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**A simulation on performance improvement at a university cafeteria:  
a case study**

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Universities are the foremost service providers of education in Sri Lanka. It necessitates the fleetness in the service provision at the premises. University cafeterias take a prominent place in which time intensity is at the highest. Tight schedules and the higher demand during meal times have led to customer dissatisfaction and brand switching. University cafeteria for the study was the main cafeteria for the resident students. The cafeteria served several types of food and handled payments from a single counter. It has long waiting lines and less service efficiency especially during the rushed meal times. The objective of this study was to identify the necessary practices in improving the performance of the cafeteria. Primary data on the arrival times and the service times were collected during the rushed meal times in the cafeteria on weekdays. The data collection was carried on for two weeks. It was assumed that the customers arrived independently and randomly, customers were served in the First-In-First-Serve (FIFS) basis and no customer left without being served. Inter-arrival and service times were calculated from the data. From all customers visiting the cafeteria a sample of 100 were selected. It was fed to obtain the probability distributions from the Rockwell ARENA tool, Input Analyser. The existing process of the cafeteria was modelled on ARENA 14.5 version and the waiting time at the queue was identified to be 3.30 minutes. The modelled operations showed a 93.4 percent serving at the cafeteria per hour. The study developed two performance improvement models. They were to increase the service rate by two-fold and to introduce another counter for the system. The developmental models showed a decrement in the waiting times for the service rate increment but not the additional counter. Thus the service rate increment was accepted as the most appropriate alternative. Waiting time of the chosen alternative was 0.83 minutes and a reduction of 74.84 percent in the waiting times. The serving of the alternative would be 100 percent per hour. It also reduced the total time in the system from 4.81 to 1.32 minutes. The study recommended the performance improvement of the cafeteria by increasing the service rate at the counter. Further it was suggested to standardize the operations and separate the food serving and payment handling at the counter.

**Keywords:** ARENA simulations, Modelling, Performance of university cafeteria, Waiting lines, Waiting times