

# SOFT400227: Operating System 2022-Fall

## Homework-8 Solutions

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**Honor Code: I promise that I finished the homework solutions on my own without copying other people's work.**

## File System

### 10.1

If the link still exists after the file it points to and a user try to access the file by it, he will access the wrong place. This illegal access will lead to serious result like change the wrong content.

The way to solve the problem is when deleting the file, delete all link to it as well. Also, we can maintain a reference variable to record the link to the file so that if a link is deleted and the file has more than one link, the file system only delete the link and decrease corresponding reference.

### 11.1

Contiguous allocation scheme

	advantages	disadvantages
a	simple: a bit map/a free list	not flexible
b	flexibility	external fragmentation, complexity
c	each size has a bit map/free list intermediate complexity and flexibility	

### 11.2

Users can access the certain block of the file without loading the blocks before it to memory while it can still flexibly expand its size.

### 11.3

a.

4.

Firstly get the block of root directory, secondly get the block of a (directory), thirdly get the block of b, eventually get the pointer to c.

b.

Save the pointer in the disk and refresh after an interval of 8 fixed time.

## Other things

L<sup>A</sup>T<sub>E</sub>X code refer to these things and was complied on texlive2020.

- [UCB-CS70's given homework template.](#)
- [A free website useful to edit L<sup>A</sup>T<sub>E</sub>X formula code.](#)
- [A free website helpful to generate L<sup>A</sup>T<sub>E</sub>X table.](#)

Some description refer to *Operating System Concepts 10th*, [Wikipedia](#) and Professor.Tian's PPT.

The purpose of writing in English is to adapt to bilingual teaching and to improve my poor English writing skills in preparation for a possible future exchange program.

Thanks for your correcting and grading :).