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## Lampiran 1 : Hasil Output Perhitungan Data Hari Senin (4 Orang Teller)-M/M/S

### Waiting Lines Results

Senin Solution						
Parameter	Value		Parameter	Value	Minutes	Seconds
M/M/s			Average server utilization	0.059722		
Arrival rate( $\lambda$ )	14.33333		Average number in the queue( $L_q$ )	0.000007		
Service rate( $\mu$ )	60		Average number in the system( $L_s$ )	0.238896		
Number of servers	4		Average time in the queue( $W_q$ )	0.000001	0.00003	0.001813
			Average time in the system( $W_s$ )	0.016667	1.00003	60.00181

### Table of Probabilities

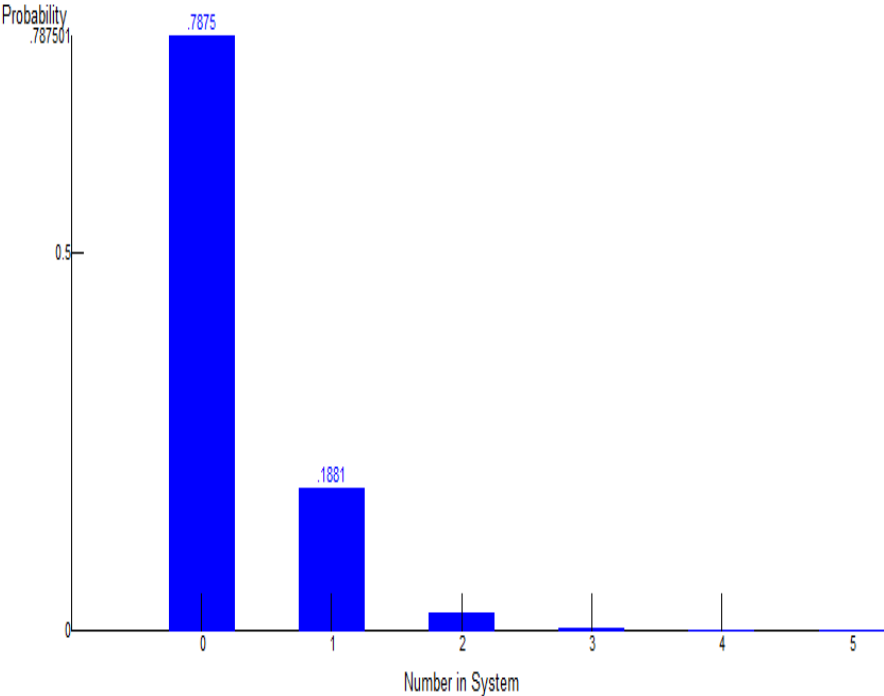
Senin Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq k$ )	Prob (num in sys $> k$ )
0	0.787501	0.787501	0.212499
1	0.188125	0.975627	0.024373
2	0.022471	0.998097	0.001903
3	0.001789	0.999886	0.000114
4	0.000107	0.999993	0.000007
5	0.000006	1	0

### Sensitivity to num servers

Senin Solution					
	1	2	3	4	5
Average server utilization	0.238889	0.119444	0.07963	0.059722	0.047778
Average number in the queue( $L_q$ )	0.07498	0.003458	0.000168	0.000007	0
Average number in the system( $L_s$ )	0.313869	0.242346	0.239057	0.238896	0.238889
Average time in the queue( $W_q$ )	0.005231	0.000241	0.000012	0.000001	0
Average time in the system( $W_s$ )	0.021898	0.016908	0.016678	0.016667	0.016667

# Graphs of Probabilities

Senin  
Probabilities  $P(N = k)$



**Lampiran 2 : Hasil Output Perhitungan Data Hari Selasa (4 Orang Teller)-M/M/S**

**Waiting Lines Results**

Selasa Solution						
Parameter	Value		Parameter	Value	Minutes	Seconds
M/M/s			Average server utilization	0.064815		
Arrival rate( $\lambda$ )	15.55556		Average number in the queue( $L_q$ )	0.000011		
Service rate( $\mu$ )	60		Average number in the system( $L_s$ )	0.25927		
Number of servers	4		Average time in the queue( $W_q$ )	0.000001	0.000042	0.002491
			Average time in the system( $W_s$ )	0.016667	1.000041	60.00249

