

Virtual Memory

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Part I

1. True or False: the following data structures and algorithms work better with LRU than with FIFO.
 - a. Repetitive binary tree operations
 - b. Quick sort over a large array
 - c. Sieve of Eratosthenes using a large array
2. Are there any other examples of scenarios that would work better with LRU than with FIFO?

Part II

1. Assuming a physical memory of four page frames, give the number of page faults for the reference string 1,2,6,1,4,5,1,2,1,4,5,6,4,5 for each of the following replacement algorithms. (Initially, all frames are empty.)
 - a. OPT
 - b. FIFO
 - c. Second-chance
 - d. LRU
 - e. Working Set with $\delta=3$ (A page not referenced within δ will be paged out.)

Other Problems

1. Solve Exercise 9.7 of your textbook ("Consider the two-dimensional array A: ...")
2. Solve Exercise 9.28 of your textbook ("Consider a demand-paging system with the following ...")