Example 1:

Consider the Post-office of a small town. There is only Mr. McPhee working in the post office. It has been observed that the rate at which a letter arrives for postage follows geometric distribution with parameter 0.73. McPhee is able to stamp the letters correctly with probability 0.8. Obtain the measures of effectiveness, assuming that the situation is modeled as a $Geo/Geo/1$ queue.

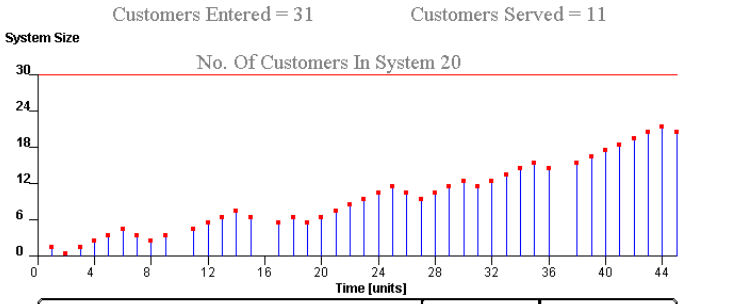
Solution:

In order to obtain the measures of effectiveness, we follow the steps as shown below:

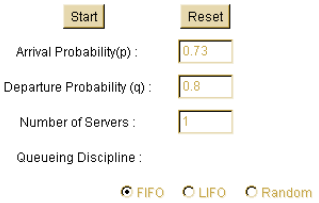
- Open the page where the experimentation is to be performed
- Feed the data as shown:

- Next, click on the **'Start'** button to obtain the desired measures of effectiveness

Discrete time single server - infinite capacity model



Performance Measures	Run Time (till t=45.0)	Steady State (Theoretical)
Mean No. of Customers in the System	9.222	N/A
Mean No. of Customers in Queue	8.244	N/A
Mean Waiting Time In Queue	11.967	N/A
Mean Sojurn Time In System	13.387	N/A
Utilisation	0.977	N/A
Throughput	0.244	N/A



Example 2:

Consider the Post-office of a small town. There is only Mr. McPhee working in the post office. It has been observed that the rate at which a letter arrives for postage follows geometric distribution with parameter 0.73. McPhee is able to stamp the letters, in a random order, correctly with probability 0.8. Obtain the measures of effectiveness, assuming that the situation is modeled as a $Geo/Geo/1$ queue.

Solution:

In order to obtain the measures of effectiveness, we follow the steps as shown below:

- Open the page where the experimentation is to be performed
- Feed the data as shown:

Discrete time single server - infinite capacity model

Start Reset

Arrival Probability(p) : 0.73

Departure Probability (q) : 0.8

Number of Servers : 1

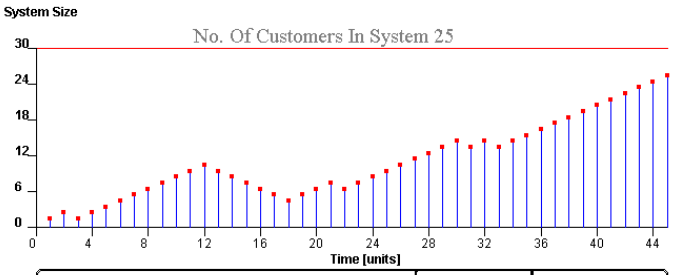
Queueing Discipline :

FIFO LIFO Random

- Next, click on the **'Start'** button to obtain the desired measures of effectiveness

Discrete time single server - infinite capacity model

Customers Entered = 35 Customers Served = 10



Performance Measures	Run Time (till t=45.0)	Steady State (Theoretical)
Mean No. of Customers in the System	10.644	N/A
Mean No. of Customers in Queue	9.644	N/A
Mean Waiting Time In Queue	12.4	N/A
Mean Sojurn Time In System	13.685	N/A
Utilisation	1.0	N/A
Throughput	0.222	N/A

Start Reset

Arrival Probability(p) : 0.73

Departure Probability (q) : 0.8

Number of Servers : 1

Queueing Discipline :

FIFO LIFO Random