**Table of Probabilities**

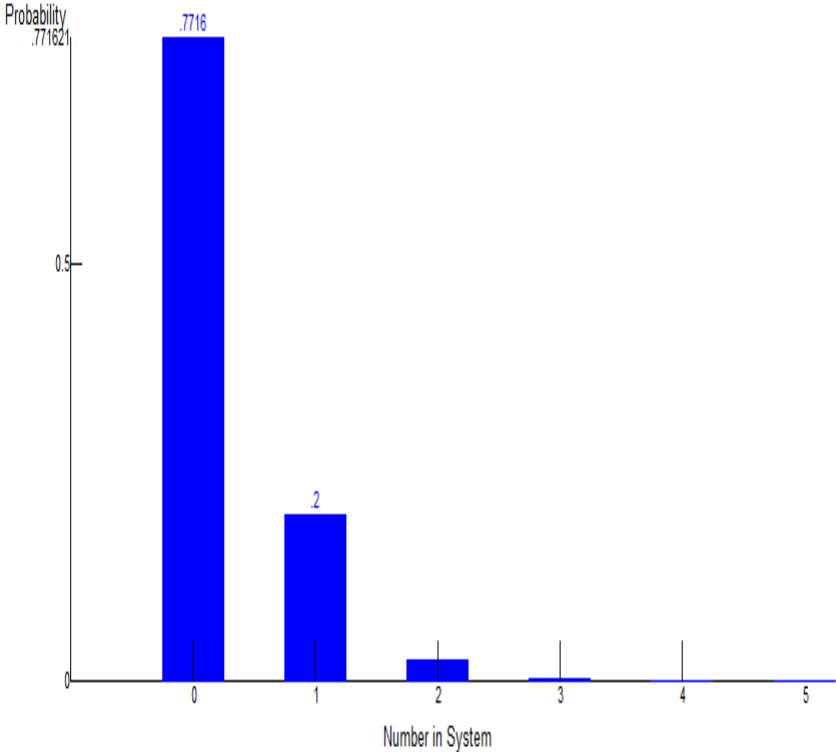
Selasa Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq$ k)	Prob (num in sys $>$ k)
0	0.771621	0.771621	0.228379
1	0.20005	0.971671	0.028329
2	0.025932	0.997604	0.002397
3	0.002241	0.999845	0.000155
4	0.000145	0.99999	0.00001
5	0.000009	1	0.000001

**Sensitivity to num servers**

Selasa Solution					
	1	2	3	4	5
Average server utilization	0.259259	0.12963	0.08642	0.064815	0.051852
Average number in the queue( $L_q$ )	0.090741	0.004431	0.000232	0.000011	0
Average number in the system( $L_s$ )	0.35	0.26369	0.259491	0.25927	0.25926
Average time in the queue( $W_q$ )	0.005833	0.000285	0.000015	0.000001	0
Average time in the system( $W_s$ )	0.0225	0.016952	0.016682	0.016667	0.016667

# Graphs of Probabilities

Selasa  
Probabilities  $P(N = k)$



**Lampiran 3 : Hasil Output Perhitungan Data Hari Rabu (4 Orang Teller)-M/M/S**

**Waiting Lines Results**

Rabu Solution						
Parameter	Value		Parameter	Value	Minutes	Seconds
M/M/s			Average server utilization	0.065509		
Arrival rate( $\lambda$ )	15.72222		Average number in the queue( $L_q$ )	0.000011		
Service rate( $\mu$ )	60		Average number in the system( $L_s$ )	0.262048		
Number of servers	4		Average time in the queue( $W_q$ )	0.000001	0.000043	0.002596
			Average time in the system( $W_s$ )	0.016667	1.000043	60.00259

