Assignment-1

Single-Server Queueing System

In this assignment, you have to simulate a Single-Server Queueing System to calculate its various measures of performance.

Input

You should take inputs from a text file. The file would contain 3 space-separated numbers *A, S, N* denoting the mean inter-arrival time, the mean service time and the total number of delays required for the customers to stop the simulation, respectively.

Output

There would be two output files, namely *"event_orders.txt"* and *"results.txt"*. The first one would display the events selected in order of occurrence along with the number of customers delayed whenever a delay is encountered. The second file would show the measures of performance, i.e. the Average Delay in queue, the Average Number of Customers in the queue and the Average Server Utilization.

See the attached I/Os for further clarification.

Note: You must use the Prime Modulus Multiplicative Linear Congruential Generator (ref. Appendix 7A: Page 419 from Averill Law Book) to generate the random variates.

Submission Deadline: December 8, 2023; Friday 11:55 PM