Brief Report on Simulation Results

Methodology:

The simulation conducted in this analysis focuses on customer service processes. The data captures essential parameters for each customer, including interarrival times, arrival times, service times, waiting times, and time spent in the system. The following key steps summarize the methodology used:

Interarrival and Arrival Times: Customers arrive at a service point, with their interarrival times recorded. The arrival time for each customer is the sum of the interarrival time and the arrival time of the previous customer.

Service Start and End Times: The service start time is determined based on the customer's arrival time or when the server becomes available. Service end times are calculated by adding the service duration to the service start time.

Waiting Time and Time in System: Waiting time is the difference between the service start time and the arrival time if the customer has to wait. The total time in the system is the sum of the waiting time and service time.

Idle Time: Server idle time is recorded if there is a gap between the service end of one customer and the service start of the next.

Key Metrics:

*Average Time in System*: Reflects the average time customers spend from arrival to the completion of their service.

*Server Utilization*: The proportion of time the server is busy, derived from the inverse of the idle time.

Results Summary:

Customer Service Data:

The total waiting time varies across customers, indicating potential bottlenecks or variability in service efficiency.

Some customers experience significant waiting times, reflecting server downtime or high demand.

Average Time in System:

The average time in the system for customers ranges from 4.45 to 8.15 units, based on sheet 2. This indicates the variability in customer experience.

Server Utilization:

The proportion of time the server remains idle varies between 31% and 50%, suggesting room for optimization.