Online (A)
Multi-Server Queueing System

Time: 30 minutes

Make necessary changes to your M/M/1 assignment codes to simulate an M/M/s (A Queueing System with a single queue and *s* parallel servers) system. Whenever any of the s servers is IDLE, a customer can readily start taking the service. When all of them are BUSY, only then a customer enters the queue.

Input

The input file would contain 4 space-separated numbers *s, A, S, N* denoting the number of servers, the mean inter-arrival time, the mean service time and the total number of delays required to stop the simulation, respectively. All the servers are assumed to have the same mean service time, *S*.

Output

The output files are the same as those of the Offline Assignment.
(While calculating the Average Server Utilization, whenever any one of the Servers is in BUSY state, count it towards server utilization. When all of them are IDLE, no utilization will be counted)

See the attached I/Os for further clarification.