

LRU (Least Recently Used) is a page replacement algorithm used in computer operating systems and virtual memory management. The LRU algorithm aims to reduce the number of page faults by replacing the least recently used page in memory with the newly requested page.

The LRU algorithm works by keeping track of the usage history of each page in a cache or page table. When a page fault occurs and there is no free space in memory, the operating system identifies the least recently used page and replaces it with the requested page.

The LRU algorithm assumes that pages that have been used recently are more likely to be used again soon, and thus prioritizes keeping these pages in memory. This approach can improve system performance by reducing the number of page faults and minimizing the amount of time spent swapping pages in and out of memory.

One of the main advantages of the LRU algorithm is that it is relatively easy to implement and requires minimal overhead. However, it may not always provide the optimal page replacement strategy, as it is possible for the least recently used page to be the most important or frequently used page.

To address this issue, variations of the LRU algorithm have been developed, such as the CLOCK algorithm, which uses a circular list to keep track of page usage, and the OPT algorithm, which replaces the page that will not be used for the longest time in the future.

In summary, the LRU algorithm is a simple and effective page replacement algorithm that can improve system performance by reducing the number of page faults. However, it may not always provide the optimal page replacement strategy and may require modifications or alternative algorithms for specific use cases.

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Write a short note on LRU algorithm ?

46. Compare and contrast DMA and I/O processors ?
47. Define the following: a) Flynn's taxonomy b) Replacement algorithm
48. Explain the various pipeline vector processing methods ?
49. Describe the language features for parallelism ?
50. What are different addressing modes? Explain them.
51. Explain any page replacement algorithm with the help of example ?
52. What is mapping? Name all the types of cache mapping and explain anyone in detail.
53. Explain arithmetic pipeline ?
54. Write short notes on, a) SIMD, b) Matrix multiplication c) Instruction format
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