

# Quiz

Dec 11, 2024

Which of the followings is/are true about page replacement policies?

- ☐ A LRU is always better than FIFO in terms of page fault numbers, whichever reference string is considered.
- ☐ B MIN is always better than LRU in terms of page fault numbers, whichever reference string is considered.
- ☒ C When approximating LRU with reference bit, the reference bits are set by the CPU and cleared by the OS.
- ☒ D The  $N^{\text{th}}$  chance clock algorithm is a good approximation of LRU, if  $N$  is large enough.

提交

填空题 2分



If memory access latency is 500ns, and the page fault handling time is 5ms, if the effective access time leads to a slowdown of less than 100%, the page fault rate is approximately [填空1] % .

作答

In an inode file system, each inode has 256 bytes, with 10 direct block pointers, 2 single indirect block pointers, and 1 double indirect block pointers. A block pointer takes 8 bytes. The block size is 8KB. Which of the followings is/are correct

- ☒ A The maximum size of a file in this file system is roughly 8GB.
- ☐ B The maximum size of a file in this file system is roughly 1GB.
- ☒ C The maximum size of the file system is roughly  $2^{77}$  B.
- ☐ D The maximum size of the file system is roughly  $2^{64}$  B.

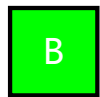
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Which of the following(s) is/are true about hard links and soft links in an iNode file systems?



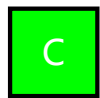
A

A hard link is a directory entry pointing to the iNode of an existing file.



B

A symbolic link creates a new inode, with the path to the target file in its inode or data block.



C

Deleting the target file makes the soft link invalid.



D

Deleting the target file does not affect the soft link.

提交

Which of the following(s) is/are true about FAT file systems and ext2/3 file systems?

- ☐ A FAT32 file system stores the file name in the FAT table and the file attributes in the directory entries.
- ☒ B Ext2/3 file system stores the file name in the directory entries, and the file attributes in the inode.
- ☒ C FAT32 stores file names and attributes in the directory entries.
- ☐ D Ext2/3 stores file names and attributes in the inodes.

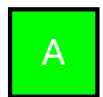
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Which of the following is/are true about safe state and deadlock state?

- ☐ A If the system is in an unsafe state, it must also be in a deadlock state.
- ☐ B If the system is in an unsafe state, there must be circular wait.
- ☒ C If the system is in a safe state, it cannot be in a deadlock state.
- ☒ D If the system is in a safe state, it may transit to a deadlock state in the future.

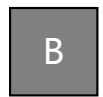
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Which of the following is/are true about deadlock prevention and deadlock detection?



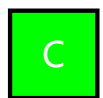
A

Banker's algorithm is a deadlock prevention algorithm that ensures there is no circular wait in the system.



B

Banker's algorithm impose a total ordering of all resource types, and require that each process requests resources in an increasing order.



C

Deadlock detection requires proper deadlock handling, which is challenging in practice.



D

Resource allocation graph can be used for deadlock detection, because circular wait always means deadlock.

提交