



An Advanced Mean Round Robin (AMRR), CPU Scheduling Algorithm

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ABSTRACT: The Round Robin (RR) CPU scheduling algorithm is an impartial scheduling algorithm that gives same time quantum to all processes. The selection of the time quantum is very critical as it affects the algorithm's performance. This paper suggests a new algorithm that improved on the Round Robin (RR) CPU scheduling algorithm. The proposed algorithm was implemented and benchmarked against other algorithms available in the literature. The proposed algorithm compared with the other algorithms, produces minimal average waiting time (AWT), average turnaround time (ATAT), and number of context switches (NCS). It also improves average response time. Built on these results, the proposed algorithm should be preferred over other scheduling algorithms for systems that adopt RR CPU scheduling.

KEYWORDS: CPU scheduling, RR and SJF Schedule Algorithms, Turnaround Time, Waiting Time, Response Time, Burst Time, Context Switching, Gantt Chart, Scheduling Criteria, Completion Time.



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I. INTRODUCTION

Multiprogramming is one of the most significant aspects of operating systems. Multiprogramming became possible when virtual memory concept was introduced to the computing world. The concept of multiprogramming depends on the capability of a computer to store instructions for long-time use. The objective is to decrease CPU idle time by allowing new jobs to take over the CPU whenever the presently running job needed to wait. Process scheduling is an important part of a Multiprogramming operating system. A CPU scheduling algorithms is used for better utilization of CPU. Main goal is to increase system performance in accordance with the chosen set of conditions. Here process's state changes from ready state to running state. CPU scheduler chooses from among the processes that are ready to execute and assigns the CPU to one of them. CPU scheduling is the core of multiprogramming systems. Maximum CPU utilization can be obtained by using multiprogramming. CPU scheduling can be more complex when multiple CPUs are available.

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