Here's an explanation of how the key calculations might have been done:

1. Inter-Arrival Time (Column B)

- This column records the time between the arrival of consecutive customers. It could be calculated as the difference between the arrival times of each customer. However, if you are generating this manually or randomly, these values could simply be inputs in your system simulation.

2. Arrival Time (Column C)

- The arrival time of each customer is the sum of the inter-arrival times of all previous customers.

- For instance:

- First Customer (JOJO) : Arrival time is 3 (same as inter-arrival time since they are the first customer).

- Second Customer (SARAH) : Arrival time is 3 (JOJO's arrival) + 11 (SARAH's inter-arrival) = 14.

- Third Customer (CHRISTINE) : Arrival time is 14 + 12 = 26, and so on.

3. Service Time (Minutes) (Column D)

- This is the amount of time required to serve each customer. These are likely predetermined or randomly generated service times.

4. Service Start Time (Column E)

- This indicates when the service for a customer begins. If a customer arrives after the previous customer’s service has ended, their service starts at their arrival time. If they arrive while the previous customer is being served, they must wait until the previous customer finishes service.

- For example:

- JOJO arrives at time 3, and their service starts immediately at 3.

- SARAH arrives at 14, but JOJO's service ends at 6, so SARAH's service starts immediately at 14.

5. Service End Time (Column F)

- This is the time at which a customer’s service ends. It is calculated as:

[

text{Service End Time} = text{Service Start Time} + text{Service Time}

]

- For instance:

- JOJO's service ends at ( 3 + 3 = 6 ).

- SARAH's service ends at ( 14 + 8 = 22 ).

6. Time in System (Column G)

- The total time a customer spends in the system from the time they arrive until their service is complete. It is calculated as:

[

text{Time in System} = text{Service End Time} - text{Arrival Time}

]

- For instance:

- JOJO: ( 6 - 3 = 3 )

- SARAH: ( 22 - 14 = 8 )

7. Idle Time (Column H)

- This indicates how long the server (or system) was idle before starting the next customer’s service. It is calculated as:

[

text{Idle Time} = text{Service Start Time of Current Customer} - text{Service End Time of Previous Customer}

]

- If the service for a customer begins immediately after the previous one ends, the idle time is zero. If there is a delay, the idle time is positive.

- For example:

- JOJO finishes service at time 6, and SARAH starts service at 14, so the idle time before SARAH is ( 14 - 6 = 8 ).

Summary of MY Calculations:

1. Average Time in System : This would be the average of all the "Time in System" values for the customers. In this case, it's calculated as:

[

text{Average Time in System} = frac{text{Sum of Time in System}}{text{Number of Customers}} = 5.65

]

2. Proportion of Time System is Idle: This could be the total idle time divided by the total time the system was running (including all customers). For instance, it's likely calculated as:

[

text{Proportion of Idle Time} = frac{text{Total Idle Time}}{text{Total Time in System}} = 105.38\%

]

The idle percentage over 100% suggests that there was significant downtime compared to service time.