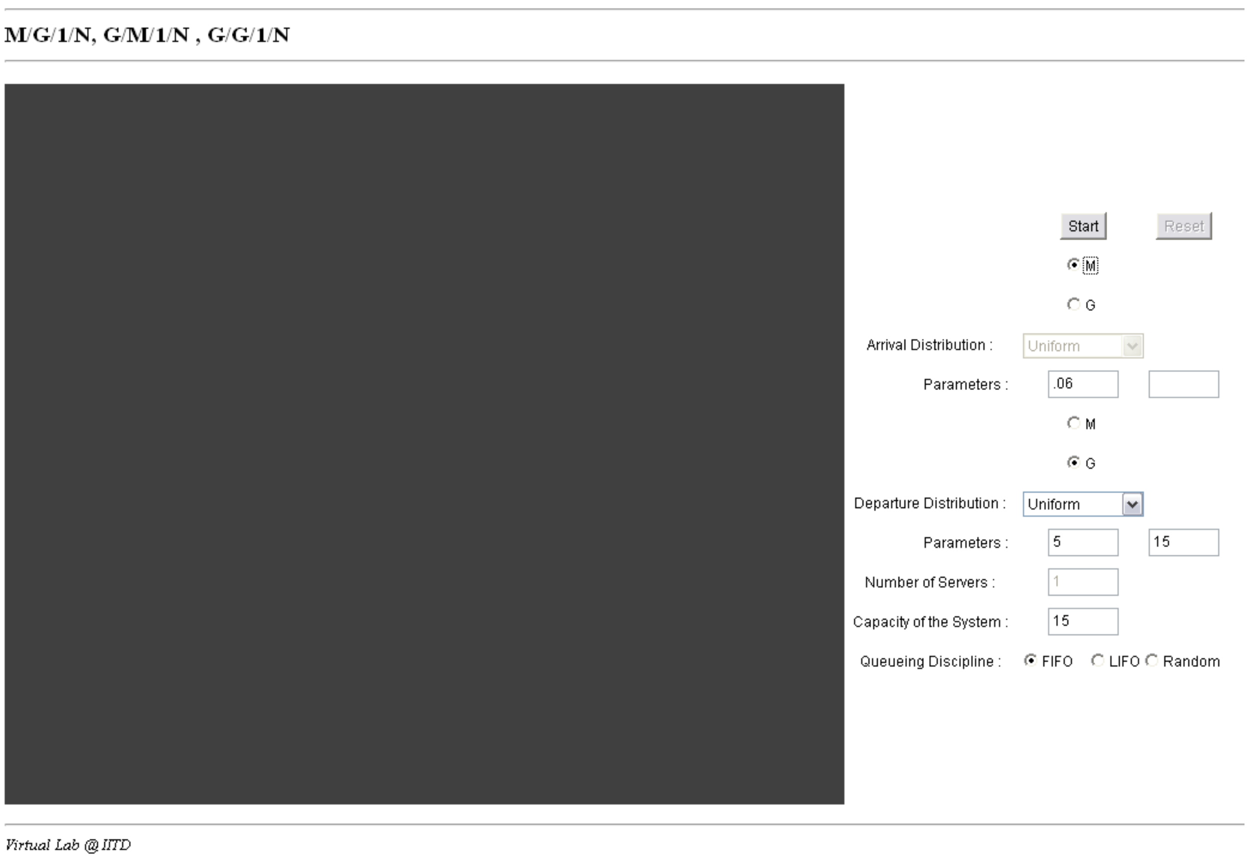
Example 1:

In a mobile handset manufacturing factory, components arrive with a Poisson distribution at the rate of 6 components per 100 seconds. Assume that the time for testing the component takes any random time from 5 to 15 seconds, per component. It is assumed that the system can accommodate at most 15 components. Determine the measures of effectiveness.

