

# 操作系统 作业 9

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27. (a) Because every reference will page fault unless the number of page frames is large enough to cover the entire sequence.  
(b) Random replacement works.
36. (a) NRU replaces page 2. (b) FIFO replaces page 3. (c) LRU replaces page 1. (d) Second chance removes page 2.
38. Fragment B. The inner loop causes one page fault for every other iteration of the outer loop, yielding 32 page faults. For fragment A, we're accessing consecutive rows in each column, and a page fault occurs every other reference, so the total number of page faults is  $64 \times 64 / 2 = 2048$ .
28. The page frames for FIFO: x0172333300, xx017222233, xxx01777722, xxxx0111177; for LRU, x0172327103, xx017232710, xxx01773271 and xxxx0111327. FIFO yields six page faults, while LRU, seven.
33. (a) 时钟中断用于定期修改时间戳，在时间中断发生时，系统会检查所有 R 位为 1 的页，将其 R 位清零并将时间戳更新。  
The timestamps for Page 1 and 2 will be updated to 10, with their R-bits cleared.  
(b) 题目缺两个条件，一是可分配页框总数，二是指针的初始位置。假设页框数为 4，指针位于 page 3，向下移动。  
第 3 页的 V 位清零，第 4 页的 V 和 R 位置 1，时间戳更新为 10。