**Table of Probabilities**

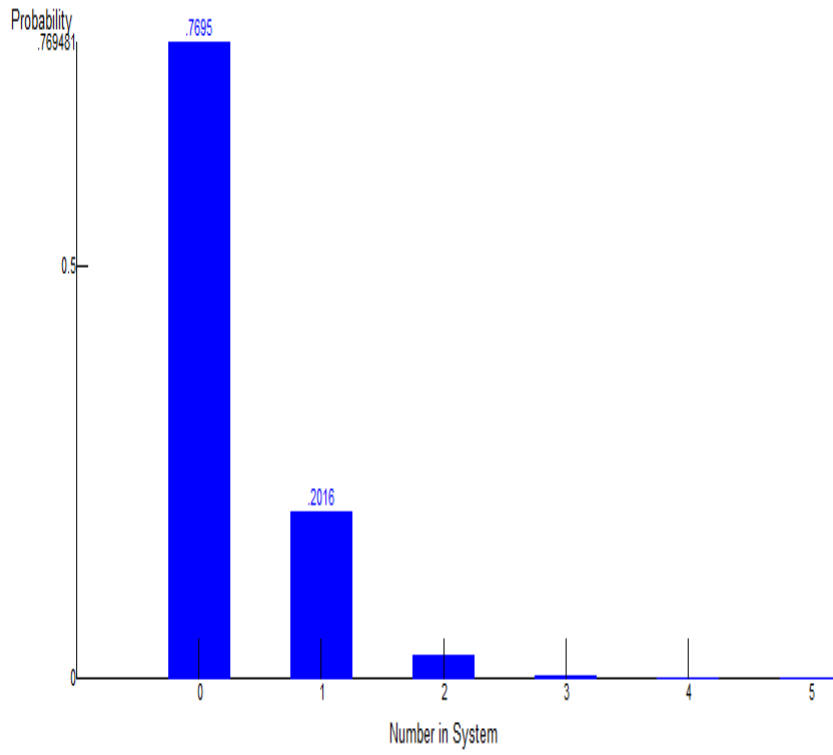
Rabu Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq k$ )	Prob (num in sys $> k$ )
0	0.769481	0.769481	0.230519
1	0.201633	0.971113	0.028887
2	0.026418	0.997531	0.002469
3	0.002307	0.999838	0.000162
4	0.000151	0.99999	0.00001
5	0.00001	1	0.000001

**Sensitivity to num servers**

Rabu Solution					
	1	2	3	4	5
Average server utilization	0.262037	0.131019	0.087346	0.065509	0.052407
Average number in the queue( $L_q$ )	0.093045	0.004577	0.000242	0.000011	0
Average number in the system( $L_s$ )	0.355082	0.266614	0.262279	0.262048	0.262038
Average time in the queue( $W_q$ )	0.005918	0.000291	0.000015	0.000001	0
Average time in the system( $W_s$ )	0.022585	0.016958	0.016682	0.016667	0.016667

# Graphs Of Probabilities

Rabu  
Probabilities  $P(N = k)$





## Lampiran 4 : Hasil Output Perhitungan Data Hari Kamis (4 Orang Teller)-M/M/S

### Waiting Lines Results

Kamis Solution						
Parameter	Value		Parameter	Value	Minutes	Seconds
M/M/s			Average server utilization	0.059954		
Arrival rate( $\lambda$ )	14.38889		Average number in the queue( $L_q$ )	0.000007		
Service rate( $\mu$ )	60		Average number in the system( $L_s$ )	0.239822		
Number of servers	4		Average time in the queue( $W_q$ )	0.000001	0.000031	0.00184
			Average time in the system( $W_s$ )	0.016667	1.000031	60.00184

### Table of Probabilities

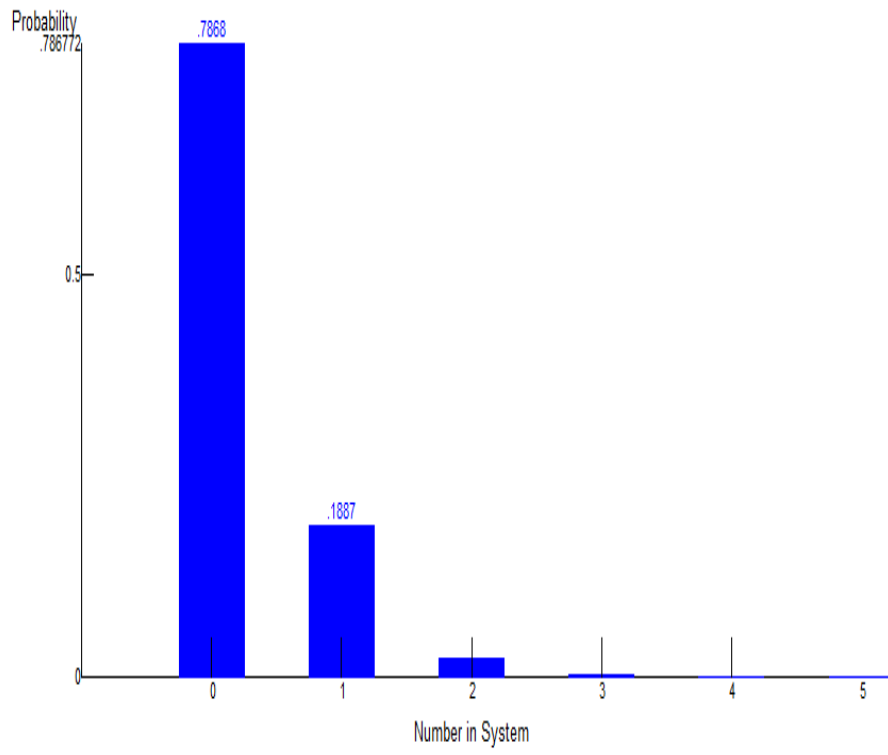
Kamis Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq$ k)	Prob (num in sys $>$ k)
0	0.786772	0.786772	0.213228
1	0.18868	0.975452	0.024548
2	0.022624	0.998076	0.001924
3	0.001809	0.999885	0.000115
4	0.000108	0.999993	0.000007
5	0.000007	1	0