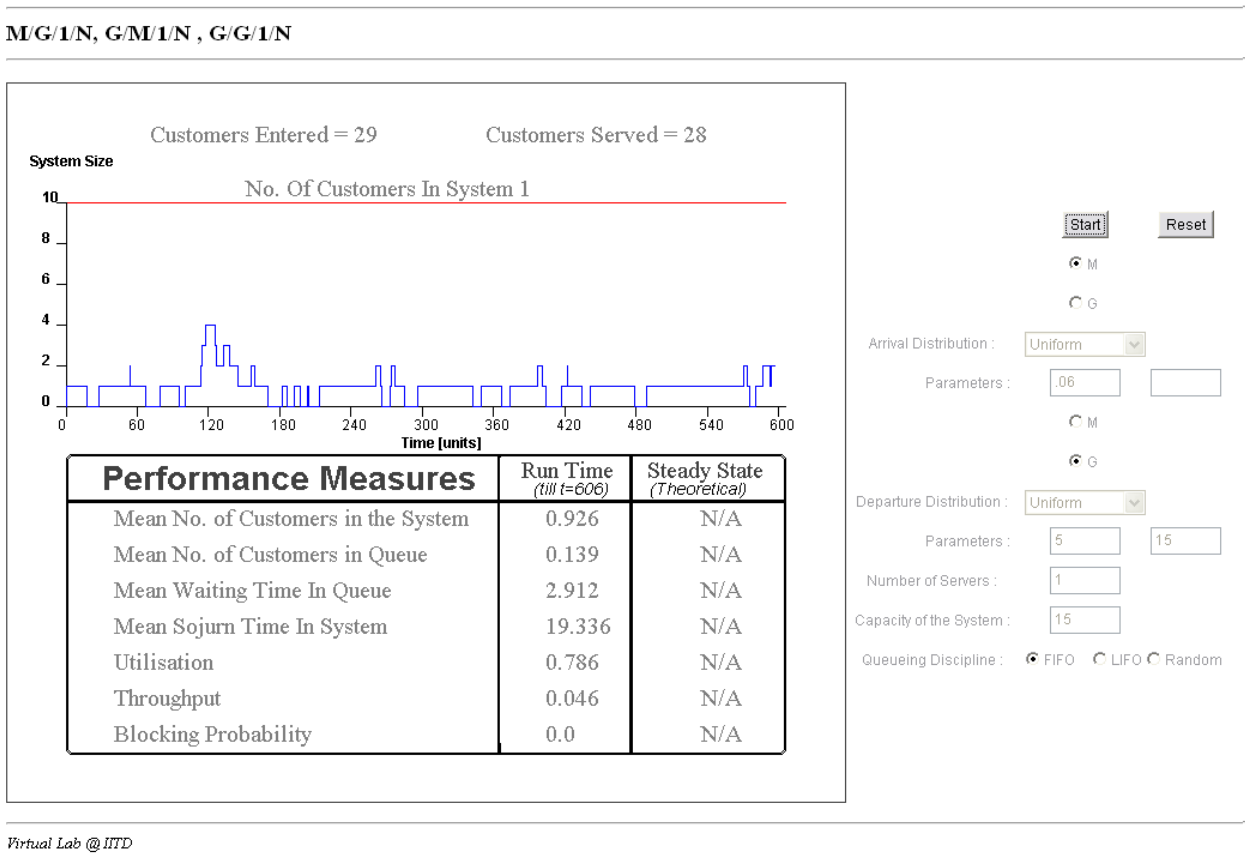
Solution:

In the given situation, the components arrive as a Poisson process with rate 0.06/sec and are processed in the time duration following uniform distribution over [5,15]. Hence the system is and $M/G/1/15$ queue. 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



