

CSE 542 Home work assignment 2

Assigned: Thu, Nov 18

Due: Thu, Dec 2, 11:00AM

Late submissions will not be accepted

Individual effort

1. (From Tannebaum Chapter 9-17) When a file is removed, its blocks are generally put back on the free list, but they are not erased. Do you think it would be good idea to have the operating system erase each block before releasing it? Consider both security and performance factors in your answer, and explain the effect of each.
2. Flash memory is frequently used as a persistent storage medium in mobile and embedded devices. Flash devices exhibit several unique characteristics:
 - a. Flash memory is organized into blocks of memory (e.g. 128 KB). Writing or updating can only be performed at the block level. Each block has to be erased and written as a single whole block. It is not possible to write individual data bytes.
 - b. The flash devices have restrictions on the number of times such write operations can be performed (e.g. 100000 for the entire life of the device).
 - c. Erasing and writing new data are slower processes compared to reading data.
 - d. Typical mobile devices can be powered off at any time without prior warning because of battery concerns

Describe the important modifications that you would make to a mobile file system to operate effectively with flash storage. Justify (your solution should address all the concerns mentioned above)

3. Exercise 9.9 (text book)
4. Exercise 10.3 (text book)
5. Exercise 10.17 (text book)
6. Exercise 16.2 (text book) – answer with respect to traditional NFS and AFS.
7. Exercise 16.5 (text book)
8. Exercise 17.7 (text book)
9. Exercise 18.12 (text book)
10. Exercise 18.14 (text book)