PERFORMANCE ANALYSIS OF AN M/M/1/K QUEUE WITH NON-PREEMPTIVE PRIORITY

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Abstract

This paper presents an analysis for an M/M//1/k queueing system with non-preemptive priority. The priority discipline followed may be either non-preemptive or preemptive in nature. When the priority discipline is non-preemptive in nature, a job in service is allowed to complete its service normally even if a job of higher priority enters the queue while its service is going on. In the preemptive case, the service to the ongoing job will be preempted by the new arrival of higher priority By using the Markov process method, we first develop the equations of the steady state probabilities. Next, we give some performance measures of the system. Finally, we present some numerical examples to demonstrate how the various parameters of the model influence the behavior of the system.

KeyWords : Preemptive and non-preemptive priority, Queueing system, Steady-state probability.