database?
- 3) What is a file management system?
- 4) What are typical operations that may be performed on a directory?
- 5) What is the relationship between a pathname and a working directory?
- 6) What are typical access rights that may be granted or denied to a particular user for a particular file?
- 7) List and briefly define three file allocation methods.
- 8) One scheme to avoid the problem of preallocation versus waste or lack of contiguity is to allocate portions of increasing size as the file grows. For example, begin with a portion size of one block, and double the portion size for each allocation. Consider a file of N records with a blocking factor of F, and suppose that a simple one-level index is used as a file allocation table.
 - a) Give an upper limit on the number of entries in the file allocation table as a function of F and N.
 - b) What is the maximum amount of the allocated file space that is unused at any time?
- 9) Ignoring overhead for directories and file descriptors, consider a file system in which files are stored in blocks of 16K bytes. For each of the following file sizes, calculate the percentage of wasted file space due to incomplete filling of the last block: 41,600 bytes; 640,000 bytes; 4,064,000 bytes.
- 10) What are the advantages of using directories?
- 11) Directories can be implemented either as “special files” that can only be accessed in limited ways or as ordinary data files. What are the advantages and disadvantages of each approach?
- 12) Some operating systems have a tree-structured file system but limit the depth of the tree to some small number of levels. What effect does this limit have on users? How does this simplify file system design (if it does)?

How to submit the homework assignments?

- Solve the sheet individually without looking up the solution on the Internet. The sheet is to practice; it is a learning tool not an exam.
 - Assignments are to be **handwritten**.
 - Papers are to be scanned (I like camscanner app). Put all images in a pdf file (camscanner does that for you)
 - Use MS Teams to submit
 - o Your filename should be your user id
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