### Sensitivity to num servers

Kamis Solution					
	1	2	3	4	5
Average server utilization	0.239815	0.119907	0.079938	0.059954	0.047963
Average number in the queue( $L_q$ )	0.075654	0.003498	0.000171	0.000007	0
Average number in the system( $L_s$ )	0.315469	0.243313	0.239986	0.239822	0.239815
Average time in the queue( $W_q$ )	0.005258	0.000243	0.000012	0.000001	0
Average time in the system( $W_s$ )	0.021924	0.01691	0.016679	0.016667	0.016667

# Graphs of Probabilities

Kamis  
Probabilities  $P(N = k)$



## Lampiran 5 : Hasil Output Perhitungan Data Hari Jum'at (4 Orang Teller)-M/M/S

### Waiting Lines Results

Jum'at Solution						
Parameter	Value		Parameter	Value	Minutes	Seconds
M/M/s			Average server utilization	0.065278		
Arrival rate( $\lambda$ )	15.66667		Average number in the queue( $L_q$ )	0.000011		
Service rate( $\mu$ )	60		Average number in the system( $L_s$ )	0.261122		
Number of servers	4		Average time in the queue( $W_q$ )	0.000001	0.000043	0.002561
			Average time in the system( $W_s$ )	0.016667	1.000043	60.00256

### Table of Probabilities

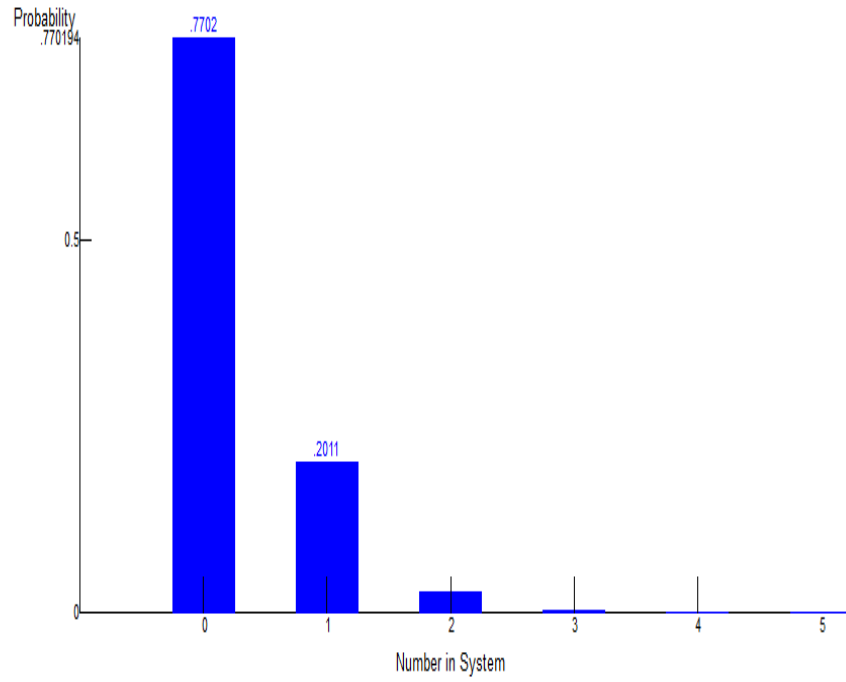
Jum'at Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq k$ )	Prob (num in sys $> k$ )
0	0.770194	0.770194	0.229806
1	0.201106	0.9713	0.0287
2	0.026256	0.997555	0.002445
3	0.002285	0.999841	0.00016
4	0.000149	0.99999	0.00001
5	0.00001	1	0.000001

### Sensitivity to num servers

Jum'at Solution					
	1	2	3	4	5
Average server utilization	0.261111	0.13056	0.087037	0.065278	0.052222
Average number in the queue( $L_q$ )	0.092272	0.00453	0.000239	0.000011	0
Average number in the system( $L_s$ )	0.353384	0.26564	0.26135	0.261122	0.261112
Average time in the queue( $W_q$ )	0.00589	0.00029	0.000015	0.000001	0
Average time in the system( $W_s$ )	0.022556	0.01696	0.016682	0.016667	0.016667

