Synopsis

Operating System and System Programming

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Implementation and Performance comparison of four disk scheduling algorithms

Hard disks are being used to store huge information data in all modern computers. Disk drives are required to provide faster access time in order to optimize performance in terms of speed of I/O operations. In multitasking system where we are require to run many processes, disk performance can be improved by using different type of scheduling algorithm for maintaining given number of pending requests in the disk queue.

In This Assignment we are going to do a performance analysis of four disk scheduling algorithms (FCFS, SSTF, LOOK for both upward and downward direction, and C-LOOK) to measure their performance in terms of total head movement. Developed simulator runs successfully in a multiprogramming environment and the tabulated results demonstrate that LOOK (downward direction) algorithm provides the best results for given test samples due to reduction of a large number of unnecessary head movements. Several wild swings are experienced by FCFS scheme because it gives the worst scheduling performance. SSTF is much better compared to LOOK (upward direction) and C-LOOK. It has also been noticed that LOOK is more efficient than C-LOOK at all loads whereas C-LOOK is better at high loads only because it reduces starvation problem. Performance of each algorithm heavily depends on the number and type of requests.