

## **An M/G/1 Queueing System with Two Phase Service under D-Policy**

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### **Abstract**

This paper deals with the steady state behaviour of an  $M/G/1$  queue with  $D$ -policy in which the server may provide an additional second phase of service. This model generalizes both classical  $M/G/1$  queue with  $D$ -policy as well as the  $M/G/1$  queue with classical waiting line and second optional service. We carry out an extensive analysis for the queue size distributions at different epochs. The existence of the stochastic decomposition property is also demonstrated for this model.

*Keywords:*  $M/G/1$  Queue, Two Phase Service, Steady State Probabilities,  $D$ -Policy, Stochastic Decomposition.