# Graphs of Probabilities

Jum'at  
Probabilities  $P(N = k)$



## Lampiran 6 : Hasil Output Perhitungan Data Hari Senin (3 Orang Teller)-M/M/S

### Waiting Lines Results

Senin Solution					
Parameter	Value	Parameter	Value	Minutes	Seconds
M/M/s		Average server utilization	0.07963		
Arrival rate( $\lambda$ )	14.33333	Average number in the queue( $L_q$ )	0.000168		
Service rate( $\mu$ )	60	Average number in the system( $L_s$ )	0.239057		
Number of servers	3	Average time in the queue( $W_q$ )	0.000012	0.000704	0.042245
		Average time in the system( $W_s$ )	0.016678	1.000704	60.04224

### Table of Probabilities

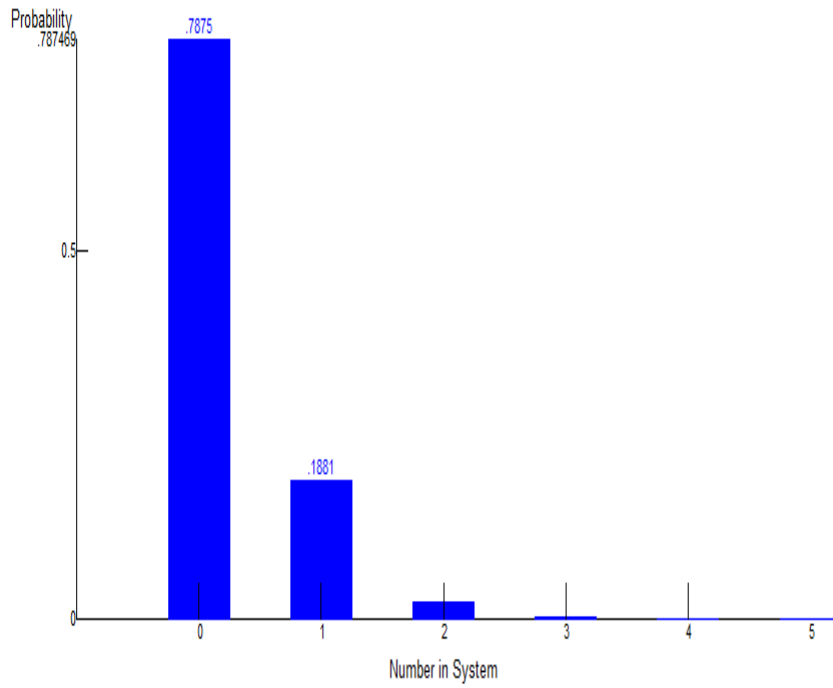
Senin Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq$ k)	Prob (num in sys $>$ k)
0	0.787469	0.787469	0.212531
1	0.188118	0.975586	0.024414
2	0.02247	0.998056	0.001944
3	0.001789	0.999845	0.000155
4	0.000142	0.999988	0.000012
5	0.000011	1	0.000001

### Sensitivity to num servers

Senin Solution					
	1	2	3	4	5
Average server utilization	0.238889	0.119444	0.07963	0.059722	0.047778
Average number in the queue( $L_q$ )	0.07498	0.003458	0.000168	0.000007	0
Average number in the system( $L_s$ )	0.313869	0.242346	0.239057	0.238896	0.238889
Average time in the queue( $W_q$ )	0.005231	0.000241	0.000012	0.000001	0
Average time in the system( $W_s$ )	0.021898	0.016908	0.016678	0.016667	0.016667

## Graphs of Probabilities

Senin  
Probabilities  $P(N = k)$



## Lampiran 7 : Hasil Output Perhitungan Data Hari Selasa (3 Orang Teller)-M/M/S

### Waiting Lines Results

Selasa Solution					
Parameter	Value	Parameter	Value	Minutes	Seconds
M/M/s		Average server utilization	0.08642		
Arrival rate( $\lambda$ )	15.55556	Average number in the queue( $L_q$ )	0.000232		
Service rate( $\mu$ )	60	Average number in the system( $L_s$ )	0.259491		
Number of servers	3	Average time in the queue( $W_q$ )	0.000015	0.000895	0.053699
		Average time in the system( $W_s$ )	0.016682	1.000895	60.0537

