Analyzing the Service Performance of Gampaha Railway Ticket Counters by Simulation: A Case Study

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Waiting at ticket counters at railway stations is a typical act of the passengers in busy hours. Intending to reduce disappointments and obstructions over the opportune transportation of travellers, this investigation chose a ticketing section at Gampaha railway station in the Western Province, Sri Lanka, focusing on improving its administration execution. The investigation chose two ticket counters issuing tickets towards Colombo Fort and noticed one hour from 6.00 a.m. to 7.00 a.m. of continuous five workdays. The sample was 600 passengers. The separate occasions were then recorded and demonstrated as a multi-server queueing system using Rockwell ARENA 16 software. The input analyzer showed the inter-arrival time followed by BETA distribution. The existing system resulted those 74 passengers left the counters after being served among 83 successive arrivals per day. The performance was identified with the percentage of passengers served as 89.15%. The average waiting time of passengers in a queue near counters 1 and 2 were 2.83 and 3.72 in minutes respectively. Further, the number of passengers waiting at counters 1 and 2 were 1.79 and 2.70 respectively. Since the existing system has shown a low performance, the study recommended adding one more counter since there already exists one shut counter there. The study resulted that adding another ticket counter could diminish waiting time at counters 1, 2, and 3 to 1.05, 0.57 and 0.82 respectively. Hence by opening that shut counter could improve the service execution with the percentage of passengers served to 96.39% in this railway station.

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