

Hands-on 1

Recall the naming layer of Unix version 6 file system you have learned in the class and answer the following questions.

1. Block layer is a mapping from block number to block data, how to know the size of a block, and how to know which block is free?
2. What will happen if the block size is too small? What if it is too big?
3. Suppose the size of a block pointer is 4-byte, the size of one block is 128-byte, an inode contains 1 triple indirect block, 3 double indirect blocks, and 28 indirect blocks. How many data blocks can an inode hold? What if the block size is 256-byte? (You can answer this question in the form of $(512 * 512 * 128) / (4 * 1024)$)
4. Suppose your file system contains a large number of small files, and the block size is 512-byte and the block size is unchangeable, please redesign the file system to well support this case.
5. How to avoid cycle for link? Can you think of one of more methods other than the method mentioned in class?

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before the deadline.