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CHAPTER: 11

LAB: Lab 11

ANIMATED FLASHCARDS

1. Absolute path

2. Binary file

3. Direct file access

4. Directory

5. Directory tree

6. Disk scheduling

7. File

8. File extension

9. File system

10. File type

11. Path

12. Relative path

13. Root directory

14. Sequential file access

15. Text file

16. User name

17. Working directory

BOOK EXERCISES

1. A

2. A.

3. A

4. B

5. B

6. A

7. A

8. A

9. A

10. B

11. B

12. A

13. A

14. A

15. B

16. B

17. C

18. A

19. E

20. D

21. B

22. A

23. C

28. Text files: Files that contain text. Each byte is an ASCII character or each 2 types is a Unicode character. Binary files: The bytes in a binary file do not necessarily contain characters and require a special interpretation.

29. All files ultimately are just a collection of bits, so why call one file type “binary?” In a binary file, the bits are not interpreted as text. A binary file would just be a stream of uninterpreted bits unless there is an interpretation provided. If a binary file is printed without interpretation, it looks like garbage.

30. A file type is a description of the information contained in the file. A file extension is a part of the file name that follows a dot and identifies the file type.

31. It depends on what application program you use to open the file. If you use a program that expects an image file, you would get an error. If you use a program that expects a text file, there would be no problem.

34. The operating system keeps a table of currently open files. The open operation enters the file into this table and places the file pointer at the beginning of the file. The close operation removes the file from the table of open files.

35. Truncating a file means that all the information on the file is erased but the administrative entries remain in the file tables. Occasionally, the truncate operation removes the information from the file pointer to the end.

36. Both sequential and direct file access find and access a record. In sequential access, the file pointer begins at the beginning of the file and can only move in one direction. Thus sequential access is linear: The only record that can be accessed is the first or the one immediately following the last one accessed. In direct access, the file pointer can be moved to any specific record and the data accessed from that place.

37. a. How could you implement sequential access on a disk?

Sequential access always accesses the next record. You implement sequential access on a disk by not giving the user an access command that takes a record address as a parameter.

b. How could you implement direct access on a magnetic tape?

Each record on a magnetic tape is conceptually numbered from the first to the last. Keep a counter of which record was read last. When a user gives an access command to read a specific record, if the record number is beyond the last record read, then records are read and skipped until the correct record is found. If the record number comes before the last record read, the tape is rewound and records are read and skipped until the correct record is found.

38. A file protection mechanism is one that an operating system implements that ensures that only valid users can access a particular file.

39. Unix implements file protection by associating with each file a 3x3 table in which the rows are Owner, Group, and World, and the columns are Read, Write/Delete, and Execute. The contents of each cell in the table are boolean values meaning yes and no. For example, a yes in the cell (Owner, Execute) means that the owner of the file can execute it. A no in the cell (World, Write/Delete) means that permission to write or delete a file is not granted to anyone that is not the owner of the file or within a specified group. (Group is a list of those considered part of the group.)

40.

a. Who can read the file? Anyone can read the file.

b. Who can write or delete the file? The owner and members of the group can write or delete the file.

c. Who can execute the file? Only the owner can execute the file.

d. What do you know about the content of the file? Because the owner has permission to execute the file, it must contain an executable program

41. A directory must contain the file name, the file type, the address on disk where the file is stored, the current size of the file, and permission information.

44. Working directory

45. A path is a text string that specifies the location of a file or subdirectory.

46. An absolute path is a path that begins at the root directory and includes all successive subdirectories. A relative path is a path that begins at the current directory and includes all successive subdirectories.

51. Transferring data to and from secondary memory is the worst bottleneck.

52. Seek time (the time to find the correct cylinder) is more time consuming than locating which track or which sector, so seek time is the time to minimize.

53. First-come, first-serve (FCSC): The requests are handled in the order in which they are generated. Shortest-seek-time-first (SSTF): The request closest to the read/write heads is handled next.

SCAN: The read/write heads move back and forth handling the closest in the direction in which they are moving.

LAB EXERCISES

3. 38 seconds

4. 13 seconds. It started in the middle, then went to the top, then went to the bottom.

5. 14 seconds. It started in the middle, then went to the bottom, then went to the top.

6. Shortest Seek Time took the least time.

7. To consume the most time, the order of the numbers would have to alternate between the lowest and the highest. This would cause it to continuously go from top to bottom and back.