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A simulation on optimizing the performance of a bank pawning centre: a case study

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Customer perception towards a quality service drives customer satisfaction. Long waits or queues involve as a common phenomenon in customer dissatisfaction. The banking system is one of the critical service options where the customer waits are presented. The paper aimed at identifying the customer waits and the service receiving times to improve the performance of a selected bank pawning centre. This study considered queue length and waiting time as two significant factors to develop a simulation model to the system. The sample included 100 observations done in three days. The data were recorded based on customer behaviour and measuring time for each activity in pawning centre waiting lines. The customers were served as First in First out (FIFO) basis. Therefore, the single-server queuing system was modelled with the finite room size and infinite population. The student version of Rockwell ARENA 14.5 was used to develop the simulation model and to analyse data. The Input Analyser revealed distribution patterns for inter-arrival times and service times for both to be Lognormal. Further, the results were explained 15.45 minutes of average waiting time in the queue, 23.82 minutes of total time spent by the customers in the system and approximately 4 customers waiting in the queue. Recommendations were defined under four possible improvements. They were increasing resources at the pawning centre, opening another pawning counter, increasing resources in two counters or increasing resources in counters per once. Among defined recommendations, the optimized and economically feasible model was found as increasing counter 1 resources whereas counter 2 remaining the same. The optimized model showed zero average waiting time in the queue and reduced total time spent by the customer in the system to 6.29 minutes. Identified recommendation revealed zero waiting time in both counters. Thus, implementing multi-tasking counters are put forward to improve the situation for further researches.

Keywords: FIFO, Lognormal distribution, Pawning center, Rockwell ARENA, Single-server queuing system