Dynamic Time Quantum based Round Robin CPU Scheduling Algorithm

Abstract

In multiprogramming environment, CPU scheduling is the process to determine the most efficient way to service the requests of the processes waiting in the ready queue to be executed. The CPU scheduling algorithms focus on maximizing CPU utilization by minimizing waiting time, turnaround time and number of context switches for a set of processes. In time shared systems the preferred choice is Round Robin (RR) CPU scheduling in which performance of the system depends on the choice of the time quantum. This paper presents a dynamic time quantum based Round Robin CPU scheduling algorithm to enhance the CPU performance using the features of an Improved Round Robin (IRR) and an improved Round Robin CPU scheduling algorithm with varying time quantum (IRRVQ). The experimental and simulation results show that the proposed algorithm is proven better than the RR, IRR and IRRVQ in terms of decreasing the average waiting time, average turnaround time and number of context switches.

References


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Index Terms

Computer Science

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Keywords

CPU Scheduling, Round Robin, Dynamic Time Quantum, Waiting Time, Turnaround Time