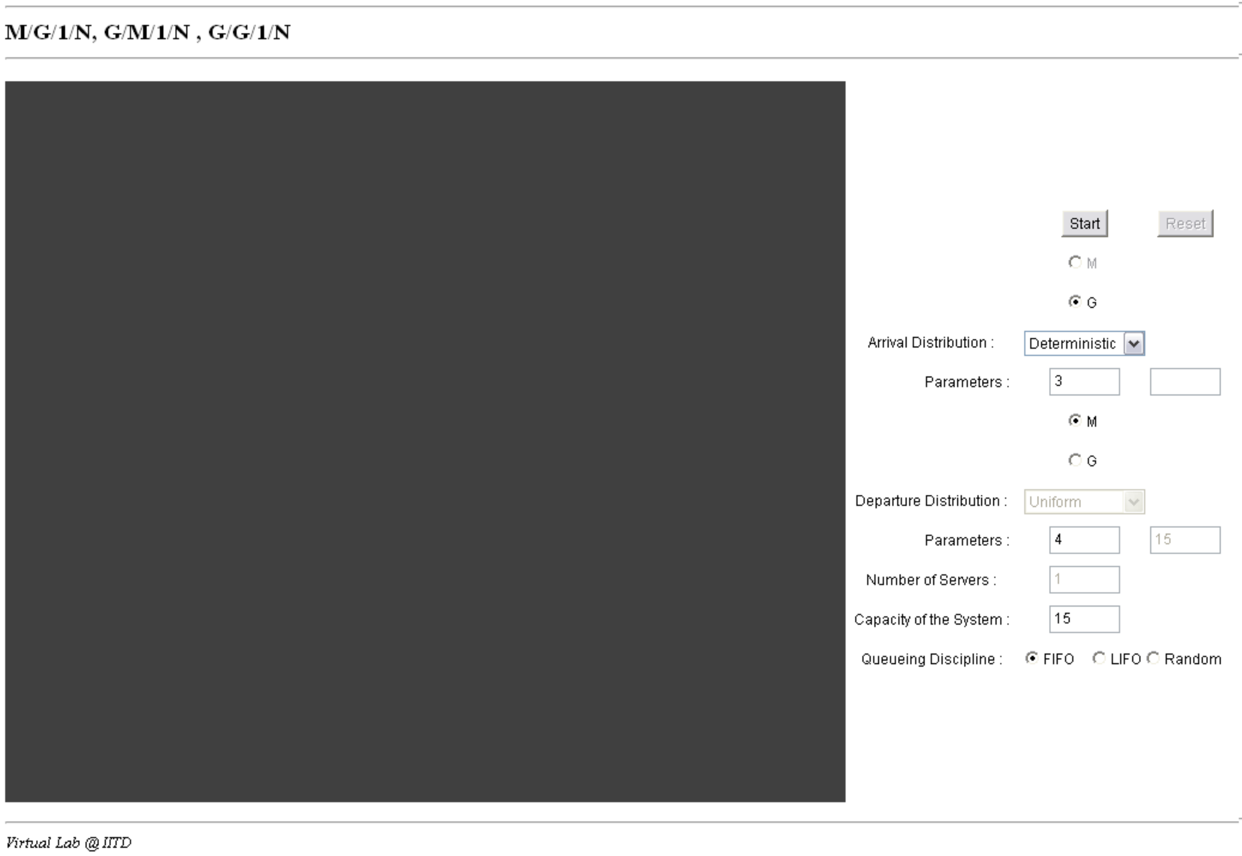
<u>Example 2:</u>

In a mobile handset manufacturing factory, a component arrives for testing every 3 seconds. It is assumed that the time for testing the component is exponentially distributed with parameter 4. It is assumed that the system can accommodate atmost 15 components. Determine the measures of effectiveness.