### Table of Probabilities

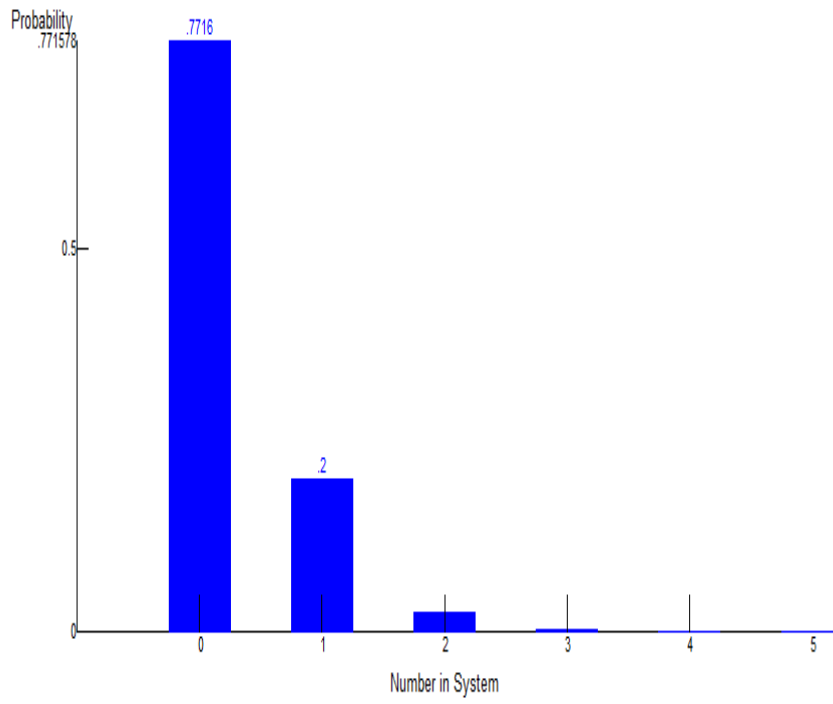
Selasa Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq$ k)	Prob (num in sys $>$ k)
0	0.771578	0.771578	0.228423
1	0.200039	0.971616	0.028384
2	0.025931	0.997547	0.002453
3	0.002241	0.999788	0.000212
4	0.000194	0.999982	0.000018
5	0.000017	0.999999	0.000002

### Sensitivity to num servers

Selasa Solution					
	1	2	3	4	5
Average server utilization	0.259259	0.12963	0.08642	0.064815	0.051852
Average number in the queue( $L_q$ )	0.090741	0.004431	0.000232	0.000011	0
Average number in the system( $L_s$ )	0.35	0.26369	0.259491	0.25927	0.25926
Average time in the queue( $W_q$ )	0.005833	0.000285	0.000015	0.000001	0
Average time in the system( $W_s$ )	0.0225	0.016952	0.016682	0.016667	0.016667

## Graphs of Probabilities

Selasa  
Probabilities  $P(N = k)$





## Lampiran 8 : Hasil Output Perhitungan Data Hari Rabu (3 Orang Teller)-M/M/S

### Waiting Lines Results

Rabu Solution						
Parameter	Value		Parameter	Value	Minutes	Seconds
M/M/s			Average server utilization	0.087346		
Arrival rate( $\lambda$ )	15.72222		Average number in the queue( $L_q$ )	0.000242		
Service rate( $\mu$ )	60		Average number in the system( $L_s$ )	0.262279		
Number of servers	3		Average time in the queue( $W_q$ )	0.000015	0.000923	0.055402
			Average time in the system( $W_s$ )	0.016682	1.000923	60.0554

### Table of Probabilities

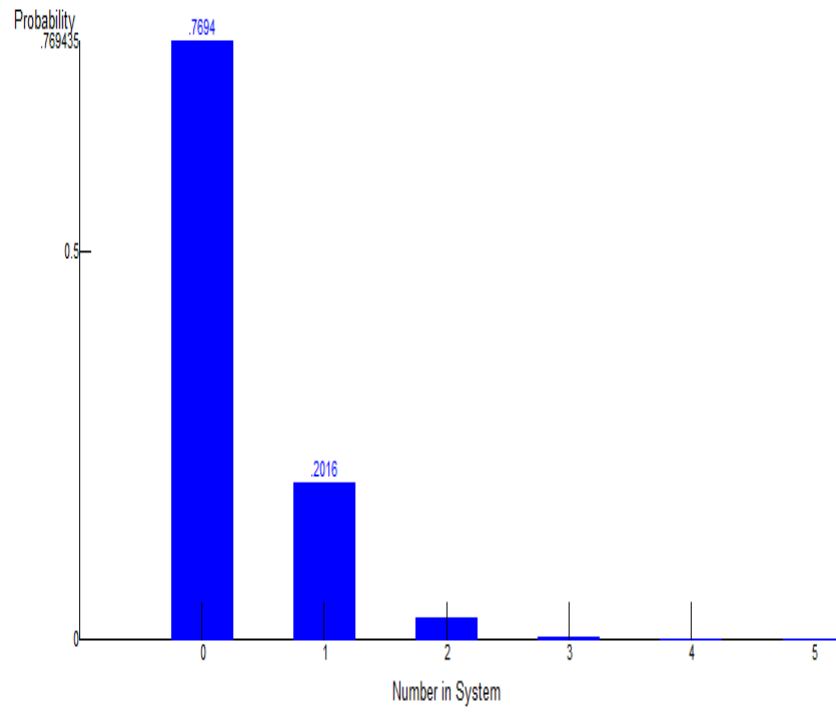
Rabu Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq$ k)	Prob (num in sys $>$ k)
0	0.769435	0.769435	0.230565
1	0.201621	0.971056	0.028944
2	0.026416	0.997472	0.002528
3	0.002307	0.999779	0.000221
4	0.000202	0.999981	0.000019
5	0.000018	0.999998	0.000002

