Quiz FS - OS 232- Spring 2016

April 10, 2016

1. Why do we need a file system and where it is used??

   to manage permanent storage

2. What is the difference between logical and physical blocks???

   Logical blocks are chunks by which a OS is retreiving data. Physical blocks are chunks of physical space on hard disk.

3. What is the difference between the main memory and the hard disk? Name at least two.

   permamenent vs. temporary, size, speed of access,

4. What is an executable binary file?

   It is a file that the OS can execute, i.e. a file that is already linked to the OS's native libraries, it is compiled to to the computer architecture and the OS recognizes its format so it can be directly run.

5. What is Random Access?

   A mode allowing to access storage medium either in sequential mode or by searching blocks by value, tag or so.

6. What is MBR and what does it do?

   Master boot record and it contains the partition table

7. What is located on the first block of each partition??

   Boot block

8. What is continuous file allocation?

   It is a method to allocate files in continnuous sequence of physical blocks so that to read a file only initial physical address and the number of blocks of this file are required.

9. What is LLA?

   Linked-List Allocation - method that allocates file by a set of linked blocks: each block contains data and a link (address) to the next block.

10. How does FAT works and what is the main disadvantage of FAT approach?

    FAT represents the physical harddisk by a table where every physical block has an entry and indicates what file it belongs to. Disadvantage is that the whole table has to be read into memory and thus when disk gets bigger more memory has to be dedicated to FAT.

11. What does an i-node contains???

    I node contains physical addresses of blocks that belong to the given file in addition to attributes and other required information about the file.

12. What does contain an i-node of a directory??

    File list, atrtibutes of each file

13. Describe how does LFS reduces the overhead of many short writing actions on the hard disk?

    Log-File system maintains a log or more precisely writes everything to a log instead to the harddisk. When a threshold of amount of operation is reached all the operations written into the log are executed to the harddisk.

14. What is a journal and how is it used in JFS?

    JFS keps a journal that records all operations to a journal. Then the execution come. If all operations have been executed properly the records are erased from journal.

15. What is the linked-list method keeping track of free blocks?

    iIt is a method where a linked list of physical blocks are used to keep the addresses of free blocks on the harddisk.

16. Describe how consistency checking algorithm works and give example of one inconsistency and how it will be handled by the consistency check algorithm.

    Consistency checking cvuilds two tables: one for the blocks that are free and one for the blocks that are used in files. Then it checks for every physical block and determines if it is used (it marks one in the used block table) or if it is free (mark one in the free block table). If for instance a block is not marked free or used it will be arked automatically free by the consistency checking algorithm.