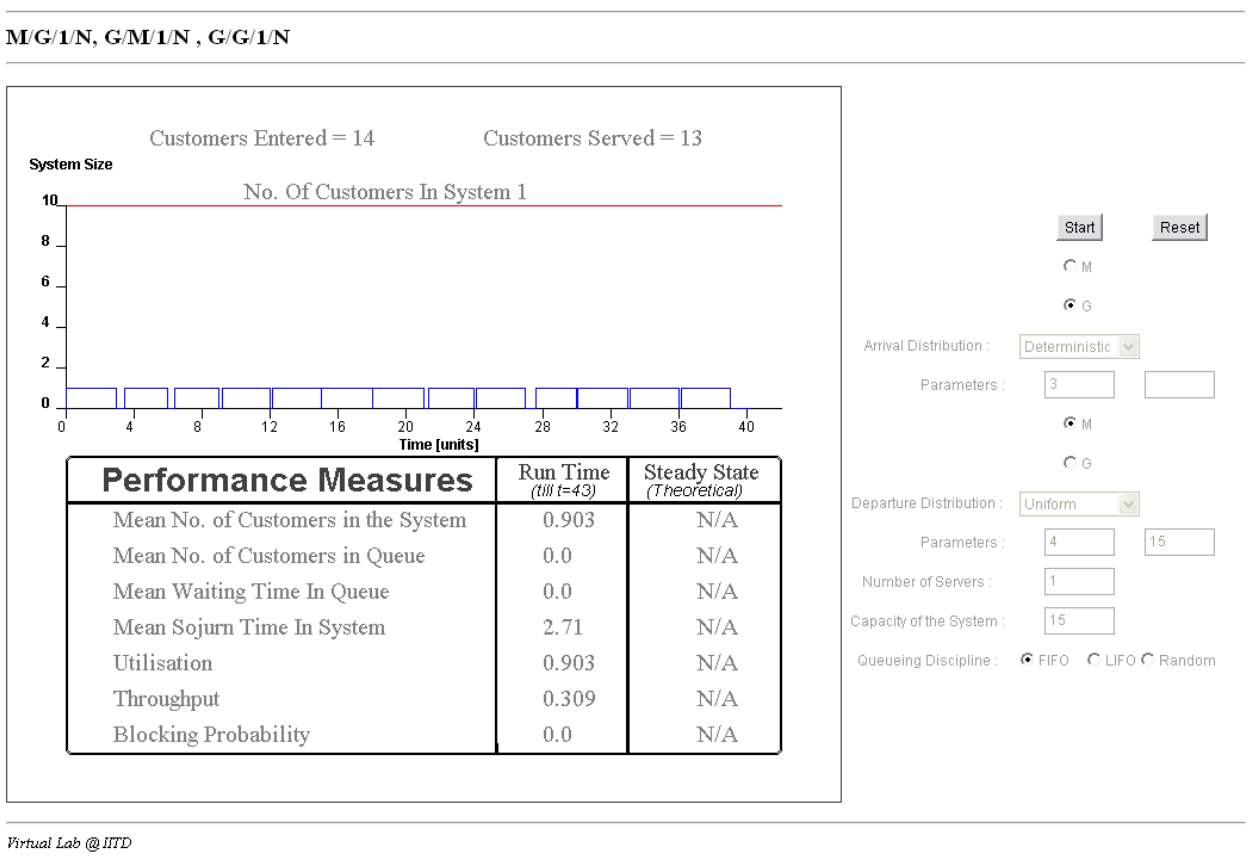
<u>Solution:</u>

In the given situation, the components arrive at a fixed time interval of 3 seconds and is tested at the rate of 4 components per second. Hence the system is and $G/M/1/15$ queue. 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



Example 3:

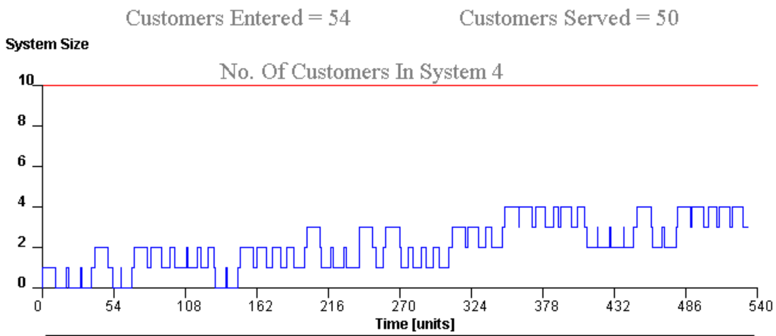
In a mobile handset manufacturing factory, a component arrives for testing every 10 mins. It is assumed that the time for testing the component takes any random time from 5 to 15 mins, per component. It is assumed that the system can accommodate atmost 15 components. Determine the measures of effectiveness.

Solution:

In the given situation, the components arrive at a fixed time interval of 10 minutes. The time for testing is uniformly distributed between 5 to 15 mins. Hence the system is and $G/G/1/15$ queue. 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



Performance Measures	Run Time (till t=541)	Steady State (Theoretical)
Mean No. of Customers in the System	2.104	N/A
Mean No. of Customers in Queue	1.206	N/A
Mean Waiting Time In Queue	12.066	N/A
Mean Sojurn Time In System	21.049	N/A
Utilisation	0.898	N/A
Throughput	0.092	N/A
Blocking Probability	0.0	N/A