### Sensitivity to num servers

Rabu Solution					
	1	2	3	4	5
Average server utilization	0.262037	0.131019	0.087346	0.065509	0.052407
Average number in the queue( $L_q$ )	0.093045	0.004577	0.000242	0.000011	0
Average number in the system( $L_s$ )	0.355082	0.266614	0.262279	0.262048	0.262038
Average time in the queue( $W_q$ )	0.005918	0.000291	0.000015	0.000001	0
Average time in the system( $W_s$ )	0.022585	0.016958	0.016682	0.016667	0.016667

## Graphs of Probabilities

Rabu  
Probabilities  $P(N = k)$



## Lampiran 9 : Hasil Output Perhitungan Data Hari Kamis (3 Orang Teller)-M/M/S

### Waiting Lines Results

Kamis Solution						
Parameter	Value		Parameter	Value	Minutes	Seconds
M/M/s			Average server utilization	0.079938		
Arrival rate( $\lambda$ )	14.38889		Average number in the queue( $L_q$ )	0.000171		
Service rate( $\mu$ )	60		Average number in the system( $L_s$ )	0.239986		
Number of servers	3		Average time in the queue( $W_q$ )	0.000012	0.000712	0.042727
			Average time in the system( $W_s$ )	0.016679	1.000712	60.04273

### Table of Probabilities

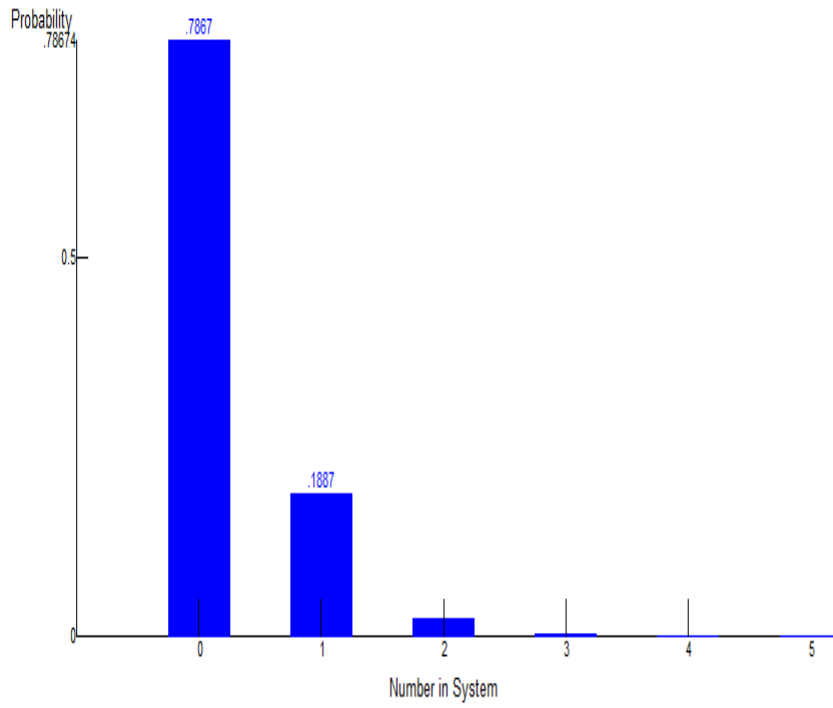
Kamis Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq$ k)	Prob (num in sys $>$ k)
0	0.78674	0.78674	0.213261
1	0.188672	0.975411	0.024589
2	0.022623	0.998034	0.001966
3	0.001808	0.999843	0.000157
4	0.000145	0.999987	0.000013
5	0.000012	0.999999	0.000001

