

The simulation has one queue and one server shown in Figure 1.

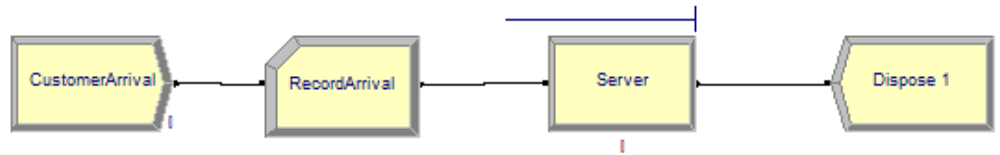


Figure 1. Arena Model

The arrival rate has a uniform distribution between 1 and 5 minutes.

Create

Name: CustomerArrival Entity Type: Entity 1

Time Between Arrivals

Type: Expression Expression: UNIF(1, 5) Units: Minutes

Entities per Arrival: 1 Max Arrivals: Infinite First Creation: 0.0

OK Cancel Help

Figure 2. Parameters for CustomerArrival

The time between arrivals was captured to confirm the arrival rate.

Record

Name: RecordArrival Type: Time Between

☐ Record into Set

Tally Name: RecordArrival

OK Cancel Help

Figure 3. Parameters for RecordArrival

The customers are served at a rate with a uniform distribution between 2 and 3 minutes.

Process

Name: Type:

Logic

Action: Priority:

Resources:

<End of list>

Add...
Edit...
Delete

Delay Type: Units: Allocation:

Minimum: Maximum:

☒ Report Statistics

OK Cancel Help

Figure 4. Parameters for Server

The customers are then served and disposed from the system.

Dispose

Name:

☒ Record Entity Statistics

OK Cancel Help

Figure 5. Parameters for Dispose 1

The simulation was run with 1 replication for 100 minutes.

The screenshot shows the 'Run Setup' dialog box with the 'Replication Parameters' tab selected. The 'Number of Replications' is set to 1. The 'Start Date and Time' is set to Wednesday, September 12, 2018, at 8:43:49 AM. The 'Warm-up Period' is 0.0, and the 'Replication Length' is 100. The 'Hours Per Day' is 24. The 'Base Time Units' are set to Minutes. The 'Time Units' for both 'Warm-up Period' and 'Replication Length' are set to Hours. The 'Terminating Condition' field is empty. The 'Initialize Between Replications' section has both 'Statistics' and 'System' checked. The 'OK' button is highlighted.

Run Speed	Run Control	Reports	Project Parameters
Replication Parameters	Array Sizes	Arena Visual Designer	

Number of Replications:

Start Date and Time:

Warm-up Period: Time Units:

Replication Length: Time Units:

Hours Per Day:

Base Time Units:

Terminating Condition:

Initialize Between Replications
☒ Statistics ☒ System

Figure 6. Replication Parameters

Summary: This ARENA model simulates a simple 1 queue, 1 server system. The customers arrive at a uniform rate from 1 to 5 minutes and they are then served at a uniform rate from 2 to 3 minutes. This model was run with 1 replication for 100 minutes. For a summary of the results please see the other homework document submitted.