### Sensitivity to num servers

Kamis Solution					
	1	2	3	4	5
Average server utilization	0.239815	0.119907	0.079938	0.059954	0.047963
Average number in the queue( $L_q$ )	0.075654	0.003498	0.000171	0.000007	0
Average number in the system( $L_s$ )	0.315469	0.243313	0.239986	0.239822	0.239815
Average time in the queue( $W_q$ )	0.005258	0.000243	0.000012	0.000001	0
Average time in the system( $W_s$ )	0.021924	0.01691	0.016679	0.016667	0.016667

## Graphs of Probabilities

Kamis  
Probabilities  $P(N = k)$



**Lampiran 10 : Hasil Output Perhitungan Data Hari Jum'at (3 Orang Teller)-M/M/S**

**Waiting Lines Results**

Jum'at Solution					
Parameter	Value	Parameter	Value	Minutes	Seconds
M/M/s		Average server utilization	0.087037		
Arrival rate( $\lambda$ )	15.66667	Average number in the queue( $L_q$ )	0.000239		
Service rate( $\mu$ )	60	Average number in the system( $L_s$ )	0.26135		
Number of servers	3	Average time in the queue( $W_q$ )	0.000015	0.000914	0.054831
		Average time in the system( $W_s$ )	0.016682	1.000914	60.05483

**Table of Probabilities**

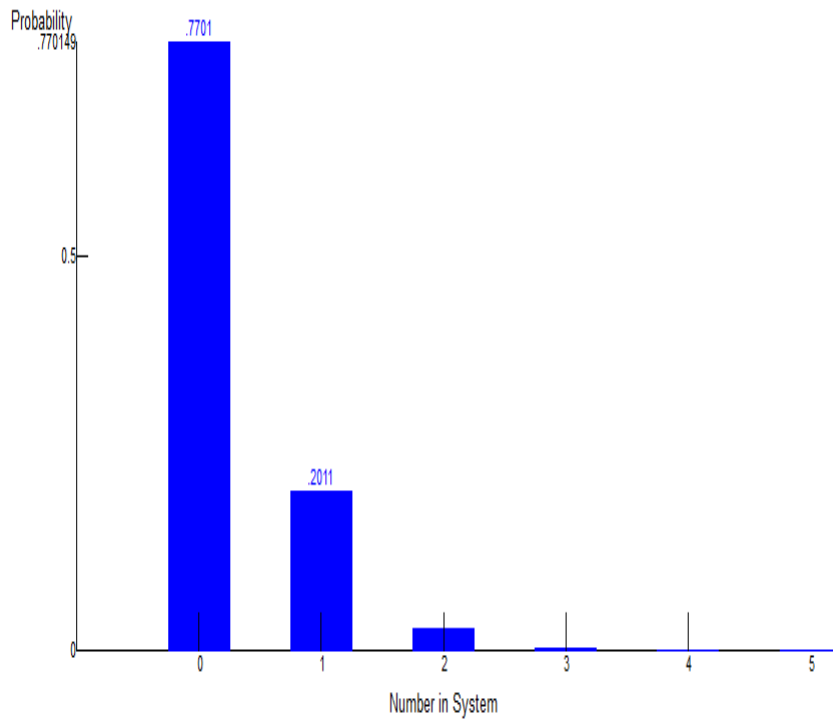
Jum'at Solution			
k	Prob (num in sys = k)	Prob (num in sys $\leq$ k)	Prob (num in sys $>$ k)
0	0.770149	0.770149	0.229851
1	0.201094	0.971243	0.028757
2	0.026254	0.997497	0.002503
3	0.002285	0.999782	0.000218
4	0.000199	0.999981	0.000019
5	0.000017	0.999998	0.000002

**Sensitivity to num servers**

Jum'at Solution					
	1	2	3	4	5
Average server utilization	0.261111	0.130556	0.087037	0.065278	0.052222
Average number in the queue( $L_q$ )	0.092272	0.004528	0.000239	0.000011	0
Average number in the system( $L_s$ )	0.353384	0.265639	0.26135	0.261122	0.261112
Average time in the queue( $W_q$ )	0.00589	0.000289	0.000015	0.000001	0
Average time in the system( $W_s$ )	0.022556	0.016956	0.016682	0.016667	0.016667

## Graphs of Probabilities

Jum'at  
Probabilities  $P(N = k)$



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## Pendidikan Formal

SDN Manggarai 09 PG : Lulus Tahun 2009  
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